

UPPER MISSISSIPPI RIVER

NARRATIVE REPORT

JANUARY - DECEMBER 1965

NARRATIVE REPORT
UPPER MISSISSIPPI RIVER NATIONAL WILDLIFE REFUGE
WINONA OFFICE
JANUARY - DECEMBER, 1965

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

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REFUGE PERSONNEL

Donald V. Gray	Refuge Manager
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Kenneth Krumm	Refuge Manager
Bartlett W. Foster	Biological Technician
Duncan E. Green	Maintenanceman
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Phyllis Knudsen	Clerk-Stenographer (temporary)
(e.o.d. 7/1/65; term. 8/27/65)	
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John Watembach	Laborer - WAE

Harvey A. Neilson	Refuge Manager, Winona District
(retired 12/30/65)	
William C. Bair	Refuge Manager, Winona District
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Eric B. Lawson	Refuge Manager, La Crosse District
Thomas J. Charmley	Refuge Manager, Lansing District
Joseph Kotok	Refuge Manager, Prairie du Chien District
(trnsfr 9/8/65)	
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(e.o.d. 9/5/65)	
(Vacant since Bair transfer)	Refuge Manager, Cassville District
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1965 Summer Student Staff

Erik J. Peterson	Wildlife Aid GS-5	Winona District
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James H. Schrier	Laborer	La Crosse District
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Gary J. Laib	Laborer	Cassville District
Stephen C. White	Laborer	Savanna District

Each District Manager has prepared his own report for his District. Manager Kotok prepared a rough draft of the Prairie du Chien District report up to the date of transfer which was of considerable aid to Manager Wright.

C O N T E N T S

Page

I.	General	
A.	Weather Conditions.....	I-1
B.	Habitat Conditions.....	I-1
1.	Water.....	I-1
2.	Food and Cover.....	I-1
II.	Wildlife	
A.	Migratory Birds.....	II-1
B.	Upland Game Birds.....	II-5
C.	Big Game Animals.....	II-5
D.	Fur Animals, Predators, Rodents, and Other Mammals.....	II-6
E.	Hawks, Eagles, Owls, Crows, Ravens, and Magpies.....	II-7
F.	Other Birds.....	II-9
G.	Fish.....	II-9
H.	Reptiles.....	II-9
I.	Disease.....	II-9
III.	Refuge Development and Maintenance	
A.	Physical Development.....	III-1
B.	Plantings.....	III-3
C.	Collections and Receipts.....	III-3
D.	Control of Vegetation.....	III-3
E.	Planned Burning.....	III-3
F.	Fires.....	III-3
IV.	Resource Management	
A.	Grazing.....	IV-1
B.	Haying.....	IV-1
C.	Fur Harvest.....	IV-1
D.	Timber Removal.....	IV-2
E.	Commercial Fishing.....	IV-2
F.	Other Uses.....	IV-2
V.	Field Investigation or Applied Research	
A.	Banding.....	V-1
B.	Audubon Christmas Count....	V-1
C.	Mid-winter Waterfowl Count.....	V-2
D.	Wood duck Roost Flight Phenomena.....	V-3
E.	
VI.	Public Relations	
A.	Recreational Uses.....	VI-1
B.	Refuge Visitors.....	VI-4
C.	Refuge Participation.....	VI-6
D.	Hunting.....	VI-10
E.	Violations.....	VI-10
VII.	Other Items	
A.	Items of Interest.....	VII-1
B.	Photographs.....	
C.	Signature.....	

I. GENERAL

- A. Weather Conditions: Weatherwise, the 1965 season was one of extremes in the upper Mississippi River valley, with unusually heavy spring snowfall in the watershed, the highest spring flood levels on record, near record rainfall in most areas, and temperatures generally lower than normal. Refuge districts generally reported heavier than normal precipitation during the late winter and early spring months, a period of severe storms in May, a dry early fall, and unusually heavy rainfall again in November and December. Total precipitation ranged from 38.70 in the northernmost refuge district at Winona to a maximum of 61.42 in the central sector at Cassville, Wisconsin, and to 50.79 in the southern Savanna, Illinois District. All precipitation figures represented above normal averages for these areas of the refuge. Minimum winter temperatures varied from -31° in the northern refuge reaches at La Crosse to -15° at Savanna; and maximum summer temperatures varied from 99° at La Crosse in July to 94° at Savanna that month.
- B. Habitat Conditions
1. Water: Water levels rose to record all-time heights in all sectors of the refuge during the spring overflow of 1965. A combination of deep freezing of the soil, heavy spring snowfall and a sudden melt, precipitated by torrential spring rains over the Upper Mississippi watershed resulted in the greatest deluge in the recorded history of the upper river. Water levels and stream flow were generally above average throughout much of the summer, and with the return of heavy rains in late fall, were above normal at the time of the general freezeup of the channel in December. Water level details will be found in the district reports. The various pictures illustrate the immensity of the spring deluge. \$258,000 in flood damage repair funds have been allocated to this refuge.
 2. Food and Cover: While the severe flooding and higher than normal water levels affected emergent or submergent aquatic growth in some local areas, generally lush vegetative conditions and an abundance of waterfowl foods were prevalent over most of the marshes. Lotus and water lily beds showed little effects. In general, where aquatics were thinned or eradicated in local areas, they appeared to become established in other zones. Feeding conditions over the river bottoms for waterfowl and other wildlife were generally considered satisfactory. Some of the refuge agricultural tracts could not be seeded or planted in time for satisfactory maturing of domestic crops. However, food and cover conditions were generally considered good over the entire refuge.

II. WILDLIFE

A. Migratory Birds

1. Waterfowl

DUCKS: January and February duck populations varied between one and two thousand birds; principally mallards, goldeneyes, and mergansers. The spring push began the first week in March with an influx of divers and a few new mallards. Populations rose gradually; puddle ducks appearing in numbers the week ending April 3 when the duck population was estimated at 50,000. During the next two weeks, 168,000 and 179,000 ducks were estimated present. During the last two weeks of April, birds were departing the river and populations declined to approximately 80,000 at the end of April. By the middle of May, the population had stabilized at approximately 7,400 ducks. Production was estimated at 10,200 ducklings; principally wood ducks, with lesser numbers of mallard and a few blue-wings.

Blue-wings began the fall parade to the sunny south when their numbers began building up the week ending July 31. Pintails put in their appearance the first week in August, and baldpates first appeared the week ending August 28. In the meantime, mallards, blacks, and woodies were gradually building up. By the end of August, approximately 33,000 birds were present.

Populations built up gradually during the fall, and an estimated 197,000 birds were present the last week of October. By the week ending December 4, numbers had fallen off to about 38,000, and these birds tarried to enjoy our rather open and mild December weather. The last week of December took a turn for the worse, and the year closed with about 24,000 birds present.

Detailed waterfowl data for 1965 is presented on tables No. 1 through 12.

GEESE: The Canada Goose spring peak totalled 2,550 with 2,500 in the Savanna District the week ending March 27. The summer nesting population was 59, resulting from propagation projects. The fall peak was 1,643. Sizeable observations included 1,100 in the La Crosse District in November and 500 in the Savanna District the end of September. Snow and blue goose use is minor with peaks of less than 500. White-front observations are only occasional. This year 27 were noted in the Savanna District October 2. Complete goose data for the year will be found on Tables 13 through 15.

COOT and GALLINULES: Coot appeared throughout the refuge the week ending April 3. Spring peak was estimated at 98,000, summer resident population at 425, and fall peak at approximately 170,000.

the week ending October 30. Tables 16 through 18 show details of coot populations. Common gallinules were present during July through September and peaked at an estimated 600.

RAILS: Soras are common in the northern half of the refuge, with perhaps the largest concentrations being found in the La Crosse District with a peak estimate in mid-September of 6,000. No other species were recorded in 1965.

SWANS: The spring migration peak population of whistling swans was estimated at approximately 1,600, and the fall peak on their return trip was tabbed at 132. Majority of the swan use is on the northernmost Winona District. See Tables 19 and 20 for details.

Five and ten-year average comparisons for peak numbers and days use of the refuge by ducks, Canada geese, coot and swan will be found on Tables 21 through 24.

2. Other Water Birds

EGRETS: The first American egret arrived the last week of March. Ten nesting colonies with 515 nests produced an estimated 740 young. Peak population was estimated at 1,675. The last observations occurred the week ending November 6. Two cattle egrets were noted in a grazing meadow on the outskirts of Winona for approximately a week in mid-May, a first record for this area.

HERONS: Our few foolish year-around resident great blues were joined by their kin the last week in March. The high was estimated at 6,125. Twelve colonies with 1,625 nests produced an estimated 1,690 young. By mid-November, the majority had observed the calendar and elements and reached the decision us humans haven't sense enough to fathom out--namely, HEAD SOUTH!

Little green herons appeared two weeks behind the great blues, reached a high of 1,590, and were last observed the week ending November 6. Black crowns appeared with the little greens, peaked at about 270, and were last seen the week ending October 30. Yellow-crowned night herons appeared the first week of May and were last seen the week ending October 23, a rather rare bird with perhaps 60 utilizing the refuge during the summer.

BITTERNS: An estimated 200 least bitterns utilized the northern half of the refuge in 1965 with the majority in the La Crosse District. The call of the slough pumper (American bittern) appears to becoming a rarity along the river--perhaps 50 utilizing the refuge in 1965.

GREBES: Pied-bills appeared the first week in March, spring peaked at about 700 in mid-April, dwindled to a few summer residents, fall peaked at about 1,150 the week ending October 23, and were present until the end of November. Other grebe species are only occasionals. Thirty horned grebes were noted in the Lansing District during the fall of 1965.

CORMORANTS: When a person thinks back fifteen years ago to the many huge flocks of double-crested cormorants which traversed the Mississippi River Valley in the spring and autumn flights, and looks at the flights of the past few years, it would appear that this bird is rapidly becoming a candidate for the endangered species list. Spring peak was established at 280 and fall peak at 760.

GULLS and TERNS: A few hardy herring and ring-billed gulls wintered in the Savanna District. These species heralded the advance warning of spring the second week in February, when numbers began building. Approximately 8,000 were present in mid-April. Between 150 and 200 spent the summer on the river. The fall peak was estimated at 7,800 in mid-October. In mid-December about 3,500 were present. An unusual concentration of ringbills occurred in the Winona District the week ending December 25 when 9,000 utilized the open river conditions during that week, bringing the total refuge population for that week to about 10,500 of the two species.

An interesting observation was made on December 9 at Lake City, north of the refuge. There was a sizeable patch of open water along the city frontage which was occupied by approximately 10,000 mergansers and a few diving ducks. A considerable number of gulls were also present; and as fast as a duck came up with a fish, he was attacked by one to three gulls and only escaped his tormentors by submerging.

Black terns appeared the week ending April 24 and approximately 3,900 utilized the refuge during the year. Caspian, common, and Forster's terns are noted in small numbers throughout the refuge. Franklin's gulls were noted in the Savanna District.

PELICANS: One white pelican was noted in the Savanna District the week ending October 2.

LOONS: A single common loon was noted in the Savanna District and the Winona District, and two were noted in the Lansing District during April.

3. Shorebirds

COMMON SNIBE: An occasional snipe winters along the river at spring holes and flowing creeks. Migrants first appeared the

week ending April 10 and peaked the first week in May. The fall flight was first noted the week ending September 4 and peaked at approximately 1,420 birds the week ending October 30.

WOODCOCK: Two were noted in the Savanna District in April and up to 70 were estimated present in the Cassville District during the fall.

OTHER SHOREBIRDS: Killdeer appeared the week ending March 20 and were last noted the week ending December 4. Peak was estimated at 640 birds. Greater yellow legs peaked at approximately 500, with about 150 at the peak for the lesser species. Sandpiper use, consisting primarily of spotted, least, and solitary, reached an estimated 2,130 early in September. Eight willets were noted in the Prairie District the week ending May 8.

4. Doves

MOURNING DOVES: A few doves winter over on the refuge. Spring migrants appeared the week ending April 3 and peaked in mid-August at approximately 4,650. About 260 were present at the end of the year.

Table 1.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE
 Refuge: Upper Mississippi River Wildlife and Fish Refuge
 Period: January - April, 1965

Species	Peak Numbers		Percent of Change		Peak Dates*	TOTAL DUCK DAYS USE		Percent of Change	
	19 64	19 65	Decrease	Increase		19 64	19 65	Decrease	Increase
Mallard	40,900	21,100	48%		4/4 : 4/17	1,015,203	428,811	58%	
Black	1,270	1,120	12		4/4 : 4/10-17	37,413	27,423	27	
Gadwall	1,475	1,120	24		4/4 : 4/17	39,480	13,974	65	
Baldpate	15,700	10,950	30		4/18 : 4/17	436,638	116,100	73	
Pintail	4,950	1,800	64		4/4 : 4/17	116,649	23,490	80	
G.w. teal	1,355	1,970		45%	4/11 : 4/17	32,767	21,794	33	
B.w. teal	7,850	4,800	39		4/25 : 4/24	149,380	84,440	43	
Shoveler	4,355	2,450	44		4/25 : 4/17	86,307	35,577	59	
Wood duck	4,900	3,050	38		4/25 : 4/24	130,898	64,480	51	
Redhead	2,050	1,650	20		3/28 : 4/17	50,557	30,335	40	
Ring-neck	10,700	8,100	24		4/4 : 4/17	320,164	136,799	57	
Canvasback	4,815	7,250		51	3/28 : 4/17	107,204	130,427		22
L. scaup	126,700	115,000	9		4/11 : 4/10	2,480,315	2,530,798		2
Golden-eye	6,160	7,600		23	3/28 : 4/3	231,712	205,812	11	
Bufflehead	646	1,130		75	4/11 : 4/10	18,314	24,250		32
Ruddy	285	100	65		4/18 : 4/24	8,770	1,616	82	
Mergansers	2,985	7,100		100+	3/28 : 4/10	119,593	195,053		63
Old squaw									
Scoters									
Unident.									
TOTALS	208,401	178,680	14%		4/11 : 4/17	5,381,364	4,071,179	24%	

*Week ending.

Comments: Spring peak numbers and days use indicated overall decreases of 14% and 24% with a discouraging 48% loss in mallard peak numbers. Practically all species showed a decline, although this data could have been greatly influenced by the all-time-record floods scattering birds throughout the countryside. The canvasback increase was one of the few encouraging sights this spring.

Table 2.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE
 Refuge: Upper Mississippi River Wildlife and Fish Refuge
 Period: May - August, 1965

Species	Peak Numbers		Percent of Change		Peak Dates*	TOTAL DUCK DAYS USE		Percent of Change	
	1964	1965	Decrease	Increase		1964	1965	Decrease	Increase
Mallard	10,500	9,050	14%		8/29 : 8/28	614,145	479,215	22%	
Black	385	270	30		8/29 : 8/28	16,090	7,830	51	
Gadwall	50	192		100+	5/9 : 5/8	200	1,031		100+
Baldpate	1,500	390	74		5/9 : 5/8	9,610	4,085	58	
Pintail	390	225	42		8/29 : 8/28	5,720	2,466	57	
G.w. teal	330	80	76		8/29 : 8/28	6,035	2,410	60	
B.w. teal	7,850	8,250		5	8/29 : 8/28	265,650	158,075	41	
Shoveler	750	612	18		5/9 : 5/8	5,290	5,830		10
Wood duck	14,850	14,150	5		8/22 : 8/28	1,129,240	878,380	22	
Redhead	10	30		100+	5/9 : 5/8	50	250		100+
Ring-neck	50	560		100+	5/9 : 5/8	250	3,905		100+
Canvasback	0	40		100+	- : 5/8	0	260		100+
L. scaup	3,200	4,920		54	5/9 : 5/8	22,835	43,235		89
Golden-eye	1	22		100+	6/27 : 5/8	7	110		100+
Bufflehead	0	27		100+	- : 5/8	0	139		100+
Ruddy	0	0	-	-		0	0	-	-
Mergansers	1,330	345	74		8/1-8 : 8/28	112,501	31,690	72	
Old squaw									
Scoters									
Unident.									
TOTALS	33,970	32,550	4%		8/29 : 8/28	2,187,623	1,618,911	26%	

*Week ending.

Comments:

Table 3.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE
 Refuge: Upper Mississippi River Wildlife and Fish Refuge
 Period: September - December, 1965

Species	Peak Numbers		Percent of Change		Peak Dates*	TOTAL DUCK DAYS USE		Percent of Change	
	1964	1965	Decrease	Increase		1964	1965	Decrease	Increase
Mallard	73,270	50,000	32%		11/21 : 11/13	2,939,023	2,888,510	2%	
Black	2,178	2,750		26%	11/7 : 11/13	136,923	166,575		22%
Gadwall	4,986	9,650		94	10/17 : 10/23	166,627	254,525		53
Baldpate	69,900	79,300		13	10/17 : 10/23	2,571,327	3,031,580		18
Pintail	9,237	5,550	40		10/17 : 10/23	424,913	243,485	43	
G.w. teal	4,904	4,100	16		10/17 : 10/30	215,090	171,835	20	
B.w. teal	22,558	14,060	38		9/19 : 9/25	832,212	534,575	36	
Shoveler	1,695	925	45		10/10 : 10/23	51,558	28,135	45	
Wood duck	12,777	14,500		13	10/10 : 9/11	624,080	765,340		23
Redhead	3,801	4,710		24	10/31 : 11/13	110,049	163,090		48
Ring-neck	12,425	12,200	2		11/7 : 10/23	373,847	411,655		10
Canvasback	14,745	19,400		32	11/7 : 11/6	476,755	699,085		47
L. scaup	40,203	38,000	5		11/7 : 11/6	1,043,255	958,440	8	
Golden-eye	1,180	2,325		97	12/5 : 12/25	50,157	76,240		52
Bufflehead	840	750	11		10/24 : 10/30	18,782	31,040		65
Ruddy	650	725		12	10/31 : 10/23	16,665	18,880		13
Mergansers	1,010	9,030		100+	12/5 : 12/25	57,229	217,280		100+
Old squaw									
Scoters									
Unident.									
TOTALS	186,978	196,695		5%	11/7 : 10/30	10,108,499	10,660,270		5%

*Week ending.

Comments: Despite the dismal 32% decrease in the fall peak numbers of Mr. Mallard, the breast and butter duck of the river, the overall picture was a 5% increase over last year in peak numbers and days use. The increased numbers of baldpate, gadwall and canvasback were particularly noticeable this fall.

Table 4.

WEEKLY DUCK POPULATIONS AND PEAK NUMBERS

Refuge: Upper Mississippi River Wildlife and Fish Refuge

Period: January - April, 1965

Week of period:	1961	:	1962	:	1963	:	1964	:	1965
1	6,702	:	1,966	:	1,151	:	2,048	:	1,942
2	2,359	:	1,061	:	1,481	:	2,019	:	2,177
3	2,609	:	1,076	:	1,274	:	2,177	:	2,230
4	1,934	:	1,422	:	1,057	:	2,243	:	1,755
5	1,948	:	1,626	:	1,144	:	2,229	:	1,210
6	2,307	:	1,676	:	1,234	:	2,692	:	1,712
7	2,947	:	1,679	:	1,426	:	2,916	:	2,132
8	4,521	:	1,734	:	1,443	:	2,276	:	2,152
9	12,507	:	1,777	:	1,543	:	2,391	:	3,360
10	24,870	:	1,838	:	1,743	:	8,656	:	4,129
11	33,817	:	2,135	:	4,813	:	16,034	:	10,262
12	79,541	:	11,085	:	24,927	:	68,555	:	15,637
13	226,807	:	77,420	:	102,165	:	99,870	:	50,305
14	291,107 *	:	140,903 *	:	165,745 *	:	164,690	:	168,230
15	237,675	:	128,805	:	148,552	:	208,401 *	:	178,680 *
16	224,935	:	136,370	:	98,370	:	154,965	:	140,385
17	88,631	:	85,699	:	61,320	:	82,385	:	80,475
18	:	:	:	:	:	:	:	:	:
TOTAL DAYS USE:	8,695,519	:	4,189,904	:	4,335,716	:	5,381,364	:	4,071,179

*Indicates peak concentration.

COMMENTS: The first major spring influx occurred in the 13th weekly period in 1962, 63 and 65 as compared to the 12th weekly period in 1961 and 64. The hundred thousand present bracket was exceeded the 14th week of the period in 1962, 63 and 65, as compared to the 13th week in 1961 and 1963. The last weekly period of the first four months of the year shows a surprising consistency in the number of ducks present on the refuge, and the flight well on its way into history.

Table 5.

WEEKLY DUCK POPULATIONS AND PEAK NUMBERS

Refuge: Upper Mississippi River Wildlife and Fish Refuge

Period: May - August, 1965

Week of period:	19 61	:	19 62	:	19 63	:	19 64	:	19 65
1	35,500	:	36,675	:	29,781	:	18,030	:	16,308
2	19,019	:	13,981	:	14,970	:	12,640	:	11,585
3	8,786	:	7,952	:	11,605	:	10,877	:	7,575
4	7,559	:	6,622	:	10,507 *	:	10,480 *	:	7,360 *
5	6,229 *	:	6,539 *	:	10,682	:	11,095	:	7,782
6	6,466	:	7,120	:	12,042	:	12,270	:	8,072
7	7,349	:	7,903	:	15,377	:	13,935	:	8,577
8	8,396	:	9,298	:	18,007	:	16,091	:	9,817
9	9,016	:	10,343	:	19,367	:	17,850	:	11,505
10	9,826	:	11,152	:	20,700	:	19,895	:	13,140
11	10,481	:	11,734	:	21,097	:	21,376	:	13,585
12	11,473	:	12,895	:	22,157	:	21,565	:	15,360
13	13,220	:	13,677	:	22,798	:	23,070	:	16,675
14	16,059	:	16,164	:	23,588	:	25,010	:	18,100
15	18,571	:	18,771	:	27,378	:	28,086	:	20,665
16	21,781	:	21,897	:	29,863	:	30,755	:	24,860
17	25,972	:	26,572	:	34,872	:	33,970	:	32,550
18	29,686	:	30,737	:	43,247	:		:	
TOTAL DAYS USE:	1,857,723	:	1,890,224	:	2,716,266	:	2,187,623	:	1,618,911

*Indicates ~~peak concentration~~ resident nesting population

COMMENTS: The 1965 summer breeding population dropped back to the levels of 1961 and 1962 and represented an approximate 30% decrease in numbers from 1963 and 1964. All time record spring flood levels may have been the cause of the 1965 decline in nesting numbers.

Table 6.

WEEKLY DUCK POPULATIONS AND PEAK NUMBERS

Refuge: Upper Mississippi River Wildlife and Fish Refuge

Period: September - December, 1965

Week of period:	19 61	:	1962	:	19 63	:	1964	:	19 65
1	53.605	:	36.281	:	55.220	:	51.116	:	40.460
2	74.555	:	42.296	:	64.370	:	55.825	:	51.470
3	84.880	:	64.347	:	78.850	:	67.185	:	56.930
4	103.310	:	89.980	:	111.890	:	91.851	:	84.565
5	103.810	:	96.985	:	122.335	:	113.149	:	93.910
6	137.490	:	113.575	:	124.500	:	153.798	:	123.930
7	144.380	:	133.850	:	148.325	:	171.750	:	159.070
8	148.575 *	:	209.460	:	194.570	:	166.023	:	191.995
9	129.165	:	226.045 *	:	192.719	:	175.199	:	196.695 *
10	88.045	:	193.570	:	222.600 *	:	186.978 *	:	185.188
11	64.160	:	136.620	:	198.865	:	174.714	:	166.455
12	39.885	:	93.495	:	138.810	:	140.195	:	125.675
13	33.981	:	84.595	:	123.800	:	44.251	:	75.235
14	24.466	:	35.031	:	61.999	:	4.507	:	37.785
15	9.655	:	2.420	:	19.300	:	3.908	:	38.710
16	3.940	:	1.880	:	3.219	:	2.781	:	35.975
17	3.360	:	1.705	:	2.365	:	2.393	:	33.940
18	:	:	:	:	:	:	2.101	:	23.595
TOTAL DAYS USE:	8,730,204	:	10,934,945	:	13,046,096	:	10,108,499	:	10,660,270

*Indicates peak concentration.

COMMENTS: Were it not for the unusually warm and open December and resulting numbers of ducks present, duck days use for 1965 would have been the lowest since 1961 when an unusually early freezeup moved all birds.

Table 7.

PERCENTAGE COMPOSITION BY SPECIES OF TOTAL DUCK DAY USE
 Refuge: Upper Mississippi River Wildlife and Fish Refuge
 Period: January - April, 1965

Species	Percent of total duck day use							
	1963		1964		1965			
	% of use	Order	% of use	Order	% of use	Order	% of use	Order
Mallard	15.63	2	18.78	2	10.51	2		
Black duck	.42	16	.69	14	.67	12		
Gadwall	.81	13	.73	13	.34	16		
Baldpate	5.28	4	8.08	3	2.84	7		
Pintail	1.31	11	2.16	9	.58	14		
G.w.teal	1.01	12	.61	15	.53	15		
B.w.teal	5.32	5	2.76	6	2.07	8		
Shoveler	2.46	9	1.60	11	.87	10		
Wood duck	3.25	8	2.42	7	1.58	9		
Redhead	.63	14	.94	12	.74	11		
Ring-neck	5.44	3	5.92	4	3.35	5		
Canvasback	1.68	10	1.98	10	3.20	6		
Lesser scaup	49.14	1	45.89	1	62.00	1		
Golden-eye	3.46	6	4.29	5	5.04	3		
Bufflehead	.48	15	.34	16	.59	13		
Ruddy	.26	17	.16	17	.04	17		
Mergansers	3.42	7	2.21	8	4.78	4		
Old squaw	trace	18						
Scoters								

Comments: Blue-bills consistently hold the number one spot in the spring migration, representing roughly half of the spring flight utilizing the refuge. Mallards always come in a poor second at from 10% to 20% of the spring numbers.

Table 8.

PERCENTAGE COMPOSITION BY SPECIES OF TOTAL DUCK DAY USE
 Refuge: Upper Mississippi River Wildlife and Fish Refuge
 Period: May - August, 1965

Species	Percent of total duck day use							
	19 63		19 64		19 65			
	% of use	Order	% of use	Order	% of use	Order		
Mallard	25.08	2	28.07	2	29.57	2		
Black duck	.89	7	.74	6	.48	6		
Gadwall	.06	11	trace	13	.06	12		
Baldpate	.99	6	.44	7	.25	8		
Pintail	.18	10	.26	9	.15	10		
G.w.teal	.25	9	.28	8	.15	11		
B.w.teal	13.68	3	12.14	3	9.75	3		
Shoveler	.72	8	.24	10	.36	7		
Wood duck	49.31	1	51.61	1	54.20	1		
Redhead	.01	15	trace	12	.02	14		
Ring-neck	.04	12	.01	11	.24	9		
Canvasback	-		-		.02	13		
Lesser scaup	5.51	4	1.04	5	2.67	4		
Golden-eye	.01	13	trace	14	trace	16		
Bufflehead	.01	13	-		trace	15		
Ruddy	.01	14	-		-			
Mergansers	3.20	5	5.14	4	1.96	5		
Old squaw								
Scoters								

Comments: The woodie is by far the most important summer nester, followed by mallards and a scattering of blue-wings.

Table 9.

PERCENTAGE COMPOSITION BY SPECIES OF TOTAL DUCK DAY USE
 Refuge: Upper Mississippi River Wildlife and Fish Refuge
 Period: September - December, 1965

Species	Percent of total duck day use							
	19 63		19 64		19 65			
	% of use	Order	% of use	Order	% of use	Order	% of use	Order
Mallard	25.2	2	28.8	1	26.9	2		
Black duck	1.3	11	1.3	11	1.5	12		
Gadwall	2.1	9	1.6	10	2.4	8		
Baldpate	30.6	1	25.2	2	28.2	1		
Pintail	4.2	7	4.2	7	2.3	9		
G.w.teal	1.7	10	2.1	9	1.6	11		
B.w.teal	7.0	5	8.2	4	5.0	6		
Shoveler	.4	15	.5	14	.3	16		
Wood duck	7.1	4	6.1	5	7.1	4		
Redhead	.7	12	1.1	12	1.5	13		
Ring-neck	4.4	6	3.7	8	3.8	7		
Canvasback	4.0	8	4.7	6	6.5	5		
Lesser scaup	9.3	3	10.2	3	8.9	3		
Golden-eye	.5	13	.5	15	.7	14		
Bufflehead	.2	16	.2	16	.3	15		
Ruddy	.1	17	.2	17	.2	17		
Mergansers	.4	14	.6	13	2.0	10		
Old squaw								
Scoters	trace	18	trace	18				

Comments: Fall of 1957 saw the baldpate come out of nowhere to challenge the mallard which up to that time always led in greatest use of the Upper Mississippi during the fall flights. Baldie was second in 1957 and 1958, rose to first in 1959, falling back to second only in 1960 and 1964. He again led the parade for the fall of 1965. Lesser scaup consistently hold third position in fall use days. Mallard, baldpate, and lesser scaup have made up approximately 60-70% of the fall days use for the past five years.

Table 10.

DUCK DAY USE BY SPECIES FOR REFUGE DISTRICTS
Upper Mississippi River Wildlife and Fish Refuge
Period: January - April, 1965

SPECIES	Winona District	La Crosse District	Lansing District	Prairie District	Cassville District	Sav.-Clinton District	Refuge TOTALS
Mallard	49,310	90,950	34,176	13,850	125,065	115,460	428,811
Black	4,995	2,420	2,098	2,490	5,840	9,580	27,423
Gadwall	1,800	3,450	4,384	700	1,500	2,140	13,974
Baldpate	18,000	38,300	33,100	4,200	19,150	3,350	116,100
Pintail	5,100	3,330	4,250	1,440	3,150	6,220	23,490
G.w.teal	4,300	1,760	2,084	4,550	4,900	4,200	21,794
B.w.teal	5,700	33,390	9,300	12,600	13,650	9,800	84,440
Shoveller	2,450	13,470	3,417	4,900	7,740	3,600	35,577
Wood duck	8,650	6,720	8,300	9,490	7,520	23,800	64,480
Redhead	7,700	4,800	6,700	2,885	5,230	3,020	30,335
Ring-neck	46,200	33,569	19,250	6,850	19,675	11,255	136,799
Canvasback	59,000	19,461	26,465	5,515	8,600	11,386	130,427
Scaup	575,500	135,028	273,185	189,885	887,100	470,100	2,530,798
Golden-eye	41,555	12,710	24,062	25,790	64,995	36,700	205,812
Bufflehead	2,900	1,730	570	4,250	11,450	3,350	24,250
Ruddy	-	500	26	-	620	470	1,616
Mergansers	21,165	13,458	23,870	22,205	74,155	40,200	195,053
Old squaw							
Scoters							
Unidentified							
Totals:	854,325	415,046	475,237	311,600	1,260,340	754,631	4,071,179
% of total use:	20.93%	10.17%	11.64%	7.63%	30.88%	18.49%	100%
Previous year totals:	665,035	1,256,507	740,550	620,550	898,185	1,200,547	5,381,364
% of total use:	12.30%	23.25%	13.70%	11.48%	16.62%	22.21%	100%
% of change	+ 28%	- 67%	- 36%	- 50%	+ 40%	- 37%	- 24%
Comments:							

Table 11.

DUCK DAY USE BY SPECIES FOR REFUGE DISTRICTS
Upper Mississippi River Wildlife and Fish Refuge
Period: May - August, 1965

SPECIES	Winona District	La Crosse District	Lansing District	Prairie District	Cassville District	Sav.-Clinton District	Refuge TOTALS
Mallard	27,695	234,780	73,950	30,940	26,050	85,800	479,215
Black	220	2,150	3,490	140	675	1,155	7,830
Gadwall		950	81				1,031
Baldpate	1,050	1,740	1,075	70	150		4,085
Pintail		450	760	700	250	306	2,466
G.w.teal		1,570	340	350	150		2,410
B.w.teal	19,650	59,560	25,265	15,190	13,835	24,575	158,075
Shoveller	2,450	2,930	80	70	300		5,830
Wood duck	52,290	83,900	195,200	280,140	159,100	107,750	878,380
Redhead		80	100	70			250
Ring-neck	600	440	1,765	350	750		3,905
Canvasback		200	60				260
Scaup	1,200	9,790	4,345	2,100	25,500	300	43,235
Golden-eye			10		100		110
Bufflehead			14		125		139
Ruddy							
Mergansers	2,660	14,970	9,985	2,380	505	1,190	31,690
Old squaw							
Scoters							
Unidentified							
Totals:	107,815	413,510	316,520	332,500	227,490	221,076	1,618,911
% of total use:	6.65%	25.51%	19.53%	20.52%	14.04%	13.64%	100%
Previous year totals:	94,655	623,092	593,525	343,070	251,271	282,010	2,187,623
% of total use:	4.33%	28.48%	27.13%	15.68%	11.49%	12.89%	100%
% of change	+ 14%	- 34%	- 47%	- 3%	- 9%	- 22%	- 26%
Comments:							

Table 12.

DUCK DAY USE BY SPECIES FOR REFUGE DISTRICTS
Upper Mississippi River Wildlife and Fish Refuge
Period: September - December, 1965

SPECIES	Winona District	La Crosse District	Lansing District	Prairie District	Cassville District	Sav.-Clinton District	Refuge TOTALS
Mallard	415,000	852,850	349,900	64,960	243,000	962,800	2,888,510
Black	27,950	28,900	28,195	2,660	14,850	64,010	166,575
Gadwall	98,900	101,050	23,760	4,200	10,725	15,890	254,525
Baldpate	518,550	1,940,760	431,500	25,900	67,470	47,400	3,031,580
Pintail	50,000	122,300	27,875	5,600	24,350	13,360	243,485
G.w.teal	15,550	35,230	50,550	2,800	27,625	40,080	171,835
B.w.teal	70,600	146,660	165,300	34,790	38,825	78,400	534,575
Shoveller	6,700	10,330	5,850		3,250	2,005	28,135
Wood duck	46,955	59,810	157,950	218,050	154,225	128,350	765,340
Redhead	51,300	87,700	9,600		13,300	1,190	163,090
Ring-neck	106,200	180,550	83,345	10,850	11,200	19,510	411,655
Canvasback	308,500	258,800	114,540		9,000	8,245	699,085
Scaup	17,900	606,360	283,370	1,400	17,100	32,310	958,440
Golden-eye	17,650	22,590	15,700		14,700	5,600	76,240
Bufflehead	7,025	8,420	7,475	350	7,750	20	31,040
Ruddy	1,050	9,520	700	70	1,500	6,040	18,880
Mergansers	97,890	23,660	38,940	1,400	16,570	38,820	217,280
Old squaw							
Scoters							
Unidentified							
Totals:	1,857,720	4,495,490	1,794,550	373,030	675,440	1,464,030	10,660,270
% of total use:	17.28%	41.81%	16.69%	3.47%	6.28%	13.62%	100%
Previous year totals:	1,731,320	4,207,524	1,912,511	441,782	769,055	1,046,307	10,108,499
% of total use:	16.97%	41.23%	18.74%	4.33%	7.54%	10.25%	100%
% of change	+ 7%	+ 7%	- 6%	- 16%	- 12%	+ 40%	+ 5%
Comments:							

Table 13.

COMPARISONS OF PEAK NUMBERS-PEAK DATES-TOTAL DAYS USE
 Upper Mississippi River Wildlife and Fish Refuge
 Period: January - April, 1965

District	: Peak Numbers		::Per cent of Change::		Peak Dates*::		TOTAL DAYS USE		::Per cent of Change	
	: 19 64	: 19 65	::Decrease	::Increase::	: 19 64	: 19 65	: 19 64	: 19 65	::Decrease	::Increase

CANADA GEESE

Winona	: 300	: 140	:: 53%	:	:: 4/4	: 4/17	:: 4,337	: 1,850	:: 57%	:
La Crosse	: 650	: 250	:: 62	:	:: 4/4	: 4/17	:: 9,722	: 4,132	:: 58	:
Lansing	: 75	: 62	:: 17	:	:: 3/28	: 4/17	:: 700	: 511	:: 27	:
Prairie	: 50	: 100	::	: 100%	:: 3/21	: 4/17	:: 2,240	: 1,062	:: 53	:
Cassville	: 225	: 350	::	: 56	:: 3/7	: 4/17	:: 4,267	: 4,792	::	: 12%
Sav.-Clinton	: 814	: 2,500	::	: 100+	:: 3/14	: 3/27	:: 8,568	: 28,058	::	: 100+
TOTALS:	: 1,049	: 2,558	::	: 100+%	:: 3/14	: 3/27	:: 29,834	: 40,405	::	: 35%

SNOW GEESE

Winona	: -	: -	::	:	::	:	::	:	::	:
La Crosse	: -	: 60	::	: 100+	::	: 4/10	::	: 285	::	: 100+
Lansing	: 5	: -	:: 100+	:	:: 3/14	:	:: 15	: -	:: 100+	:
Prairie	: -	: -	::	:	::	:	::	:	::	:
Cassville	: -	: 75	::	: 100+	::	: 3/20	::	: 250	::	: 100+
Sav.-Clinton	: 8	: -	:: 100+	:	:: 4/18	:	:: 40	: -	:: 100+	:
TOTALS:	: 8	: 75	::	: 100+	:: 4/18	: 3/20	:: 55	: 535	::	: 100+

BLUE GEESE

Winona	: -	: -	::	:	::	:	::	:	::	:
La Crosse	: -	: 40	::	: 100+	::	: 4/10	::	: 295	::	: 100+
Lansing	: -	: -	::	:	::	:	::	:	::	:
Prairie	: -	: -	::	:	::	:	::	:	::	:
Cassville	: -	: 75	::	: 100+	::	: 3/20	::	: 250	::	: 100+
Sav.-Clinton	: 5	: -	:: 100+	:	:: 3/21	:	:: 15	:	:: 100+	:
TOTALS:	: 5	: 75	::	: 100+	:: 3/21	: 3/20	:: 15	: 545	::	: 100+

ALL GEESE COMBINED

TOTALS:	:				:: 29,914	: 41,485	::	:	: 39%
Week ending.									

Comments:

Table 14.

COMPARISONS OF PEAK NUMBERS-PEAK DATES-TOTAL DAYS USE
Upper Mississippi River Wildlife and Fish Refuge
Period: May - August, 1965

District	: Peak Numbers ::		Per cent of Change::		Peak Dates*::		TOTAL DAYS USE		::Per cent of Change	
	: 1964	: 19 65::	Decrease	Increase::	19 64	: 1965 ::	19 64	: 1965	::Decrease	Increase

CANADA GEESE

Winona	:	-	:	3::	:	100+%	:	5/8	:	15	:	100+%
La Crosse	:	50	:	36::	28%	:	5,584	:	2,926	:	48%	:
Lansing	:	6	:	- ::	100+	:	340	:	-	:	100+	:
Prairie	:	:	:	:	:	:	:	:	:	:	:	:
Cassville	:	:	:	:	:	:	:	:	:	:	:	:
Sav.-Clinton	:	36	:	25::	31	:	3,346	:	2,674	:	20	:
TOTALS:	:	91	:	60::	34%	:	9,270	:	5,615	:	39%	:

SNOW GEESE

Winona	:	:	:	:	:	:	:	:	:	:	:	:
La Crosse	:	:	:	:	:	:	:	:	:	:	:	:
Lansing	:	:	:	:	:	:	:	:	:	:	:	:
Prairie	:	:	:	:	:	:	:	:	:	:	:	:
Cassville	:	:	:	:	:	:	:	:	:	:	:	:
Sav.-Clinton	:	:	:	:	:	:	:	:	:	:	:	:
TOTALS:	:	0	:	0::	:	:	:	:	:	:	:	:

BLUE GEESE

Winona	:	:	:	:	:	:	:	:	:	:	:	:
La Crosse	:	:	:	:	:	:	:	:	:	:	:	:
Lansing	:	:	:	:	:	:	:	:	:	:	:	:
Prairie	:	:	:	:	:	:	:	:	:	:	:	:
Cassville	:	:	:	:	:	:	:	:	:	:	:	:
Sav.-Clinton	:	:	:	:	:	:	:	:	:	:	:	:
TOTALS:	:	0	:	0::	:	:	:	:	:	:	:	:

ALL GEESE COMBINED

TOTALS:	:	:	:	:	:	:	:	:	:	:	:	:
*Week ending.	:	:	:	:	:	:	:	:	:	:	:	:

Comments:

Table 15.

COMPARISONS OF PEAK NUMBERS-PEAK DATES-TOTAL DAYS USE
Upper Mississippi River Wildlife and Fish Refuge
Period: September - December, 1965

District	: Peak Numbers ::		Per cent of Change::		Peak Dates*::		TOTAL DAYS USE		::Per cent of Change	
	: 19 64 :	19 65 :	: Decrease :	Increase :	: 19 64 :	19 65 :	: 19 64 :	19 65 :	: Decrease :	Increase

CANADA GEESE

Winona	: 250 :	300 ::		: 20% :	: 10/10 :	11/7 10/2-9 ::	10,315 :	13,682 ::		: 33% :
La Crosse	: 425 :	1,100 ::		: 100+ :	: 11/21 :	11/13-20 ::	14,340 :	36,185 ::		: 100+ :
Lansing	: 1 :	25 ::		: 100+ :	: 10/24 :	9/25 12/11 ::	7 :	730 ::		: 100+ :
Prairie	: 100 :	50 ::	50%	:	: 10/10 :	9/25 10/9 ::	3,150 :	435 ::	86%	:
Cassville	: 400 :	175 ::	56	:	: 11/21 :	9/25 ::	8,206 :	3,070 ::	63	:
Sav.-Clinton	: 329 :	500 ::		: 52 :	: 10/31 :	10/2 ::	14,787 :	28,962 ::		: 96 :
TOTALS:	: 1,196 :	1,643 ::		: 37% :	: 11/21 :	11/13 ::	50,805 :	83,064 ::		: 63% :

SNOW GEESE

Winona	: - :	75 ::		: 100+ :	: - :	10/2-9 ::	- :	976 ::		: 100+ :
La Crosse	: 140 :	150 ::		: 7 :	: 10/10 :	10/9 ::	1,500 :	1,150 ::	23	:
Lansing	: - :	80 ::		: 100+ :	: - :	10/2 ::	- :	390 ::		: 100+ :
Prairie	: - :	200 ::		: 100+ :	: - :	10/9 ::	- :	1,400 ::		: 100+ :
Cassville	: 250 :	40 ::	84	:	: 10/24 :	10/30 ::	3,620 :	915 ::	75	:
Sav.-Clinton	: 110 :	100 ::	9	:	: 10/21 :	10/23 11/6 ::	3,786 :	2,940 ::	22	:
TOTALS:	: 375 :	490 ::		: 31% :	: 10/17 :	10/9 ::	8,906 :	7,771 ::	13%	:

BLUE GEESE

Winona	: - :	25 ::		: 100+ :	: - :	10/9 ::	- :	245 ::		: 100+ :
La Crosse	: 120 :	130 ::		: 8 :	: 10/10 :	10/9 ::	1,100 :	1,000 ::	9	:
Lansing	: 5 :	40 ::		: 100+ :	: 11/7 :	10/9 ::	25 :	370 ::		: 100+ :
Prairie	: - :	- ::		:	:	:	:	:		:
Cassville	: 300 :	50 ::	93	:	: 10/24 :	10/30 ::	3,730 :	965 ::	74	:
Sav.-Clinton	: 200 :	200 ::	-	:	: 10/31 :	10/23 11/6 ::	7,612 :	5,815 ::	24	:
TOTALS:	: 475 :	280 ::	41%	:	: 10/24 :	10/9 ::	12,467 :	8,395 ::	33%	:

ALL GEESE COMBINED

TOTALS:	:						: 72,182 :	99,361 ::		: 38%
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*Week ending.

Comments:

Table 16.

COMPARISON OF PEAK NUMBERS-PEAK DATES-TOTAL DAYS USE
 Upper Mississippi River Wildlife and Fish Refuge
 Period: January - April, 1965

Species: Coot

District	Peak Numbers		Per cent of Change		Peak Dates		TOTAL DAYS USE		Per cent of Change	
	19 64	19 65	Decrease	Increase	1964	19 65	19 64	19 65	Decrease	Increase
Winona	30,000	75,000		100+	4/18	4/17-24	281,050	1,186,625		100+
La Crosse	18,500	6,500	65%		4/18	4/17	345,290	115,250	67%	
Lansing	7,000	6,300	10		4/11	4/17	89,440	89,300	trace	
Prairie	5,000	3,000	40		4/18	4/24	86,800	61,200	30	
Cassville	2,100	3,000		43	4/18	4/24	65,175	71,000		9
Sav.-Clinton	3,100	5,000		61	4/18	4/17	69,236	88,800		28
TOTALS:	62,700	97,800		56%	4/18	4/17	936,991	1,612,175		72%

*Week ending.

Comments:

Table 17.

COMPARISON OF PEAK NUMBERS-PEAK DATES-TOTAL DAYS USE
 Upper Mississippi River Wildlife and Fish Refuge
 Period: May - August, 1965

Species: Coot

District	Peak Numbers		Per cent of Change		Peak Dates*		TOTAL DAYS USE		Per cent of Change	
	1964	19 65	Decrease	Increase	1964	1965	19 64	1965	Decrease	Increase
Winona	500	1,000		100	8/29	5/8	33,600	17,595	48%	
La Crosse	3,250	4,150		28	5/9	5/8	47,490	33,980	28	
Lansing	750	2,000		100+	7/18	5/8	57,000	56,000	2	
Prairie	500	500	-	-	5/9	5/8	8,050	10,080		25%
Cassville	375	800		100+	8/29	5/8	7,055	7,350		4
Sav.-Clinton	1,100	300	73		5/9	5/8	13,090	1,720	87	
TOTALS:	5,750	8,750		52%	5/9	5/8	166,285	126,725	24%	

*Week ending.

Comments:

Table 18.

COMPARISON OF PEAK NUMBERS-PEAK DATES-TOTAL DAYS USE
Upper Mississippi River Wildlife and Fish Refuge
Period: September - December, 1965

Species: Coot

District	Peak Numbers		Per cent of Change		Peak Dates		TOTAL DAYS USE		Per cent of Change	
	1964	1965	Decrease	Increase	1964	1965	1964	1965	Decrease	Increase
Winona	125,000	75,000	40%		10/17	10/30	4,479,000	2,577,540	42%	
La Crosse	60,000	45,000	25		11/7	11/6	1,352,800	1,185,000	12	
Lansing	17,100	40,000		100+	11/7	11/6	440,936	636,700		44
Prairie	12,000	3,500	71		10/10	10/30	490,770	117,110	76	
Cassville	9,000	12,000		33	10/24	10/30	380,800	298,500	22	
Sav.-Clinton	14,000	12,000	14		10/24	10/30	251,500	273,400		9
TOTALS:	196,100	170,500	13%		11/7	10/30	7,395,806	5,088,250	31%	

*Week ending.

Comments:

Table 19.

COMPARISON OF PEAK NUMBERS-PEAK DATES-TOTAL DAYS USE
 Upper Mississippi River Wildlife and Fish Refuge
 Period: January - April, 1965

Species: Whistling Swan

District	Peak Numbers		Per cent of Change		Peak Dates*		TOTAL DAYS USE		Per cent of Change	
	19 64	1965	Decrease	Increase	19 64	19 65	19 64	19 65	Decrease	Increase
Winona	600	1,200		100%	4/4	4/11	9,228	15,930		73%
La Crosse	1,250	350	72		4/4	4/17	9,495	3,800	60	
Lansing	54	150		100+	4/4	4/10	100	1,207		100+
Prairie	29	10	66		4/4	5/1	142	30	79	
Cassville	29	40		38	3/28	4/10	58	440		100+
Sav.-Clinton	18	-	100		4/11		126	-	100	
TOTALS:	1,933	1,591	18%		4/4	4/17	19,149	21,407		12%

*Week ending.

Comments:

Table 20.

COMPARISON OF PEAK NUMBERS-PEAK DATES-TOTAL DAYS USE
 Upper Mississippi River Wildlife and Fish Refuge
 Period: September - December, 1965

Species: Whistling Swan

District	Peak Numbers		Per cent of Change		Peak Dates		TOTAL DAYS USE		Per cent of Change	
	19 64	19 65	Decrease	Increase	19 64	19 65	19 64	19 65	Decrease	Increase
Winona	78	90		15%	11/21	11/13-11/27	646	2,568		100+%
La Crosse	47	30	36%		12/5	11/20	209	349		67
Lansing	-	11		100+		10/23	-	42		100+
Prairie	-	-								
Cassville	7	15		100+	11/28	12/4	28	85		100+
Sav.-Clinton	-	8		100+		11/20		47		100+
TOTALS:	96	132		38%	11/21	11/20	883	3,091		100+

*Week ending.

Comments:

5 Yr. & 10 Yr. COMPARISON OF PEAK NUMBERS AND TOTAL DAYS USE BY WATERFOWL

Refuge: Upper Mississippi River Wildlife and Fish Refuge

Period: January - April, 1965

Year	DUCKS		COOTS		ALL CANADA GEESE		SWANS	
	Peak Nos.	Days Use	Peak Nos.	Days Use	Peak Nos.	Days Use	Peak Nos.	Days Use
1955	243,190	8,315,986	35,900	818,762	2,236	51,758	133	2,380
1956	604,905	15,641,129	51,100	1,408,757	2,200	56,903	1,870	34,559
1957	696,066	20,487,957	53,800	1,063,468	1,165	25,186	2,128	36,169
1958	392,952	10,607,415	50,450	1,102,640	4,059	58,527	943	14,357
1959	296,870	9,140,894	80,750	1,844,647	948	24,325	2,343	41,048
1960	119,801	3,114,062	73,300	1,468,250	1,130	22,365	740	11,921
1961	291,107	8,695,519	61,050	1,286,936	1,205	40,488	3,347	34,251
1962	140,903	4,187,904	58,050	1,232,290	1,301	22,085	3,900	74,291
1963	165,745	4,335,716	62,750	1,442,007	2,309	52,381	1,900	27,398
1964	208,401	5,381,364	62,700	936,991	1,049	29,834	1,933	19,149
Current Year 1965	178,680	4,071,179	97,800	1,612,175	2,558	41,485	1,591	21,407
Previous 5-Yr. Average	185,191	5,142,913	63,570	1,273,294	1,398	33,430	2,364	33,402
Previous 10-Yr. Average	315,994	8,990,794	58,985	1,260,474	1,760	38,385	1,923	29,552
% Change from 5 Yr. Average	- 4%	- 21%	+ 54%	+ 27%	+ 83%	+ 24%	- 33%	- 36%
% Change from 10 Yr. Average	-43%	- 55%	+ 66%	+ 28%	+ 45%	+ 8%	- 17%	- 28%

Comments: 1965 spring duck and swan peak numbers and days use were below the previous five and ten year averages, while spring data for Canadas and swans was above the averages.

5 Yr. & 10 Yr. COMPARISON OF PEAK NUMBERS AND TOTAL DAYS USE BY WATERFOWL

Refuge: Upper Mississippi River Wildlife and Fish Refuge

Period: May - August, 1965

Year	DUCKS		COOTS		ALL CANADA GEESE		SWANS	
	Peak Nos.	Days Use	Peak Nos.	Days Use	Peak Nos.	Days Use	Peak Nos.	Days Use
1955	34,612	1,701,616	15,400	158,613	7	294	0	0
1956	95,445	2,018,128	31,500	440,972	150	1,659	0	0
1957	47,715	1,714,090	17,600	230,391	0	0	0	0
1958	32,613	1,495,627	7,250	152,432	7	378	0	0
1959	32,365	1,773,975	12,200	220,234	1	14	0	0
1960	37,112	1,671,551	32,150	403,501	35	924	0	0
1961	35,500	1,857,723	18,950	327,250	30	1,568	0	0
1962	36,675	1,890,224	10,850	254,170	75	8,064	0	0
1963	43,247	2,716,266	15,550	262,500	150	13,559	0	0
1964	33,970	2,187,623	5,750	166,285	91	9,270	1	26
Current Year 1965	32,550	1,618,911	8,750	126,725	60	5,615	0	0
Previous 5-Yr. Average	37,300	2,064,677	16,650	282,741	76	6,677	0	5
Previous 10-Yr. Average	42,925	1,902,682	16,720	261,634	54	3,573	0	2
% Change from 5 Yr. Average	- 13%	- 22%	- 47%	- 55%	- 21%	- 16%	-	- 100%
% Change from 10 Yr. Average	- 24%	- 15%	- 48%	- 52%	+ 11%	+ 57%	-	- 100%

Comments:

5 Yr. & 10 Yr. COMPARISON OF PEAK NUMBERS AND TOTAL DAYS USE BY WATERFOWL

Refuge: Upper Mississippi River Wildlife and Fish Refuge

Period: September - December, 1965

Year	DUCKS		COOTS		ALL CANADA GEESE		SWANS	
	Peak Nos.	Days Use	Peak Nos.	Days Use	Peak Nos.	Days Use	Peak Nos.	Days Use
1955	304,579	10,560,949	270,240	6,330,660	2,415	73,850	169	2,870
1956	266,665	11,489,961	174,100	6,441,400	6,005	99,946	150	2,891
1957	345,280	14,298,774	175,100	7,149,639	2,655	60,830	414	14,609
1958	205,010	12,851,426	195,800	7,118,167	1,900	49,917	77	1,225
1959	203,957	8,538,215	103,930	4,769,219	3,345	61,348	397	7,987
1960	232,916	11,215,645	195,000	6,381,529	1,219	41,881	265	5,607
1961	148,575	8,730,204	144,000	4,826,990	10,035	99,029	219	5,621
1962	226,045	10,934,945	199,000	6,788,810	1,096	56,651	265	5,978
1963	222,600	13,046,096	202,100	7,570,220	1,625	68,504	211	3,171
1964	186,978	10,108,499	196,100	7,395,806	1,196	50,805	96	883
Current Year 1965	196,695	10,660,270	170,500	5,088,250	1,913	99,361	132	3,091
Previous 5-Yr. Average	203,422	10,807,077	187,240	6,592,671	3,034	63,374	211	4,252
Previous 10-Yr. Average	234,260	11,177,471	185,537	6,477,244	3,149	66,276	226	5,084
% Change from 5 Yr. Average	- 3%	- 1%	- 9%	- 23%	- 37%	+ 57%	- 37%	- 27%
% Change from 10 Yr. Average	- 16%	- 5%	- 9%	- 21%	- 39%	+ 50%	- 42%	- 39%

Comments: When comparing the 1965 fall peak numbers and days use for ducks, coot, Canadas and swans against the previous 5 and 10 year averages, a DISCOURAGING MINUS is found throughout; the lone exception being days use by Canadas, which is influenced by resident breeding projects.

5 Yr. & 10 Yr. COMPARISON OF PEAK NUMBERS AND TOTAL DAYS USE BY WATERFOWL

Refuge: Upper Mississippi River Wildlife and Fish Refuge

Period: January - December, 1965

Year	DUCKS		COOTS		ALL CANADA GEESE		SWANS	
	Peak Nos.	Days Use	Peak Nos.	Days Use	Peak Nos.	Days Use	Peak Nos.	Days Use
1955	304,579 F	20,578,551	270,240 F	7,308,035	2,415 F	125,902	169 F	5,250
1956	604,905 S	29,149,218	174,100 F	8,291,129	6,005 F	158,508	1,870 S	37,450
1957	696,066 S	36,500,821	175,100 F	8,443,498	2,655 F	86,016	2,128 S	50,778
1958	392,952 S	24,954,468	195,800 F	8,373,239	4,059 S	108,822	943 S	15,582
1959	296,870 S	19,453,084	103,930 F	6,834,100	3,345 F	85,687	2,343 S	49,035
1960	232,916 F	16,001,258	195,000 F	8,253,280	1,219 F	65,170	740 S	17,528
1961	291,107 S	19,283,446	144,000 F	6,441,176	10,035 F	141,085	3,347 S	39,872
1962	226,045 F	17,013,073	199,000 F	8,275,270	1,301 S	86,800	3,900 S	80,278
1963	222,600 F	20,098,078	202,100 F	9,274,727	2,309 S	134,444	1,900 S	30,569
1964	208,401 S	17,677,486	196,100 F	8,499,082	1,196 F	89,909	1,933 S	20,058
Current Year 1965	196,695 F	16,350,360	170,500 F	6,827,150	2,558 S	146,461	1,591 S	24,498
Previous 5-Yr. Average	236,213	18,014,668	187,240	8,148,707	3,212	103,481	2,364	37,661
Previous 10-Yr. Average	347,644	22,070,948	185,537	7,999,353	3,453	108,234	1,927	34,640
% Change from 5 Yr. Average	- 17%	- 9%	- 9%	- 16%	- 20%	+ 42%	- 33%	- 35%
% Change from 10 Yr. Average	- 43%	- 25%	- 8%	- 15%	- 26%	+ 35%	- 17%	- 29%

F - fall

S - spring

Comments: The "minus" 5-year and 10-year average comparison figures speak for themselves!

Refuge: Upper Mississippi River Wildlife and Fish Refuge
 Period: Calendar Year 1965

B. Upland Game Birds

SPECIES	: POPULATION :	YOUNG :	NUMBER :	GREATEST :	:	:	: POPULATION
	: JAN. 1 :	PRODUCED :	STOCKED :	NO. PRESENT :	TAKE :	LOSS :	DEC. 31
Ring-necked	:	:	:	:	:	:	:
pheasant	: 295 :	: 165 :	: 275 :	: 537 :	: 137 :	: 330 :	: 250
Ruffed	:	:	:	:	:	:	:
grouse	: 245 :	: 40 :	: 0 :	: 285 :	: 14 :	: 81 :	: 140
Bob-white	:	:	:	:	:	:	:
quail	: 250 :	: 155 :	: 0 :	: 325 :	: 10 :	: 140 :	: 245
Gray	:	:	:	:	:	:	:
partridge	: 15 :	: 20 :	: 0 :	: 25 :	: 5 :	: 5 :	: 15
Wild	:	:	:	:	:	:	:
turkey	: 5 :	: 0 :	: 0 :	: 5 :	: 0 :	: 0 :	: 5

Upland game bird populations are limited to higher islands and bottomland margins. Record spring flooding practically eliminated production and forced the majority of birds off refuge. Pheasants are dependent on stocking releases.

C. Big Game Animals (White-tailed deer)

REFUGE	: POPULATION :	YOUNG :	GREATEST :	HUNTER :	:	: POPULATION
DISTRICT	: JAN. 1 :	PRODUCED :	NO. PRESENT :	TAKE :	LOSSES :	DEC. 31
Winona	: 100 :	: 50 :	: 250 :	: 75 :	: 5 :	: 175
La Crosse	: 165 :	: 0 :	: 165 :	: 20 :	: 15 :	: 65
Lansing	: 200 :	: 10 :	: 300 :	: 27 :	: 5 :	: 150
Prairie	: 100 :	: 15 :	: 100 :	: 10 :	: 0 :	: 90
Cassville	: 55 :	: 40 :	: 80 :	: 25 :	: 5 :	: 30
Savanna	: 250 :	: 0 :	: 400 :	: 48 :	: 150 :	: 200
TOTALS	: 870 :	: 105 :	: 1,295 :	: 205 :	: 175 :	: 710

Prolonged record spring floods forced the majority of white-tails off the refuge and generally disrupted production and refuge use. Some loss occurred as a result of the record high waters. Hunter take in the four states and population at the end of the year showed a 20 to 25% decrease generally.

Refuge: Upper Mississippi Refuge
 Period: Calendar Year 1965

D. Fur Animals, Predators, Rodents and Other Mammals

SPECIES	:POPULATION: : JAN. 1	: YOUNG : :PRODUCED:	: GREATEST : :NO. PRESENT:	: : : TAKE	:CON-: :TROL:	: : : LOSS	:POPULATION : DEC. 31
Muskrat	: 37,600	:175,000	: 199,000	: 87,495	: 200:	:49,500:	: 38,440
Mink	: 1,105	: 700	: 1,430	: 437	: 0:	: 215:	: 855
Beaver	: 2,760	: 2,010	: 4,530	: 594	: 13:	: 543:	: 4,240
Otter	: 246	: 115	: 254	: 9	: 0:	: 75:	: 195
Raccoon	: 5,050	: 2,620	: 6,620	: 1,608	: 46:	: 1,760:	: 3,735
Red Fox	: 900	: 885	: 1,725	: 330	: 10:	: 330:	: 735
Gray Fox	: 25	: 5	: 85	: 10	: 0:	: 15:	: 35
Skunk	: 395	: 165	: 485	: 60	: 2:	: 215:	: 220
Cottontail Rabbit	: 785	: 655	: 1,600	: 240	: 0:	: 945:	: 705
Possum	: 970	: 905	: 1,435	: 216	: 16:	: 655:	: 880
Gray & Fox Squirrels	: 3,750	: 4,800	: 7,700	: 1,200	: 0:	: 2,800:	: 3,700
Woodchuck	: 408	: 109	: 325	: 10	: 22:	: 178:	: 120
Badger	: 16	: 14	: 28	: 0	: 0:	: 12:	: 14

The estimates of six district managers have been combined to obtain the overall refuge population data shown above.

Details of the fur harvest are included in the Economic Use section of this report. Record flooding appears to have had only limited local effect on muskrat and beaver populations. Raccoon and other small game animals such as rabbits and squirrels may have suffered severe loss due to the floods as contrasted to furbearers.

E. Hawks, Eagles, Owls, Crows, Ravens and Magpies

CROWS: An estimated 800 crows spent the winter on the refuge, built up through the summer to 8,000 in October, and for the most part, flew the coop, leaving 1,400 of their black brethren to enjoy our lovely (?) winter.

EAGLES: The Upper Mississippi Refuge continues to serve as a major wintering grounds of the bald eagle. Migrations to the area exhibit a general pattern with scattered birds commencing to return from their summer range as early as the first week of September. Main concentrations form in November and December with the first severe cold waves. Open waters below the dams, power plants, and ice free channel sectors are favorite wintering areas. The largest numbers of birds in recent years have congregated near the Savanna, Illinois Army Depot, the Cassville, Wisconsin locality, and the sector of the river at the northernmost refuge region between Wabasha, Minnesota and Alma, Wisconsin.

Refuge records for the 1964 fall season indicate that 170 birds were present during the peak concentration period in December of that year. This season, 134 birds were noted during a comparable period in 1965. However, this apparent drop may have been influenced by the relatively mild winter weather prevalent at the end of the year, 1965. The Wabasha-Alma and Cassville localities have held peak numbers to date this year, with 60 found Christmas week in the former area and 50 noted the same period near Cassville. By mid-February, the birds will start drifting out toward summer range with only stragglers remaining by late March and April.

Scattered birds may be seen during the summer months, and nesting attempts have occurred. A pair of adult birds were reported remaining through the summer in the Lansing District but no nesting effort was observed.

Although seasonal counts of bald eagles should probably be conducted during identical periods of weather condition each season for most suitable comparison of wintering populations, and taking local population shifts into consideration, it is still reluctantly concluded that bald eagle numbers are generally evincing a gradual downward trend. Their eventual survival may not only be complicated by the pesticides problem but by long deferred reproduction, probably up to five years, of the slowly maturing young birds. The four-month nesting and rearing period exposes eggs, eaglets, and eeries to both natural and man-made hazards, with windstorms especially destructive. Thoughtless hunters or rural residents who persist in firing at large birds of prey are perhaps the greatest hazard of all.

Comparative Eagle Populations
Mid-winter Counts, 1961-65

1961 :			1962 :			1963 :			1964 :			1965 :		
Ad.:	Imm.:	TOT.:	Ad.:	Imm.:	TOT.:	Ad.:	Imm.:	TOT.:	Ad.:	Imm.:	TOT.:	Ad.:	Imm.:	TOT.:
209	10	219	252	8	260	145	9	154	101	18	119	137	10	147
:	:	:	:	:	:	:	:	:	:	:	:	:	:	:

OWLS: Barred and horned owls are the common year-around species, peaking at an estimated 325 and 260 respectively. Screech owls are seen occasionally and perhaps 50 utilized the refuge. No snow owl winter influx was noted during 1965, although one was reported to the Winona office as being present on the outskirts of Winona.

HAWKS: Red-tails peaked at approximately 400, with an estimated 145 present at the beginning of the year and 100 at the end of the year. Small numbers of red-shouldered, rough-legged, marsh, and an occasional Cooper's hawk are observed on the refuge. Ten sparrow hawks were noted in each the Lansing and Prairie Districts the week ending April 10, and 100 were estimated present in the Prairie District the week ending May 1. One duck hawk was noted in the Savanna District the week ending October 2.

A spectacular movement of migrating hawks, mostly Buteos, moved through the Winona, Minnesota area of the Upper Mississippi Valley on September 23, 1965. The vanguard of this migration consisted of a great balloon-shaped flock moving at an elevation of about 800 to 3,500 feet with individual birds constantly spiralling within this unique formation, in the typical manner of migrating birds of prey. This large flock moved over at noon, drifting rapidly southward before the 30-35 mile winds accompanying an advancing cold front through the area. It was conservatively estimated to contain 1,200 birds, mostly of the commoner Buteos, and probably stemmed from one of the spectacular gatherings of hawks over the Duluth area at the western end of Lake Superior, due to apparent reluctance of the birds to move directly southward over such large bodies of water. Winona bird club members were alerted, and observers from that group reported smaller hawk aggregations or scattered migrants following the main group southward throughout the afternoon. Species composition of the migrants included mainly the red-tailed and other broad-winged hawks with occasional accipiters present.

OSPREY: All districts of the refuge record occasional observations of osprey. Eighteen in the Cassville District was the high in any single district and occurred in mid-September, when the refuge peak of 29 was recorded.

VULTURES: Turkey vultures appeared the week ending March 20 and up to 170 utilized the refuge. Approximately 60 black vultures utilized the refuge.

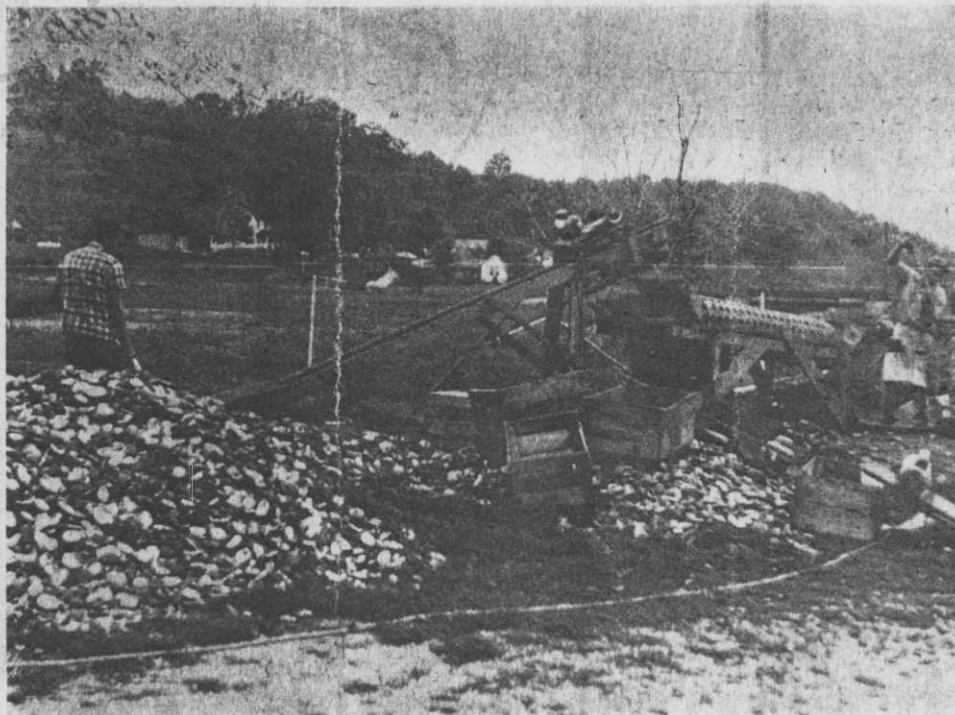
F. Other Birds

SWALLOWS: A unique concentration of tree swallows was observed by refuge personnel from the Winona office during hunting patrol in the Weaver marsh area on the opening weekend of the special teal season September 11-12. This enormous resting flock, covering perhaps half a section, was utilizing the seed pods over wide expanses of Nelumbo beds as perches. Countless thousands of these birds, probably totaling up to 250,000 or more, lounged on the heads of the emergent plants, swirling upward in cloud-like formations on the approach of boats traversing the marsh.

G. Fish - See district narratives

H. Reptiles - See district narratives

I. Disease - None



Sorting mussel shells

OYSTER PEARLS FROM FRESH-WATER MUSSELS

by PAUL W. PARMALEE

The pearl button has been all but replaced by the plastic button in the last two decades; consequently, for a time the commercial usefulness of the fresh-water mussel or clam was nearly at an end. Manufacture of pearl buttons from the shells of these mussels began in America in 1887; and it has been estimated that in the early years, between 15 and 20 thousand tons of shell were collected and shipped annually to the various cutting and finishing plants. The high lustre and durability of pearl buttons, actual pearls and baroques or "slugs" found in the soft parts of the animal, and the animals themselves—removed in the initial cooking and cleaning process and utilized for fish bait, fertilizer and hog feed—produced a multi-million dollar

industry that has now nearly disappeared from the Illinois scene.

However, in the last six or eight years a new use for the fresh-water clam has revived the mussel fishing industry; the once-familiar flat-bottomed boats with their "clam bars," a bar (often a section of $\frac{1}{2}$ inch pipe) from which four-pronged hooks are suspended by two-foot lengths of rope and used to drag the bottom for mussels, are gradually reappearing along the major rivers from Wisconsin to Alabama. Mussel shells are once again an important source of raw material but this time not for the production of buttons. Instead, the shells are being shipped to Japan where they are cut up and ground into small, round

(Continued on page 454)

(FRESH-WATER MUSSELS: Continued from page 453)

pellets (about 7 millimeters in diameter) which are, in turn, inserted along the inner shell margin of the oyster. These pellets are an irritation to the oyster and, in order to lessen this condition, the oyster secretes nacre (the mother-of-pearl material that forms the normal shell) around this artificially introduced object and, in so doing, produces a pearl. This process takes usually a minimum of three years.

Apparently the Chinese, in the 13th century A. D., were the first to realize that pearl production in fresh-water clams could be stimulated by placing a foreign object inside the animal's shell. A variety of introduced objects or pellets such as pieces of wood, bone and metal—and even mud or fine gravel—have been tried. Although occasionally pearls of uniform shape and high quality are artificially produced or develop naturally in the fresh-water mussel, most are irregular in shape and variable in color. It is only in the marine oyster that the finest pearls are encountered. At about the turn of the century, the Japanese began to perfect the art of growing cultured pearls in oysters. By experimenting with numerous types of introduced materials, they found that a small mother-of-pearl pellet was the most successful stimulant to pearl production. It possessed an added virtue in that the resulting pearl would be composed entirely of nacreous material.

Japan now has over 300 sea farms devoted to the production of cultured pearls. Because of the hardness and natural mother-of-pearl composition of

the fresh-water mussel shell, the vast quantities of these mollusks found in the rivers of the Midwest and South provide a cheap source of raw material for the pellets necessary in cultured pearl production. From about April 1 to November 1, buyers contact local mussel fishermen who collect and stockpile the shells until they can be sorted, packed (175 pounds of shell per sack) and transported to Gulf ports where they are eventually shipped to Japanese buyers in Osaka, Kobe and Yokohama. Only the larger, thick-shelled species are used—the washboard, three-ridged and pimple-backs being especially preferred. One buyer, Mr. George Borden of Savannah, Tennessee, maintains his own loading and sorting equipment and moves it from one mussel stockpile to another. The shells are shoveled onto a conveyor belt that feeds them into a revolving steel cylinder; as the valves pass through the cylinder, the small undesirable shells fall through the holes (see photograph) and are culled out, the larger ones passing through to be sacked and loaded for shipment.

How long this foreign market will last is anyone's guess, but there seems to be no end to it in the foreseeable future. As long as pellets cut from our fresh-water mussel shells continue to induce the development of quality pearls in Japan's oysters—and the ladies continue their desire to own these natural jewels—the mussel fisherman of Illinois and neighboring states will again realize financial reward from an occupation once nearly ended.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

The greatest flood in history on the Upper Mississippi River crested in Winona at 20.75 ft. (flood stage - 13.00 ft.) at noon on April 20. Much damage, of course, resulted from the high water as it was almost five feet deep in the ground level equipment storage areas and repair stalls and a foot deep on the floor of the warehouse.

Following the recession of the water, some early emergency work was accomplished by the hiring of temporary employees to take care of only the most urgent. Then in June, a force of 100 NYC youths were assigned to the Minnesota side of the Winona District. While the accomplishments are many and would take several pages to list, combining many of the work items shows the following having been accomplished.

All of the buildings at the warehouse installation were cleaned out and restored to very nearly their condition prior to the flood. Pictures in the picture section will show damages that occurred and the efforts in repairing same.

The main warehouse building has a transite exterior, so the sash and trim of this building was painted; the interior floor of the warehouse, the maple flooring, was removed entirely, and we are now using the sub-floor of 2 x 8 planks, without any intention of replacing the maple flooring. The south loading dock of the warehouse was severely damaged and was entirely replaced by the NYC crews to the extent of removing rotted timbers and finishing up with a highly proficient, almost professional job. The flagpole was lowered, scraped, repainted, halyard installed, and re-erected.

Many other jobs were accomplished, such as replacing damaged rip-rap along the bank of the river, scraping and repairing the cyclone fence around the installation, picking up and hauling away much debris deposited on the grounds by high water.

While much of this work at the Winona warehouse installation was taking place, other crews were at work on the Winona District on sandbar clearing by picking up debris, litter and other trash; cutting and removing dense stands of willow brush; trimming trees suitable for providing shade on sandbars; and posting the bars with anti-litter and recognition signs.

Three access areas--Half Moon Lake, Weaver Bottoms and the Baldwin Landing--were all given attention, clearing debris on the area, cutting brush, enlarging parking areas and reshaping the launching ramp. On one new area at the Weaver Bottoms, a house and barn were razed and other half rotted structures removed to pave the way for dozing and leveling of a future parking area.

Three and one-third miles of refuge boundary were cleared and re-posted, and many, many miles of boundary--both water and on land--also posted.

We were fortunate in having competent leaders in our NYC program so that much good work was accomplished and with none of the headaches of the necessity for maintaining a Job Corps type of center. Most of these youths were high school students that were at loose ends, and they contributed considerable to the economy of the community by their employment. They were paid \$1.25 per hr. and worked 40 hrs. per week. Following the beginning of school, the number of Youth Corps participants dropped to about 20, and this small crew was maintained until finally terminated the last of December.

A total of \$258,000 flood rehabilitation money was received by the refuge, and we have just about completed the programming of rehabilitation and expenditure of funds. The largest single item, the repair or otherwise placing Spring Lake Unit back into shape, has not been approved, and we are awaiting word on an alternate proposal for a cross-dike with a pumping station in the lake rather than repairing the breached dike.

There are many additional items, such as repairing overhead doors, rebuilding the warehouse lawn, completing posting, black-topping courtyard area, and the like that are planned following spring breakup in 1966.

Equipment

During the year, seven $\frac{1}{2}$ -ton pickups, one $\frac{1}{2}$ -ton carryall, one $2\frac{1}{2}$ -ton stake truck, one dump truck, and one light farm tractor were secured from excess property lists, refurbished by Maintenanceman Green, and put on the districts. These vehicles were sorely needed for student assistants and NYC crews. We were fortunate in getting basically good vehicles, and they were put into operation with not too great an expenditure of time and funds.

The usual amount of warehousing was cut somewhat this year because of the long period of time we were out of operation due to flood and rehabilitation of the buildings, although we did manage to keep up fairly well with shipping out requests as received.

Sign Shop

The Sign Shop went into full swing at the beginning of the fiscal year with W. W. Shaw as the operator of the sign machine. Following is a list of signs completed and shipped at the end of the year.

Northern Prairie Wildlife Research Center, Woodworth, North Dakota	- 1 large, 3 small
Northern Prairie Wildlife Research Center, Jamestown, North Dakota	- 1 large, 3 small
Rice Lake Refuge McGregor, Minnesota	- 33 medium and small
Upper Mississippi Refuge	- 4 small
Horicon Refuge Mayville, Wisconsin	- 4 large, 15 medium, 5 small
Des Lacs Refuge Kenmare, North Dakota	- 7 large

B. Plantings

1. Acquatics and Marsh Plants: None

2. Trees and Shrubs: None

3. Upland Herbaceous Plants: None

4. Cultivated Crops: Acres planted to crops totaled 330.9, with 121.8 acres in fallow, and 231.4 acres not planted due to flood waters. Savanna and Cassville District reports contain details on crop plantings.

C. Collections and Receipts

1. Seed and other Propagules: None

2. Specimens: One golden eagle, two bald eagles, four canvasbacks, and one ruddy were shipped to Patuxent for study. One of the bald eagles had an unusual amount of white coloration (see photo section).

D. Control of Vegetation: Treatment of a 3-1/2 mile shoreline 100 ft. wide strip with sodium arsenate and copper sulphate for control of aquatic vegetation took place via private funds on Brice's Prairie and French Island in the La Crosse District. Fifty-one and a half acres of corn were permittee sprayed with 2-4-D and/or atrazine to control weeds in the Pool 11 Cassville District.

E. Planned Burning: None

F. Fires: None

IV. RESOURCE MANAGEMENT

- A. Grazing: Seven grazing permits were in effect for a total of 394.96 AUMs. The Corps of Engineers received \$357.81 and the Service \$62.15.
- B. Haying: One permit resulted in 2,160 bales of alfalfa at $12\frac{1}{2}\text{¢}$ per bale for \$270.
- C. Fur Harvest: After the almost fantastic catch of 185,500 muskrats during the fall of 1963-spring of 1964 seasons, the total catch figures for the fall of 1964-spring of 1965 seasons were awaited with interest. A preliminary estimate based on 30% trapper returns indicated approximately 114,000 would be harvested. The final harvest figure was pegged at 116,774 muskrats based on 83% trapper returns, or a variation of 2.4% between 30% returns and 83% final returns.

While the drop from 185,507 to 116,774 harvested muskrats represents a decrease of 37%, the harvest is actually one of the four highest experienced on the refuge, all since the fall of 1961.

Complete fur catch data for the fall 1964-spring 1965 season is shown in the following table:

Fall 1964--Spring 1965

<u>State</u>	<u>No. Trappers</u>	<u>Muskrat</u>	<u>Average Rat Take</u>	<u>Mink</u>	<u>Beaver</u>	<u>Raccoon</u>
Iowa	195	20,748	106.40	139	501	352
Illinois	72	5,185	72.02	52	143	107
Minnesota	166	21,049	126.80	38	0	35
Wisconsin	439	69,792	158.98	174	130	74
	872	116,774	133.91	403	774	568

Average Price Received
Fall 1964--Spring 1965

<u>State</u>	<u>No. Trappers</u>	<u>Muskrat</u>	<u>Mink</u>	<u>Beaver</u>	<u>Raccoon</u>
Iowa	195	\$ 1.12	\$ 9.56	\$ 6.35	\$ 1.50
Illinois	72	1.07	8.96	7.99	1.55
Minnesota	166	1.09	10.67		1.62
Wisconsin	439	1.14	9.81	11.88	1.73

Some loss of early litters occurred among furbearers during the all-time record spring floods of 1965. However, 1965 populations were not considered drastically reduced as a result of the overflow, since most animals appeared able to ride out the flood waters in temporary places of refuge. Muskrats and beaver sustained some heavier than usual loss from predation and car kill when driven to adjacent shorelines.

The two previous record floods did not result in lower rat harvests as anticipated, and the final tabulations for the fall 1965-spring 1966 trapping season are awaited with interest. Considerably higher prices for muskrat will probably result in closer trapping.

At the end of December, 815 trappers held permits for 1965 fall trapping, resulting in sales of 33,629 trap tags at 10¢ each for \$3,362.90. This represents a decrease of 5.9% in number of trappers despite higher and very attractive fur prices, probably the result of fear of lack of fur due to the all-time record spring floods.

Based on the very sketchy 1965 fall returns of 92 trappers out of 815 (11.3%), the average muskrat take was 124.22 per trapper, and when projected indicates a preliminary estimated total harvest of 101,487 muskrats, a decrease of 13% but still another very fine harvest and higher than any season prior to the fall of 1960. It is believed that this harvest figure is actually an underestimate, as only six of the 92 returns to date are from Wisconsin trappers who hold over half the permits issued and invariably trap the highest average number of muskrats. It is entirely possible that the final figures, when available from approximately 85% expected returns, will indicate that the prolonged all-time record spring flood had little effect on the muskrat harvest as compared to the previous year with no major flooding.

- D. Timber: One saw log permit on Corps of Engineer lands of the refuge, but handled by this Service under special arrangements, resulted in 38,914 feet being removed for \$1,400. to the Corps less \$194.40 sale expenses to the Service. Two firewood permits for a total of 20 cords brought \$10. to the Service.
- E. Commercial Fishing: Commercial fish harvest on the Mississippi within the refuge runs between five and ten million pounds of carp, buffalo, drum and catfish.
- F. Other Uses: Service Special Use Permits, as listed below, were in effect at the end of the year:

- 121 Miscellaneous Use permits, such as boat docks, stairs, etc.
@ \$10. year.
- 1 Miscellaneous Use permit @ \$15. year.
- 1 Cash farming permit @ \$272.10 year.
- 1 Garden permit @ \$10. year.
- 8 Cabin site permits @ \$25. year.
- 1 Sand and gravel permit @ 10¢ yard--income \$1,210.70 this yr.
- 1 Sand and gravel dredging operation @ \$1. load for sand and
2¢ ton for gravel. None removed this year.
- 4 Fish float concession stand permits @ \$50. year.
- 6 Boat livery and/or harbor permits @ \$25. year.
- 1 Girl Scout Camp permit @ \$100. year.
- 1 Commercial fish holding pond permit @ \$100. year
- 1 Sawmill site rental permit @ \$25. year.
- 1 Farm building and rental site permit @ \$25. year remitted
to Corps of Engineers.
- 10 Long term free, or minimum one-payment fee, permits for
varied items.

The spring flood eliminated two miscellaneous use permits and one cabin permit on Bureau lands which were not rebuilt. The one miscellaneous use permit of 1964 which had a fee of \$50 set instead of \$10 to encourage removal and cleanup of unwanted structures failed to accomplish its purpose in 1964, but succeeded in 1965, resulting in the normal \$10 fee being charged. There is more than one way to skin a cat!

In addition, some 350 Special Use Licenses, initiated by the refuge and issued by the Corps, for miscellaneous minor uses on Corps owned lands, which are a part of the refuge under cooperative agreement, are in effect. Terms of the cooperative agreement make it our responsibility to administer such uses in the field on all Corps owned lands within the refuge.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

- A. Banding: During 1965, the Upper Mississippi Refuge banded 4,987 birds, including 4,093 wood ducks, far exceeding our quota of 3,000 woodies and topping our previous high of 3,752. Wood ducks banded by the refuge from 1958 through 1965 now total 20,165.

The following table shows species and state breakdown for 1965 bandings:

SPECIES	:	IOWA	:	ILL.	:	MINN.	:	WIS.	:	TOTAL
Wood duck	:	1,826	:	-	:	268	:	1,999	:	4,093
Mallard	:	551	:	-	:	34	:	5	:	590
Black	:	21	:	-	:	1	:	3	:	25
Blue-winged teal	:	52	:	-	:	-	:	3	:	55
Green-winged teal	:	2	:	-	:	-	:	1	:	3
Pintail	:	10	:	-	:	-	:	-	:	10
Mourning dove	:	-	:	200	:	-	:	-	:	200
Bob-white quail	:	-	:	8	:	-	:	-	:	8
Hooded merganser	:	2	:	-	:	-	:	-	:	2
Great blue heron	:	1	:	-	:	-	:	-	:	1
TOTALS	:	2,465	:	208	:	303	:	2,011	:	4,987

The normally high wood duck banding districts of La Crosse, Prairie du Chien and Cassville had to take a back seat this year to the Winona District with 1,054--largely thanks to Wildlife Aid James Hansen; and to the Savanna District with 936 from District Manager Nord and his student assistant Steve White. Cassville followed with 837 and La Crosse with 713, both excellent outputs. The Prairie District accounted for 488, which is considered outstanding also as it was the accomplishment of student assistant Larry Clanton, who worked the District without the assistance of District Manager Kotok, who was absent on Job Corps training most of the period.

District Manager Nord of the Savanna District trapped 200 mourning doves, which is the largest annual catch of the refuge to date.

One particularly interesting band return was noted where an immature male blue-winged teal banded August 11 at Lansing, Iowa was taken in Quebec September 11, exactly one month later.

- B. Audubon Christmas Count: Refuge representatives participating in this season's Christmas Count with the Hiawatha Valley Bird Club of Winona were Messrs. Gray, Krumm, Foster and Green. Field

parties from this organization censused the 15-mile diameter area centering at Lake Park Lodge in Winona, which includes portions of the Upper Mississippi and Trempealeau Refuges. A total of 42 species were noted, with 4,135 individual birds recorded. New species noted this year included the ring-billed and herring gulls, pine siskin, cedar waxwing and redpoll. The cumulative total of species since beginning of the counts now stands at 65.

- C. Mid-winter Waterfowl and Eagle Inventory: The January 4, 1965 inventory included 1,807 ducks, principally mallard and golden-eye, 22 Canada geese, 166 adult bald and 15 immature bald eagles.

In contrast, the 1966 annual winter inventory found 21,069 ducks, including 18,082 mallards, almost all of which concentrated in the Savanna District as a result of open water conditions. Eighty-one adult and 14 immature bald eagles were noted.

Project No. 1391: WOOD DUCK ROOSTING FLIGHT PHENOMENA
 Leader: Arnold O. Haugen
 Investigator: Dale Hein

Objective: To determine influences of environmental factors on Wood Duck roosting phenomena, perfect roosting flight count techniques in light of those influences, and evaluate roosting flight counts for determining Wood Duck abundance.

Results: Samples of 4 to 8 of the 15 known Wood Duck roosts in Mississippi River Pools 9, 10 and 11 were checked at weekly intervals each fall during 1960-3. Seasonal changes in numbers of Wood Ducks using fall roosts followed a strikingly similar pattern in each of the 4 years. Briefly, roosting populations in this 100-mile-long study area built up rapidly from mid-August to a pre-migration peak in the third week of September. Migration began in late September with peak numbers often present in early October. Then numbers dwindled as migrants moved southward; few woodies remained by November. This pattern was discussed in more detail in the Quarterly Report, Oct.-Dec., 1963.

A least squares regression line was fitted to the combined series of 11 counts from 25 roosts. Computational procedures followed Anderson and Bancroft (1954), and tables of orthogonal polynomial values were used from Anderson and Houseman (1942). Analysis of variance indicated that a quartic polynomial described the curvilinear regression. Quintic and, presumably, higher degree components were non-significant as were linear and cubic terms (Table 1).

Table 1. Analysis of variance for fourth degree polynomial fitted to counts made at 11 one-week intervals during fall, 1960-63, at 29 wood duck roosts in Mississippi River Pools 9, 10 and 11

Source of variation	Degrees of freedom	Sum of squares	Mean square	F-value	Probability of a higher value
Deviations from mean	10	546,211			
Linear regression	1	59,160	59,160	1.09	0.3
Deviations	9	487,051	54,117		
Quadratic regression	1	444,956	444,956	84.56**	less than 0.005
Deviations	8	42,095	5,262		
Cubic regression	1	380	380	0.07	more than 0.5
Deviations	7	41,715	5,959		
Quartic regression	1	29,325	29,325	14.20*	0.02
Deviations	6	12,390	2,065		
Quintic regression	1	3,801	3,801	2.21	0.2
Deviations	5	8,589	1,718		

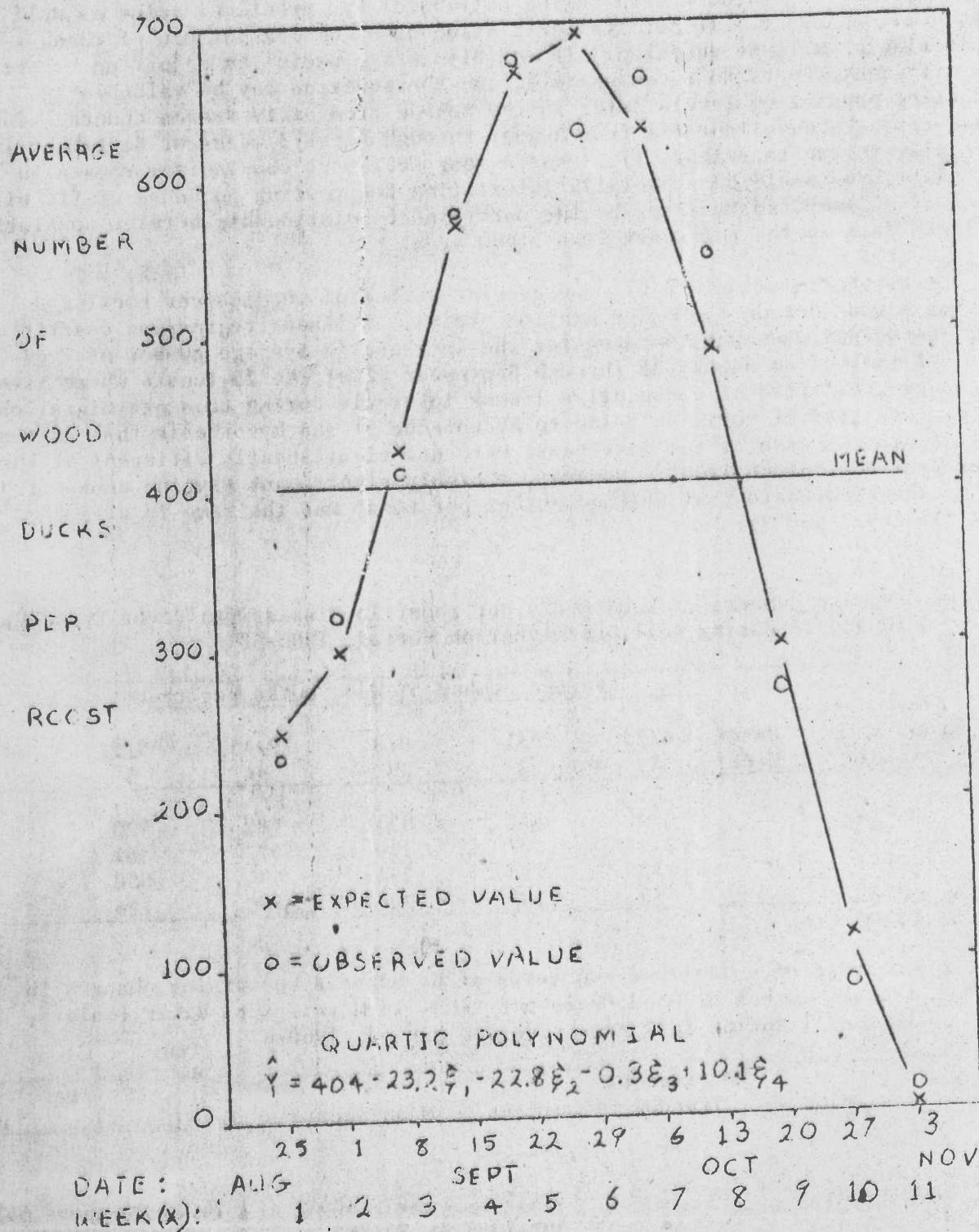


Figure 1. Curvilinear regression of numbers of Wood Ducks on time at roosts in Mississippi River Pools 9, 10 and 11 during fall, 1960-1963.

The close agreement between observed numbers of Wood Ducks and predicted numbers generated by the fourth degree polynomial has practical value as well as academic interest. It permits description of a complex pattern of changes with a single explicit equation. It may also prove useful in adjusting counts from different roosts to a common date, and the equation may be valuable in predicting population levels later in the season from early season counts. For these uses, the excellent fit from August through first 3 weeks of September is especially fortunate (Figure 1). Season-long series of counts from roosts in other latitudes would be especially interesting for testing goodness-of-fit with the equation computed to describe the curvilinear relationship between population level and date in the northeast Iowa study area.

The strong relationship between average number of woodies per roost and date was linear during the pre-migration period. A linear regression coefficient of 123 birds per week was computed for the increase in average number of Wood Ducks per roost from August 25 through September 22 at the 25 roosts where five counts were collected at consecutive 1-week intervals during this pre-migration period. Analysis of covariance led to acceptance of the hypothesis that regression coefficients for each of the four years were not significantly different at the 95 per cent confidence level. However, a highly significant F-value caused rejection of the hypothesis that average number per roost was the same in different years (Tables 2 and 3).

Table 2. Average numbers of Wood Ducks per roost in Mississippi River Pools 9, 10 and 11 during fall pre-migration period, 1960-63

Year	Number of roosts in sample	Date: Week:	Average number of Wood Ducks per roost				
			8/25 1	9/1 2	9/8 3	9/15 4	9/22 5
1960	7		451	512	631	782	920
1961	8		211	267	350	377	487
1962	6		111	289	384	534	608
1963	4		95	163	220	690	726

Table 3. Analysis of covariance and tests of hypothesis concerning changes in average number of Wood Ducks per roost in Mississippi River Pools 9, 10 and 11 during fall pre-migration period, 1960-63

Source of variation	Degrees of freedom	Sum of squares	Mean square	F-value	Level of significance
Total	19	1,045,483			
Linear regression	1	599,760	599,760	24.22	above 99%
Deviations	18	445,723	24,762		
Adjusted means	3	326,085	108,695	13.63	above 99%
Common	15	119,638	7,976		
Regression coefficients	3	58,394	19,465	3.81	below 95%
Within years (error)	12	61,244	5,104		

Project No. 1391: WOOD DUCK ROOSTING FLIGHT PHENOMENA
 Leader: Arnold O. Haugen
 Investigator: Dale Hein

Objective: To determine influences of environmental factors on Wood Duck roosting phenomena, perfect roosting flight count techniques in light of those influences, and evaluate roosting flight counts for determining Wood Duck abundance.

Results: 1965 Spring Wood Duck flight counts were scheduled to be made about April 20 on the Upper Mississippi Refuge. Record high water and impassable roads during April stymied efforts of observers to make counts at many stations. However, counts were made by 6 observers at mouths of 14 tributaries of the Mississippi River. The extremely high water undoubtedly altered distribution and movements of Wood Ducks from what would be expected in normal springs. For example, most of the 170 Wood Ducks counted at the mouth of Sny-Magill Creek were entering that valley to feed in several flooded cornfields and did not accurately represent the nesting population associated with Sny-Magill Creek. Data from 11 comparable counts indicated an 11% decrease in abundance of Wood Ducks compared with the previous spring; the decrease was non-significant (Table 1).

Table 1. Wood Duck flight counts on the Upper Mississippi Refuge, April 1963-65

Pool	Flight	April 1965 data		Number of Wood Ducks counted		
		Date	Observer	1963	1964	1965
4	Zumbro River	20	K. Krumm	19		9
5	Indian Creek	22	B. Foster	22	7	18
5	Whitewater River	20	B. Foster	(214)	(350)	(15)
6	Cedar Creek	21	K. Krumm	15	6	9
7	Dakota Creek	22	E. Lawson	15	8	9
8	Root River	19	E. Lawson	17	49	52
8	Wildcat Creek	19	E. Lawson	44	31	46
9	Crooked Creek	20	E. Lawson	88	89	25
9	Village Creek	20	E. Lawson	36	68	16
10	Sny-Magill Creek	23	D. Hein	(48)	(14)	(170)
11	Little Maquoketa	24	D. Hein	19	15	26
12	Catfish Creek	22	D. Roslien	33	19	61
13	Maquoketa River	19	R. Nord	27	16	16
13	Elk River	20	R. Nord	11	14	9
TOTALS - 11 flights ¹						
Total Wood Ducks counted -				327	322	287
Index value -				100	98	88
Change from previous year-base year					- 2%	- 11%
TOTALS - 13 flights ²						
Total Wood Ducks counted -				589	686	477
Index value -				100	116	80
Change from previous year -base year					+ 16%	- 30%

¹ Excludes Zumbro R., Whitewater R. and Sny-Magill Cr. as not comparable.

² Excludes only Zumbro R., where no count was made in 1964.

The results and recommendations from this study were presented in a Doctor of Philosophy degree deposited in the Iowa State University library.

Thesis abstract:

Hein, Dale Arthur. 1965. Wood Duck roosting flight phenomena. PhD thesis on file in Iowa State University Library, Ames. 200 p.

"Roosting flights, roosts and population characteristics of wood ducks were investigated during fall, 1959-1964. Counts of wood ducks and related data were collected during 768 morning and evening flight periods at 52 roosts. The primary study area was a 100-mile-long segment of the Upper Mississippi River Wildlife and Fish Refuge in northeastern Iowa.

Distance between roosts averaged 6.5 miles in continuous habitat. Roosts were in many types of emergent vegetation. Barring catastrophic changes in habitat, roost sites were used each night and fall after fall. Migrants used roosts established by local birds in August. Changes in vegetation and water levels caused shifts in roost centers. Areas of roosts ranged from one-half to about 300 acres. Numbers at a roost ranged up to 5,400.

Seasonal changes in roosting populations were similar every year. Numbers reached a premigration peak about September 20, the recommended date for making roosting flight counts to be used as an index to annual changes in abundance of wood ducks. Radial dispersal occurred in late September. Migrants ebbed southward during October; few remained in November.

Seasonal changes in times of roosting flights were described as functions of time, but light controlled times of flights. As fall advanced, flights were compressed in time toward darker ends of flight periods. Metabolic and social appetites appeared to stimulate roosting flights, with changing illumination at low intensities triggering flights.

Procedures were recommended for implementing a roosting flight count index in Iowa and the upper Mississippi River Valley which would detect fall-to-fall change greater than 15 per cent in wood duck abundance. Wood duck populations, habitat and effects of hunting were discussed in relation to roosting habits.

Wood duck populations were also studied during March to June, 1962-1963, in Mississippi River Pool 10 in northeastern Iowa. Spring use of fall roosts was sporadic. Resident wood ducks arrived in small flocks as soon as major tributaries were ice-free in March. Sex ratio was 110 to 128 drakes per 100 hens. During April many pairs roosted in the bottoms but spent the days searching for nesting cavities feeding and loafing outside of Pool 10. Most hens were incubating by mid-May, and the first brood was seen on May 29, 1962 and 2 weeks earlier in 1963. The nesting population associated with Pool 10 was 480 pairs in 1962 and 530 pairs in 1963. Each year 65 per cent of the pairs nested in tributary valleys or on bluffs bordering the flood plain. Density of the breeding population was 0.6 pairs per 100 acres in 50 square miles of bottomlands.

Flight counts at mouths of tributaries were superior to river float counts as an index to trends in abundance of wood ducks. Recommendations were made for using mid-April flight counts as an index to annual changes in nesting populations of wood ducks associated with the Upper Mississippi Refuge."

RECREATIONAL USE BY TYPES AND REFUGE DISTRICTS
Upper Mississippi River Wildlife and Fish Refuge
Period: 1965

USE	: Period	: Winona	: La Crosse	: Lansing	: Prairie	: Cassville	: Sav.-Clinton	: REFUGE TOTAL
FISHING	: Spring	: 10,200	: 45,800	: 7,820	: 7,675	: 11,515	: 12,700	: 95,710
	: Summer	: 87,400	: 93,350	: 46,400	: 46,300	: 33,400	: 91,200	: 398,050
	: Fall	: 15,550	: 63,000	: 37,100	: 15,750	: 17,700	: 27,200	: 176,300
	: TOTAL	: 113,150	: 202,150	: 91,320	: 69,725	: 62,615	: 131,100	: 670,060
MISCELLANEOUS	: Spring	:	:	:	:	:	:	:
	: Summer	:	:	:	:	:	:	:
	: Fall	:	:	:	:	:	:	:
	: TOTAL	: 648,380	: 176,750	: 108,835	: 56,198	: 50,085	: 177,678	: 1,217,926
HUNTING	: Ducks	: 11,200	: 33,830	: 2,940	: 4,760	: 3,690	: 7,820	: 64,240
	: Upland game	: 500	: 2,655	: 150	: 70	: 445	: 930	: 4,750
	: Deer	: 625	: 1,755	: 622	: 100	: 341	: 955	: 4,398
	: TOTAL	: 12,325	: 38,240	: 3,712	: 4,930	: 4,476	: 9,705	: 73,388
TOTAL USE	:	: 773,855	: 417,140	: 203,867	: 130,853	: 117,176	: 318,483	: 1,961,374

Comments: Decreases of 24½% in fishing and 4.9% in miscellaneous use as compared to 1964 were due to extended period of high water resulting from the spring record flood, resulting high stream flow, and reports of heavy damage and debris discouraging tourist use. Hunting showed a 15.8% decrease, partly due to the one mallard limit in effect.

Conversion of these figures to hours per visit and 12-hour days to ascertain visitor days will be found on the next page. Average hours per each visit for all uses was found to be 4.5 hours.

A. Recreational Use

VI. PUBLIC RELATIONS

VI-1

1965 PUBLIC USE - CONVERSION FACTORS
Upper Mississippi Refuge

	<u>Number of Visitors</u>	<u>Estimated Average Hours for Each Visit</u>	<u>Total Hours</u>
<u>A. Hunting</u>			
Waterfowl.....	64,240	4.64	298,073
Upland Game.....	3,135	2.7	8,465
Big Game.....	4,398	6.0	26,388
Other 1/.....	1,615	4.5	7,267
Total 2/	73,388	4.63	340,193
<u>B. Fishing</u>			
Total 2/	670,060	4.40	2,948,264
<u>C. Miscellaneous</u>			
Nature Study 3/.....	25,031	2.4	60,074
Driving & Sightseeing.....	81,552	2.2	179,414
Picnicking.....	233,706	4.1	958,194
Swimming.....	176,390	2.6	458,614
Boating 4/.....	505,925	3.6	1,821,330
Ice Skating.....	2,656	1.9	5,046
Water Skiing.....	79,845	3.3	263,488
Camping, Tent.....	44,158	20.7	914,070
Camping, Trailer or Camper			0
Camping, Group.....	2,600	43.2	112,320
Other Accommodations.....	34,435	19.8	681,813
Berry & Mushroom Picking..	653	2.3	1,501
Visitor Centers & Museums.			0
Other Uses (Identify)			
Trapping.....	26,395	4.6	121,417
Other Economic Use.....	2,030	2.1	4,263
Educational Tours.....	100	1.0	100
Official Visitors.....	2,450	1.5	3,675
Total 2/	1,217,926	4.58	5,585,319
<u>D. Grand Total of A, B, C 2/</u>			
	1,961,374	4.52	8,873,776

Total hours divided by 12 equals number of Visitor-days 739,481

Sport fishing makes up approximately 40% of the recreational use of the refuge. There are approximately 3/4 million or more sport fishing days logged on the Upper Mississippi Refuge annually. The following study report as published in the Sport Fishing Institute Bulletin details the Mississippi River sport fishery of the 25 upper pools, of which Pools 4 through 16 make up the Upper Mississippi Refuge.

"The 1962-63 sport fishery of the Mississippi River, between St. Louis and Minneapolis, was surveyed by members of the Upper Mississippi River Conservation Committee. The survey, involving intensive catch sampling in 7 of the 25 navigational pools involved, was a cooperative effort by fishery biologists from Illinois, Iowa, Minnesota, Missouri, and Wisconsin.

A mimeographed report of survey findings (by Robert C. Nord, U.S. Bureau of Sport Fisheries and Wildlife, La Crosse, Wisconsin) reveals that two-thirds of the anglers reached the river only by means of private access. Boat fishing accounted for 48 per cent of total fishing hours; bank, barge, and ice fishing, collectively, made up the remaining 52 per cent. On the average, one fish was caught for every hour and seven minutes of total fishing time; anglers caught fish faster when ice fishing than when fishing on open water.

Walleyes are the most sought-after species, followed by saugers, bluegills, crappies, and channel catfish. Bluegills were the species most frequently caught. They were followed in frequency of capture by crappies, channel catfish, white bass, freshwater drums, saugers, yellow perch, bullheads, walleyes, and largemouth bass. The total catch by anglers, from the entire stretch of river involved, was calculated to include about 6,783,000 sport fishes weighing some 4,182,600 pounds. This is equivalent to a harvest of 5.8 pounds per acre.

These millions of fish were taken by an estimated 1,648,000 anglers who fished approximately 7,322,000 hours. Thus, an average of 4 to 5 fish were caught per angler, each of whom fished an average of nearly $4\frac{1}{2}$ hours. Estimated economic value of the recreational fishing involved (using the arbitrarily assigned "interim schedule value" of \$1.50 per angler-day) came to \$2,471,000. Overall fishing success has apparently changed little during the past 20 years. In a few areas, however, the fishing has somewhat improved."

Pleasure boating is one of the major miscellaneous uses and usually is combined with sandbar swimming, picnicking, fishing, camping, or just plain cruising. The pleasure boat lockage figures for Pools 4 through 10 as compiled by the Corps of Engineers illustrates this extensive use. The large decrease in 1965 can be directly attributed to the fantastic spring flood and hazardous river conditions existing for several weeks.

PLEASURE BOATS THROUGH LOCKS
Pools 4 to 14 of Mississippi River
(4 persons per boat)

Lock and Dam	1960	1961	1962	1963	1964	1965
4	4,305	4,361	3,943	4,225	4,347	3,621
5	2,846	2,919	3,295	3,202	3,192	3,034
5A	7,421	7,932	6,389	7,128	7,158	5,111
6	3,697	3,828	3,591	4,095	4,484	3,505
7	6,849	8,041	7,152	8,337	8,603	6,226
8	4,069	3,719	3,683	5,157	4,893	3,694
9	5,186	5,596	4,333	5,243	5,468	3,935
10	5,654	5,870	5,097	6,218	6,720	4,326
11	2,379	2,677	2,256	2,370	2,542	1,961
12	2,297	2,044	2,022	2,071	2,224	1,717
13	2,123	2,014	1,797	1,891	1,944	1,540
14	3,895	3,308	2,795	2,923	3,093	2,204
Totals	50,721	52,309	46,353	52,860	54,668	40,874
Percent change from previous year		+3.13%	-11.39%	+14.03%	+3.42%	-25.24%

2. Anti-litter Patrol

The fourth annual refuge-wide anti-litter patrol was conducted June 27, 1965. Organized in 1962 with the aid of state and local agencies enlisted to contact all river users possible during the season of heaviest recreational use, it has served as an important means of educating the public on litter control responsibilities. Following dissemination of anti-litter publicity through local news media in local press, radio and TV outlets, patrolboats take off from prearranged meeting places along the 284-mile refuge reaches. Manned by uniformed mixed crews of federal, state, and local enforcement officers to meet any jurisdictional problems in these interstate waters, the patrol contacts all river users. Recreationists are informed of the outdoor litter dilemma and reminded of regulations on authorized disposal of same at approved roadside facilities or returning it to the home trash can. Violators are ticketed for court appearances.

The 1965 patrol was partially disrupted by violent storm winds and rough waters caused by a storm front moving over the upper river valley. An aircraft equipped with loudspeaker and radio equipment utilized to coordinate the water patrol and make announcements to the beach crowds, had to return after a short flight. Despite these disappointing disruptions of the schedule, some 1,200 persons were contacted along the river. The littering problem has been alleviated along the Upper Mississippi, though considerable work remains yet to be done on this dilemma.

REFUGE VISITORS

Refuge: Upper Mississippi River Wildlife and Fish Refuge
 Period: January - December, 1965

B. REFUGE VISITORS

DATE	PERSONS	PURPOSE
2/2	Lefty Hymes, Winona Daily News	Obtain material for feature article
2/4	Scout Leader, Pickwick	Discuss wood duck nest boxes
2/18	Bob Schultz, Bill Hammes, James Spangler, Forester	Cut radio tape
3/4	Stan Apel, WCD Warden	Courtesy call
3/12	Manager Carter, Clerk Bushweiler, Horicon Refuge	Pick up signs and discuss sign shop operation
5/11	Messrs. Benson and Ferguson, C of E, St. Paul	Discuss land management problems
6/7	Joe Richey, RO Engineer	Inspect flood damage
6/23	Asst. Sup. Reeves, M&E-RO and MCD representative	Discuss banding and release of FFA ducks
6/30	GMA Marshall Stinnett	Discuss dove count & Horicon goose situation
7/13	Mr. Monson, Washington & Mr. Trecker RO	Inspect recreational aspects of refuge
7/15	Bob Arrowsmith, Necedah Refuge	Pick up supplies
7/30	Messrs. Daley and Seidel, WSC students	Cut radio tape
8/9	NYC representative Miller, St. Paul	Check NYC crews working on sandbars
8/10	John Winship, RO Pilot Biologist	Discuss aerial surveys
8/10	Charles Scheffe, Realty, RO	Discuss land cases
9/2	NYC representative Miller, St. Paul	Discuss NYC progress and operations
9/10	Francis Teske, MCD Warden	Cut radio tape

REFUGE VISITORS

Refuge: Upper Mississippi River Wildlife and Fish Refuge
 Period: January - December, 1965

DATE	PERSONS	PURPOSE
9/21	WCD Wardens Peterson, Kubisiak and Gardner	Cut radio tape
9/22	Messrs. Britt, Washington and Aultfather, RO	Discuss timber management problems and make wood duck roost count.
9/27-10/1	Asst. Reg. Sup. Frank Martin, RO	Refuge inspection
10/11	Reservation Ranger VonLorenz, C of E, St. Paul	Discuss problems re public use and encroachments
10/12	Messrs. Benson and Ferguson, C of E, St. Paul	Discuss land use of project lands
10/12	Ron Easton, RO	Pick up property for Ottawa Job Corps
10/15	Messrs. Benson and Ferguson, C of E, St. Paul	Discuss contacts with District Managers
10/15	WCD Warden Kubisiak	Discuss hunting violations
10/23	Herb Dill, RO	Discuss goose nest platforms.
11/2	Ron Easton, RO	Accompany staff to Columbus, Ohio for excess property
11/9	Chuck Griffith, RO	Courtesy call
11/12	WCD Warden Everson	Cut radio tape
11/12	John Carlson, Sherburne Refuge	Pick up supplies
11/13	T. P. Bannister, Minneapolis	Discuss Pool 4 closed areas
11/22	Ed Collins, Necedah	Mutual problems
12/21	Henry Langer, COof E, St. Paul	Inspect aerial photos Pool 10

C. Refuge Participation

Winona office personnel participated in numerous meetings or public relations activities during the year. The following highlights are mentioned in this category and do not include numerous non-official participation in other activities with lodge, church or service groups. Tabulations of activities by all District personnel are included in the special reports section.

- 3/17 - Panel discussion by Manager Gray with representatives of Winona State and St. Mary's College science departments and local IWLA Chapter on water pollution problems.
- April - Presentation of lectures and instruction by Dr. Green and Manager Gray at Arden Hills training school for refuge management personnel.
- 5/21 - Talk by Manager Gray at Governor Rolvaag's conference on "Keeping Minnesota Clean."
- June - Illustrated talk by Mr. Foster at Winona County 4-H Congress
- 7/20 - Field trip and illustrated talks for Albert Lea Schools Summer Science Course--Green, Krumm, Lawson
- 7/23 - Illustrated talk by Manager Gray at Backbone State Park, Strawberry Point, Iowa on planning, zoning for recreational activities, and preservation of scenic values. Conference of local, state and federal officials with Secretary Udall and Congressman Culver on this theme.
- 7/24 - Lecture at Winona State College Conservation Workshop for elementary and high school teachers at Whitewater State Park--Green
- 12/4 - Illustrated talk at Minnesota State Ornithologists Union annual meeting at U. of M. Museum--Krumm

Type and Number of Meetings by Winona Personnel

<u>Name</u>	<u>Govern- mental</u>	<u>School</u>	<u>Service Club</u>	<u>Church Groups</u>	<u>Bird Club</u>	<u>Sports/ Conserv.</u>	<u>Prof. Scie.</u>	<u>Youth Group</u>	<u>TOTAL</u>
Gray	19	3	2		1	2	2	2	31
Green	14	3			2	1	4	3	27
Foster		1				-		1	2
Krumm	1	7	4	3	8		1	3	<u>27</u>
									87

C. Refuge Participation
 2. "Conservation in Action"

The weekly radio program, "Conservation in Action", was continued through 1965. Inaugurated during the summer of 1963, it has featured conservation activities of this and other refuges and state conservation agencies, hunting and fishing regulations, law enforcement, and natural history of the Upper Mississippi Valley. Two of the programs in March featured tape-recorded lectures and discussion by panelists who reviewed the water pollution problem at a symposium sponsored by the refuge and local colleges during National Wildlife Week. A listing of programs follows, with names of participants.

<u>Title of Program</u>	<u>Participants</u>
The University Museum and Answers to Natural History Questions	Dr. Breckenridge (U of M) Tyler (Winona Bird Club)
Captive Goose Flocks and Transplants	Green, Thornsberry, Timmerman
Facts and Fables in the Wildlife World	Green, Krumm
Summary of Past Waterfowl Season and News Items by Bureau	Gray, Foster, Krumm
Minnesota Wildlife and Laws Governing Taking of Fish and Game in Minnesota	Teske (Minn. Conservation Dept.) Krumm
Upland Game Birds of North America with Calls	Krumm
The Wing Bee Sessions	Green
Minnesota Memorial Hardwood Forest	Meyer (MCD) Krumm
Birds of Prey and their Calls	Krumm
Amphibia of the Upper Mississippi and other Regions with Recorded Calls	Krumm
Pollution Problems on the Mississippi	Krumm, Foster

Pollution Problems on the Mississippi (section of panel discussion on organic and radiological pollution studies)	Dr. Fremling (Winona State College), Bro. George (St. Mary's College)
Pollution Problems on the Mississippi (discussion of pollution problems as affecting wildlife and fisheries and interests of the sportsmen)	Hoesley (IWLA Chapter) Gray
The Wisconsin Conservation Department	Apel (WCD) Foster
Waterfowl Migration on the Upper Mississippi Refuge	Foster, Krumm
Organization and Field Studies of the Winona Bird Club	Mrs. Dahm, Mrs. Gordon, Mr. Lipsohn (WBC), Krumm
Refuge Managers Training School	Gray, Green
The Wood Duck	Green, Krumm
The Wood Duck Banding Program	Green, Krumm
The Littering Problem	Gray, Krumm
National Safe Boating Week	Clark (Coast Guard Auxiliary) Gray
The NYC Job Corps at Tamarac	Robley W. Hunt, Green
Tamarac National Wildlife Refuge	Robley W. Hunt, Green
Bird Studies in SE Minnesota	Daley, Seidel (WSC students)
General News Notes from Bureau Press Releases	Krumm
Bird Studies in the Winona Area	Daley (Winona State College), Krumm
Bureau News Notes	Green, Krumm
The Teal Season	Gray, Green, Foster, Krumm
Appraisal of the Teal Season	Gray, Krumm
Wisconsin Small Game Season	Kubisiak (WCD), Gray

Wisconsin Hunting and Fishing Code	Gardner, Kubisiak, Peterson (Wis. Cons. Dept.), Krumm
Minnesota Deer Season	Teske (MCD), Krumm
Wisconsin Deer Season	Everson (WCD), Gray, Green, Krumm
An Evaluation of the Wisconsin Season in Buffalo County	Everson (WCD), Foster, Krumm
Winona Bow Hunters Club and Hunting Methods, Success	Vose, Hoesley, Gilchrist (Winona Bow Hunters Club), Krumm

3. National Wildlife Week Observance

National Wildlife Week activities featured the Federation's theme--"Pollution". Refuge sponsored activities designed to focus public attention on this urgent problem were as follows: Ten press releases were made to 30 newspapers. Sixteen radio news items and short announcements were provided to 11 radio stations and 3 to one TV station. Seven radio programs, totaling 1 hour and 50 min. of broadcast time, were given over two radio stations at Winona, Minnesota and Prairie du Chien, Wisconsin. Twenty-one library exhibits were arranged for at 11 cities, and eight window type exhibits were arranged in three cities. Thirty-three illustrated talks were given by refuge personnel to 33 audiences, including 2,387 persons in school, sportsmen, and other meetings. Six Service sponsored films were provided to 10 audiences at school or other meetings.

Outstanding activity of the observance in 1965 was a panel type discussion arranged with the Service, local colleges, the Izaak Walton League, and State Pollution Board representatives scheduled for the symposium. A severe March blizzard prevented Dr. M. M. Hargraves, State Pollution Control Board Chairman, from appearing on the panel. A small but enthusiastic audience defied highway travel warnings to struggle across town to Winona State College and hear the remaining panelists--Manager Don Gray, Dr. Calvin Fremling of Winona State College, Bro. George of St. Mary's College, and Gilbert Hoesley, local IWLA representative--discuss this vital issue of pollution. Subject matter under discussion included effects of river pollution on our wildlife, with films of the great oil spill in 1963, Mayfly abundance as an indicator of pollution, radiological pollution studies on the Mississippi, and the viewpoint of our sportsmen on the pollution problem.

4. Hiawatha Valley Bird Club

Refuge personnel of the Winona office have participated regularly in activities of the local Hiawatha Valley Bird Club of Winona, including presentation of several illustrated talks and films, serving on organizational committees or boards, and participating in the annual Christmas field counts. Visiting members of a small out-of-town delegation of birders who regularly attended the Winona meetings approached Kenneth Krumm of the refuge staff regarding formation of a similar club in nearby La Crosse, Wis. Accompanied by HVBC officers Gerald Daley and Mr. Voelker of Winona, he attended a preliminary organizational meeting with La Crosse residents on May 7 to counsel this group on formation of such a similar association. This neighboring city of 45,000 now has its own bird club with an active program and field trips in that locality.

5. Albert Lea Schools Summer Science Program

An enrichment program for volunteer students through summer field science studies has been organized by the Albert Lea, Minnesota school system. First organized in 1965, the program is to be expanded this year through addition of a field laboratory mounted on a trailer unit and provision of other equipment and facilities to facilitate instruction of the selected student groups on various individual and group study projects. The Upper Mississippi Refuge cooperated with this group last season in providing field trip guidance and illustrated lectures. A questionnaire to the students evaluating the program revealed that field trips and instruction at this refuge was rated first in educational value to the visiting class. The school authorities requested participation of an Upper Mississippi Refuge representative on the planning committee of 19 persons representing public resource agencies, business, industry, etc. to organize the future curriculum. An application has been made under Title 3 by the school for financing future field studies. Suggestions provided by this station for the course of study included vegetative transect studies, plant, mammal and bird identification, and visits to fisheries and limnological laboratories operated on the river by this Bureau or local colleges.

D. Hunting

Hunting of all species is permitted on approximately 80% of the refuge in accordance with State seasons. Twenty percent of the refuge consists of closed waterfowl areas and all hunting is prohibited on these areas from March 1 until the close of the duck season. After the close of duck season, these closed areas may be hunted in accordance with State seasons and laws until March 1.

Detailed overall hunting use figures will be found under recreational use. Detailed waterfowl bag check data for both the special teal season and the regular waterfowl season follow this page.

E. Violations

Refuge personnel were involved in 80 cases made during 1965. These consisted of 49 hunting, 21 litter, 4 fishing, and 3 each trapping and boat safety. Details are included in the district narratives.

We have been attempting to secure the removal of four floating boathouses in Pool 7 and two in Pool 5A which were in isolated locations outside of zoned boathouse areas. Three cases were referred to the U. S. Attorney and U. S. Commissioner, resulting in charges being dropped on two after removal. The third case is not settled to date. Referral of the balance is anticipated.

Two island land ownership disputes in Pool 9 are still pending in the courts with settlement anticipated in 1966.

The timber trespass case in Pool 10 remains in the process of settlement through the solicitor's office.

SUMMARY OF WATERFOWL BAG CHECK DATA
Upper Mississippi River Wildlife and Fish Refuge
Period: Regular 1965 Season

	Bag checked			Loss data			Hunting hour data		
	No.	Ducks	Average	Hunters	Ducks	Coot	Hunters	Ducks	Hours
District	hunters	killed	kill	asked	lost	killed	asked	killed	hunted
Winona	1,037	1,145	1.10	1,007	302	131	1,037		4.351
La Crosse	863	1,370	1.58	863	295	244	863		3,452
Lansing	495	570	1.15	495	209	138	495		2,855
Prairie	136	153	1.12	68	32	19	136		614
Cassville	190	187	.98	190	62	22	190		622
Sav.-Clinton	57	79	1.39	54	15	0	57		370
TOTALS	2,778	3,504	1.26			554			
				Average loss			Average hrs. per duck		3.50
				.34			Average hrs. hunted		4.41
TOTALS									
PREVIOUS				Average loss			Average hrs. per duck		1.91
YEAR	4,068	8,870	2.18	.48		341	Average hrs. hunted		4.17

Comments: The hunter bag of 1.26 birds per day is in close alignment with long term refuge averages. The previous year's average of 2.18 was the highest record and heavily influenced by over 55% of the bag checks being made on opening day. Based on 61,715 estimated refuge hunter days use, the bag was 77,761 ducks plus 20,983 lost for a total removal of 98,744 ducks.

UM-1

Bag Check Summary of Species Taken
Upper Mississippi River Wildlife and Fish Refuge
Period: Fall 1965 Regular Season

	::	1963	::	1964	::	1965
No. hunters checked	::	3,973	::	4,068	::	2,778
No. ducks checked	::	6,890	::	8,870	::	3,504
Average ducks per day	::	1.73	::	2.18	::	1.26

Species	::	No.	:	%	::	No.	:	%	::	No.	:	%
Mallard	::	1,870	:	27.14%	::	2,538	:	28.61%	::	725	:	20.69%
Black	::	46	:	.67	::	93	:	1.05	::	57	:	1.63
Gadwall	::	54	:	.78	::	111	:	1.25	::	166	:	4.74
Baldpate	::	612	:	8.88	::	1,328	:	14.97	::	842	:	24.03
Pintail	::	211	:	3.06	::	320	:	3.61	::	60	:	1.71
G.w.teal	::	372	:	5.40	::	887	:	10.00	::	176	:	5.02
B.w.teal	::	1,541	:	22.37	::	1,528	:	17.23	::	523	:	14.93
Shoveller	::	13	:	.19	::	35	:	.39	::	7	:	.20
Wood duck	::	2,023	:	29.36	::	1,451	:	16.36	::	364	:	10.39
Redhead	::	-	:	-	::	57	:	.64	::	71	:	2.03
Ring-neck	::	93	:	1.35	::	318	:	3.58	::	203	:	5.79
Canvas-back	::	-	:	-	::	32	:	.36	::	98	:	2.80
Scaup	::	40	:	.58	::	134	:	1.51	::	152	:	4.34
Golden-eye	::	2	:	.03	::	5	:	.06	::	23	:	.66
Buffle-head	::	4	:	.06	::	8	:	.09	::	16	:	.46
Ruddy	::	3	:	.04	::	5	:	.06	::	4	:	.10
Mergansers	::	4	:	.06	::	7	:	.08	::	17	:	.48
Scoter	::	3	:	.04	::	1	:	.01	::	-	:	-
Old squaw	::	-	:	-	::	Unk 12	:	.14	::	-	:	-

Hunters took ducks as follows:

4*	::	642	:	16.16%	::	1,123	:	27.60%	::	217	:	7.81%
3*	::	655	:	16.49	::	680	:	16.72	::	224	:	8.06
2	::	682	:	17.17	::	750	:	18.44	::	490	:	17.64
1	::	993	:	24.99	::	838	:	20.60	::	984	:	35.42
0	::	1,001	:	25.19	::	677	:	16.64	::	863	:	31.07

1965: 4 duck limit including not more than 1 mallard, 1 pintail, 2 cans, 2 wood
 * duck plus bonus scaup. (Minn. limited redhead; did not have bonus scaup).

1964: 4 duck limit including not more than 2 mallards, 2 cans and/or redheads,
 2 wood ducks.

1963: 4 duck limit including not more than 2 mallards and/or blacks, 2 woodies,
 no cans or redheads.

For the second time since 1946, the mallard lost his place as principal bird in the bag. In 1963 the woodie took over. This year the baldpate was number one bird in the bag at 20.69% of the total, no doubt in part due to the 1 mallard limit.

SUMMARY OF WATERFOWL BAG CHECK DATA
Upper Mississippi River Wildlife and Fish Refuge
Period: 1965 Special Teal Season

District	Bag checked			Loss data		Illegal	Hunting hour data		
	No. : hunters	Ducks : killed	Average : kill	Hunters : asked	Ducks : lost	Coot killed	Hunters : asked	Ducks : killed	Hours : hunted
Winona	222	350	1.58	205	123	0	222	350	1,001
La Crosse	43	63	1.47	43	14	1	43	63	152
Lansing	30	24	.80	30	15	0	30	24	116
Prairie	0	0	-	0	0	0	0	0	0
Cassville	28	29	1.04	28	5	3	28	29	111
Sav.-Clinton	35	66	1.89	35	13	0	35	66	205
TOTALS	358	532	1.49	341	170	4	358		1,585
				Average loss			Average hrs. per duck		2.97
					.50		Average hrs. hunted		4.43
TOTALS									
PREVIOUS				Average loss			Average hrs. per duck		
YEAR							Average hrs. hunted		

Comments: Wisconsin closed season. Minnesota 2 $\frac{1}{2}$ day season. Iowa and Illinois 9 day season. Illegal checked kill included an additional 3 wood ducks and 1 hooded merganser. Performance survey indicated 20% of hunters in violation. Management problems included almost equal numbers of wood duck, widgeon and teal present, as well as extremely dense emergent cover making enforcement most difficult. Legal checked kill consisted of 20 green-winged and 512 blue-winged teal. Based on an estimated 2,525 hunter days, the total teal harvest amounted to 3,762 in the bag and 1,263 lost, for a total removal of 5,025 teal.

VII. OTHER ITEMS

A. Items of Interest

1. Personnel: Again this year, seven temporary employees--all college students--were hired to work with the District Managers on their many and varied tasks. Details are noted in the District reports.

Assistant Refuge Manager Kenneth Krumm completed his first 30 years and was presented the 30-year pin by Refuge Manager Gray.

Clerk-Steno Lorraine Joswick and Maintencemanceman Duncan Green were each given an Outstanding Performance rating and a Superior Performance Award of \$150. each. The staff was happy to see two of its hard working members so honored.

Refuge Manager Neilson closed out a 31-year career when he retired as of December 30, 1965. All of Mike's experience was on the Winona District and Trempealeau Refuge. He made many friends for the refuge and saw considerable change take place in "Ol' Man River". We all wish him and the Mrs. a long and happy career ahead. Knowing Mike, we don't believe he'll be sitting idle much of the time.

William Bair, Refuge Manager in the Cassville District for 2½ years, transferred to replace Neilson on the Winona District the first part of December. Bill has had his hands full getting acquainted with the new area and meeting cooperators. He also has the task of writing the Narrative Report for both Districts.

As of this writing, the Cassville District is still vacant.

The Prairie du Chien District again changed hands in 1965 when Manager Joe Kotok was promoted and transferred to the Ottawa Job Corps Conservation Center on September 8, 1965. Joe had been on the refuge but nine months and made considerable progress on many District problems. We regretted seeing him leave and wish him the best of luck in his new endeavors.

We were fortunate in getting the post filled by the level transfer of another energetic young man, Robert L. Wright from the Tamarac National Wildlife Refuge, who reported September 5, 1965. Bob is the second of the eligible bachelor society of the Upper Mississippi Refuge, joining Dick Nord of Savanna. Bob has "turned to" and finds learning the ropes at a one-man station somewhat different than when he first reported at Tamarac, but he is coming along in fine shape.

2. Refuge Inspections: Mr. Gale Monson, Refuges CO, and Mr. Edgar Trecker, Refuges RO, made an inspection tour of the refuge July 10-13, covering public use and recreational aspects.

Mr. Robert Britt, Refuges CO, and Mr. Wm. Aultfather, Refuges RO, made a one-day inspection tour of certain forested areas in the Black River Bottoms, Pool 7, of the La Crosse District.

Assistant Regional Refuge Supervisor Frank Martin made a five-day inspection of the refuge from north to south. Opportunity to inspect areas by boat was afforded in the Winona and Savanna districts. It was possible for Mr. Martin to discuss district problems with each District Manager, both in offices and out on the districts.

On October 20, Bureau task force on minority race employment was given a "quickie" tour of the Upper Mississippi Refuge. Mr. Bart Foster conducted the group to hunting areas, waterfowl concentrations, NYC project work on access development, sandbar cleanup, Winona warehouse and sign shop. Minority race employment was thoroughly discussed on the tour, and asked that we check colleges for possible employables. The task force was made up of Goodman Larson, Minneapolis, Ernest Martin of Albuquerque, Josiah Maughon, Atlanta and Travis Roberts, CO.

3. Training: Refuge Managers Bair and Charmley were members of the first class to go through the training given at the Refuge Manager Training School at Arden Hills, Minnesota during April and May. It was during this period that both of their districts were flooded, so that they had little contact with the extreme high water. Refuge Manager Gray was an instructor at the school for five courses. Wildlife Management Biologist Wm. Green was Course Director and, in my humble opinion, did a masterful job. It was a privilege for the representatives of this refuge to attend in the various capacities and to meet so many new employees.

4. Safety: 2,958 days have elapsed since a lost time accident occurred on this refuge. This record made possible only through the concerted effort of the refuge staff, who have a keen awareness of the accident prevention side of all our activities.

With the initiation of the NYC program this summer, each Manager conducted an intensive safety program--first with the boys and leaders, then continually with the leaders. The end result--nine accidents requiring medical attention but only one lost time accident, a case of sumac poisoning.

For this accomplishment, Refuge Manager Gray was awarded a Department of the Interior Safety Council Award of Merit transmitted December 20, 1965. This award, though in the name of the Refuge Manager-in-Charge, was made possible only through devotion to safety management by the entire refuge staff, and grateful appreciation is hereby acknowledged.

SIGNATURE PAGE

Submitted by:

Donald V. Gray
(Signature)

Date: February 28, 1966

Donald V. Gray
Refuge Manager
Title

Approved, Regional Office:

Date: March 11, 1966

Frank R. Martin
(Signature)

Asst.
Regional Refuge Supervisor



Partially albinistic Immature Bald Eagle

Found dead on a street in Red Wing, Minnesota, and turned over to the local Warden, who relayed specimen to the Upper Mississippi Refuge for disposal.





Flooded buildings at high water stage





Buckled
maple
flooring
in ware-
house



Railroad
crossing
during
flood



I tho't.
I saw a
puddy
cat

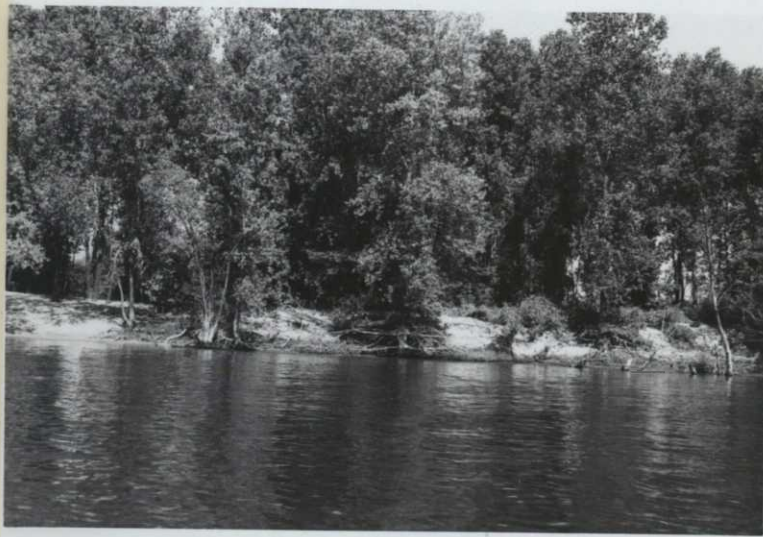


99 435

First hour of first contingent NYC receiving safety instructions by Refuge Manager Gray. Further safety instructions were continued by NYC crew leaders.



NYC sandbar rehabilitation by clearing brush and debris



SEP 65



SEP 65



SEP 65



SEP 65



YOUTH CORPS TRANSPORTATION



Rented school bus loading at refuge warehouse



Three rented pontoon boats were utilized for river transportation. Every person wore a life preserver!



Painting chain
link fence
with rollers
on each side--
a very efficient
operation



Before and
after painting
of chain link
fence



crushed rock
placed to
prevent weed
growth under
fence



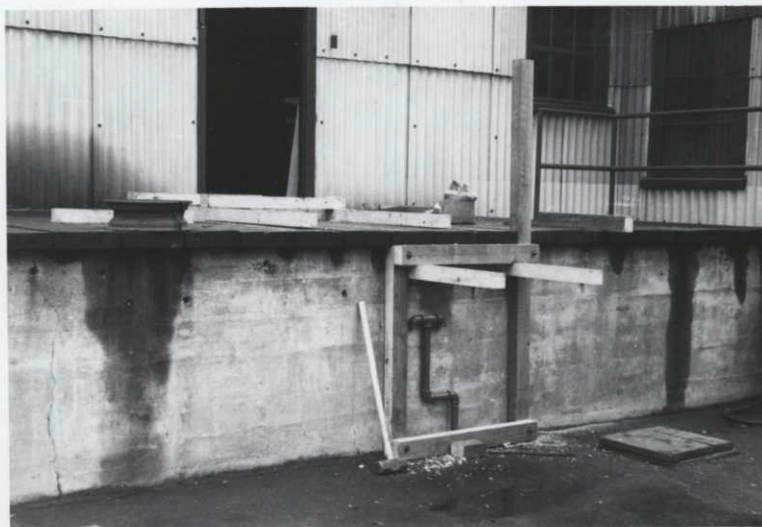
Painting and repairs to warehouse complex





Old Glory flies
again after
standard is
repaired and
refurbished





A set of personnel steps constructed to eliminate icy, snow-clogged passageway to loading dock in the extreme background. This eliminates a hazardous walkway and the necessity for considerable snow shoveling and ice chipping.





Bill Shaw, the sign maker, checking final measurements on a completely routed and partially glassed sign for Horicon.



Miscellaneous signs under construction



Cut-a-letter machine on which signs are routed,
using templates for the letters.



NYC youth making
final sanding on
a sign



National Wildlife Week - March, 1965

Refuge Manager Kenneth Krumm with officials of College of St. Teresa and Wildlife Week literature display at the college.



A Boston Whaler and 75 hp Johnson--new addition
to refuge fleet.



BIRD MAN HONORED . . . A 30-year service pin is presented to Kenneth Krumm, federal biologist, by Donald V. Gray, manager of the Upper Mississippi River Wild Life Refuge at the headquarters here. Krumm is an authority on small bird life.

FEB 66



Winona office staff at awards presentation of \$150 each for outstanding performance to Mrs. Lorraine Joswick, Clerk-Steno and Duncan Green, Maintenceman. Fore-ground: Manager Gray, Mrs. Joswick (seated) and D. Green. Second row: Mrs. Phullis Knudsen (Clerk-Steno, Temporary), B. Foster, W. E. Green, K. Krumm.

NARRATIVE REPORT
UPPER MISSISSIPPI RIVER NATIONAL WILDLIFE REFUGE
WINONA DISTRICT
1965

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

C O N T E N T S

Page

I. General	
A. Weather Conditions.....	I-1
B. Habitat Conditions.....	I-2
1. Water.....	I-2
2. Food and Cover.....	I-3
II. Wildlife	
A. Migratory Birds.....	II-1
B. Upland Game Birds.....	II-5
C. Big Game Animals.....	II-5
D. Fur Animals, Predators, Rodents, and Other Mammals.....	II-6
E. Hawks, Eagles, Owls, Crows, Ravens, and Magpies.....	II-7
F. Other Birds.....	II-8
G. Fish.....	II-8
H. Reptiles.....	II-9
I. Disease.....	II-9
III. Refuge Development and Maintenance	
A. Physical Development.....	III-1
B. Plantings.....	III-2
C. Collections and Receipts.....	III-2
D. Control of Vegetation.....	III-2
E. Planned Burning.....	III-2
F. Fires.....	III-2
IV. Resource Management	
A. Grazing.....	III-2
B. Haying.....	III-2
C. Fur Harvest.....	III-2
D. Timber Removal.....	III-2
E. Commercial Fishing.....	IV-1
F. Other Uses.....	IV-1
V. Field Investigation or Applied Research	
A. Wood Duck Banding	IV-1
B. Vegetative Transects	IV-1
C.	
D.	
E.	
VI. Public Relations	
A. Recreational Uses.....	VI-1
B. Refuge Visitors.....	VI-2
C. Refuge Participation.....	VI-3
D. Hunting.....	VI-4
E. Violations.....	VI-6
VII. Other Items	
A. Items of Interest.....	VII-1
B. Photographs.....	
C. Signature.....	

UM-2
Rev.
1965

I. GENERAL

A. Weather Conditions

WINONA DISTRICT

MONTH	Precipitation			Temperature			
	Total	Normal	Snowfal	Max.	Min.	Mean	Normal
	:	:	:	:	:	Av.	Mean Av.
January	: .71 :	: 1.17 :	: 9.0 :	: 46 :	: -24 :	: 13.85 :	: 17.3 :
February	: 1.45 :	: .97 :	: 17.0 :	: 49 :	: -21 :	: 13.03 :	: 18.9 :
March	: 2.74 :	: 1.62 :	: 21.5 :	: 43 :	: -16 :	: 22.35 :	: 32.3 :
April	: 3.79 :	: 2.31 :	: 3.0 :	: 81 :	: 26 :	: 42.38 :	: 47.7 :
May	: 3.07 :	: 4.06 :	:	: 90 :	: 31 :	: 60.99 :	: 56.5 :
June	: 2.05 :	: 4.70 :	:	: 92 :	: 47 :	: 66.56 :	: 68.8 :
July	: 5.82 :	: 3.70 :	:	: 97 :	: 52 :	: 70.41 :	: 75.4 :
August	: 4.42 :	: 3.62 :	:	: 95 :	: 44 :	: 68.91 :	: 70.4 :
September	: 10.13 :	: 3.76 :	:	: 84 :	: 35 :	: 56.06 :	: 62.5 :
October	: 1.01 :	: 2.49 :	:	: 84 :	: 27 :	: 50.90 :	: 46.3 :
November	: 1.56 :	: 1.61 :	: 4.5 :	: 70 :	: 13 :	: 36.45 :	: 35.1 :
December	: 1.95 :	: 1.11 :	: 6.5 :	: 46 :	: 4 :	: 29.81 :	: 21.5 :
Annual	:	:	:	:	:	:	:
Totals	: 38.70 :	: 31.07 :	: 62.5 :	:	:	: 44.30 :	: 45.8 :

Weather patterns in this district varied from normal to the unusual during the various seasonal periods of the past year. Precipitation for the season totalled 38.70" or nearly 8" above normal. Snowfall, occurring principally during the late winter and early spring weeks, totalled 62.5", which was heavier than usual but considerably less than the record 88.5" accumulation in another flood year, 1952. Temperatures were generally in a moderate range rather than in an unusual pattern, with a 97 maximum in July and a minimum 24 below in January. Most noteworthy occurrence of 1965 was the record flood in late March and April. The spring season was unusually delayed, with frequent snows and cold rains, and final breakup of ice in the channel occurring around April 1. Then the great 1965 overflow surged down from the north to inundate the valley. The summer season was generally mild and cool with the fall and early winter periods moderate in temperature and with abundant moisture.

UM-1 Rev.
1964

B. Habitat Conditions

1. Water

POOL LEVELS

control point 5 about
Pool No. 5 at 3 miles below Alma Dam Normal: 660

MONTH	HIGHEST LEVEL	LOWEST LEVEL	AVERAGE LEVEL	DATES OF HIGH LEVEL	DATES OF LOW LEVEL
January	: 660.09	: 659.71	: 659.90	: 1/9	: 1/29
February	: 660.14	: 659.55	: 659.89	: 2/11	: 2/23
March	: 663.22	: 659.62	: 600.54	: 3/3	: 3/16
April	: 672.30	: 659.90	: 667.50	: 4/20	: 4/2-3
May	: 666.95	: 662.80	: 664.38	: 5/1	: 5/29
June	: 663.60	: 660.84	: 662.50	: 6/5	: 6/30
July	: 660.87	: 660.15	: 660.51	: 7/14	: 7/6
August	: 660.45	: 659.89	: 660.21	: 8/9	: 8/27
September	: 660.21	: 659.91	: 660.12	: 9/19	: 9/14
October	: 661.30	: 659.96	: 660.65	: 10/10-11	: 10/2
November	: 660.40	: 659.95	: 660.08	: 11/1	: 11/14
December	: 659.82	: 661.59	: 660.82	: 12/2	: 12/18

High stream flow - April 19 - 274,000 CFS

Low stream flow - Jan. 27 - 9,215 CFS

The high stream flow established a new record during this season with the unprecedented flooding of the Upper Mississippi Valley. Low stream flow was also much above average due to abundant moisture and runoff throughout most of the season. Despite release of surplus waters through the dams, water levels in the channel were considerably above normal at the approach of winter freezeup. Opening of the navigation season was delayed several weeks following the spring breakup and flood period due to necessity of repair work on the locks and dams and cleanup of sandbags utilized for emergency protection of structures. No boats or barges could be allowed passage through the locks for a period of several weeks during the tremendous rise.

The unprecedented spring flooding of the Upper Mississippi Valley affected the Winona District of the refuge as severely as any river area, when the ice sheet in Lake Pepin broke up and waters from upstream surged into the refuge. Waterfronts and many areas of riverside cities never previously flooded were inundated by several feet of water. A large section of the riverside railroad system in the Winona area was washed out, disrupting train service for weeks. The railroad dikes previously protecting the Trempealeau Refuge from inundation were breached by raging flood waters, with the headquarters buildings, excepting the residence, flooded to a depth of three feet for the first time in the history of this station. The cities of Wabasha, Minnesota, Cochrane, Wisconsin and Winona were subjected to considerable damage and harassment from the rampaging waters, though Winona was able to protect most of its residential and business districts through a valiant, emergency 3-million dollar effort which raised existing dike systems. Flood levels raised 13 to 18 feet over many areas in the river bottoms. An elevation of 20.75 was attained at Winona, more than two feet higher than the previous record flood level of 17.94 in 1952 at that city.

2. Food and Cover

Despite ravages of the spring flood which uprooted or washed and silted beds of emergent and submergent vegetation in certain localities, food and cover conditions were generally good over most of the four district pools. Stands of pondweed and celery were generally satisfactory and lotus or water lily beds exhibited their usual density in most areas. Wild rice stands in the Weaver area were excellent and exhibited some spreading to the bottom-lands to the north and west. Bulrushes, bur-reed, and *Sagittaria* exhibited good growth except in small local areas where floodwaters effected some changes. Weeds, shrubs, and grass on exterior ridges and boundary areas were generally excellent due to abundant moisture of the season. Domestic crops along refuge boundaries in this district were affected to some extent by the delayed spring planting season which hampered maturing and yield of corn and small grains to some extent.

II. WILDLIFE

A. Migratory Birds1. Waterfowl

DUCKS: Initial spring movement of ducks in this northernmost district of the refuge was retarded considerably beyond the normal migration period due to the late breakup. No movement of any consequence was evident until the close of the week ending April 3, when small numbers of mallards, blacks, lesser scaup, goldeneyes and mergansers appeared, to augment scattered wintering birds remaining in the area. Some slight movement was noted among wintering goldeneyes during the first half of March, but this may have been local in nature, as the vanguard of the regular flight for most other species did not appear until the first part of April, nearly three weeks later than last year. A surge of migrants followed during the second week of April, with peak numbers for most species forming during that month. The northward movement was evidently retarded not only by late breakup in this area, but by the extensive feeding grounds formed by the expanses of floodwater, with many birds lingering beyond normal migration periods.

Lesser scaup were most abundant during the spring migration, with a peak of 35,000 birds compared to last year's high population of 7,000 for that season. Baldpates and mallards exhibited spring peaks of 1,500 birds each in the district, to lead population figures for the surface feeding species. Ringnecks and canvasbacks exhibited peaks of 3,000 birds each for the spring flight. Total flight peak for the spring period was 47,350 birds, as compared to 18,355 in 1964, a 100+% increase.

The autumn migration got under way in mid-August with the usual return of early moving blue-winged teal. Blue-winged teal peaked at 2,500 birds in the district this season on September 11, as compared to 2,000 last year at the same time. Other major species exhibited population peaks from mid-October to mid-November, excepting wood ducks which exhibited maximum concentrations from September 18 to September 25.

GEESE: Migration of geese along the upper river valley is somewhat limited due to present tendencies of the birds to follow routes farther inland. There is apparently some limited, local movement of scattered Canadas to and from the Rochester wintering flock (*B. c. maxima*) during the autumn season. Limited movement by blue and snow geese also occurs, primarily during the fall months, but these birds likewise tend to use inland routes for major movements. White-fronted geese are rare migrants in the area.

First spring movement of the Canadas this year was noted during the week ending April 3, with a peak number of 140 birds during the period ending April 17. No specific records of nesting were secured this summer on Canadas, though stray birds linger in the area. Migrating Canadas returned to the district this fall during the week ending October 2, when 300 birds appeared, concentrating chiefly in the Weaver Bottoms. This number dwindled to 175 by November 27; but by the first of December, numbers had diminished to six lingering birds. Snow and blue geese were virtually absent during the spring migration in this district. During the 1965 fall migration, 100 birds appeared in the Winona District at the Robinson Lake area. Stray flocks may alight briefly along the river. Last year, a fairly sizeable movement occurred downriver primarily along the Wisconsin side, simultaneously with the opening of the hunting season.

COOT, GALLINULES and RAILS: Coot are among the most abundant of all migratory game birds in the district, with concentrations of 75,000 to 125,000 birds appearing during seasonal migrations, usually in April and October. First appearance in the district this past spring was April 3. A peak population of 75,000 was attained from April 15-24. Some 1,000 birds remained through the nesting season. The return migration also found some 75,000 birds concentrated on the refuge again from October 15-30, primarily in the Weaver Bottoms area of Pool 5. This represented increases of approximately 100% in the spring migrant and locally nesting populations but a 40% decrease in the autumn migration from last year when 125,000 appeared on the district.

Gallinules are not numerous in this far northern sector of the refuge, with only scattered pairs or straggling individuals appearing in the Trempealeau and Nelson areas.

Sora are most numerous of the smaller rails, with a peak population of 200 estimated for the district this season. Virginia and king rails occur in the district but are not commonly observed in the area.

SWANS: Whistling swans again used the Winona District in sizeable numbers, with the first (19) early migrants appearing during the week ending April 3. More arrived the following week of April 11-17, when a peak concentration of 1,200 birds formed in the Weaver area. Thirty were lingering in the area to May 1 and disappeared at that time for northern nesting grounds. The usual migrational pattern of loitering near the extreme northern end of the refuge while awaiting breakup of the ice bound regions to the north appears to prevail each spring. The majority of these birds apparently move over a cross-country route from the Atlantic Coast during late March, reaching the Mississippi in the locality of Cassville, Wisconsin. An approximate 100% increase occurred in the migrating spring flock this year which increased to 1,200 from last year's peak of 600 birds.

Table 1.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Upper Mississippi Refuge - WINONA DISTRICT

Period: January - April, 1965

Species	Peak Numbers		Percent of Change		Peak Dates*	TOTAL DUCK DAYS USE		Percent of Change	
	19 64	19 65	Decrease	Increase		1964	1965	Decrease	Increase
Mallard	6,000	1,500	75%		4/4 : 4/17	174,660	49,310	72%	
Black	100	150		50%	3/21 : 4/17	7,815	4,995	36	
Gadwall	200	100	50		4/18 : 4/24	3,220	1,800	44	
Baldpate	1,500	1,500	-	-	3/28 : 4/17	34,150	18,000	47	
Pintail	750	250	67		3/21 : 4/17	19,400	5,100	74	
G.w. teal	50	300		100+	4/11 : 4/17	1,190	4,300		100+
B.w. teal	1,500	500	67		4/24 : 5/1	37,655	5,700	85	
Shoveler	300	250	17		4/11 : 4/17	8,400	2,450	71	
Wood duck	400	550		38	4/24 : 4/24	7,710	8,650		12
Redhead	400	500		25	3/28 : 4/17	12,950	7,700	41	
Ring-neck	3,000	3,000	-	-	3/28 : 4/17	82,875	46,200	44	
Canvasback	500	3,000		100+	3/28 : 4/17	15,575	59,000		100+
L. scaup	7,000	35,000		100+	3/28 : 4/24	169,500	575,500		100+
Golden-eye	1,100	750	32		3/31 : 4/3	67,315	41,555	38	
Bufflehead	40	150		100+	4/11 : 4/24	855	2,900		100+
Ruddy	10	-	100		4/18 :	60	-	100	
Mergansers	500	800		60	3/28 : 4/24	21,705	21,165	2	
Old squaw									
Scoters									
Unident.									
TOTALS	18,355	47,350		100+%	3/28 : 4/24	665,034	854,325		28%

*Week ending.

Comments: Many of these birds were seen in flooded agricultural fields adjacent to the refuge. Scaup were predominate; they could be seen wherever there was a small or large pond of water.

Table 2.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE
 Refuge: Upper Mississippi Refuge - WINONA DISTRICT
 Period: May - August, 1965

Species	Peak Numbers		Percent of Change		Peak Dates*	TOTAL DUCK DAYS USE		Percent of Change	
	19 64	19 65	Decrease	Increase		19 64	19 65	Decrease	Increase
Mallard	300	350		17%	8/29 : 8/21-	15,145	27,695		83%
Black		25		100+	8/28		220		100+
Gadwall									
Baldpate	500	150	70%		5/9 : 5/8	4,000	1,050	74%	
Pintail									
G.w. teal									
B.w. teal	1,000	1,200		20	8/29 : 8/28	16,210	19,650		21
Shoveler	250		100		5/8		2,450		100+
Wood duck	700	800		14	8/22 : 8/28	54,100	52,290	3	
Redhead									
Ring-neck		100		100+	5/8		600		100+
Canvasback									
L. scaup		200		100+	5/8		1,200		100+
Golden-eye									
Bufflehead									
Ruddy									
Mergansers	50	50	-	-	6/21 : 8/28	5,200	2,660	49	
Old squaw									
Scoters									
Unident.									
TOTALS	2,125	2,575		21%	8/29 : 8/28	94,655	107,815		14%

*Week ending.

Comments: The summer total duck days use was up slightly over last year and peak numbers were up also. The mallard showed the greatest increase in total days use, nearly doubling last year's figure.

Table 3.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Upper Mississippi Refuge - WINONA DISTRICT

Period: September - December, 1965

Species	Peak Numbers		Percent of Change		Peak Dates*	TOTAL DUCK DAYS USE		Percent of Change	
	19 64	19 65	Decrease	Increase		19 64	19 65	Decrease	Increase
Mallard	17,000	9,000	47%		11/21:11/20	458,500	415,000	9%	
Black	600	500	17		11/21:10/23-11/6	21,585	27,950		29%
Gadwall	800	4,500		100+	11/21:10/23	22,975	98,900		100+
Baldpate	18,000	13,000	28		10/17:10/16	594,100	518,550	13	
Pintail	1,500	1,500	-	-	11/14:11/6	41,850	50,000		19
G.w. teal	500	500	-	-	10/24:10/9	15,400	15,550		trace
B.w. teal	2,000	2,500		25	9/12:9/11	73,800	70,600	4	
Shoveler	250	250	-	-	10/17:10/2	8,250	6,700	19	
Wood duck	900	1,200		33	9/19:9/18-25	33,675	46,955		40
Redhead	1,500	2,500		67	10/24:10/16	42,300	51,300		21
Ring-neck	3,000	3,000	-	-	11/7:10/23-30	96,000	106,200		11
Canvasback	7,000	8,500		21	10/24:10/16-23	249,800	308,500		23
L. scaup	6,000	750	88		11/14:11/13-27	149,900	17,900	88	
Golden-eye	500	1,200		100+	11/28:12/25	16,800	17,650		5
Bufflehead	25	350		100+	10/10:12/25	385	7,025		100+
Ruddy	10	50		100+	10/10:10/16-30	50	1,050		100+
Mergansers	200	7,000		100+	12/19:12/25	5,950	97,890		100+
Old squaw									
Scoters									
Unident.									
TOTALS	38,300	38,300	-	-	11/14:10/16	1,731,320	1,857,720		7%

*Week ending.

Comments: The fall total days use show the mallards down some but gadwall much higher than last year. Lesser scaup show a big reduction in both peak numbers and total days use.

Table 4.

WEEKLY DUCK POPULATIONS AND PEAK NUMBERS

Refuge: Upper Mississippi Refuge - WINONA DISTRICT

Period: January - April, 1965

Week of period:	19 61	:	19 62	:	19 63	:	19 64	:	19 65
1	620	:	135	:	360	:	1,145	:	825
2	630	:	135	:	455	:	1,145	:	845
3	630	:	172	:	323	:	1,215	:	850
4	630	:	172	:	235	:	1,245	:	510
5	485	:	372	:	275	:	1,245	:	240
6	790	:	432	:	230	:	1,685	:	560
7	1,085	:	432	:	266	:	1,490	:	660
8	1,084	:	507	:	275	:	1,000	:	635
9	1,308	:	507	:	285	:	945	:	860
10	1,435	:	482	:	385	:	1,210	:	1,110
11	1,451	:	582	:	560	:	2,880	:	320
12	2,030	:	1,610	:	1,140	:	13,915	:	370
13	5,569	:	7,470	:	3,055	:	18,355 *	:	1,495
14	16,242*	:	11,943*	:	17,380*	:	16,985	:	12,050
15	9,835	:	9,810	:	9,250	:	15,715	:	36,300
16	6,200	:	10,590	:	7,540	:	11,385	:	47,350*
17	4,800	:	5,975	:	5,315	:	5,275	:	26,700
18	:	:	:	:	:	:	:	:	:
TOTAL DAYS USE:	378,784	:	367,528	:	331,303	:	638,885	:	854,325

*Indicates peak concentration.

COMMENTS: The total days use figure for this period is up considerably from last year and even higher compared to the previous years. Most of this is due to the large increase in diver use, probably due to the flood.

Table 5.

WEEKLY DUCK POPULATIONS AND PEAK NUMBERS

Refuge: Upper Mississippi Refuge - WINONA DISTRICT

Period: May - August, 1965

Week of period:	19 61	:	19 62	:	19 63	:	19 64	:	19 65
1	3,140*	:	3,140	:	2,646	:	1,030	:	1,480
2	2,730	:	2,954	:	1,800	:	480	:	620
3	1,135	:	1,235	:	1,000	:	430	:	265
4	850	:	800	:	765	:	405	:	415
5	645	:	590	:	660	:	475	:	625
6	420	:	605	:	750	:	540	:	625
7	520	:	620	:	835	:	625	:	625
8	470	:	620	:	900	:	705	:	640
9	510	:	695	:	900	:	705	:	740
10	570	:	840	:	1,000	:	705	:	880
11	620	:	840	:	1,000	:	705	:	930
12	690	:	1,020	:	1,105	:	705	:	1,005
13	790	:	1,057	:	1,115	:	705	:	1,030
14	800	:	1,713	:	1,300	:	705	:	1,055
15	830	:	1,870	:	1,405	:	800	:	1,080
16	1,250	:	2,480	:	1,740	:	1,250	:	1,330
17	1,475	:	3,510*	:	1,920	:	1,735	:	2,575*
18	1,850	:	3,510	:	3,060*	:	2,125*	:	
TOTAL DAYS USE:	135,170	:	203,658	:	167,265	:	93,100	:	107,815

*Indicates peak concentration.

COMMENTS: The weekly trend of peak numbers was about normal for this period as the spring migration is about over and we fall to the summer low. Then reproduction and late stragglers slowly bring the population back up until the fall flight starts moving in.

Table 6.

WEEKLY DUCK POPULATIONS AND PEAK NUMBERS

Refuge: Upper Mississippi Refuge - WINONA DISTRICT

Period: September - December, 1965

Week of period:	19 61	:	19 62	:	19 63	:	19 64	:	19 65
1	6,700	:	4,180	:	3,330	:	2,550	:	3,800
2	11,330	:	6,000	:	5,475	:	3,510	:	7,325
3	15,665	:	13,890	:	8,930	:	6,375	:	7,900
4	22,605*	:	14,060	:	12,005	:	7,000	:	16,050
5	22,340	:	14,250	:	17,550	:	13,650	:	17,200
6	22,450	:	25,075	:	19,225	:	24,185	:	18,150
7	11,675	:	25,935	:	30,395	:	36,050	:	38,300*
8	14,160	:	31,760*	:	45,825	:	28,610	:	37,275
9	12,660	:	25,445	:	44,625	:	27,225	:	31,750
10	7,715	:	20,825	:	36,195	:	31,250	:	26,138
11	3,425	:	11,700	:	48,025*	:	38,300*	:	18,275
12	1,390	:	12,210	:	27,700	:	35,700	:	18,500
13	1,390	:	12,060	:	20,650	:	2,400	:	10,000
14	6,850	:	5,400	:	23,575	:	1,050	:	4,800
15	415	:	225	:	4,550	:	1,150	:	7,150
16	445	:	260	:	540	:	750	:	7,125
17	485	:	320	:	540	:	750	:	10,135
18	:	:	:	:	:	:	750	:	3,850
TOTAL DAYS USE:	1,088,885	:	1,574,955	:	2,443,875	:	1,731,920	:	1,857,720

*Indicates peak concentration.

COMMENTS: Weekly duck peak numbers showed a normal trend except for the last few weeks, which had significantly greater numbers than normal. This was mostly a large number of mergansers which took advantage of the mild fall and open water to spend a little more time in this north country.

Table 7.

PERCENTAGE COMPOSITION BY SPECIES OF TOTAL DUCK DAY USE

Refuge: Upper Mississippi Refuge - WINONA DISTRICT

Period: January - April, 1965

Species	Percent of total duck day use							
	19 63		19 64		19 65			
	% of use	Order	% of use	Order	% of use	Order	% of use	Order
Mallard	8.2	5	26.3	1	5.8	3		
Black duck	2.	11	1.2	12	.6	12		
Gadwall	.4	14	.5	14	.2	16		
Baldpate	4.9	7	5.1	6	2.1	7		
Pintail	.7	12	2.9	8	.6	11		
G.w.teal	trace	16	.2	15	.5	13		
B.w.teal	11.	4	5.7	5	.7	10		
Shoveler	3.	9	1.3	10	.3	15		
Wood duck	4.9	6	1.2	13	1.	8		
Redhead	.6	13	2.	11	.9	9		
Ring-neck	15.8	2	12.5	3	5.4	4		
Canvasback	2.3	10	2.3	9	6.9	2		
Lesser scaup	31.3	1	25.5	2	67.3	1		
Golden-eye	11.	3	10.1	4	4.9	5		
Bufflehead	.4	15	.1	16	.3	14		
Ruddy	trace	17	trace	17	trace	17		
Mergansers	3.5	8	3.3	7	2.5	6		
Old squaw								
Scoters								

Comments: The January-April total duck days use was down for most dabblers and up greatly for most divers. The flood was the probable cause of the change in total duck days use and, therefore, this does not reflect actual bird populations. The mallard was notably down from last year and the lesser scaup way up. This can be logically explained by the divers being on the big pools of water on the refuge while the dabblers moved further inland off the refuge to smaller, shallower places.

Table 8.

PERCENTAGE COMPOSITION BY SPECIES OF TOTAL DUCK DAY USE

Refuge: Upper Mississippi Refuge - WINONA DISTRICT

Period: May - August, 1965

Species	Percent of total duck day use							
	19 63		1964		1965			
	% of use	Order	% of use	Order	% of use	Order	% of use	Order
Mallard	16.9	3	16.	3	25.7	2		
Black duck	.2	6			.2	9		
Gadwall								
Baldpate			4.2	5	1.	7		
Pintail								
G.w.teal								
B.w.teal	22.	2	17.1	2	18.2	3		
Shoveler					2.3	5		
Wood duck	53.3	1	57.2	1	48.5	1		
Redhead								
Ring-neck					.6	8		
Canvasback								
Lesser scaup	2.9	5			1.1	6		
Golden-eye								
Bufflehead								
Ruddy								
Mergansers	4.7	4	5.5	4	2.5	4		
Old squaw								
Scoters								

Comments: For the May-August period, mallards showed a substantial increase in duck days use while wood ducks were down some.

Table 9.

PERCENTAGE COMPOSITION BY SPECIES OF TOTAL DUCK DAY USE

Refuge: Upper Mississippi Refuge - WINONA DISTRICT

Period: September - December, 1965

Species	Percent of total duck day use							
	1963		1964		1965			
	% of use	Order	% of use	Order	% of use	Order	% of use	Order
Mallard	26.1	2	26.5	2	22.3	2		
Black duck	1.4	10	1.3	11	1.5	11		
Gadwall	1.2	11	1.3	10	5.3	5		
Baldpate	35.3	1	28.5	1	27.9	1		
Pintail	3.7	6	2.4	8	2.7	9		
G.w.teal	.6	13	.9	13	.8	14		
B.w.teal	2.9	7	4.3	6	3.8	7		
Shoveler	.3	14	.5	14	.4	16		
Wood duck	2.4	8	1.5	9	2.5	10		
Redhead	1.6	9	2.4	7	2.8	8		
Ring-neck	6.6	5	5.5	5	5.7	4		
Canvasback	10.2	3	14.4	3	16.6	3		
Lesser scaup	6.7	4	8.7	4	1.	12		
Golden-eye	.6	12	.9	12	.9	13		
Bufflehead	.1	16	trace	16	.4	15		
Ruddy	trace	17	trace	17	trace	17		
Mergansers	.2	15	.3	15	5.3	6		
Old squaw								
Scoters								

Comments: Gadwall and merganser showed substantial gains as to the percentage of total duck days use, with all others staying about the same. Large numbers of mergansers stayed on the area late into the period causing their increase in the percentage of total duck days use.

Table 10.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Upper Mississippi Refuge - WINONA DISTRICT

Period: January - April, 1965

Species	Peak Numbers		Per cent of Change		Peak Dates*		TOTAL DAYS USE		Per cent of Change	
	19 64	19 65	Decrease	Increase	19 64	19 65	19 64	19 65	Decrease	Increase
Canada geese (lg.)	300	140	53%		4/4	4/17	4,337	1,850	57%	
Cackling										
White-fronted										
Snow										
Blue										
TOTALS										

Comments:

SWAN: 600 1,200 100% 4/4 4/17 9,228 15,930 73%

Comments: Swan were scattered and most of them were seen in flooded fields adjacent to the refuge.

Coot	30,000	75,000		100+	4/4	4/17	281,050	1,186,625		100+
Florida gallinule										

Comments: Coot were scattered all through the flooded areas, some well back inland from the refuge area.

Table 11.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Upper Mississippi Refuge - WINONA DISTRICT

Period: May - August, 1965

Species	Peak Numbers		Per cent of Change		Peak Dates*		TOTAL DAYS USE		Per cent of Change	
	1964	1965	Decrease	Increase	1964	1965	1964	1965	Decrease	Increase
Canada geese (lg.)	:	3	:	100+	:	5/8	:	15	:	100+%
Cackling	:	:	:	:	:	:	:	:	:	:
White-fronted	:	:	:	:	:	:	:	:	:	:
Snow	:	:	:	:	:	:	:	:	:	:
Blue	:	:	:	:	:	:	:	:	:	:
TOTALS	:	:	:	:	:	:	:	:	:	:

Comments: Geese seldom are observed on this district during the summer.

Coot	:	500	:	1,000	:	100%	:	8/28	:	5/8	:	33,600	:	17,595	:	48%	:
Florida gallinule	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:

Comments: Coot peak numbers were up but total days use was down. This is not particularly significant though, as it is a matter of when the birds arrive or leave the area.

Table 12.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Upper Mississippi Refuge - WINONA DISTRICT

Period: September - December, 1965

Species	Peak Numbers		Per cent of Change		Peak Dates*		TOTAL DAYS USE		Per cent of Change	
	19 64	19 65	Decrease	Increase	19 64	19 65	19 64	19 65	Decrease	Increase
Canada geese (lg.)	250	300		20%	10/10	10/2 10/9	11,000	13,682		24%
Cackling										
White-fronted										
Snow		75		100+		10/2-9		975		100+
Blue		25		100+		10/9		245		100+
TOTALS										

Comments: Canada geese were up slightly and a few blues and snows were also observed this period.

Coot	125,000	75,000	40%		10/17	10/16-30	4,479,000	2,577,540	42%	
Florida gallinule										
Swans	78	90	15%		11/2	11/13-27	742	2,568	100+	

Comments: Coot peak numbers were down from last year and total days use was not much over half last years. A few more swans were observed this year than last, but they stayed for a much longer period, therefore the big increase in total days use.

2. Other Water Birds

EGRETS: The common egret appeared again in early April. Once reduced to a remnant of its former numbers on the upper Mississippi River and other areas of its range, it has been known to nest on the refuge since the 1930's and now is a common sight along the marshy bottoms, nesting in associated colonies with the blue heron at two locations--Nelson-Trevino Bottoms and West Newton. The little snowy egret rarely reaches this area of the refuge. The cattle egret extended its range to this section of the refuge this year with the appearance of two birds in the outskirts of southeastern Winona on May 16, 1965. Four sightings have occurred previously in Minnesota, and it has also appeared in several Wisconsin localities, but this is its first appearance in the Winona District of the refuge.

HERONS and BITTERNS: The blue heron is most numerous of this group in the district. There are three rookeries in the district with an estimated 900 birds in the area this season. Black-crowned night herons are numerous in the district with an estimated 75-100 present. The yellow-crowned form has been noted to the south of us near LaCrescent and has been seen in the Nelson-Trevino Bottoms but does not nest in this district, according to current observations.

Bitterns have become increasingly scarce. Both the American and least forms were once common in local areas of the district in past years. It is hoped they are not among those species which may be disappearing from their usual marshy haunts. The least bittern appears to have been absent from the Trempealeau marshes during the past two seasons, and the larger species is only rarely noted.

GREBES: The pied-billed grebe is still most numerous of this group with some 150 present throughout the marshes of the Winona District during the summer months. A few horned grebes appear among other migrants during the spring and fall migrational movements.

CORMORANTS: Once migrating along the upper Mississippi River in hundreds of thousands, with many remaining to nest in local rookeries, this unique waterbird appears to be currently in the category of those species unable to meet the impact of civilization. Some opinion exists that fish eating habits may be responsible for their demise. There is also some belief that lack of federal and state protection for the species and prejudice of fishermen who destroy it both on its nesting areas in northern lakes, or on the wing during migrational journeys, have caused the decline. A small rookery existed in dead trees on the margin of the Delta marsh until last year. Small flocks of 100-150 birds may still appear infrequently during migration.

GULLS and TERNS: Gulls occurring in the district include the ring-billed and herring gulls, most abundant of this group, and infrequent Bonaparte's or Franklyn gulls. The commoner herring and ring-billed forms appear in sizeable flocks about the dams and in other areas primarily during the migration season. Strays may be noted at other times except the coldest winter periods. Peak populations of both species reached 2,000 in the district during the spring and fall months.

Terns include the common black tern which remains to nest in sizeable numbers over the river marshes, with late summer populations of 1,100 in the area, the Forsters, a few stray Caspians, the common and arctic terns, the latter species occurring as migrants.

PELICANS: The pelican is noted only as an uncommon straggler on the Upper Mississippi, and none were observed this season in the district.

3. Shorebirds

COMMON SNIPE: This species occurs in moderate numbers in the Winona District of the refuge, and a few stragglers may winter along spring creeks or seeps where water remains open to provide feeding sites. Two specimens were noted on January 2 on a spring fed area near Fountain City, Wisconsin.

WOODCOCK: A few woodcock are found in the district area and infrequent specimens may be "kicked out" of woodland coverts through the valley in some localities.

OTHER SHOREBIRDS: Some 25 species of shorebirds migrate through the area with killdeer and spotted sandpipers remaining to nest. Flood conditions and high waters limited use of the refuge by shorebirds during the spring months except on flooded zones in pastures or fields generally outside refuge boundaries. Return migration occurred in mid-July with occasional small concentrations noted on sandbars. The semi-palmated plover, least and spotted sandpipers and killdeer were noted to be numerous at these sites.

4. DOVES

Mourning doves are present throughout the year with small numbers wintering in groves in various localities throughout the district. Their numbers peaked at about 1,000 during the late summer. There is considerable nesting in suitable habitat throughout the area with heavy flocking along fences, telephone lines, and harvested grain fields.

Refuge: UPPER MISSISSIPPI REFUGE - WINONA DISTRICT
Period: Calendar Year 1965

B. Upland Game Birds

SPECIES	POPULATION: YOUNG	NUMBER : GREATEST	TAKE: LOSS: POPULATION
: JAN. 1	: PRODUCED: STOCKED: NO. PRESENT:	:	: DEC. 31
Ring-necked:	:	:	:
pheasant:	150 : 150 :	200 :	75 : 100 : 150
Ruffed	:	:	:
grouse :	30 : 30 :	60 :	10 : 20 : 50
Bob-white :	:	:	:
quail :	150 : 100 :	200 :	0 : 100 : 150
Gray	:	:	:
partridge:	:	:	:
Wild	:	:	:
turkey :	:	:	:

Three species of upland game birds are present--ring-necked pheasant, ruffed grouse and bob-white quail. A few wild turkeys are present in adjacent areas through stocking programs of the two states, chiefly in the Whitewater area of Minnesota and in adjacent Wisconsin counties. Ruffed grouse frequent the adjacent wooded hills but are limited in numbers on the refuge. Pheasants originated primarily through a stocking program though there is some natural reproduction in suitable nesting areas. A small population of 50 grouse is present with about 150 pheasants and the same number of quail within refuge boundaries of the district.

C. Big Game Animals (White-tailed deer)

POPULATION: YOUNG	: GREATEST	: HUNTER: LOSSES: POPULATION
JAN. 1	: PRODUCED: NO. PRESENT:	: TAKE : : DEC. 31
100	50	250 75 5 175

The population of white-tailed deer in the district is approximately 175 as of the close of the season. The animals were driven from the bottoms during the spring flood and a few scattered drownings occurred, but losses were not considered as heavy as in the 1952 overflow when many succumbed due to exposure, starvation, or being caught in the surging flood waters. Some animals returned to the wooded islands and lowland habitat as soon as habitat conditions became suitable. The deer take in the district was established as 75 animals.

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Refuge: Upper Mississippi Refuge - WINONA DISTRICT
Period: Calendar Year 1965

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

SPECIES	POPULATION: JAN. 1	YOUNG : PRODUCED	GREATEST : NO. PRESENT	: TAKE	CON-: TROL	LOSS	POPULATION DEC. 31
Muskrat	5,000	30,000	34,000	29,000	200	1,000	6,200
Mink	115	100	175	50		40	90
Beaver	500	250	550		10	100	450
Otter	60	40	65			20	55
Raccoon	200	200	350	150		50	225
Red Fox	60	400	475	100		25	200
Gray Fox							
Skunk	20	75	90	30		15	45
Cottontail: Rabbit	300	150	300	100		225	175
Opossum	50	25	50	10		40	35
Gray & Fox: Squirrels	500	700	1,000	250		300	600
Woodchuck	10	4	10			6	6
Badger							

Muskrats experienced some loss during the flood through drowning, predation, and highway kill when driven from the bottomlands by the high waters. Their general ability to recover from natural disasters has resulted in a rapid population recovery from natural losses and trapping, with an estimated take of 29,000 projected for the season at this time.

Beaver are known to have sustained some losses through highway kill, drowning, and loss of early litters during the flood. An estimated population of 450 animals remains in the district compared to 500 present on January 1. The beaver present in this district appeared

to have sustained themselves satisfactorily during the spring flood emergency by riding out the high waters on elevations, shorelines, and on brush heaps or logs, although occasional drowned or car-killed specimens were noted along the river.

Mink have declined in numbers as litters are brought off about the period of time when flood waters were at their height, and few of the early trapping reports show mink taken.

Scattered otter appear through the district, with 55 estimated in the district. The population of raccoon appears to be down in local districts, possibly as a result of the flood as fewer signs are apparent. Some red fox increase was apparent with the year-end population this season determined at 200 animals in this district. Signs and appearances of the animals were numerous. The advance in price for furs of red foxes is stimulating trapping due to \$7.00 to \$8.00 price currently in effect for prime pelts. No gray fox were observed during the reporting period, and only strays occur in the district in recent times. Skunk are not numerous on the lower refuge boundary lands, with only occasional specimens used and total population on district lands determined as 45. Rabbits were decimated in some refuge areas by flood waters which trapped them on lower areas and subjected them to heavier than normal predation by driving them from cover. Total population estimated at only 175 cottontails in district at the year's end. Opossum are represented only by stray animals in this far northern district of the refuge. The population of gray and fox squirrels remains at moderate levels due to predation and heavy hunting in the territory. Very few woodchuck have been present in the district, and no badgers were noted this season.

E. Hawks, Eagles, Owls, Crows, etc.

HAWKS: Average populations of the permanent resident hawks, chiefly common Buteos--the red-tailed and red-shouldered--occur along the bluffs and in refuge woodland of this district. A few rough-legs appeared at the approach of colder weather. The usual scattered population of accipiters, the sharpshinned, Coopers, and stray wintering Goshawks (in winter seasons) may be seen. On September 23, a tremendous migration of Buteo and other hawks moved through the Winona area. A large vanguard flock was estimated to contain 1,200 birds. This was probably the result of concentration by birds of prey in the Duluth area where they appear in great numbers through an apparent reluctance to move directly southward across the Great Lakes. It is thought that a drift occurs to the western end of Superior, where they again move southward, and the great movement over Winona on the date mentioned probably resulted as a result of this migrational phenomena.

EAGLES: The Winona District harbors one of the larger flocks of wintering eagles, which usually concentrate in the area from Reads Landing to the Alma, Wisconsin dam and off Teepeota Point south-east of Wabasha. Variable numbers of bald eagles, ranging from 20-60 birds have been noted in the district in past years. This season, the first fall sighting of the birds was on September 4, when two adults were noted. The largest number appeared during the week ending December 25, when 60 were observed in the District --51 adults and 9 immatures. Occasional goldens appear from time to time in the area. Thirty three bald eagles were found wintering in the area during the annual waterfowl eagle count the first week of the new year.

OWLS: Barred and horned owls frequent the district woodlands in moderate numbers. The snowy owls returned again from the north with scattered observations of this species reported in the territory. One bird was reported in the western environs of the city of Winona during the last week of December. The screech owl is occasionally heard or noted.

CROWS: From 200 to 6,000 crows are present in the district according to the season. These birds nest in considerable numbers and provide some hunting entertainment among sportsmen during closed seasons on game species.

VULTURES: Turkey vultures are seen occasionally in the district, usually noted as single birds or in small flocks.

F. Other Birds

Scattered observation of single ospreys occurred through the year with infrequent wandering specimens sometimes noted in the Buffalo City and Nelson-Trevino areas.

The Winona Bird Club conducted a survey of birdlife present in the district during a "Mayday" count during the spring and came up with a list of 112 species on May 16. This included a "first" for the cattle egret in the territory. A small field trip group of club members found 80 species of summer residents during a one-day July survey along the river.

G. Fish

Fishing was reported as generally average along the river this season with large numbers of panfish taken throughout both the summer and winter seasons and sporadic success in taking pike and bass. The usual slack seasons during hot weather occurred, and ice fishing was hampered near the end of the year by mild weather, making travel to favored fishing sites hazardous. Heavy infestation of Pool 5A by garfish was observed following the flood last spring.

H. Reptiles

Fewer snapping turtles were reported by some trappers or others who take the animals for sport or food. Whether winter freezing or the great floods might have influenced this trend is unknown.

The usual population of timber rattlesnakes frequents the river-side cliffs and higher elevations. The little Massasauga rattlesnakes which are numerous in the Nelson and Black River bottoms survived the flood in unknown numbers though some were washed considerable distances downriver out of the preferred moist bottomland. The usual populations of common colubrid snakes were present in the district.

I. Disease

No evidences of loss through disease were noted during the season.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

Flood cleanup and repair work and much other routine maintenance was accomplished by district personnel in cooperation with the Neighborhood Youth Corps. Following are some of the main accomplishments by NYC and refuge personnel in the district.

Cleanup of all river islands and beaches from Trempealeau area to Wabasha (terminal points of district).

Brushed margins of island beaches, clearing off willow growth and other vegetative encroachments.

Pickup of all litter deposited on picnic sites and beaches.

Posting of public use sites on islands and beaches to curb littering problem.

Closed area posting checked and replaced as necessary.

Trees and brush trimmed along roadways and trails at Trempealeau and other designated areas.

Boat landings cleaned following flood damage and re-posted as required.

Repair of property line fencing

Recognition signs cleaned and refinished at major entrance points, boat landings, etc.

General repair, cleaning, remodelling of buildings and office at Trempealeau District Headquarters, structures repainted as required. All exterior surfaces of buildings using cement paint on cinder block buildings. Scrape and paint all wood surfaces with oil base paints. On residence, paint entire inside, refinish floors, remove old and install new light fixtures throughout the house, replace kitchen counter top, install new stainless steel sink with fixtures, lay asphalt tile on glassed-in porch. In the office, insulate walls and ceiling, install new maple panelling, asphalt tile on the floors, install new oil heating plant and fuel tank, and place formica top and splashboard around sink in lab section. The pumphouse entryway had the old wooden section damaged by the flood, so a new one of concrete blocks was laid and the doors fitted thereto. A new manhole was constructed on the sewer line between the service building and septic tank.

Following the flood, the sewer lines had to have the Roto-Rooter treatment and remove considerable root matter. The septic tanks also had to be pumped out and reactivation accomplished.

Around the headquarters site, some of the original brush plantings had deteriorated, spread and otherwise presented a poor appearance. Considerable time of NYC crews was spent on eliminating some of the average plantings, trimming shrubbery and trees, cutting large dead trees and digging out the stumps. Pine plantings were thinned, dead trees removed and poles piled.

The old barn was sold and removed during the summer.

B. Plantings - None

C. Collections and Receipts

1. Seed and other Propagules: A supply of 300 bushels corn was received for baiting purposes on the wood duck banding project and stored at the Trempealeau headquarters for issuance to all refuge districts during the season.

2. Specimens: One dead eagle was retrieved in the district and forwarded to the Patuxent laboratory for examination.

D. Control of Vegetation - None

E. Planned Burning: None

F. Fires: None

IV. RESOURCE MANAGEMENT

A. Grazing: Two grazing permits were out this year, both of the type that the cattle graze both ours and the owners' land with no fence between them. They were for a total of only 32 AUMs.

B. Haying: None

C. Fur Harvest: Returns are not complete as yet, but the muskrat harvest doesn't look to be off too much because of the flood. In fact, it looks like it will be up possibly 10%. Of a total of 123 returns so far, a total of 24,353 rats have been reported and only four mink. There is no beaver season in Minnesota on our land this year and only a very small part of our land in Wisconsin--just that land which lies east of the CB&Q railroad tracks--so the beaver take will be next to nothing.

D. Timber: None

E. Commercial Fishing: This activity is somewhat more limited on the river than in the earlier days when it was a thriving industry. A number of the older commercial outfits are still operating but prices are inadequate to attract newer talent to the enterprise. Considerable set lining is still done for catfish and a number of people are employed by this operation.

F. Other Uses: Under this category are included the Girl Scout Camp site rental--\$100 per annum, the Sportsmens Pheasant Rearing Project, sportsmen club boat harbor and facilities--\$25, a commercial fish holding pond permit--\$50, and the numerous special use permits for water frontage on service owned premises along the river.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

- A. Wood Duck Banding: Wood duck banding operations were again conducted by district and student assistant personnel with occasional supervision and assistance from main office staff. Trapping activities in the Trempealeau area and areas in Pools 5 and 5A, formerly considered productive banding localities, were disrupted by a heavy invasion of rough fish around and in the traps, a possible aftermath of the spring flood conditions. The site of our main trapping operations was accordingly moved to the Nelson-Trevino bottoms where Wildlife Aid Jim Hansen successfully took and banded some 870 birds in an approximate three week period to rank among the most successful banders at the station this season. A total of 1,054 wood ducks were banded in this northernmost area for top banding honors among the six refuge districts this year.
- B. Vegetative Transects: The transect at Pritchards was checked by Wildlife Management Biologist Green with Managers Krumm and Neilson assisting. Preliminary evaluation of vegetative conditions in this area indicated only limited effects from the heavy spring flooding with emergent and submergent species exhibiting generally satisfactory growth.

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VI. PUBLIC RELATIONS

A. Recreational Use

19	FISHING	MISCEL- LANEOUS	HUNTING			TOTAL DAYS USE
			DUCKS	DEER	OTHER	
Spring	10,200	3,850				14,050
Summer	87,400	350,350				437,750
Fall	15,550	72,000	11,200	625	500	99,875
TOTAL DAYS USE	113,150	426,200	11,200	625	500	551,675

Recreational use of the river in the district slacked off somewhat from last season due to the late opening of the boating, fishing and recreational season caused by the flood and silt or erosion damage to boat landings and other facilities.

Total days use was down to 551,675 this season compared to 793,465 in 1964. A decrease was indicated in all activities other than deer hunting which nearly doubled days use over last season. The excellent deer populations and hunting pressure in the Buffalo and Trempealeau County, Wisconsin sectors of the refuge were largely responsible for this increase.

REFUGE VISITORS

Refuge: Upper Mississippi Refuge - WINONA DISTRICT

Period: January - December, 1965

B. Refuge Visitors

DATE	PERSONS	PURPOSE
1/4	Nick Jensen	Appraise barn to bid on same
2/24	Richard Lipinski - Delta Fish & Fur Farm	Discuss fencing problems
4/28	Charles Scheffe - RO	Inspect flood damage
5/7	Richard Lipinski	Discuss flood damage to road and dike
5/18	Mrs. Woodworth and H. Bambenek	Discuss Girl Scout activities
5/24	Warden Harold Kabasiak	Discuss mutual enforcement problems
5/25	Richard Lipinski	Discuss flood damage
6/18	Charles Zepp	Discuss Youth Corps projects
9/14	Warden Harold Kabasiak	Discuss law enforcement
9/27	Frank Martin - RO and D. V. Gray	District inspection

REFUGE PARTICIPATION
 Refuge: Upper Mississippi Refuge - WINONA DISTRICT
 Period: January - December, 1965

DATE	PERSONNEL	ACTIVITY
1/6	Neilson	Attended hearing in Fountain City on railroad crossing
2/5	"	Showed film to Sportsmen's Club
2/17	"	Showed film to Sportsmen's Club
2/26	"	Showed film to Jr. Sportsmen's Club
3/16	"	Showed film to Cochrane-Fountain City School
3/25	"	Slides and talk to Jr. Sportsmen's Club
4/17	"	Attended Jr. Sportsmen's Club meeting
5/5	"	" " " " "
5/6	"	Attended County Sport Meeting at Arcadia
5/11	"	Showed slides to 4-H group at Glasgow School
5/13	"	Showed film to Jr. Sportsmen's Club
9/4	"	With State and County NYC officials to Merrick and Trempealeau Park discussing merits of NYC work
9/9	"	Staff conference at Prairie du Chien
10/1	"	To Minneapolis w/D. Green to pick up surplus property

C. Refuge Participation

- D. Hunting: Waterfowl hunting seasons, enhanced by the special teal shoot in September, opened enthusiastically but mild weather and somewhat limited success dampened hunter zeal following the opening weekends. There were, however, flurries of fair to good shooting in some district localities but, in general, the season was considered rather unsuccessful by many gunners. The special teal season was conducted only in the Minnesota sector of the district, as Wisconsin did not accept the opportunity for this early hunting period.

Appraisal of the teal season by Winona office personnel who observed the special shoot in the Minnesota district was as follows: Opening and closing hour was reasonably well observed by the hunters, with very little irregular shooting heard. Occasional shooting at protected species occurred, with some illegal killing of wood ducks and baldpate noted. However, this illegal shooting at unidentified ducks was more than compensated for by the caution of experienced hunters who were present among most hunting groups. They were frequently heard warning compatriots to hold fire on approaching birds and, in general, did a satisfactory job of identification though admittedly some illegal birds were occasionally knocked down and left in the water. Violators appeared to be principally in the younger age group who were inexperienced in recognition of birds, or older persons with poor eyesight. Hunters averaged 2.6 teal on opening afternoon in the Minnesota sector of the river. On the following date, Sunday, much lighter shooting was evident, with not more than 30% of the gunners out and less than one bird per hunter checked. On the following Monday, gunning pressure had dwindled to very limited proportions as the 2½ day Minnesota season closed.

The majority of hunters appeared to be skeptical of a continuation of the special season, though others were enthusiastic over prospects of opportunities to participate in an uncrowded, early teal hunt and try out guns and dogs before the regular season opening. Objections by some hunters to the season seemed to be based on supposition that protected birds would be decimated or driven from the area, or that the pressure involved in such selective gunning detracted from enjoyment of the hunt. Refuge personnel did not observe any appreciable driving of birds from the hunting area, as they merely appeared to retreat to the closed areas or impenetrable marshes. Hunting pressure during the special teal shoot appeared to be about 25% of the regular season.

In the regular season, mallards comprised the bulk of the take at 25.76%, followed by baldpate with 18.86%, blue-winged teal at 11.79%, and gadwall 8.38%.

UM-

Bag Check Summary of Species Taken
Upper Mississippi River Wildlife and Fish Refuge
Period: 1965 - WINONA DISTRICT

	::	1963	::	1964	::	19 65
No. hunters checked	::	1,231	::	1,314	::	1,037
No. ducks checked	::	1,622	::	2,412	::	1,145
Average ducks per day::		1.31	::	1.83	::	1.10

Species	::	No.	:	%	::	No.	:	%	::	No.	:	%
Mallard	::	523	:	32.24	::	637	:	26.42	::	295	:	25.76
Black	::	10	:	.62	::	21	:	.87	::	19	:	1.66
Gadwall	::	36	:	2.23	::	56	:	2.32	::	96	:	8.38
Baldpate	::	251	:	15.47	::	512	:	21.60	::	216	:	18.86
Pintail	::	62	:	3.82	::	44	:	1.82	::	24	:	2.10
G.w.teal	::	70	:	4.32	::	180	:	7.46	::	55	:	4.80
B.w.teal	::	230	:	14.18	::	442	:	18.32	::	135	:	11.79
Shoveller	::	1	:	.06	::	3	:	.12	::	4	:	.35
Wood duck	::	384	:	23.67	::	231	:	9.58	::	51	:	4.45
Redhead	::		:		::	24	:	1.00	::	42	:	3.67
Ring-neck	::	38	:	2.34	::	166	:	6.88	::	87	:	7.60
Canvas-back	::		:		::	20	:	.83	::	67	:	5.85
Scaup	::	12	:	.74	::	48	:	1.99	::	31	:	2.71
Golden-eye	::		:		::	4	:	.17	::	2	:	.18
Buffle-head	::	2	:	.13	::	7	:	.29	::	9	:	.79
Ruddy	::	2	:	.13	::	5	:	.21	::	1	:	.09
Mergansers	::	1	:	.06	::	3	:	.12	::	11	:	.96
Scoter	::		:		::		:		::		:	
Old squaw	::		:		::		:		::		:	

Hunters took ducks as follows:

4*	::	63	:	5.12	::	286	:	21.77	::	51	:	4.92
3*	::	216	:	17.55	::	166	:	12.63	::	79	:	7.62
2	::	183	:	14.87	::	215	:	16.36	::	169	:	16.30
1	::	356	:	28.92	::	340	:	25.88	::	366	:	35.29
0	::	413	:	33.54	::	307	:	23.36	::	372	:	35.87

* Average loss was .29 ducks per hunter day
Hunter day was 4.19 hrs.
Hours hunted per duck - 3.80

VIOLATION APPREHENSION SUMMARY

Refuge: Upper Miss. Winona District
Period: 1965

DEFENDANT	ADDRESS	OFFICER	OFFENSE	DATE	PENALTY	JUDGE	Violations
Thompson, Roger A.	Winona, Minn.	Foster	Hunting wild animals while intoxicated	10/17/65	54.00	Kronebusch	
Pappas, George (NMI)	Byron, Minn.	Foster	Shotgun, short plugged	10/17/65	24.00	Kronebusch	
Scott, Wylie T.	Rochester, Minn.	"	Gun was not plugged	10/17/65	24.00	"	
Barrett, Leroy A.	Winona, Minn.	"	Transporting uncased gun in motorboat	10/19/65	29.00	"	
Barrett, John W.	Winona, Minn.	"	" "	10/19/65	29.00	"	
Hagenmiller, Louis W.	Aitkin, Minn.	"	Hunting migratory birds contrary to Federal Regulation	10/19/65	29.00	"	
Lovell, Edward T.	St. Paul, Minn.	"	in closed area of refuge	10/19/65	29.00=	"	
Happe, John M.	Minneapolis, Minn.	"	" "	10/19/65	29.00	"	
Glanders Towing Co.	St. Louis, Missouri	Gray Foster	Depositing in river, oil harmful to fish & game life	10/25/65	100.00	Schlosstein	
Hoyt, Donald D.	Lake City, Minn.	Foster	Chasing and shooting Coot from motorboat	10/25/65	14.00	Kronebusch	
Brotzman, Leroy G.	Lake City, Minn.	Foster	" Unplugged gun also "	10/25/65	43.00	"	
Dingfelder, Ronald	Rochester, Minn.	Foster	Wanton waste of protected wild animal	10/30/65	29.00	"	
Gould, Robert E.	Stewartville, Minn.	Foster	" " " "	10/30/65	29.00	"	
Mariano, Joseph J.	Morton Grove, ILL.	Foster	Gun short-plugged	11/15/65	24.00	"	
Brabbit, Dale R.	Winona, Minn.	Foster Krumm	Out of season, untagged traps Molesting rat houses	11/22/65	64.00	Schlosstein	
Powell III, Lyman	Superior, Wis.	Gray Foster	Littering	6/25/65	25.00	Alberts	
Jaszewski, Raymond	Winona, Minn.	Foster	Fish with too many lines	6/15/65		Alberts	

E.

VIOLATION APPREHENSION SUMMARY

Refuge: Upper Miss. Winona District
Period: 1965

DEFENDANT	ADDRESS	OFFICER	OFFENSE	DATE	PENALTY	JUDGE
Fort, Robert D.	Winona, Minn.	Foster	Possess muskrat, closed ^{season}	4/19/65	60.00	Alberts
Goggins, Robert W.	Winona, Minn.	Foster	" " " "	4/19/65	60.00	Alberts
Madland, Earl N.	Winona, Minn.	"	Possession duck eggs	6/2/65	30.00	Alberts
Steinbauer, Ron	Winona, Minn.	"	Littering	6/12/65	25.00	"
Burk, Carl A.	Pipestone, Minn.	"	"	"	"	"
Erickson, James H.	La Moille, Minn.	"	"	"	"	"
Loitz, Roland	Winona, Minn.	"	"	"	"	"
Christensen, Jon	Winona, Minn.	"	"	"	"	"
Fifield, Thomas	Milwaukee, Wis.	"	"	6/13/65	"	"
Dulek, Wm. J.	Winona, Minn.	"	Littering (Juvenile)	6/13/65	8 hr. litter cleanup	Heinen
Vogel, Carl C.	Winona, Minn.	"	" "	"	"	"
Beck, Richard	Winona, Minn.	"	" "	"	"	"
Cieminski, Eugene	Winona, Minn.	"	" "	"	"	"
Fuchs, Garland	Kasson, Minn.	"	Littering	5/31/65	30.00	Alberts
Fuchs, Vernon	Kasson, Minn.	"	"	"	30.00	"
Tournier, Howard	Waterloo, Iowa	"	Littering	5/30/65	10.00	"
Kay, John W.	Frankfort, Ind.	"	"	8/4/65	25.00	"

VIOLATION APPREHENSION SUMMARY

Refuge: Upper Miss. Winona District
 Period: 1965

DEFENDANT	ADDRESS	OFFICER	OFFENSE	DATE	PENALTY	JUDGE
Scheid, Jack D.	Frankfort, Ind.	Foster	Littering	8/4/65	25.00	Alberts
Rolbiecki, Richard	Winona, Minn.	Foster	(Juvenile) Reckless operation of boat	8/9/65	Warned	Heinlen
Kohner, Keane	Winona, Minn.	"	" "	8/9/65	Warned	"
Ebert, William R.	Winona, Minn.	Foster Krumm	Early shooting, waterfowl	9/10/65	25.00	Alberts
Boyd, Merrill C.	Rochester, Minn.	Foster Krumm	Widgeon shot during teal only season	9/11/65	19.00	Kronenbusch
Jarman, Robert A.	Rochester, Minn.	Krumm Foster	" " " "	9/11/65	19.00	Schurhammer
Zenk, Donald D.	Winona, Minn.	Foster	Shooting waterfowl, late	9/11/65	25.00=	Alberts
Malewicki, David C.	Winona, Minn.	"	Transporting shotgun in motor vehicle, uncased	9/11/65	25.00	Alberts
Mayzek, John H.	Winona, Minn.	"	" "	9/11/65	20.00	Alberts
Hawley, Charles W.	Winona, Minn.	Foster Krumm	Shooting waterfowl, closed season (Juvenile)	9/27/65	Copy 2Opp. Minn. hunting	Heinlen
Dzwonkowski, Steven	Winona, Minn.	Foster Krumm	" "	9/27/65	law pamphlet "	Heinlen
Cieminski, John A.	Winona, Minn.	Gray	Shotgun held four shells not plugged properly	10/9/65	20.00	Alberts
White, Byron S.	Winona, Minn.	Krumm	Six ducks in possession	10/9/65	30.00	Alberts
Kzaley, James G.	St. Paul, Minn.	Foster	Transporting shotgun, uncased in moving motorboat	10/9/65	14.00	Kronebusch
Lunn, Ronald G.	Winona, Minn.	Krumm	Shotgun-short plugged, 4 shells	10/9/65	25.00	Alberts
Meyer, Robert H.	Winona, Minn.	Foster	Shooting waterfowl after sunset	10/14/65	14.00	Kronebusch
Haga, Anton E.	Minneapolis, Minn.	"	Hunting migratory birds contrary to Federal Regulation	10/15/65	29.00	Kronebusch

VII. OTHER ITEMS

A. Items of Interest

1. Personnel: Mr. Harvey A. ("Mike") Neilson, former District Manager of the Winona District of the Upper Mississippi Refuge and the Trempealeau Refuge, retired December 30, 1965 and was succeeded by Manager William Bair who transferred to the station on December 4. Mike has retired to a new home constructed on a hill overlooking the Trempealeau Refuge, where he has had the rather unique experience of completing virtually his entire tour of duty with this service.

Two student assistants, James M. Sulerud and E. J. Peterson entered on duty June 14 for summer service in this district and completed employment on August 27. They assisted on a variety of work designed to provide experience in refuge operations ranging from maintenance to bird banding operations.

A Neighborhood Youth Corps project was carried on through the summer months with work detachments from the Trempealeau and Alma areas. This additional help proved invaluable in effecting the voluminous maintenance and repair work necessary after the great spring flood.

2. Safety: No lost time accidents or injuries occurred among refuge district personnel this year. Safety meetings or counselling of employees was done regularly to impress workers with the need for performing all types of work in a safe manner and without hazard to either persons or property. All boat operators are required to have and use safety jackets and proper lighting equipment for river travel and automotive equipment is maintained in safe operating condition at all times.

B. Photographs

A selection of photographs follow.

C. Credits

This report was compiled and written through collaboration of Managers Krumm and Bair and typed by Lorraine Joswick.

SIGNATURE PAGE

Submitted by:

(Signature)

Date: March 2, 1966

Refuge Manager
Title

Approved, Regional Office:

Date: March 11, 1966

Frank R. Martin
(Signature)

Asst.
Regional Refuge Supervisor



Lock and Dam No. 5 Out of Operation

Spring flood, 1965



SEP 65



BEFORE and AFTER SHOTS

Neighborhood Youth Corps clearing for
boat launching ramp and parking area
at Weaver, Minn., Pool 5



Entrance Road at Trempealeau Refuge Headquarters



Normal



1965 Spring Flood
16 foot boat with 22 hp outboard used to travel
road during flood.

Flooded Service Building at Trempealeau Refuge Headquarters



Water up to office window sill



Foster operating 22 hp boat on flooded courtyard during damage inspection

Trempealeau County Sportsmen's Club
Pheasant rearing project on Trempealeau Refuge



Normal



During 1965 Spring Flood



Richard Lipinski's residence on Delta Fish and Fur Farm adjacent to the Trempealeau Refuge unit during 1965 spring flood.

Realty recently made an offer to purchase this 5,000-acre tract, but negotiations are currently at a standstill. We have negotiated for forty years on this, so.....!

NARRATIVE REPORT

UPPER MISSISSIPPI RIVER NATIONAL WILDLIFE REFUGE
LA CROSSE DISTRICT

1965

-

United States Department of the Interior

Fish and Wildlife Service

Bureau of Sport Fisheries and Wildlife
La Crosse, Wisconsin

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C O N T E N T S

Page

I. General	
A. Weather Conditions.....	I-1
B. Habitat Conditions.....	
1. Water.....	I-3
2. Food and Cover.....	I-4
II. Wildlife	
A. Migratory Birds.....	II-1
B. Upland Game Birds.....	II-4
C. Big Game Animals.....	II-4
D. Fur Animals, Predators, Rodents, and Other Mammals.....	II-5
E. Hawks, Eagles, Owls, Crows, Ravens, and Magpies.....	II-6
F. Other Birds.....	II-7
G. Fish.....	II-7
H. Reptiles.....	II-7
I. Disease.....	II-7
III. Refuge Development and Maintenance	
A. Physical Development.....	III-1
B. Plantings.....	III-1
C. Collections and Receipts.....	III-2
D. Control of Vegetation.....	III-2
E. Planned Burning.....	III-2
F. Fires.....	III-2
IV. Resource Management	
A. Grazing.....	IV-1
B. Haying.....	IV-1
C. Fur Harvest.....	IV-1
D. Timber Removal.....	IV-1
E. Commercial Fishing.....	IV-1
F. Other Uses.....	IV-1
V. Field Investigation or Applied Research	
A. Wood duck management	V-1
B. Bag checks	V-2
C.	
D.	
E.	
VI. Public Relations	
A. Recreational Uses.....	VI-1
B. Refuge Visitors.....	VI-2
C. Refuge Participation.....	VI-5
D. Hunting.....	VI-8
E. Violations.....	VI-9
VII. Other Items	
A. Items of Interest.....	VII-1
B. Photographs.....	
C. Signature.....	

UM-2
Rev.
1955

I. GENERAL

A. Weather Conditions

MONTH	Precipitation			Temperature			
	Total	Normal	Snowfal	Max.	Min.	Mean	Normal
						Av.	Mean Av.
January	.81	1.19	12.7	42	-30	11.0	16.5
February	.72	1.05	6.6	46	-31	14.0	19.4
March	2.05	2.07	15.0	41	-13	23.	30.5
April	4.87	2.75	1.6	80	24	43.5	47.0
May	5.11	3.75		89	32	60.7	59.2
June	3.51	4.20		90	46	66.3	68.8
July	4.48	3.75		99	50	70.4	73.8
August	2.85	3.63		94	40	67.5	71.6
September	10.52	3.48		85	33	56.6	62.2
October	1.66	2.19		80	24	50.3	51.1
November	2.98	1.94	.2	68	14	35.3	34.2
December	2.02	1.15	1.3	59	8	30.5	21.8
Annual				Extremes			
Totals	41.58	31.16	37.4	99	-31		

January and February were cold, with below normal precipitation as well. March, except for the first week, had consistently below normal temperatures. Precipitation was about normal but about half of it came in the form of rain. Snowfall for the three months totalled 34.3 inches. There were no severe storms, and wind velocities did not get above 35 miles per hour.

April was a month characterized by low temperatures with frequent and excessive rainfall. May temperatures were slightly above normal, as was precipitation.

June temperatures and precipitation were both below normal. Winds with velocity between 30 and 40 miles per hour were recorded on the 20th and 27th. July continued with below normal temperatures but precipitation was above normal. August was like June, both temperatures and precipitation below normal.

September continued with below normal temperatures but with frequent and excessive showers. Total rainfall was the highest of any September on record and was exceeded only by 12.09 inches received in October of 1900.

October continued cool but precipitation was fortunately below normal.

Precipitation was above normal for both November and December. November temperatures averaged a little above normal, but December was an exceptionally mild month.

In general this has been a year of below normal temperatures and above normal precipitation. It was the wettest year since 1938. While there have been no severe storms in this section of the river valley, a tornado on May 5 caused considerable damage to buildings about seven miles west of La Crescent, Minnesota.

B. Habitat Conditions

1. Water

POOL LEVELS

Pool No. 8 at La Crosse, Wisconsin Normal: 4.6

MONTH	: HIGHEST	: LOWEST	: AVERAGE	: DATES OF	: DATES OF
	: LEVEL	: LEVEL	: LEVEL	: HIGH LEVEL	: LOW LEVEL
January	: 4.7	: 4.5	: 4.8	: 7-13	: 14-26
February	: 5.1	: 4.4	: 4.6	: 9	: 2-3
March	: 9.5	: 4.4	: 5.9	: 4	: 31
April	: 17.9	: 4.4	: 12.7	: 21	: 1-2
May	: 14.7	: 9.4	: 11.0	: 1	: 30-31
June	: 10.1	: 7.2	: 9.2	: 6-7	: 30
July	: 6.6	: 4.9	: 5.7	: 2-4	: 26
August	: 5.2	: 4.8	: 5.0	: 6-10	: 16-23, 25-27
September	: 6.3	: 4.8	: 5.4	: 30	: 6-7, 13-14
October	: 7.8	: 5.8	: 6.7	: 20	: 30
November	: 5.6	: 4.7	: 5.2	: 1, 3	: 30
December	: 7.7	: 4.9	: 6.1	: 17-19	: 1

Water levels during January and February were relatively stable with only minor fluctuations. However, above normal temperatures in late February and early March, together with about one inch of rain, caused the Root River to go over its banks. Ice jams caused disastrous flooding for about thirty miles back up its valley. It also raised Pool 8 levels up to 9.5 feet on March 4, or about five feet above normal.

While levels dropped rapidly for a few days, it took until near the end of the month to get them down to normal. In anticipation of the forecast flood conditions, levels were kept as low as

possible until the increased flow from the spring break-up started raising them again.

When the spring breakup started, levels above flood stage were forecast, with upward revisions being made almost every day. Levels climbed steadily and rapidly until April 21 when a crest of 17.9 feet at the control point was reached. This exceeded by about .7 feet the previous all time high set back in the early 1870's.

Floodwaters receded slowly and did not get below flood stage until May 7. A level below 5 feet was not reached until July 26. The river remained relatively stable from late July to the middle of September. From this time to the end of the year, levels have been bouncing between 4.7 and 7.8 feet.

Tributary streams have also flooded on several occasions during the past year. The Root River went over Highway 26 in March, April, and September. The Black River was over its banks in April, September, and December.

2. Food and Cover

At the start of the spring break-up, all of Pool 7 and most of Pool 8 were still covered by an unusually heavy ice sheet. Run-off waters came in so fast and raised levels so rapidly that instead of melting the ice cover, it was floated down river. As a result, large sections of marsh and stump fields were also lifted up and floated away. Some of these "islands" appeared to be as large as an acre in size, often containing trees, stumps, muskrat houses; and one was noted with four fox on it.

While it was at first thought that the attractive marshes in the Spring Slough, Lawrence and Target Lake areas were being ruined, this apparently has not been true. Little change has been noted in these areas, whereas two "floating islands" settled in the Wisconsin Island area and appear to have taken root there.

Throughout most of the spring and early summer, the water levels were so high that little food or cover was available to either the migrants or early nesters. Turbidity, together with the high levels and low temperatures, retarded growths to some extent. However, by mid-August most aquatics had recovered remarkably well and it appeared that the flood had actually improved the marshes.

In Pool 7, the beds of celery, sago, and Richardson's pondweed have extended farther and beyond the stump fields. Wild rice has been scattered throughout the pool.

In Pool 8, wild rice has also been scattered over much of the pool. The celery beds in Wisconsin Island now extend almost the entire length of the island. The beds of sago, Americanus, together with wild rice and river bulrush, have expanded farther out into Target Lake.

The closed areas again contained such abundant food supplies for the southward migrants that there was little movement out from these areas until late in the season. Even at the close of the season there were still no mass movements after shooting hours.

Though there were still several thousand ducks left after the close of the hunting season, ice had started forming in the backwaters. Thus only slight use was made of the abundant supplies in the open areas. Up to the close of the year there have been no storms or other weather phenomena to damage the food and cover crops. Barring another flood next spring, there should be more than sufficient supplies available for the returning migrants.

II. WILDLIFE

A. Migratory Birds

1. Waterfowl

A. Ducks: About 350 semi-domestic mallards, 8 blacks, 2 canvasbacks, one scaup, and 12 goldeneyes made up the wintering duck population at the start of the year. The scaup and about seven of the goldeneyes disappeared in early February but the others remained through the winter.

The first northern migrants were not noted until about the third week of March, or about three weeks later than a year ago. While the general northward movement reached this area the first week of April, most of the bottoms were still icebound and did not start breaking up until the next week when river levels went above flood stage. Though substantial numbers were moving through at this time, the area was so unattractive that most birds were using the flooded agricultural fields along the tributary streams. This situation existed through most of the migration.

The nesting population was made up of mallards, blacks, blue-winged teal, wood ducks, and hooded mergansers. Also present through the summer were a few green-winged teal and scaup, but no broods of these were noted. At the start of the season, the number of nesters appeared to be down about 50%. However, it is assumed that some of the birds that normally would have used the Mississippi bottoms moved up the tributary streams to nest, then brought their broods down to the main river. Flight counts of birds going up the stream valleys increased at all the check areas. From brood observations, production was estimated to be down about 33%.

The first southern migrants started moving through the third week of August, and by the first week of September most of the puddlers were here. Divers began moving in near the middle of the month, with most of these showing up by the first week of October. The migration then appeared to move through rather slowly. Peak numbers were only slightly lower but total days used were higher.

While the majority of the birds moved out the third and fourth weeks in November, there were still several hundred mallards, goldeneyes, and mergansers left at the close of the year. It is expected that a few of these will remain through the winter.

An analysis and comparison of the duck populations are contained in Tables 1, 2, and 4.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Upper Mississippi, La Crosse District

Period: January to April, 1965

Species	Peak Numbers		Percent of Change		Peak Dates*	TOTAL DUCK DAYS USE		Percent of Change	
	19 64	19 65	Decrease	Increase		19 64	19 65	Decrease	Increase
Mallard	5400	3500	35.1		4/4 : 4/7	170417	90950	46.6	
Black	380	150	60.5		4/4 : 4/17	7826	2420	69.0	
Gadwall	850	200	76.4		4/11:4/10-17	22480	3450	84.6	
Baldpate	12500	3200	74.4		4/18:4/17	278300	38300	86.2	
Pintail	1400	250	82.1		4/4 : 4/17	26080	3330	87.2	
G.w.teal	450	100	77.7		4/4 : 4/17	8880	1760	80.1	
B.w.teal	4200	2500	40.4		4/25:4/24	57100	33390	41.5	
Shoveler	2800	1100	60.7		4/25:4/24	45510	13470	70.4	
Wood duck	480	350	27.0		4/18:4/17-24	17700	6720	62.0	
Redhead	650	400	38.4		4/11:4/17	15050	4800	68.1	
Ring-neck	3100	2200	29.0		4/4 : 4/24	92050	33555	63.5	
Canvasback	3100	1500	51.6		4/11:4/17	50090	19468	61.1	
L.scaup	18500	8500	54.0		4/18:4/24	349560	135035	61.3	
Golden-eye	3100	850	72.5		3/28:4/10	77520	12710	83.6	
Bufflehead	230	170	26.0		4/11:4/10	4210	1730	57.9	
Ruddy	210	50	76.1		4/18:4/17-24	2330	500	78.5	
Mergansers	1200	830	30.8		3/28:4/10	33534	13457	59.8	
Old squaw									
Scoters									
Unident.									
TOTALS	49410	21090	57.3		4/18:4/17	1,256,507	415,045	65.9	

*Week ending.

Puddlers

634,293

193,790

69.4

Divers

622,214

221,255

64.4

Comments:

For the above migration period, the area was not as unattractive to the divers but generally both were conspicuous by their absence.

TABLE I

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Upper Mississippi; La Crosse District

Period: May - August, 1965

Species	Peak Numbers		Percent of Change		Peak Dates*	TOTAL DUCK DAYS USE		Percent of Change	
	19 64	19 65	Decrease	Increase		19 64	19 65	Decrease	Increase
Mallard	4500	4200	6.7		8/29 : 8/28	297000	234880	20.9	
Black	50	40	20.		8/29 : 8/28	2265	2150	5.0	
Gadwall	50	190		280.	5/9 : 5/8	200	950		375.
Baldpate	800	360	55.		5/9 : 5/8	3500	1740	50.2	
Pintail	250	50	80.		8/29 : 8/28	320	450		40.6
G.w.teal	200	30	85.		8/29 : 8/28	580	1570		170.6
B.w.teal	3000	2500	16.7		8/29 : 8/28	161620	59560	63.1	
Shoveler	650	310	52.3		5/9 : 5/8	4740	2930	38.2	
Wood duck	1600	1400	12.5		8/29 : 8/28	109380	83900	23.2	
Redhead	50	20	60.		5/9 : 5/8	50	80		60.
Ring-neck	40	110		175.	5/9 : 5/8	200	440		110.
Canvasback		40					200		
L.scaup	2300	1120	51.3		5/9 : 5/8	15210	9790	35.6	
Golden-eye	1				6/27	7			
Bufflehead									
Ruddy									
Mergansers	260	180	30.		5/9 : 7/24-8/28	28020	14970	46.5	
Old squaw									
Scoters									
Unident.									
TOTALS	9490	8420	11.3		8/29 : 8/28	623,090	413,510	33.6	

*Week ending.

Comments: All increases in either peak numbers or days use are due to the eccentrics of the migration.
At the start of the period the area was not attractive to the late migrants or nesting birds.

TABLE I
COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE
Refuge: Upper Mississippi; La Crosse District
Period: September - December, 1965

Species	Peak Numbers		Percent of Change		Peak Dates*	TOTAL DUCK DAYS USE		Percent of Change	
	19 64	19 65	Decrease	Increase		19 64	19 65	Decrease	Increase
Mallard	26000	21000	19.2		11/14 : 11/6	953510	852850	10.5	
Black	850	750	11.7		10/24 : 11/6	33420	28900	13.5	
Gadwall	2100	3500		66.7	10/17 : 10/23	66500	101050		51.9
Baldpate	38000	52000		36.8	10/17 : 10/23	1473000	1940760		31.7
Pintail	5600	3500	37.5		10/24 : 10/23	221500	122300	44.7	
G.w.teal	1600	1000	37.5		10/10 : 10/16	43500	35230	19.0	
B.w.teal	6000	4500	25.		9/26 : 9/18	215010	146660	31.7	
Shoveler	650	400	23.		10/17 : 10/23	13720	10330	24.7	
Wood duck	1800	1650	8.3		9/19 : 9/18	71530	59810	16.3	
Redhead	2400	3600		50.	11/7 : 11/18	52200	87700		68.
Ring-neck	8500	6500	13.3		10/24 : 10/23	183300	180550	1.5	
Canvasback	8500	9500		11.7	11/7 : 10/30	204423	258800		26.6
L.scaup	30000	25000	16.7		11/7 : 11/18	632524	606360	4.1	
Golden-eye	450	1250		177.8	11/7 : 11/20	11145	22590		102.6
Bufflehead	450	450			10/31 : 10/30	6980	8420		20.6
Ruddy	500	400	20.		10/31 : 10/23	10650	9520	10.6	
Mergansers	550	650		18.1	11/21 : 11/20	14860	23660		62.5
Old squaw									
Scoters	1				10/24 :	7			
Unident.									
TOTALS	106,830	104,420	2.25		11/7 : 11/6	4,206,524	4,495,490		6.9

*Week ending.

Dabblers
Divers

3,091,610
1,114,914

3,297,890
1,197,800

6.7
7.5

Comments:

TABLE II
 PERCENTAGE COMPOSITION BY SPECIES OF TOTAL DUCK DAY USE
 Refuge: Upper Mississippi; La Crosse District
 Period: January - April, 1965

Species	Percent of total duck day use					
	19 63		19 64		19 65	
	% of use	Order	% of use	Order	% of use	Order
Mallard	11.6	2	13.6	3	20.9	2
Black duck	.4	16	.6	15	.5	14
Gadwall	1.7	12	1.8	11	.8	12
Baldpate	11.0	3	22.1	2	9.2	3
Pintail	2.3	10	2.1	10	.8	13
G.w.teal	1.1	14	.7	14	.4	15
B.w.teal	10.0	4	4.5	6	8.0	5
Shoveler	7.2	5	3.6	8	3.2	7
Wood duck	1.9	11	1.4	12	1.6	10
Redhead	1.2	13	1.3	13	1.1	11
Ring-neck	4.9	5	7.3	4	8.0	4
Canvasback	4.3	7	4.0	7	4.6	6
Lesser scaup	35.0	1	27.8	1	32.5	1
Golden-eye	3.4	8	6.2	5	3.0	9
Bufflehead	17	15	.3	16	.4	16
Ruddy	.3	17	.2	17	.1	17
Mergansers	2.9	9	2.7	9	3.2	8
Old squaw						
Scoters						

Comments: The substantial increase in the percentage of mallard use is due to the larger number of wintering birds while the decrease in baldpates is due to the late breakup and the unattractiveness of the area due to the spring flood.

TABLE II
 PERCENTAGE COMPOSITION BY SPECIES OF TOTAL DUCK DAY USE
 Refuge: Upper Mississippi; La Crosse District
 Period: May - August, 1965

Species	Percent of total duck day use							
	19 63		19 64		19 65			
	% of use	Order	% of use	Order	% of use	Order	% of use	Order
Mallard	37.9	1	47.7	1	56.7	1		
Black duck	.3	12	.36	8	.5	7		
Gadwall	.2	11	.03	11	.2	10		
Baldpate	2.6	6	.6	7	.4	8		
Pintail	.3	10	.05	10	.1	11		
G.w.teal	.5	8	.1	9	.3	9		
B.w.teal	24.3	2	25.9	2	14.4	3		
Shoveler	.9	7	.8	6	.7	6		
Wood duck	22.1	3	17.6	3	20.2	2		
Redhead	.01	14	.01	13	.01	14		
Ring-neck	.01	12	.03	12	.1	12		
Canvasback					.05	13		
Lesser scaup	7.5	4	2.4	5	2.3	5		
Golden-eye								
Bufflehead								
Ruddy	.01	13						
Mergansers	3.1	5	4.5	4	3.6	4		
Old squaw								
Scoters								

Comments: The increase and high percentage of mallard usage is due to the large number of "semi-domestic" birds that were present in the French Island and Brice Prairie areas.

TABLE III
 PERCENTAGE COMPOSITION BY SPECIES OF TOTAL DUCK DAY USE
 Refuge: Upper Mississippi; La Crosse District
 Period: September - December, 1965

Species	Percent of total duck day use							
	1963		1964		1965			
	% of use	Order	% of use	Order	% of use	Order	% of use	Order
Mallard	19.4	2	22.7	2	18.9	2		
Black duck	.8	11	.8	12	.6	12		
Gadwall	3.0	8	2.6	9	2.2	8		
Baldpate	44.1	1	35.0	1	43.1	1		
Pintail	5.2	4	5.3	4	2.7	7		
G.w.teal	1.3	10	1.0	11	.7	12		
B.w.teal	4.8	5	5.1	5	3.2	6		
Shoveler	.4	13	.3	14	.2	15		
Wood duck	1.8	9	1.7	8	1.3	10		
Redhead	1.7	12	1.2	10	1.9	9		
Ring-neck	4.1	7	4.1	7	4.0	5		
Canvasback	4.2	6	4.8	6	5.7	4		
Lesser scaup	10.1	3	15.2	3	13.1	3		
Golden-eye	.2	14	.3	15	.5	14		
Bufflehead	.1	17	.2	17	.1	17		
Ruddy	.2	15	.25	16	.2	16		
Mergansers	.1	16	.34	13	.5	13		
Old squaw								
Scoters								

Comments: Baldpate, mallard and scaup continue to be the 3 most important species during the fall migration though the canvasback usage is increasing.

TABLE 4

WEEKLY DUCK POPULATIONS AND PEAK NUMBERS

Refuge: Upper Mississippi, La Crosse District

Period: January to April 1965

Week of period :	19 61	:	19 62	:	19 63	:	19 64	:	19 65
1	215	:	231	:	351	:	258	:	373
2	215	:	231	:	351	:	259	:	373
3	214	:	227	:	351	:	257	:	373
4	210	:	225	:	349	:	257	:	373
5	210	:	225	:	247	:	257	:	373
6	250	:	225	:	352	:	257	:	365
7	250	:	230	:	393	:	272	:	365
8	550	:	230	:	378	:	282	:	365
9	1310	:	234	:	373	:	582	:	365
10	1510	:	288	:	388	:	1050	:	391
11	2110	:	330	:	443	:	2050	:	533
12	4000	:	1725	:	2523	:	16750	:	687
13	24445	:	8920	:	18450	:	23050	:	5860
14	37190	:	13280	:	25050	:	30820	:	13290
15	27295*	:	22270*	:	23610	:	37830	:	21090*
16	41200*	:	24340*	:	32030*	:	49410*	:	20910
17	14630	:	16280	:	20230	:	42350	:	10580
18		:		:		:	20270	:	
TOTAL DAYS USE :	1,160,628	:	630,287	:	918,113	:	1,256,507	:	415,045

*Indicates peak concentration.

COMMENTS: Use for the 1965 period was about 50% below the 5 year average and is due to the record breaking spring flood.

TABLE 4
WEEKLY DUCK POPULATIONS AND PEAK NUMBERS

Refuge: Upper Mississippi, La Crosse District
Period: May - August, 1965

Week of period:	19 61	:	19 62	:	19 63	:	19 64	:	19 65
1	7920	:	9500*	:	11610	:	8900	:	5010
2	4210	:	4040	:	5150	:	5450	:	2260
3	2350	:	2390	:	3520	:	3910	:	1890
4	2160	:	1970	:	3150	:	3550	:	1820
5	2310	:	2073	:	3080	:	3600	:	1970
6	2420	:	2290	:	3300	:	4065	:	2120
7	2830	:	2750	:	2530	:	4390	:	2430
8	3000	:	3420	:	4031	:	4721	:	2930
9	3230	:	3670	:	4251	:	4900	:	3250
10	3560	:	3950	:	4731	:	5020	:	3550
11	3900	:	4210	:	5191	:	5140	:	3750
12	4301	:	4602	:	5451	:	5200	:	3990
13	5002	:	4864	:	5582	:	5300	:	4170
14	6967	:	5202	:	5732	:	5950	:	4410
15	8582	:	6294	:	6952	:	7190	:	5040
16	9452	:	7124	:	8551	:	8080	:	6750
17	10132	:	8340	:	11761*	:	9490*	:	8420*
18	11120*	:	9270	:		:		:	
TOTAL DAYS USE:	656,122	:	601,713	:	712,775	:	623,092	:	413,510

*Indicates peak concentration.

COMMENTS: The 1965 use for this period is about 35% below the 5 year average and is due to the spring flood which made the area so unattractive to both migrating and nesting waterfowl.

TABLE 4
WEEKLY DUCK POPULATIONS AND PEAK NUMBERS

Refuge: Upper Mississippi, La Crosse District
Period: September - December, 1965

Week of period:	19 61	:	19 62	:	19 63	:	19 64	:	1965
1	13240	:	12120	:	15061	:	12900	:	12120
2	18560	:	14740	:	16491	:	16150	:	15110
3	25200	:	21790	:	17921	:	18470	:	20690
4	37720	:	31310	:	41900	:	36270	:	34540
5	35790	:	33410	:	49950	:	43000	:	40110
6	50720	:	50360	:	56280	:	60200	:	62120
7	65570	:	56040	:	66750	:	70220	:	72900
8	75130*	:	100470	:	86690	:	96171	:	99280
9	58480	:	111360*	:	108340	:	105520	:	101270
10	31930	:	84330	:	114950*	:	106830*	:	104420*
11	18070	:	63900	:	106270	:	88020	:	94340
12	8310	:	31090	:	65530	:	50490	:	64090
13	5750	:	21230	:	50050	:	910	:	26440
14	6080	:	14911	:	9630	:	580	:	1290
15	610	:	325	:	530	:	415	:	2420
16	280	:	320	:	240	:	415	:	2810
17	230	:	320	:	245	:	378	:	2670
18	:	:	:	:	:	:	378	:	860
TOTAL DAYS USE:	3,159,590	:	4,468,632	:	5,644,296	:	4,206,524	:	4,495,990

*Indicates peak concentration.

COMMENTS: In contrast to the spring and summer periods, total use for the fall period of 1965 was slightly above the 5 year average. This is due to the abundance of food and attractiveness of the closed area system as well as favorable weather conditions.

Geese: A comparison and comments of the goose migrations and populations are contained in Table II which follows.

Coots: A comparison and comments of the coot migrations and populations are contained in Table II which follows.

Swan: Were first noted moving northward the first week of April. However, they, like the other waterfowl, apparently did not find the area very attractive. In comparison with 1964, peak numbers decreased from 1,250 to 350, and days use from 9,495 to 3,800.

On the southward flight, occasional small flocks were present from the second week of November to near the end of December. However, no more than 30 birds were noted at any time, and usage totaled about 350 days.

Rails: Soras were noted near the middle of June in the Blue and Target Lake areas of Pool 8, which appears to be the most attractive habitat, though the Spring Slough and Lawrence Lake areas also contained populations. By the middle of September an estimated 6,000 were present.

On a check of the transect on September 10, a total of 31 soras were counted in an area covering approximately 1.4 acres.

2. Other Water Birds

Egrets: These birds were first noted the week ending April 10. The flooded bottomlands did not appear to discourage them for by the end of the month there were about 150 present, with at least 25 pair nesting in with the great blue heron at the Root River rookery. A peak of about 500 were present near the end of July, and all had moved out by the middle of October.

Heron and Bittern: At least two great blue heron spent the winter in the creek between Third and Round Lakes in Pool 7. Northern migrants were noted the first of April, and soon nesting activity was noted in the Root River rookery. On April 16, a total of 505 nests were counted in this rookery, with about 50 in the Dodge Chute unit. An estimated 600 young were produced. While most had moved out by mid-November, it is possible that there may be an occasional bird still present in some secluded seepage or creek.

Green heron were first noted the week ending April 24, and were present up to the week of October 16. During the middle of August about 400 were estimated to be present.

Again three pair of yellow-crowned heron nested in the Shore Acres area and produced about four young. These birds were present from early June through September.

The only black-crowned heron were noted during a three-week period in September.

Least bittern were present from the middle of June to near the end of September. A peak of about 150 were estimated to be present during July.

Grebes: Pied-billed were not noted in the district until the week ending April 10. At the peak of the spring migration, 150 were estimated to be present. A few pair remained through the summer and produced an estimated 20 young. About 300 were present at the peak of the fall migration. All had moved out by the end of November.

One horned grebe, noted on April 14, was the only other grebe observed.

Gulls and Tern: Herring and ring-billed gulls began moving through in late March but they apparently did not find the flooded bottoms suitable for only about 1,500 were present at the peak of the migration. About 50 ring-billed remained through the summer. The fall movement began in early September, and at the peak a total of about 3,000 of both species were present. At the close of the period there are still 20 or 30 of each left.

Black tern were present from early April through to early October, with a peak of about 2,500 being present in July. A few common tern were noted during both the spring and fall migrations.

3. Shorebirds:

While the area was generally unsuitable for shorebirds, through most of the season, a few killdeer were present from early April to late November. Solitary sandpipers were present from mid-May to the end of October. Others occasionally noted included spotted, lesser yellow legs, and least sandpipers. While no jacksnipe were noted during the spring migration, an estimated 1,000 were present at the peak of the fall flight.

4. Doves:

Both usage and production are believed to have been lower this year. Birds began moving through in early April and have been present up to the close of the year. Refuge production was estimated at 300, and peak numbers at 2,000.

TABLE III
COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE
Refuge: Upper Mississippi; La Crosse District
Period: January - April, 1965

Species	Peak Numbers		Per cent of Change		Peak Dates*		TOTAL DAYS USE		Per cent of Change	
	19 64	19 65	Decrease	Increase	19 64	19 65	19 64	19 65	Decrease	Increase
Canada geese (lg.)	650	250	61.5		4/4	4/17	9722	4132	57.4	
Cackling										
White-fronted										
Snow		60				4/10		285		
Blue		40				4/10		295		
TOTALS	650	275	57.6		4/4	4/10	9722	4712	51.5	

Comments: Eight of the Canada geese released by the Badger State Sportsmens Club remained at Goose Island throughout the winter. The northward migrants began stopping in this area the first week of April or about a month later than last year. A few snow and blue geese were noted using Pool 7 the second week of April. Small numbers were present up to the first of May. As with the ducks, most geese by-passed this area or used the adjacent flooded agricultural fields.

Coot	18500	6500	64.8		4/28	4/17	345290	115250	66.6	
Florida gallinule										

Comments: Coots began stopping in the district the first week of April. However, they like the ducks and geese did not find the area very attractive and either by-passed it or flooded fields.

TABLE III
COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Upper Mississippi; La Crosse, District
Period: May - August, 1965

Species	Peak Numbers		Per cent of Change		Peak Dates*		TOTAL DAYS USE		Per cent of Change	
	19 64	19 65	Decrease	Increase	19 64	19 65	19 64	19 65	Decrease	Increase
Canada geese (lg.)	50	36	28.		5/20-	6/8-	5194	3200	38.4	
Cackling					8/29	7/10				
White-fronted										
Snow										
Blue										
TOTALS	50	36	28.				5194	3200	38.4	

Comments: At the start of this period there were 11 Canadas in the Black River area but 7 moved out the first week. The 2 pair remaining attempted to nest but were unsuccessful. Near the middle of June some more Canadas began showing up and remained in the district through the summer. It is assumed that these were from former releases.

Coot	3250	4150		27.6	5/9	5/8	47490	33980	28.4	
Florida gallinule										

Comments: While there were several thousand coots present at the start of the period, all but a few had moved out by the end of the month. The summer population appeared to be only about a third as large as last year but production appeared to be almost as good.

TABLE III

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Upper Mississippi; La Crosse District

Period: September - December, 1965

Species	Peak Numbers		Per cent of Change		Peak Dates*		TOTAL DAYS USE		Per cent of Change	
	19 64	19 65	Decrease	Increase	19 64	19 65	19 64	19 65	Decrease	Increase
Canada geese (lg.)	425	1100		158.8	11/21	11/13-20	14340	36185		152.3
Cackling										
White-fronted										
Snow	140	150		7.1	10/10	10/9	1500	1750		16.6
Blue	120	130		8.3	10/10	10/9	1100	1000	9.0	
TOTALS	425	1100		158.8	11/21	11/13-20	16940	38935		129.8

Comments: The first southern Canada geese migrants began stopping near the end of September. Flocks totalling up to 1100 birds have been present up to the close of the year. Both peak numbers and usage were the highest in many years.

There was a slight increase in the numbers of snow and blue geese stopping but as usual, they would only stay a few days before moving on. Total usage was but little higher than a year ago.

Coot	60000	45000	25.		11/7	11/6	1316300	1185000	17.6	
Florida gallinule	150	350		133.	9/26	9/25	2150	4900		128.

Comments: Coots began moving through near the middle of September and though there were good concentrations, both peak numbers and days use were lower than a year ago.

Gallinules were first noted the second week of September along the pipe line channel of the Blue Lake area. Additional birds were noted in lower Pool 7, Lawrence Lake and Target Lake areas. All had apparently moved out by the first week of October.

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Refuge: Upper Mississippi: La Crosse District
Period: Calendar Year 1965

B. Upland Game Birds

SPECIES	: POPULATION:	YOUNG	: NUMBER :	GREATEST	: TAKE:	LOSS:	POPULATION
	: JAN. 1	: PRODUCED:	: STOCKED:	NO. PRESENT:			: DEC. 31
Ring-necked:							
pheasant :	60	0	275	250	50	210	40
Ruffed							
grouse :	100	0		100		35	20
Bob-white							
quail :	10	0		10		5	10
Gray							
partridge:							
Wild							
turkey :							

Though it was a cold winter, the snow cover was never so deep as to be a serious hazard, thus it is felt that the upland game birds came through the winter with a minimum of loss. However, the record spring flood drove every bird out of the bottoms, and water levels remained up so long that none had moved back in time to nest. During the past fall, a total of 275 pheasants were stocked by State Conservation Departments and at the close of the year it is estimated that about 40 of these are still present. During the last two months of the year, a covey of quail and an occasional ruffed grouse were noted on refuge lands.

C. Big Game Animals (White-tailed deer)

POPULATION:	YOUNG	: GREATEST	: HUNTER:	LOSSES:	POPULATION
JAN. 1	: PRODUCED:	NO. PRESENT:	TAKE :		: DEC. 31
165	0	165	20	15	65

While there were an estimated 165 deer in the district at the beginning of the year, they too were all driven out or drowned by the past flood. The bottoms remained wet so long that little use was noted until in August. Then the excessive September rains further curtailed usage. Though there was some increase in numbers in October and November, the estimate of 65 at the close of the year could be on the optimistic side.

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Refuge:
Period: Calendar Year 1965

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

SPECIES	: POPULATION:	YOUNG :	GREATEST :	: CON-:	: POPULATION
	: JAN. 1	: PRODUCED:	NO. PRESENT:	TAKE : TROL: LOSS :	: DEC. 31
Muskrat	: 5,000	: 18,000	: 18,000	: 14,000	: 5,000 : 4,000
Mink	: 50	: 100	: 125	: 65	: 20 : 40
Beaver	: 300	: 40	: 300	:	: 200 : 320
Otter	: 4	:	: 4	:	: : 4
Raccoon	: 600	: 150	: 600	: 50 : 10	: 450 : 250
Red Fox	: 200	:	: 200	: 30 : 10	: 50 : 60
Gray Fox	:	:	:	:	:
Skunk	: 150	: 10	: 150	:	: 140 : 20
Cottontail:	:	:	:	:	:
Rabbit	: 40	:	:	: 20	: 20 : 10
Opossum	: 80	: 10	: 80	: 5	: 60 : 20
Gray & Fox:	:	:	:	:	:
Squirrels:	: 500	: 250	: 500	: 150	: 400 : 150
Woodchuck	: 30	: 10	: 30	:	: 30 : 10
Badger	: 2 ?	:	: 2 ?	:	: : 0
	:	:	:	:	:
	:	:	:	:	:

Muskrats apparently survived the flood and had a more successful season than anticipated. It was thought that a substantial percentage of the breeding population and the early production were lost in the spring flood. However, house counts and early trappers' reports indicate a much larger production than expected. While the Wisconsin season was later and shorter, harvesting conditions were more favorable and pressures were higher. The take is expected to be as high and the numbers left at the end of the year about 20% lower. A comparison of the house counts is as follows:

<u>Muskrat Houses</u>		<u>1963</u>	<u>1964</u>	<u>1965</u>
Lawrence Lake	8-1	383	406	326
Brown's Island	8-2	<u>330</u>	<u>311</u>	<u>232</u>
Totals		713	717	585

Mink continue to be scarce, and the take gets smaller. Present populations are felt to be lower than a year ago. Beaver appear to have increased slightly, though about 75% of the production was lost in the flood. Signs of otter are being reported again at the close of the year so apparently the flood did not move them out for good.

While some raccoon managed to survive the flood, a high percentage either moved out or perished. Population at the end of the year is estimated to be about 60% lower than a year ago. All fox were either driven out or perished in the flood. A few animals moved back into the Goose Island area in late summer. However, it was after the freeze-up before much sign was found in other portions of the bottoms.

About a half dozen skunks managed to survive the flood by getting on the dikes, the two or three high points on Goose Island, and on a couple of dredge spoil piles that remained above flood crest. Rabbits were eliminated. The present population is from what has moved in from bordering high lands. A few opossum survived but the majority either moved out or perished. Some squirrels survived, but the mortality was very high. A few woodchucks also survived but most perished or moved out.

E. Hawks, Eagles, Owls and Crows:

Hawks:

From 20 to 60 red-tailed hawks used the area during the year, with up to 250 passing through in one day during the peak of the fall migration. Marsh hawks were noted occasionally during both the spring and fall flights.

Eagles: Bald eagles began moving through in early March and were last noted in mid-April. Apparently the flooded bottoms were not as attractive for at the peak of the migration only six adult and seven immatures were present as compared to 60 adults and 38 immatures a year ago. The first of the fall flight was noted the week of October 2, and birds have been present up to the close of the year. At the peak of the migration, 10 adults and 20 immatures were present.

Owls: From 20 to 50 great horned and from 30 to 60 barred owls were estimated to be present during the year. Four great horned were taken raiding the Badger State Sportsmen's Club Inc. (BSSCI) duck pens on Goose Island, and one was caught attempting to raid a wood duck trap.

Crows: The wintering population contained from 75 to 100 birds, and the nesting from 400 to 600 with about 2,000 being present during the peak of the fall migration.

F. Other Birds:

Occasional vultures have been noted on several occasions in the Brownsville area and near the Root River rookery.

G. Fish:

This has been a rather poor year for fish production. Thick ice, with a snow cover, low water levels, then a record-breaking flood, followed by extended high water levels, excessive rainfall and high turbidity, are all generally considered to be detrimental to fish. It is felt that spawning success was very low and that mortality was high.

H. Reptiles:

No rattlesnakes seen or reported on refuge lands this year. The flood apparently had little effect on the turtle populations since they appeared to be as numerous as a year ago. With a decrease in the predator populations that controlled them, a material increase is expected.

I. Disease:

None noted or reported this year.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

On June 16, about thirty boys from La Crosse County were made available to the refuge under the Neighborhood Youth Corps program. Projects worked on included access development, habitat improvement, sandbar development and clean-up, roadside clean-up, dike clean-up, spillway repair, warehouse repair, road repair, flood clean-up, boundary line clearing, boundary and closed area posting, sign renovation, and many small jobs such as duck trap repair, boat repair, making backing boards, etc. They also spent some time assisting in the repair of the BSSCI installation on Goose Island.

They put in a total of 12,965 man hours without a lost-time accident and very few minor injuries. The worst were a couple of cases of poison ivy infection.

On October 16-17, Company A, 173rd Engineers of the Wisconsin National Guard held a multiple exercise on Goose Island. The unit consisted of 100 men, eight dump trucks, six stake trucks, three jeeps, one 2-1/2 yard loader, plus a number of power saws, etc. They cleared and piled brush along about one and one-half miles of trails, and hauled some 2,000 yards of fill to repair roads and trails.

Other Items Accomplished Include:

Blading of roads and ramps on Goose Island by La Crosse County.

Reposting Closed Areas.

General replacing of signs along boundaries and navigable sloughs that were lost in the flood.

Maintenance and repair of wood duck nesting houses.

Maintenance of equipment and No. 8 tube.

Posting about 100 anti-litter signs at landings, parking areas, sandbars, etc.

Repair of warehouse driveway by Northern States Power.

B. Plantings

Due to the flood and the extended period of high water, the BSSCI could only plant about 20 acres of corn on Goose Island for their duck and pheasant rearing project. Though planted late, the yield was much better than a year ago.

C. Collections and Receipts

None this period.

D. Control of Vegetation

Again a section of the shoreline of Brice Prairie and French Island was sprayed for the control of submerged aquatics. It is a cooperative project between La Crosse County, Onalaska Township, and local residents of the two areas. As the kill is only temporary, it is a yearly project.

E. Planned Burning

None this year.

F. Fires

The spring flood and the excessive rainfall in September eliminated the fire hazards for the year.

IV. RESOURCES MANAGEMENT

A. Grazing

This season a total of four permits covering 138 cattle for 362.96 AUMs were in effect. Revenue to the Government amounted to \$362.96. The flood, extended high water levels, and excessive rainfall all contributed to the reduction in use and demand.

B. Haying

None.

C. Fur Harvest

The 1965-1966 season extends from November 6 through December 31, 1965 in the Minnesota portion, and from December 4 through January 15, 1966 in the Wisconsin portion. Harvesting conditions, pelt values and pressures were all higher this year. Though the Wisconsin season is shorter, the harvest is expected to be as large as a year ago.

In the 1964-1965 seasons, there was an estimated take of 24,000 muskrats, 80 mink, 250 raccoon. Estimated income to the trappers amounted to about \$28,000.00.

For the present seasons, from the La Crosse office a total of 266 permits, together with 10,919 trap tags, were sold. This is an increase of 27 permits plus 1,166 trap tags over the previous season. Revenue to the Government amounted to \$1,091.90.

D. Timber Harvest

None this year.

E. Commercial Fishing

Floods and high water levels materially reduced the harvest of rough fish. From this area it is expected to be down about 50% below 1964.

F. Other Uses

2 Cabin sites at \$25.00 per year.

1 Sand and gravel permit at \$10.00 per yard. A total of 12,107 cubic yards were removed for a return of \$1,210.70.

2 Permits for concession stands, latrines, etc., in connection with the operation of fishing floats below Dams 6 and 7 at \$50.00 per year.

1 Permit to Northern Natural Gas Company for a pipeline and metering station.

2 Permits for boat liveries at \$25.00 per year.

10 Permits for mooring of houseboats at \$10.00 per year.

1 Permit to the Badger State Sportsmen's Club of La Crosse for a waterfowl and pheasant rearing project on Goose Island.

Floodwaters forced the club to release all their mallard brood stock before they had started to nest. Thus they raised no mallards. Their Canada goose flock remained at the project and succeeded in raising 18 young.

From the pheasant project, the Club raised and released about 880 pheasants. The only serious incident of this program was when a mink took up residence under one of the brooder houses. It managed to kill about 30 birds before being caught. Since the mink population is so low, it was taken about ten miles away and released.

V. FIELD INVESTIGATIONS OF APPLIED RESEARCH

A. Progress Report

Wood duck management: Again field investigations for this specie were the sampling of flight counts as an index to annual fluctuations in nesting populations, banding, roost counts, and artificial house use.

The results of the spring nesting flight counts are as follows:

	<u>1963</u>	<u>1964</u>	<u>1965</u>
Wild Cat Creek	44 AM	31 AM	46 AM
Root River	17 PM	49 PM	52 PM
Dakota Creek	16 AM	8 AM	9 AM
Totals	77	88	107

It is felt this increase is due to the unattractiveness of the flooded river bottoms rather than an increase in local nesting populations.

In the banding program, baiting was not started until late July as there simply were no birds. After bait was put out, it took two weeks before any ducks were caught. Baiting was carried on at five locations but at only two were any number of birds caught. From one to seven traps were operated up to September 13, and the following is a summary of the operation:

	<u>1964</u>	<u>1965</u>
Wood ducks	585	714
Mallards	23	35
Blacks	7	2
Blue-winged teal	1	0
Green-winged teal	1	0
Hooded merganser	1	0
Wood duck retakes	15	2
Ducks lost to predators, etc.	21	15
Predators taken	25	7

The biggest loss this season was to a golden retriever that got into a trap and drowned ten woodies. Raccoon caused some disturbance but it was minor compared to other years. A great horned owl attempted to take a bird as it was released after being banded. It was frightened away the first time, but when it came back the next day to try again, more positive measures were taken.

A census of the Lawrence Lake wood duck roost was taken on September 22, and a comparison of this with previous years is as follows:

	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
Wood Ducks	261	1,091	429	39

It is assumed that the special "teal" season was partly responsible for the low count since banding operations indicated a good woodie population in this area.

As usual, only one of the ten metal wood duck houses under observation in the district was used by these ducks. However, the floodwaters were so high that some of the houses were in water or very near it.

Bag Checks: Hunter bag checks were made at various hunting areas throughout the season. A summary of this project is as follows:

	<u>Season Total</u>	<u>Wisconsin Opening Weekend</u>
Number of Hunters	863	678
Number of ducks	1,370	1,180
Number lost	295	230
Number of Coots	244	230

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VI. PUBLIC RELATIONS

A. Recreational Use

19	FISHING	MISCEL- LANEOUS	HUNTING			TOTAL DAYS USE
			DUCKS	DEER	OTHER	
Spring	45800	18115			735	64650
Summer	93350	119600				212950
Fall	63000	33035	33830	1755	1920	133540
TOTAL DAYS USE	202150	170750	33830	1755	2655	411140

Total recreational uses of the refuge were about 40% lower than a year ago. The flood, excessive rainfall, cool weather, all contributed to the decrease in usage. It was mid-July before the temperatures got high enough and the water low enough for the beaches and sandbars to become usable. The current of the river was so strong and the water so cold that water sports were not inviting.

The anti-litter program was continued with favorable results. However, the day selected for the refuge-wide patrol turned out to be so windy that very few people were on the river. Patrol activities were discontinued at noon.

Under the Neighborhood Youth Corps program, beaches and sandbars were cleaned up, improved, and posted in late June and early July. Again in late August they again policed these areas, thus they should be relatively clean for the start of the next season.

The popularity of the "fish shanty" has suffered a setback this season. It was getting to the point where you were not "in" unless you had a "house" to fish in during the winter. This fall, fishermen started moving their "houses" out in late November. Unfortunately, there were some warm days in early December. There was a mad scramble to get them off, and some were successful. Some of the others were lucky too - they can see the tops of their houses.

REFUGE VISITORS

Refuge: Upper Mississippi; La Crosse District

Period: 1965

DATE	PERSONS	PURPOSE
1/7	Frick and McKinnon, Wis. Con Dept.	Violations
1/15	Messrs. Gray and Aultfather, BSF&W Ref. mgr.&forest	mapping timber
1/19-21	Wm. Aultfather, BSF&W, forester	mapping timber
2/4	A. Francour, La Crosse Co. Res. & Dev.	Goose Island development
2/4	Marius Morse, Vitterbo College	student field trips
3/1	H. McLaird, Houston Co. Highway Dept.	access development
3/10	J. Franke, Roosevelt School	films
4/5	B. Whitehouse, Houston Co. Sheriff	access and roads
4/9	Messrs. Stinnett & Reynoldson, USGMA	violations
5/17	J. Hoilien, Ia. Con. Dept.	violations
5/18	J. Bannon, US Commissioner	State boundaries, encroachments
6/8	Medary Garden Club	heron rookery tour.
6/9	M. Stinnett, USGMA	encroachments
6/24	M. Stinnett, USGMA	encroachments
6/26	La Crosse University teachers and student group	heron rookery tour
6/26	Messrs. Meyer, Benjamin, DeVall, Gray, BSF&W	inspection
6/30	Wis. Con. Dept. group	Brice Prairie dredging

REFUGE VISITORS

Refuge: Upper Mississippi; La Crosse District

Period: 1965

DATE	PERSONS	PURPOSE
7/1	M. Stinnett, USGMA	encroachments
7/17	La Crosse Audobon Society group	rookery tour
7/20	Albert Lea Jr. High science students	rookery and refuge tour
7/27	M. Kleist, Sec. Chairman, County Board	inspect NYC projects
7/28-29	M. Stinnett, USGMA	violations.
8/10	J. W. Winship, BSF&W pilot	check district by air
8/11	Messrs. Gray and Scheffe, BSF&W	ownership of islands
8/19	Sgt. Shell, Org. REs. USArmy	work projects on refuge lands
9/10	M. Stinnett, USGMA	violations
9/15	J. Flynn, Att.	encroachments
9/20	J. Flynn, Att.	encroachments
9/23	Messrs. Aulfather and Britt, BSF&W	timber inspection
9/30	Messrs. Martin and Gray, BSF&W	refuge inspection
10/12	Capt. Persal, Org. Res. USArmy	training projects on refuge lands
10/13	Messrs. Benson and Ferguson, Corps of Eng.	inspection Corps lands
10/15-16	Messrs. L. Reynoldson, G. Orton, USGMA	violations

REFUGE VISITORS

Refuge: Upper Mississippi; La Crosse District

Period: 1965

[illegible]

REFUGE PARTICIPATION

Refuge: Upper Mississippi; La Crosse District
 Period: 1965

DATE	PERSONNEL	ACTIVITY
1/8	Lawson, Gray	Meeting with Corps of Engineers and French Island group at St. Paul, Min.
1/13	"	Film at La Crosse Rifle Club meeting
1/28	"	Gopher Sportmens Club meeting on fox hunt.
1/31	"	Assisted at Badger State Sportmens Club fishing derby
2/4	"	Badger State Sportsmens Club meeting on fox hunt
2/6	"	Film and talk at La Crosse Rifle Club dinner
2/7	"	Assisted at Badger State Sportmens Club fox hunt
5/25	"	Meeting with personnel from Corps of Eng. Min. and Wis. Con. Depts. Houston
		La Crosse and Vernon Counties, on zoning of river bottoms.
6/14	"	La Crosse County Board on NYC projects.
6/21	"	Audobon Society organizational meeting.
6/27	" Schreier	Anti-litter patrol with Houston County Sheriff, Min. and Wis. Wardens.
6/28		La Crosse County Board on NYC work progress

REFUGE PARTICIPATION

Refuge: Upper Mississippi; La Crosse District
 Period: 1965

DATE	PERSONNEL	ACTIVITY
8/22	Lawson	Assisted at Badger State Sportsmens Club chicken fry.
9/9	"	Refuge staff meeting with Game Agents at Wyalusing Park.
9/14	"	Film and talk to Explorer Scout Troup.
10/13	"	Meeting on clamming with Wis. Con. Dept. personnel and local Com. fishermen.
10/16-17	"	National Guard multiple exercise on Goose Island.
10/21	"	Meeting with Roberts Committee at Fish Control Lab.
10/21	"	Film and talk at Dairyland Power Company mens club.
11/2	"	Film and talk at Bethany Home.
11/3	"	Film and talk at Bohemian Valley Sportsmens Club.
11/4	"	Film and talk at Badger State Sportsmens Club .
		Attended most regular meetings of La Crosse Rifle Club, Badger State and Gopher Sportsmens Clubs and La Crosse Audobon Society. Served as instructor every Tuesday evening from January through April, teaching gun safety and marksmanship to a boys club, a squad of which took first place in a State meet at Green Bay on February 22.

VIOLATION APPREHENSION SUMMARY

Refuge: Upper Mississippi; La Crosse District
Period: 1965

[illegible]

D. Hunting

Hunting during the first part of the year was limited to the taking of rabbits and squirrels to January 31, and to fox and crows to March 1. There was little or no pressure on the game animals, but groups of hunters would go out to "drive the islands" for fox. A couple of "standers" would be placed at one end while a half-dozen or so would start from the opposite end and work towards them. On occasion this method was quite successful. One group of about twelve took eight fox on a Sunday afternoon.

On February 7, the BSSCI held their annual fox hunt on Goose Island. About 250 showed up, but it is suspected that quite a number came for the fresh air, the hot stew and - oh, yes - the refreshments. They did get six adult fox to equal their last year's record, so it was a most successful affair.

The special two and one-half day September "teal" season in the Minnesota portion was not a terrific success. On the opening day, the weather was very warm, vegetation terribly dense, a lot less teal and a lot less hunters than anticipated. General success on opening day was 2.3 birds per hunter, and for the season it was 1.4 birds. While there were a few "mistakes" made, most hunters were very careful. Only one case was made for taking protected species.

For the regular waterfowl season opening day, success was good but not spectacular. There were lots of baldpate but not many mallards, less teal and woodies, but more gadwall. The following is a summary of the hunters checked at the Goose Island landing as compared to a year ago:

	<u>1964</u>	<u>1965</u>
Hunters opening day	307	251
Hunters second day	371	254
Ducks taken first day	975	626
Ducks taken second day	781	281
Average per hunter	2.59	1.8
Ducks lost	312	219
Cars and trailers at Landing opening day	144	156
Cars and trailers on Island opening day	212	256

For waterfowl, after the opening weekend, pressures were not quite as high as a year ago. The following table gives a comparison of the past seasons with those of 1963 and 1964:

	<u>1963</u>	<u>1964</u>	<u>1965</u>
Duck stamps sold by La Crosse Post Office	2,290	2,598	2,490
Total Waterfowl hunting days	33,070	38,420	33,840
Total estimated kill	35,000	36,500	37,200
Estimated crippling loss	12,750	13,500	14,500
Small game hunting days	1,535	1,350	2,040
Big game hunting days	1,455	1,725	1,755

VII. OTHER ITEMS

A. Items of Interest

On June 15, James H. Schreier of La Crosse reported for duty as a student laborer. Jim is attending Michigan State, and plans to enter the field of wildlife management.

We were most fortunate in getting him at this station as he is a local boy, he knew the river, and had been a member of Onalaska National Guard Unit which had worked on the refuge. Thus he was able to step right in and give us the utmost assistance, particularly with the Neighborhood Youth Corps program. We appreciate having had the opportunity and pleasure of working with him the past summer.

On July 20, a group of about 27 Junior High School science students and their instructors came by bus to this station to learn something of the flora and fauna of the Mississippi Valley. The District Manager, together with Kenneth Krum and William E. Green conducted them on a rookery tour, gave a slide lecture on birds, and toured some marsh areas. At the close of the term the students voted their trip to the Mississippi the most interesting of the summer session.

SIGNATURE PAGE

Submitted by:

Eric B. Lawson
(Signature)
Eric B. Lawson

Date: January 21, 1966

Refuge Manager
Title

Approved, Regional Office:

Date: March 11, 1966

Frank R. Martin
(Signature)

Asst.
Regional Refuge Supervisor



Wood Duck House Threatened by Rising Floodwaters

Some of these structures and lower natural nesting cavities were submerged by the record spring flood of 1965, which reached levels 18 - 20 feet or more above normal stage in some areas.



Coast Guard Cutter "Fern" and Sheriff's Patrol Boat

Search for body of La Crosse flood victim. The body is still unrecovered at the date of this report.



FLOATING ISLAND

Dark mass in center of picture shows small island raised and floated downstream by floodwaters. Note small trees standing mid-way on structure.



Muskrat resting on submerged branch



BEAVER resting on temporary stick
platform on floating tree trunk



DROWNED BEAVER floats downstream on flood



Muskrats Rest on Submerged Tree
During 1965 Flood



Raccoon Stranded in Tree by Flood Waters



The District Warehouse at the crest of the record-breaking flood. As the waters receded, it began to look like a city dump with pieces of boats, buildings, docks, etc. lodged in the trees.





Flood waters gouged this pond, which was between 8 and 10 feet deep, out of the warehouse driveway. A very good job of clean-up and most of the restoration was accomplished by the Neighborhood Youth Corps crews.





Some of the equipment used by Company A, 173rd Engineers, Onalaska Unit of Wisconsin National Guard, on Goose Island access and trail development. As this was a two-day "exercise" the field kitchen was included and was one of the more useful pieces of equipment.





Before and after road and trail development by the National Guard. No speedway but it is not intended to be one.



NARRATIVE REPORT
UPPER MISSISSIPPI RIVER NATIONAL WILDLIFE REFUGE
LANSING DISTRICT

January - December
1965

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

C O N T E N T S

	<u>Page</u>
I. General	
A. Weather Conditions.....	1
B. Habitat Conditions.....	2
1. Water.....	3
2. Food and Cover.....	4
II. Wildlife	
A. Migratory Birds.....	4 thru 18
B. Upland Game Birds.....	19
C. Big Game Animals.....	19
D. Fur Animals, Predators, Rodents, and Other Mammals.....	20 thru 21
E. Hawks, Eagles, Owls, Crows, Ravens, and Magpies.....	22
F. Other Birds.....	22
G. Fish.....	22
H. Reptiles.....	23
I. Disease.....	23
III. Refuge Development and Maintenance	
A. Physical Development.....	23,24
B. Plantings.....	24
C. Collections and Receipts.....	24
D. Control of Vegetation.....	24
E. Planned Burning.....	24
F. Fires.....	24
IV. Resource Management	
A. Grazing.....	24
B. Haying.....	24
C. Fur Harvest.....	24,25
D. Timber Removal.....	25
E. Commercial Fishing.....	25
F. Other Uses.....	25
V. Field Investigation or Applied Research	
A. Wood duck nesting cylinders.....	26
B. Wood duck banding	26
C. Wood duck flight counts	26
D. Wood duck roost counts	26
E. Waterfowl hunter bag check	27,32
F. Vegetative Transects	27
G. Experimental Teal Season	27
VI. Public Relations	
A. Recreational Uses.....	28
B. Refuge Visitors.....	29
C. Refuge Participation.....	30
D. Hunting.....	31
E. Violations.....	33
VII. Other Items	
A. Items of Interest.....	
B. Photographs.....	34 thru 36
C. Signature.....	37

I. GENERAL

A. Weather Conditions

Weather Station Location: Lock and Dam No. 9, Lynxville, Wisconsin

MONTH	Precipitation			Temperature			
	Total	Normal	Snowfal	Max.	Min.	Mean	Normal
						Av.	Mean Av.
January	.52	1.06	5.1	46	-16	16.3	19.9
February	.90	1.04	12.0	50	-31	28.1	22.5
March	2.23	2.16	15.0	47	-3	26.4	33.1
April	4.32	2.59	--	77	27	45.2	48.1
May	4.88	3.39	--	75	52	63.5	59.9
June	3.98	5.01	--	92	47	68.0	69.6
July	2.96	3.86	--	97	49	71.6	74.4
August	5.50	4.11	--	93	45	69.7	72.1
September	9.69	3.61	--	85	34	59.4	63.7
October	.76	1.93	T	81	27	52.1	52.1
November	1.12	1.77	--	67	14	37.5	36.1
December	1.99	1.03	.5	59	7	31.1	23.8
Annual				Annual Extremes-Annual Averages			
Totals	38.85	31.56	32.6	97	-31	47.40	47.94

Snow cover from January through March averaged 2.7 inches and ranged from 10 to 1 inch. During the first week of March a sleet storm coated the district with about 1 inch of ice which lasted four days. During the three-month period, there were only 20 days of no snow or ice cover.

Annual precipitation has been below normal for the past 5 years, averaging 27.26 inches per year. The drought condition remained until the spring rains in April. By the end of December, accumulated precipitation was 7.29 inches above the annual normal.

B. Habitat Conditions
1. Water

POOL LEVELS

Pool No. 9 at Lansing, Iowa Normal: 20.00

MONTH	HIGHEST : LEVEL	LOWEST : LEVEL	AVERAGE : LEVEL	DATES OF : HIGH LEVEL	DATES OF : LOW LEVEL
January	: 19.98	: 19.70	: 19.84	: 9	: 22
February	: 20.29	: 19.64	: 19.85	: 9	: 18
March	: 23.22	: 19.68	: 20.83	: 6	: 18
April	: 34.76	: 20.04	: 28.25	: 24	: 1
May	: 31.35	: 22.74	: 25.07	: 1	: 31
June	: 23.30	: 20.94	: 22.57	: 8,9	: 30
July	: 20.90	: 20.08	: 20.45	: 1	: 29
August	: 20.46	: 19.95	: 20.17	: 8,9, & 10	: 19 & 20
September	: 21.02	: 19.84	: 20.29	: 21 & 30	: 5
October	: 21.35	: 20.24	: 20.87	: 8 & 11	: 13
November	: 20.34	: 19.85	: 20.09	: 13	: 17
December	: 21.74	: 19.86	: 20.63	: 19	: 1

Water was below normal at the beginning of the year but by the first week in March, thawing conditions accompanied by snow, sleet and rain raised the pool 2.86 feet above normal for a short period. At the end of the month the pool was again below normal.

Early in April the pool began to rise again and reached a record flood crest of 34.76 feet above normal on April 24. This was the highest flood crest recorded since 1880. The Corps of Engineers started operating the 9 foot navigation channel on the Mississippi River in 1935.

Paved and gravel roads on the east and west side of Pool 9 were flooded in all of the lower areas making travel to most parts of the district impossible. Approximately 1/2 mile of the Lansing and DeSoto causeway (highway 82) was washed out and unusable for 2 1/2 weeks. Boat landing and access areas were completely inundated.

By the middle of June, flood waters had dropped to 3.82 feet above normal. The receding water exposed some sorry sights. Graveled access roads and boat launching sites were covered with 2-3 inches of silt and muck. Many of the refuge boundary signs, information signs, and picnic tables were washed away or badly damaged.

Even by late June, water still covered some of the boat launching and access sites making them unusable for most of the summer. Noticable changes in the district became more apparent as the water continued to drop toward normal pool. Many of the smaller sloughs and cuts had been silted in or deepened and widened. One area of approximately 250 acres known as Widgeon Bay, located on the Wisconsin side of the district, has been slowly silting in for years. During the flood, siltation was accelerated considerably and by late summer, when the pool dropped to near normal level, little water remained in the northern half of the bay. Puddle duck use of the area dropped during fall migration as compared to previous years.

Big game, upland game, and fur bearers began moving off the refuge as the flood water began to rise in early April. Deer were seen swimming the flooded sloughs. Raccoon, fox, opossum, and groundhogs were sighted seeking temporary shelter in trees, along roads, and higher ground off the refuge.

Losses to wildlife occurred through exposure, drownings, increased susceptibility to predation and car kills. However, losses were not as extensive as anticipated for some species. Some beaver and muskrat first litters were lost having no suitable place to bear them. Although this should show in beaver populations in two years, no significant effects are expected because of the restrictive trapping regulations in Wisconsin and Minnesota. By the end of May as islands and vegetation began to reappear; deer, upland game, and other mammals began moving back on the refuge.

Average monthly water levels were above normal for the entire year except in January and February. The navigation season ended for Pool 9 on December 6. By the end of the month the pool was approximately 70% frozen over.

2. Food and Cover

Food supplies were adequate for the entire district in spite of the extended periods of snow cover and the sleet storm which froze food and cover for a short time. Beaver and muskrat along Pickeral Slough in the Reno Bottoms were forced to feed out because of low water in February. Although they worked hard for food, no adverse effect was noted.

The flood forced deer, some of the upland game, and other small mammals off the refuge and onto the surrounding high lands where food and cover was available. Muskrat, beaver and squirrels remained on the refuge during the flood. Although food and cover was at a premium, overall loss to them appeared to have been insignificant. Raccoon, fox, groundhogs, opossum, pheasants, quail, and skunk did not fare so well and many perished directly or indirectly because of the flood.

The flood created an abundance of habitat for migrating waterfowl. Crop lands and meadows fringing the refuge were flooded providing high quality feeding and resting areas.

Because of the prolonged period of high water during the early summer, emergent aquatics appeared to get a late start. By the end of summer, lush growth existed in the areas normally noted for their excellent aquatic production. Duck weed growth was tremendous during the past year and all of the pothole lakes and calm water areas were covered with 2-3 inches of the vegetative growth. By the time migration was under way, the pool rose about 1 foot and flooded additional areas not normally available to waterfowl. When the water dropped again, the previously flooded areas became available. Overall waterfowl food production and availability was excellent on the district this year. The marshes and most of the sloughs froze over November 16, and the majority of the remaining ducks left. An abundance of food remains to be utilized during the coming spring migration.

Corn fields that fringe the refuge in the Iowa Bottoms produced a good crop this year. Large amounts of waste corn is available but only deer and rabbits remain to utilize it. The pheasants and quail present last year were not observed on or near the refuge this year.

II. WILDLIFE

A. Migratory Birds

1. Waterfowl

Ducks: Spring migration was quite erratic this year. The end of March was quite cold and migration was just a trickle. Large concentrations of ducks gathered in northern Missouri and southern Iowa. When temperatures warmed and the ice started to break up, the river experienced its greatest flood since 1880. Thousands of birds passed through the area, many stopping only briefly. Inundations by the flood created an abundance of good habitat scattering birds over the entire district. While excellent habitat was available, traditional

concentration areas were used lightly. The flooding of roads and highways made spring censusing quite difficult.

The breeding population of approximately 700 pairs produced an estimated 3,140 young birds. Estimated production by species was as follows: mallard - 200, black duck - 20, blue-winged teal - 70, wood duck - 2,700, hooded mergansers - 150. Production was quite reduced as compared to last year, by species: mallard - 800, black duck - 55, blue-winged teal - 90, wood duck 630, less than was produced last year. A total decrease of 2,210 young birds.

Fall migration populations began to build up at the end of August. The majority of blue-winged teal and wood ducks departed by the first week in October. Good numbers of widgeon and fair numbers of other species remained until mid-November due to the mild fall weather.

Mallards peaked at 7,000 the second week in November and showed a 23 per cent decrease from 1964. Canvasback peaked at 5,000 the third week in November compared to 600 last year, a noticeable increase in peak numbers and day use over 1964.

Comparing the 1964 and 1965 fall migration populations, the district showed a decrease in peak numbers in all puddlers except widgeon and green-winged teal, and a decrease in day use in all puddlers except green-winged teal and shoveler. The divers showed an increase in peak numbers and day use for all species, except peak numbers for ruddy ducks. However, total duck peak number and day use figures shows a decrease of 5 per cent and 6 per cent respectively from 1964.

Refer to Tables 1 through 1b and NR 1 for a complete breakdown on waterfowl peak numbers, day use, and percent of change.

Geese: Refer to Table 4 thru 4B and NR 1 for breakdown of data and comments.

Coot and Gallinule: Refer to the above tables for data and comments.

Swans: Use by whistling swans was confined to the migration periods.

Refer to NR 1 for peak numbers and day use.

2. Other Water Birds

Egrets: Appeared the first week in April and peaked at 350. An estimated 450 used the refuge during spring migration. Production was estimated at 500. By the end of October the egrets

TABLE 1
COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE
Refuge: Lansing, Upper Mississippi Refuge
Period: January thru April, 1965

Species	Peak Numbers		Percent of Change		Peak Dates*		TOTAL DUCK DAYS USE		Percent of Change	
	1964	1965	Decrease	Increase	1964	1965	19 64	1965	Decrease	Increase
Mallard	3,500	2,600	26		3-21	4-17	80,690	34,176	58	
Black	350	120	66		"	"	7,510	2,098	72	
Gadwall	300	650		100+	4-4	"	4,500	4,384	3	
Baldpate	2,000	4,800		100+	"	"	33,125	33,100	Trace	
Pintail	200	700		100+	"	"	3,750	4,250		13
G.w.teal	100	320		100+	"	"	700	2,084		100+
B.w.teal	750	1,200		60	4-25	"	11,500	9,300	19	
Shoveler	500	450	10		"	"	7,200	3,417	53	
Wood duck	1,350	500	63		5-2	5-1	24,260	8,300	66	
Redhead	750	400	47		3-28	4-17	5,915	6,700		13
Ring-neck	2,500	1,550	38		3-21	"	50,350	19,250	62	
Canvasback	2,000	2,100		5	3-28	"	23,600	26,465		12
L.scaup	25,000	18,000	28		4-11	4-24	448,675	273,185	39	
Golden-eye	1,500	2,200		47	3-28	4-3	22,190	24,062		8
Bufflehead	100	20	80		3-21	"	1,510	570	62	
Ruddy	50	2	96		4-11	3-20	400	26	94	
Mergansers	550	1,020			3-28	4-10	14,675	23,870		63
Old squaw	10				4-3					
Scoters										
Unident.										
TOTALS	33,000	30,960	6		4-11	4-17	740,550	475,237	36	

*Week ending.

Comments: Peak numbers and use days for the spring migration showed a decrease from 1964. No change in waterfowl number could be predicted from this because use by spring migrants is quite erratic from year to year. The late spring which broke suddenly and the flooding affected concentration areas and made it difficult to census during migration.

TABLE 1A

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Lansing, Upper Mississippi Refuge

Period: May thru August

Species	Peak Numbers		Percent of Change		Peak Dates*	TOTAL DUCK DAYS USE		Percent of Change	
	19 64	19 65	Decrease	Increase		19 64	19 65	Decrease	Increase
Mallard	2,000	1,000	50		8-29 : 8-28	124,900	73,950	41	
Black	200	60	70		"	11,900	3,490	71	
Gadwall		10		100+	5-15		81		100+
Baldpate		150		100+	5-15		1,075		100+
Pintail	50	25	50		8-15 : 8-7	1,725	760	56	
G.w.teal		20		100+	8-14		340		100+
B.w.teal	1,500	1,200	20		8-29 : 8-28	32,850	25,265	23	
Shoveler		10		100+	5-15		80		100+
Wood duck	4,750	3,000	37		8-15 : 8-7	344,900	195,200	43	
Redhead		15		100+	5-15		100		100+
Ring-neck		200		100+	5-8		1,765		100+
Canvasback		10		100+	5-15		60		100+
L.scaup	25	800		100+	5-23 : 5-8	150	4,345		100+
Golden-eye		2		100+	5-8		10		100+
Bufflehead		2		100+	5-8		14		100+
Ruddy									
Mergansers	1,000	155	85		8-1 : 5-15	77,100	9,985	87	
Old squaw									
Scoters									
Unident.									
TOTALS	9,500	5,415	43		8-29 : 8-28	593,525	316,520	47	

*Week ending.

Comments: Peak number and day use figures for the summer breeders shows a decrease from 1964. The breeding population produced an estimated 3,140 young birds as compared to 5,350 produced in 1964. The increase in other birds reflects late spring and early fall migrants.

UM-3

TABLE 1B

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Lansing, Upper Mississippi Refuge

Period: September thru December

Species	Peak Numbers		Percent of Change		Peak Dates*	TOTAL DUCK DAYS USE		Percent of Change	
	1964	19 65	Decrease	Increase		19 64	1965	Decrease	Increase
Mallard	9,076	7,000	23		10-17 : 11-13	538,496	349,900	35	
Black	625	600	4		10-17 : 11-13	29,539	28,195	5	
Gadwall	1,986	1,000	50		10-17 : 10-30	53,077	23,760	55	
Baldpate	12,288	15,000		22	10-10 : 10-30	437,918	431,500	1	
Pintail	2,784	800	71		10-3 : 11-6	70,969	27,875	61	
G.w.teal	1,263	1,800		43	10-3 : 10-30	37,189	50,550		36
B.w.teal	9,558	6,000	37		9-19 : 10-9	283,883	165,300	42	
Shoveler	455	300	34		10-10 : 10-23	5,716	5,850		2
Wood duck	4,000	3,200	20		10-17 : 9-11	169,295	157,950	5	
Redhead	100	500		100+	10-17 : 11-6	1,662	9,600		100+
Ring-neck	2,300	3,500		52	11-7 : 11-13	56,851	83,345		47
Canvasback	600	5,000		100+	11-14 : 11-27	11,688	114,540		100+
L.scaup	6,150	12,000		95	11-14 : 11-6	186,669	283,370		52
Golden-eye	300	600		100	10-31 : 11-27	4,542	15,700		100+
Bufflehead	530	300	43		10-24 : 11-13	5,950	7,475		26
Ruddy	2	50		100+	12-5 : 10-16	12	700		100+
Mergansers	408	700		72	9-12 : 11-20	19,055	38,940		100+
Old squaw									
Scoters									
Unident.									
TOTALS	38,911	37,075	5		10-10 : 10-30	1,912,511	1,794,550	6	

*Week ending.

Comments: Except for a few species, the Lansing district showed a decrease in peak numbers and day use in puddles, and an increase in peak numbers and day use for divers. However, total peak numbers and day use figures show a decrease from last year.

1-4

TABLE 2

PERCENTAGE COMPOSITION BY SPECIES OF TOTAL DUCK DAY USE

Refuge: Lansing, Upper Mississippi Refuge

Period: January thru April, 1965

Species	Percent of total duck day use							
	1963				1964			
	% of use	Order	% of use	Order	% of use	Order	% of use	Order
Mallard	10.9	2	10.9	2	7.19	2		
Black duck	0.1	16	1.0	10	.44	14		
Gadwall	0.5	13	.6	13	.92	11		
Baldpate	4.1	4	4.4	4	6.96	3		
Pintail	0.7	10	0.5	14	.89	12		
G.w.teal	1.0	9	T	16	.44	15		
B.w.teal	4.0	5	1.4	9	1.96	8		
Shoveler	0.6	11	.9	11	.72	13		
Wood duck	1.4	7	3.3	5	1.75	9		
Redhead	0.3	14	.7	12	1.41	10		
Ring-neck	5.5	3	6.7	3	4.05	7		
Canvasback	0.5	12	3.1	6	5.57	4		
Lesser scaup	67.1	1	60.6	1	57.48	1		
Golden-eye	1.3	8	2.9	7	5.06	5		
Bufflehead	0.2	15	.2	15	.12	16		
Ruddy			T	17	.01	17		
Mergansers	1.7	6	1.9	8	5.02	6		
Old squaw	T	17						
Scoters								

Comments: Order of rank remained nearly the same for all species. Spring migration was late and erratic because of the flood. Censuring of waterfowl was quite difficult.

TABLE 2A

PERCENTAGE COMPOSITION BY SPECIES OF TOTAL DUCK DAY USE

Refuge: Lansing, Upper Mississippi Refuge

Period: May thru August, 1965

Species	Percent of total duck day use							
	1963		1964		1965			
	% of use	Order	% of use	Order	% of use	Order		
Mallard	24.2	2	21.0	2	23.36	2		
Black duck	2.8	6	2.0	5	1.1	6		
Gadwall					.03	12		
Baldpate					.34	8		
Pintail	0.1	7	0.2	6	.24	9		
G.w.teal					.11	10		
B.w.teal	9.3	3	5.5	4	7.98	3		
Shoveler	0.1	7			.03	13		
Wood duck	51.9	1	58.0	1	61.66	1		
Redhead					.03	11		
Ring-neck					.56	7		
Canvasback					.02	14		
Lesser scaup	5.4	5	T	7	1.37	5		
Golden-eye					T	16		
Bufflehead					T	15		
Ruddy								
Mergansers	6.2	4	13.0	3	3.15	4		
Old squaw								
Scoters								

Comments: Order of rank remained nearly the same for the breeding species: wood duck, mallard, blue-winged teal, hooded mergansers, and black duck. Other species not listed in 1963 and 1964 reflects late spring and early fall migrants.

1-4

TABLE 2B

PERCENTAGE COMPOSITION BY SPECIES OF TOTAL DUCK DAY USE

Refuge: Lansing, Upper Mississippi Refuge

Period: September thru December, 1965

Species	Percent of total duck day use							
	19 63		19 64		19 65			
	% of use	Order	% of use	Order	% of use	Order		
Mallard	24.8	1	28.1	1	19.5	2		
Black duck	1.2	11	1.5	10	1.6	10		
Gadwall	1.9	9	2.7	8	1.3	12		
Baldpate	24.2	2	22.9	2	24.0	1		
Pintail	3.0	7	3.7	6	1.6	11		
G.w.teal	2.4	8	1.9	9	2.8	8		
B.w.teal	11.6	3	15.4	3	9.2	4		
Shoveler	0.1	16	.2	14	.3	16		
Wood duck	9.9	5	8.8	5	8.8	5		
Redhead	0.5	14	T	16	.5	14		
Ring-neck	6.6	6	2.9	7	4.6	7		
Canvasback	1.5	10	0.6	12	6.4	6		
Lesser scaup	10.5	4	9.7	4	15.8	3		
Golden-eye	0.5	13	0.2	15	.9	13		
Bufflehead	0.3	15	0.3	13	.4	15		
Ruddy	0.1	17	T	17	T	17		
Mergansers	0.8	12	0.9	11	2.2	9		
Old squaw	:	:	:	:	:	:		
Scoters	:	:	:	:	:	:		

Comments: Ranking of use by species remained essentially the same for the top five: widgeon, mallard, scaup, blue-winged teal, and wood duck. The only noticeable shift in use days were canvasback and pintails.

The top five ducks taken by hunters in the Lansing District were: mallard, widgeon, scaup, blue-winged teal, and green-winged teal in that order.

TABLE 3

WEEKLY DUCK POPULATIONS AND PEAK NUMBERS

Refuge: Lansing, Upper Mississippi Refuge

Period: January thru April, 1965

Week of period:	19 61	:	19 62	:	19 63	:	19 64	:	19 65
1	65	:		:		:		:	91
2	35	:		:		:		:	57
3		:		:		:	15	:	57
4		:	15	:		:	40	:	57
5	20	:	15	:	15	:	40	:	57
6	15	:	20	:	15	:	40	:	57
7	30	:	20	:	5	:	40	:	57
8	45	:		:	5	:	45	:	57
9	1,280	:	25	:	25	:	65	:	78
10	9,190	:	50	:	70	:	415	:	601
11	6,975	:	150	:	350	:	2,635	:	1,546
12	25,800	:	2,180	:	3,800	:	12,050	:	1,710
13	69,040	:	6,875	:	41,000	:	22,000	:	8,580
14	80,360	:	22,100	:	* 76,050	:	16,025	:	9,660
15	87,925	:	* 24,900	:	66,500	:	* 33,000	:	* 30,960
16	* 106,580	:	23,500	:	34,000	:	20,700	:	22,715
17	48,400	:	7,375	:	24,600	:	8,900	:	19,320
18		:		:		:	5,500	:	
TOTAL DAYS USE:	3,050,250	:	614,985	:	1,725,045	:	740,550	:	475,237

*Indicates peak concentration.

COMMENTS: Use by spring migrants was quick and erratic. Many birds passed through the area stopping only briefly or not at all. Several reports were received that large flocks of waterfowl were moving at night during the spring flood.

TABLE 3A

WEEKLY DUCK POPULATIONS AND PEAK NUMBERS

Refuge: Lansing, Upper Mississippi Refuge
 Period: May thru August, 1965

Week of period:	1961	:	1962	:	1963	:	1964	:	1965
1	14,875*	:	7,350*	:	7,950	:	2,600	:	2,658
2	8,025	:	1,750	:	2,200	:	2,300	:	2,210
3	2,850	:	1,375	:	1,700	:	2,425	:	1,680
4	2,350	:	1,175	:	1,825	:	2,550	:	1,680
5	975	:	1,175	:	2,200	:	2,965	:	1,670
6	1,150	:	1,275	:	2,650	:	3,450	:	1,755
7	1,150	:	1,275	:	4,850	:	3,800	:	1,910
8	1,255	:	1,275	:	6,000	:	4,125	:	1,960
9	1,255	:	1,630	:	6,000	:	4,575	:	1,960
10	1,255	:	1,630	:	6,750	:	5,525	:	1,960
11	1,255	:	1,630	:	6,300	:	6,100	:	1,960
12	1,255	:	1,900	:	6,400	:	6,950	:	2,590
13	1,255	:	1,900	:	6,500	:	7,625	:	3,550
14	1,845	:	2,885	:	6,750	:	7,975	:	4,275
15	1,845	:	2,885	:	8,000	:	8,450	:	4,395
16	2,250	:	3,300	:	9,000	:	8,700	:	4,615
17	3,350	:	4,000	:	11,300	:	9,500*	:	5,415*
18	4,200	:	6,000	:	14,350*	:		:	
TOTAL DAYS USE:	366,765	:	315,070	:	779,275	:	593,525	:	316,520

*Indicates peak concentration.

COMMENTS: The breeding population was estimated to be 700 pairs as compared to 1,175 in 1964. The record spring flood prolonged high water level, and above-normal rainfall increased available nesting habitat off the refuge.

TABLE 3B

WEEKLY DUCK POPULATIONS AND PEAK NUMBERS

Refuge: Lansing, Upper Mississippi Refuge

Period: September thru December

Week of period:	19 61	:	19 62	:	19 63	:	1964	:	1965
1	8,000	:	6,100	:	21,000	:	20,111	:	7,210
2	14,650	:	6,300	:	22,750	:	20,645	:	11,010
3	16,100	:	8,700	:	29,850	:	25,965	:	13,060
4	16,050	:	19,550	:	30,000	:	21,986	:	16,185
5	23,500	:	18,900	:	31,000	:	29,339	:	17,630
6	35,900*	:	15,600	:	31,000	:	38,911*	:	20,510
7	32,250	:	13,050	:	33,000	:	37,096	:	22,950
8	35,100	:	36,000	:	41,000	:	13,271	:	31,200
9	19,150	:	46,850*	:	16,000	:	15,608	:	37,375*
10	13,120	:	45,150	:	49,500*	:	18,379	:	31,950
11	12,750	:	28,000	:	21,750	:	15,193	:	28,150
12	6,400	:	19,500	:	25,000	:	14,851	:	19,125
13	3,900	:	18,500	:	19,000	:	3,104	:	14,400
14	7,650	:	6,000	:	4,500	:	678	:	4,900
15	:	:	:	:	1,500	:	378	:	3,845
16	50	:	50	:	:	:	151	:	3,600
17	50	:	50	:	:	:	100	:	3,400
18	:	:	:	:	:	:	73	:	735
TOTAL DAYS USE:	1,712,340	:	2,018,100	:	2,637,950	:	1,912,511	:	1,794,550

*Indicates peak concentration.

COMMENTS: Blue-winged teal and wood duck populations built up quickly the fourth week in September. The majority of them departed by the second week in October following a cold snap. Migration for other species was slow and no major flights were observed.

had departed the district and moved south.

Hérons and Bitterns: Great blue herons arrived the first week in April and peaked at 700. An estimated 900 used the refuge during spring migration. Production was estimated at 600. The last observation on the district was made the first week in November.

Green Herons appeared the first week in May and peaked at 400 during the summer period. They departed by the end of October.

Least Bitterns were observed from the last week in May until the first week in October. Peak numbers were estimated at 40 during the summer period.

American Bitterns were observed only during October. Peak numbers were estimated at 10.

Grebes: Pied-billed Grebes were present during spring migration and both pied-billed and horned grebes were observed during fall migration.

Cormorants: Doubled-crested cormorants were only observed three different times during fall migration. It appears their numbers have been greatly reduced.

Common loon: Small numbers were observed during the spring migration period only.

Gulls and terns: Ring-billed gulls were most numerous, peaking at 700 in October, herring gulls at 150 the same month, black terns at 200 in May, caspian terns at 40 in October.

3. Shorebirds

Common Snipe: An estimated 200 used the refuge during spring migration. A few were present during the summer. During fall migration peak numbers reached about 400.

Woodcock: As in the past, none were observed on the refuge this year.

4. Doves

Mourning doves appeared the second week in April and peaked at 200 by mid-June. Production was estimated at 75 on the refuge. A few were observed on the refuge until mid-December.

Refer to NR 1A for data on migratory birds (other than waterfowl).

TABLE 4
COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE
Refuge: Lansing, Upper Mississippi Refuge
Period: January thru April, 1965

Species	Peak Numbers		Per cent of Change		Peak Dates*		TOTAL DAYS USE		Per cent of Change	
	19 64	19 65	Decrease	Increase	1964	1965	19 64	19 65	Decrease	Increase
Canada geese (lg.)	75	62	17		3-28	4-17	700	511	27	
Cackling										
White-fronted										
Snow	5		100		3-14		15		100	
Blue										
TOTALS	80	62	17		3-28	4-17	715	511	29	

Comments: Goose use was slightly below last years as few migrants stopped during the spring migration.

Coot	7,000	6,300	10		4-11	4-17	89,440	89,300	Trace	
Florida gallinule	200		100		5-2		1,000		100	

Comments: Peak number and use were down slightly from last year. Gallinule did not appear this reporting period. Their usual haunts were completely inundated by the spring flood.

TABLE 4A

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Lansing, Upper Mississippi Refuge

Period: May thru August

Species	Peak Numbers		Per cent of Change		Peak Dates*		TOTAL DAYS USE		Per cent of Change	
	19 64	19 65	Decrease	Increase	19 64	19 65	19 64	19 65	Decrease	Increase
Canada geese (lg.)	6	0	100		5-9		200	0	100	
Cackling										
White-fronted										
Snow										
Blue										
TOTALS	6	0	100		5-9		200	0	100	

Comments: This district does not support a resident breeding population. These birds for 64 are Goose Island releases from Pool 8, the LaCrosse District which lies north of Pool 9, the Lansing District.

Coot	700	500	33		7-18	8-7	57,000	56,000	2	
Florida gallinule	500	250	50		8-1	8-7	25,100	10,600	58	

Comments: The late spring and flooded conditions that remained until the middle of July accounts for the decrease in peak numbers, day use, and production. At the close of the period, coot and gallinule fledglings were observed.

TABLE 4B
COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE
Refuge: Lansing, Upper Mississippi Refuge
Period: September thru December

Species	Peak Numbers		Per cent of Change		Peak Dates*		TOTAL DAYS USE		Per cent of Change	
	19 64	19 65	Decrease	Increase	19 64	19 65	19 64	19 65	Decrease	Increase
Canada geese (lg.)	1	25		100+	10-24	12-18	9	730		100+
Cackling										
White-fronted										
Snow		80		100+		10-2		390		100+
Blue	5	40		100	11-7	10-9	25	370		100+
TOTALS	6	145		100+	11-7	10-2	34	1,490		100+

Comments: Large flocks of blue, snow, and canada geese were observed during migration, but only a few smaller flocks used the district this fall. Twenty-five canada geese used the Harpers Slough closed area from December 9 through 28. These birds were feeding in Iowa corn fields off the refuge.

Coot	17,100	40,000		100+	11-7	11-6	440,936	636,700		44+
Florida gallinule		250		100+	9-4	9-4/10-2		8,750		100+
						2				

Comments: Peak numbers and use for coot and gallinule show an increase over 1964. No comparison could be made because migration data for 1964 was not available until mid-October.

TABLE 5
Refuge: Lansing, Upper Mississippi Refuge
Period: Calendar Year 1965

B. Upland Game Birds

SPECIES	: POPULATION:	YOUNG	: NUMBER :	GREATEST	: TAKE:	LOSS:	POPULATION
	: JAN. 1	: PRODUCED:	STOCKED:	NO. PRESENT:			: DEC. 31
Ring-necked:							
pheasant :	15	: 0	:	10	:	10	:
Ruffed							
grouse :	80	: 0	:	80	:	15	: 40
Bob-white							
quail :	10	: 0	:	10	:	10	:
Gray							
partridge:							
Wild							
turkey :							

An estimated 80 ruffed grouse were using the refuge during the winter. No doubt they would have increased instead of decreasing during the breeding season had it not been for the flood.

Pheasants and quail were observed on the refuge in April before the river began to flood. None have been observed on the refuge or surrounding area since.

TABLE 6

C. Big Game Animals (White-tailed deer)

POPULATION:	YOUNG	: GREATEST	: HUNTER:	LOSSES:	POPULATION
JAN. 1	: PRODUCED:	NO. PRESENT:	TAKE :		: DEC. 31
200	10	300	27	5	150

There were about 200 white-tailed deer on the refuge during the latter half of the winter. They moved off in April when the river began to flood, but by the end of May, deer had begun to reappear and numbers built up to 300 during the summer. Following the fall hunting season, the population dropped to about 150. Known hunting success on the refuge by states was: Minnesota 14, Wisconsin 3, and Iowa 10. Two kills were reported by bow hunters this fall, one in Iowa and one in Wisconsin. Four car kills and one flood victim were the only known losses to deer this year.

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TABLE 7

Refuge: Lansing, Upper Mississippi Refuge
Period: Calendar Year 1965

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

SPECIES	: POPULATION: YOUNG : GREATEST : : CON-: : POPULATION	: JAN. 1	: PRODUCED: NO. PRESENT: TAKE	: TROL: LOSS : DEC. 31
Muskrat	: 20,000	: 97,000	: 110,000	: 20,732 : : 40,000: 17,000
Mink	: 300	: 200	: 250	: 95 : : 55: 100
Beaver	: 500	: 1,000	: 1,800	: 317 : : 100: 1,400
Otter	: 80	: 25	: 45	: : : 20: 25
Raccoon	: 700	: 150	: 200	: 77 : : 50: 150
Red Fox	: 175	: 50	: 200	: 25 : : 20: 50
Gray Fox	: 10	: 5	: 50	: 5 : : 5: 15
Skunk	: 75	: 15	: 25	: : : 5: 5
Cottontail:				
Rabbit	: 75	: 500	: 550	: : : 300: 200
Opossum	: 40	: 70	: 80	: 1 : : 55: 25
Gray & Fox:				
Squirrels:	: 300	: 1,100	: 1,150	: : : 500: 300
Woodchuck	: 200	: 50	: 100	: : : 70: 20
Badger				

Muskrat: The muskrat population was not subject to heavy trapping pressure during the 1964-65 season because of the poor trapping conditions. During the spring flood, rats were scattered over most of the pool. Food was hard to come by as was evident by gnawing marks on ash, maple, and willow trees high above the pool's normal level. By mid-October, rat houses began to appear as frost and house building downed the vegetation. By the end of November, all things seemed to indicate the rat population was just about as high as last year.

Mink: The mink population gives every indication of a decrease.

Beaver: In spite of the flood, beaver populations showed a considerable increase over last year. For the last two years, beaver trapping on the refuge has been restricted to Iowa and a small part of Wisconsin. The Reno Bottoms in Minnesota which supports the highest population of beaver on the district has been untrapped for 3 years. The beaver in the northern portion of the area are responsible for creating and maintaining the numerous small lakes adjacent to the sloughs that provide excellent waterfowl habitat. The southern part of the bottoms is mostly deeper sloughs and larger lakes. The beaver in this area contribute little to waterfowl habitat. The area has become heavily populated with beaver, and could stand a year or two of trapping without affecting waterfowl habitat in the area.

Otter: Signs have been observed over the entire district but are most common in the Reno Bottoms. Wisconsin had a trapping season last spring but trapping conditions were poor because of high water and no one reported a catch. What effect the spring flood had on the overall population remains a mystery. One road kill, an adult male, was picked up by a Minnesota state warden next to the refuge boundary in the Reno Bottoms area during the spring flood.

Raccoon: Were greatly reduced from last year because of the flood, and wood duck banding traps were unmolested this year. Although most hunters dislike running their dogs in the bottoms, increased pelt prices enticed a good number onto the refuge this fall. Success was only considered fair.

Red Fox: The increased interest in predator hunting last winter and the record spring flood reduced the fox population on the refuge. If this district is ever to reach a low in red fox this should be the year. Large prime pelts are going for \$8.00+, the highest since the 1930's.

Skunk: Their numbers are reduced considerably this year. A car kill was the only observation made.

Rabbits: The rabbit population is mostly limited to the refuge fringe. The spring flood had little effect on them and they have increased.

Opossum: Not very abundant before the flood or at the present.

Squirrels: The spring flood had little, if any, effect on the refuge squirrel population. Their numbers are quite stable as few squirrel hunters hunt on the refuge.

Woodchuck: Not so numerous this year. Following the spring flood, only a few were seen on the road grade, their usual habitat.

E. Hawks, Eagles, Owls, Crows, Ravens, and Magpies:

Hawks: Red-tailed and red-shouldered hawks were common residents. A few rough-legged hawks were sighted in March and marsh hawks were observed from July through October. One merlin hawk was sighted on the district in late December.

Osprey: Were present from May through September. Nests were not sighted on or near the refuge.

Eagles: Only Bald Eagles were observed on the refuge. Two adults were present during the summer period, but they didn't attempt to nest. Eagles were relatively common from March until April and peaked at 10 adults and 2 immatures. During the fall and early winter, they peaked at 6 adults and 10 immatures. An increase of immatures during fall migration compared to last year.

Owls: Barred and great-horned owls were common residents. They were seen and heard in their usual frequency.

Vultures: Turkey vultures were sighted the first week in April and black vultures the third week in May. Both left the district early in October.

Crows: The crows moved on and off the refuge throughout the year. They reached their peak during the spring and fall periods.

Refer to NR 1A for data on migratory birds (other than waterfowl).

F. Other Birds

Whip-poor-wills at one time extended their range over most of the neighboring states, but now have been pushed by human activity to the remote hills surrounding the district and the refuge fringe. They first appeared in the spring departing by mid-August.

G. Fish

Ice fishing for crappies, blue gills, and bass was good in January for a short time. Walleye and sauer began hitting in May. Eight and nine pound walleyes were frequently taken. During the summer period, fishing success dropped and only a few natives continued to make good catches. One of the secrets of summer walleye fishing is the bait used. The favorite was "willow cats" (2-3 inch tadpole madtoms). Being hard to get, bait dealers were getting \$3.25 per dozen. Fishing success for panfish and walleye increased in the fall but by the end of the year, ice fishing was slow because of unsafe ice.

H. Reptiles and Amphibians

No unusual observations. Bullfrogs are becoming more numerous, but only a few frog hunters have been out hand catching or gigging them at night. They don't grow as large as their southern brothers but they are just as tasty, if not better.

I. Disease

No indication of disease was noted.

III. REFUGE DEVELOPMENT AND MAINTENANCE

As the flood waters began to recede, the anticipated amount of needed maintenance work became more apparent. Work had just gotten under way when the student assistant arrived, and by the end of June, the local Neighborhood Youth Corps (N.Y.C.) was put to work on the district. A tremendous amount of work was accomplished with guidance and help from the district manager, student assistant, and N.Y.C. supervisors. All wooden recognition signs were resealed and relettered. Picnic tables at the various access areas were repainted. Anti-litter signs were posted at all boat-launching sites and access areas after the areas had been cleaned up.

Clean up consisted of policing up of all kinds of trash, bottles, cans, paper, and other flood debris, such as tree limbs and logs that blocked access roads and boat launching sites. Outhouses, boats, and houseboats washed in by the flood and abandoned were burned. Grass was cut around recognition signs and along access roads to boat landings. In all, eleven boat launching sites and access areas were cleaned up and put into a usable state. A total of 40 full pick-up truck loads of trash was hauled from public use areas to nearby town dumps.

The N.Y.C. crews were transported by boat to the numerous sandbars that received heaviest use by recreationists along the navigation channel. Cans, bottles, and trash picked up was buried deep and far back in the brush. Litter signs with wooden backing boards were erected on steel posts along with the refuge signs on all the sandbars.

Willows were pulled and dug out where they were encroaching on some of the larger sandbars. A total of 3,250 N.Y.C. work hours were expended on the district during the summer.

The amount of work accomplished and the effort put forth this past summer by the student assistant was most gratifying. For 6 days while the district manager was sick and unable to work, the student carried on the work program with the N.Y.C. along with his various other work projects.

Aside from the work accomplished with N.Y.C. crews, the district's boundary posting was renovated. Flood damaged and shot-up signs were replaced, posts were straightened or replaced if bent. Additional posting was carried out as needed. Posting of the exterior boundary in the public use and hunting area was at 1/4 mile intervals with goose and public hunting signs mounted on steel posts. Boundary corners were posted with signs facing out in each direction. The navigation channel and two major sloughs, Minnesota Slough and Pickeral Slough, were posted at 1/4 mile intervals with public hunting signs. Every 3/4 mile, a double sign, the refuge goose and public hunting signs were erected.

Closed area posting was spaced at 1/8 or 1/4 mile intervals. Steel posts with double signs, refuge goose and closed area type signs were placed on the shoreline, along the wooded sloughs, and islands. The open water stretches were posted with wooden posts and paper closed area signs. Altogether, about 100 linear miles of the refuge's posting was checked, repaired, and posted when needed. The posting was plotted on small scale district maps. The district's major stump fields and sandbars were sketched on recent aerial photo reprints. The Corps of Engineers are drafting these maps to aid pleasure boaters and recreationists while using the river.

B. Plantings:

through

F. Fire: Nothing to report.

IV. RESOURCE MANAGEMENT

A. Grazing: One permit was issued for intermittent grazing of cattle on 51 acres, but flood damage to fences and high water prevented operation this year.

B. Haying: None

C. Fur Harvest:

Species	FUR CATCH - 1964-65			Pelt Average
	No Reports	Catch	Value	
Muskrat	119	20,732	23,772.90	1.14
Mink	35	95	753.45	7.93
Beaver	15	317	1,810.25	5.71
Raccoon	10	77	110.05	1.43
Fox	1	30	45.25	1.51
Opossum	1	1	.50	--

The fur catch for muskrats was down about 12,000 mainly because of poor rat trapping conditions. Beaver take increased 244 pelts over the 1963-64 season. All other furs taken were similar to that caught during the 1963-64 season. Prices were down for all fur. The total reported value of the fur catch was \$26,492.40 as compared to \$44,135.70 taken last year.

The 1965-66 muskrat season was 23 days for Iowa and 43 days for Wisconsin as compared to 79 and 48 day seasons last year. Not all the fur catch reports have been received yet, but so far it looks as though the rat harvest will be similar to last year. Prices received for first grade rats in the round were as high as \$1.60 this fall.

D. Timber Removal

One timber cutting permit was in effect this year on Corps of Engineers land. Timber removed was:

Soft maple	27,930 B.F.	\$1,187.03
Elm	6,670 B.F.	100.05
Yellow Birch	3,130 B.F.	62.60

Two firewood permits were issued for dead and downed ash. Ten cords each @.50 per cord were removed.

E. Commercial Fishing

During the late winter a few good seine hauls were made. One in Minnesota Slough netted about 100,000 pounds of saleable carp, buffalo, and drum. Following the spring flood and during the early summer, fishing was considered good but by late summer fishing success dropped considerably. Fall catches were only fair, and in mid-December, gill-netting became impossible. Few fish were taken because of the debris collected in the nets from fluctuating water levels.

Prices received for the various species of commercial fish during the year varied or averaged per pound as follows:

Carp	.02-.05	Bullhead	.10
Buffalo	.04-.15	Sturgeon (Shovelnose)	.27
Drum	.03-.08	Gar (long & shortnose)	.03
Channel Catfish	.27	Bow Fin	.02
Flathead,		Paddlefish	.10-.15
Suckers	.02-.06	Amer. Eel	.10-.27

- F. Other Uses: This year 4 more Special Use Licenses were issued by the Corps of Engineers. A houseboat moorage site and 3 float dock sites. One float dock application is pending. Presently there are 23 Corps of Engineers Special Use Licenses in force on the district.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Wood Duck Nesting Cylinders

During the spring flood, 3 of the 11 cylinders were lost and all but one was flooded out. The one cylinder held 17 wood duck eggs, but was abandoned shortly after June 10.

B. Wood Duck Banding

Wood Ducks Banded

	Adult	Immature	Local	Total
Male	16	23	1	40
Female	1	25	-	26
Unknown	-	-	-	-
Repeats - 18	17	48	1	66

In addition, 41 blue-winged teal, 1 green-winged teal, and 1 pintail were banded.

In spite of all the time and effort spent by the student assistant and district manager, wood duck trapping was a miserable failure.

The grand total of 66 wood ducks is probably the lowest number ever banded in this district. Trapping conditions were similar to other districts as far as water level, type of traps, bait used, and its placement. In some areas, it took woodies 2 1/2 weeks before they would begin feeding on corn set out in trays or placed on stumps and logs.

C. Wood Duck Flight Counts

Spring wood duck flight counts were made in mid-April at the Village and Crooked Creek Stations. The Wexford Creek Station could not be counted because of the spring flood.

Spring flight count data along the Mississippi River is being collected to determine its value as an indication of spring wood duck populations. The reliability and value of these counts has not yet been fully determined.

D. Wood Duck Roost Counts

Wood duck roost counts were made on September 23 and 24 at the Village Creek and Crooked Creek Stations. Roost counts are being made on the refuge to determine its value as an index to fall wood duck populations. The reliability and value of these counts are still in the development stage.

E. Waterfowl Hunter Bag Checks

During the waterfowl season an effort was made to contact an equal number of hunters in each state on the district. In Iowa and Wisconsin 229 and 230 hunters were contacted respectively. Only 36 hunters were bag checked in Minnesota. The low number of bag checks made in the Minnesota portion of the refuge, in part, reflects the size of the area and the hunting pressure received there in proportion to that of Iowa and Wisconsin. In addition, bag checks were taken from the different types of shooting areas found in the district, so that the variety of species taken would be included in the overall data.

Refer to Table 8, Section VI, Part D.

F. Vegetative Transects

Were not run this year.

G. Experimental Teal Season

Iowa had a nine day season, Minnesota a three day season, and Wisconsin did not have a season. There were a fair amount of hunters out the opening weekend, but interest dropped thereafter. There was an estimated 3,300 teal on the district during the season. The population peaked at about 6,800 two weeks after the season closed.

During the season twelve Hunters Performance Surveys were made. Three out of the twelve parties refrained from shooting at protected species. Wood ducks caught the bluntnose of the illegal shooting, however, Mallards and Widgeon were not passed up. Following the opening weekend, the majority of ducks using the district shifted to the Wisconsin side of the refuge.

Many questions and problems are associated with the collection and analysis of data from the Experimental Teal Season. Because of the importance of the Upper Mississippi Refuge to wood duck populations, careful consideration should be given before another season is allowed along the Mississippi River Valley.

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VI. PUBLIC RELATIONS

A. Recreational Use

1965	FISHING	MISCEL- LANEOUS	HUNTING			TOTAL DAYS USE
			DUCKS	DEER	OTHER	
Spring	7,820	1,410			45	9,275
Summer	46,400	52,210				98,610
Fall	37,100	20,000	2,940	622	105	60,767
TOTAL DAYS USE	91,320	70,655	2,940	622	150	165,687

Table below compares annual use with 1964 and the 5-year average 1961-1965.

Day Use Comparison

Year	Fishing	Misc.	Hunting	Total
1964	96,385	79,649	7,528	183,562
5-year ave.	80,640	64,294	4,034	148,968
Change from mean	+10,680	+6,361	-322	+16,719
% of change	+13.2	+9.9	-7.9	+1.1

The flood played havoc with all of the public use and access areas on the refuge. Even after the water receded and recreational facilities were put into a usable condition, the public still avoided the river this past summer and fall. Consequently, all phases of public use showed a decrease from 1964.

REFUGE VISITORS

Refuge: Lansing, Upper Mississippi Refuge
 Period: 1965

DATE	PERSONS	PURPOSE
	*Jerry I. Hoilien, ISCC officer	Courtesy call
	*William Heibing, WCD Warden	Courtesy call
	*Homer E. Moe, WCD Warden	Courtesy call
	*Fredric Koroch, WCD Warden(Deputy)	Courtesy call
1-15	William A. Aultfather, Regional Forester	Plans for cover typing the district.
5-10	Eldon McLaury, Mgt. Biol., Red Rock Lakes, NWR	Refuge tour.
7-12	Gale Monson, Refuges W.D.C.	Public use & recreational aspects of the Lansing Dist.
7-12	Edgar W. Trecker, Staff Spec. Recreation R.O.	" " " " " " " "
8-2	Wesley C. Newcomb, U.S.G.M.A.	Courtesy call.
8-20	Lewis E. Myers, W.C.D., District game mgr.	Peak nos. of B.W. teal on refuge- Wisconsin
8-20	John A. Plume, " " " (trainee)	" "
9-10	Ken R. Kakac, Supt., ISCC officer	Exp. teal season enforcement
9-23	Richard A. Bishop, Iowa Waterfowl Biol.	Wood duck roast count information.
9-30	Frank R. Martin, Ass't R.O. Super, Div. of W.R.	District inspection.
10-28	Ronald L. Payne, USGS, Civil Eng. Tech.	Information on east boundary of refuge.
11-26	Eugenia N. Goldstein, Biol.	Upper Mississippi Conservation Committee
	*State personnel frequently contacted in the field.	

REFUGE PARTICIPATION

Refuge: **Lansing, Upper Mississippi Refuge**
 Period: **1965**

DATE	PERSONNEL	ACTIVITY
3-29 4-30	T. J. Charmley	Attended Basic Refuge Manager Training Course.
5-13 10-3	T. J. Charmley	Attended Refuge Annual Spring Staff Meeting.
10-8	T. J. Charmley	Attended Wing Bee, Poynette, Wisc. Special Teal Season
10-11	T. J. Charmley	Attended Retreat Sportsman's Meeting
3-8	T. J. Charmley	Lansing Kiwanis Club program--Behind the Flyways
3-11	T. J. Charmley	DeSoto Boy Scouts -- Refuge Slide Talk.
3-15	T. J. Charmley	Waukon, Ia. Izack Walton League Program, National Wildlife Week.
3-11 3-18	T. J. Charmley	Kee High School and Lansing Boy Scouts and Girl Scouts. National Wildlife
		Week Program.
5-24	T. J. Charmley	Lansing Kindergarten - Program on Water Safety
5-24	T. J. Charmley	Lansing Kindergarten - Program on Water Safety
6-18	T. J. Charmley	Lansing Boy Scout - Litter patrol and trash clean-up.
11-22	K. Krumm T. J. Charmley	Lansing Kiwanis - Reptile and Amphibian Program
12-30	Gray, Wright, Charmley	Corps of Engineers and Bureau - Pool 9 and 10 Zoning Meeting
12-21	D. V. Gray T. J. Charmley	Corps of Engineers and Bureau - Pool 9 and 10 Zoning Meeting

D. Hunting

Bow hunting activity for deer was about the same as last year. Two kills were reported this fall, one in Iowa, and one in Wisconsin.

Deer hunters during Minnesota's three day, any sex season, bagged 14 deer in the Reno Bottoms. This year's season was more successful than the 1964 season when only 7 deer were taken. There is little deer hunting on the Wisconsin portion of the district. One deer was taken last year and 2 were bagged this year.

Iowa's four day, any sex season was poor. In 1964, 27 deer were killed. This year only 9 were taken. Rain and fog on the opening weekend caused many hunters to quit before the season was over.

Duck hunting use decreased about 55% from 1964. There were 3 openings this year; Iowa and Minnesota's early teal season, Wisconsin and Minnesota's regular duck season, followed by the late opening of Iowa's regular season.

There was an estimated 25% hunter increase for Wisconsin's opening weekend. The increase reflects the successful openings in 1963 and 1964. However, hunter's success was so poor that during the following week and weekend few hunters were out.

Iowa had the longest season of the 3 states this year, 49 days including the 9 day special teal season. Hunting pressure was down about 30% from the 1964 opening. Success was somewhat better than Wisconsin's opening, but was still considered poor.

Duck hunters in Minnesota's Reno Bottoms had good success this fall. Mainly, because the area is more remote and few hunters use the area in proportion to those who hunt in Wisconsin and Iowa.

Refer to Table 8 for duck hunting statistics.

Very little upland game hunting occurs on the district except for fur bearers as reported in the section on Fur Animals, Predators, Rodents, and Other Mammals.

E. Violations: Refer to UM 17, Violation Apprehension Summary.

F. Safety All safety bulletins and reports received at the Lansing District were reviewed. Safety was stressed and discussed at all refuge staff meetings, and continually during the summer with the N.Y.C. crews and the student assistant. The N.Y.C. crews worked a total of 3,250 hours without a single lost time accident or case of poison ivy.

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TABLE 8

Bag Check Summary of Species Taken
Upper Mississippi River Wildlife and Fish Refuge
Period: September thru December, 1965

	::	19 63	::	19 64	::	19 65
No. hunters checked	::	875	::	993	::	495
No. ducks checked	::	2,000	::	2,586	::	570
Average ducks per day	::	2.26	::	2.60	::	1.15

Species	::	No.	:	%	::	No.	:	%	::	No.	:	%
Mallard	::	593	:	29.6	::	838	:	32.40	::	136	:	23.86
Black	::	21	:	1.0	::	29	:	1.12	::	14	:	2.46
Gadwall	::	6	:	0.3	::	26	:	1.01	::	12	:	2.11
Baldpate	::	149	:	7.4	::	260	:	10.05	::	115	:	20.18
Pintail	::	54	:	2.7	::	125	:	4.83	::	10	:	1.75
G.w.teal	::	96	:	4.8	::	285	:	11.02	::	37	:	6.98
B.w.teal	::	403	:	20.1	::	358	:	13.84	::	43	:	7.54
Shoveller	::	5	:	0.2	::	17	:	.66	::	2	:	.35
Wood duck	::	609	:	30.4	::	598	:	23.12	::	34	:	5.97
Redhead	::	--	:	--	::	--	:	.12	::	7	:	1.23
Ring-neck	::	43	:	2.15	::	21	:	.81	::	27	:	4.74
Canvas-back	::	--	:	--	::	5	:	.20	::	19	:	2.33
Scaup	::	16	:	0.8	::	18	:	.70	::	82	:	14.39
Golden-eye	::	1	:	--	::	1	:	.04	::	21	:	3.68
Buffle-head	::	2	:	0.1	::	1	:	.04	::	5	:	.88
Ruddy	::	1	:	--	::	--	:	--	::	2	:	.35
Mergansers	::	--	:	--	::	--	:	--	::	4	:	.70
Scoter	::	--	:	--	::	1	:	.04	::	--	:	--
Old squaw	::	--	:	--	::	--	:	--	::	--	:	--

Hunters took ducks as follows:

4*	::	223	:	25.5	::	344	:	34.6	::	31	:	6.26
3*	::	194	:	22.2	::	215	:	21.6	::	40	:	8.08
2	::	170	:	19.4	::	210	:	21.1	::	73	:	14.75
1	::	186	:	21.3	::	147	:	14.6	::	180	:	36.06
0	::	102	:	11.7	::	79	:	7.9	::	171	:	34.55
Ave. duck lost		.60				.66				.42		
* Ave. hrs./duck		1.88				1.55				5.00		
Ave. hrs. hunted		4.29				4.04				5.76		

Approximately 1/2 mile of the Lansing and DeSoto causeway (Highway 82) was washed out by the record spring flood. For a week travel to the district office from DeSoto, Wisconsin was made by boat.

On April 24, the flood crested at 14.76 feet above normal pool. White arrow in upper right hand corner of photo indicates high water line. Student assistant, Daniel G. Olson, is getting ready to reseal and re-letter the refuge recognition sign which is located just off the causeway.

VII. Other Items

A. Photographs



- Student assistant identifies and warns N.Y.C workers of the misery that can result from working around "Poison Ivy."

- N.Y.C. flood clean up consisted of policing up of all types of flood debris: bottles, cans, tree limbs, etc. Forty full pick-up truck loads of trash was hauled from the public use areas to nearby town dumps.



N.Y.C. crews clear brush from the Bad Axe boat landing and access areas.

Student assistant renovating the district's posting. Altogether, about 100 linear miles of the refuge was covered during the summer, including the posting of two major sloughs.



SIGNATURE PAGE

Submitted by:

Thomas J. Charmley
Thomas J. Charmley
(Signature)

Date: February 14, 1965

District Refuge Manager
Title

Approved, Regional Office:

Date: March 11, 1966

Frank Martin
(Signature)

Asst.
Regional Refuge Supervisor

NARRATIVE REPORT
UPPER MISSISSIPPI RIVER NATIONAL WILDLIFE REFUGE
PRAIRIE DU CHIEN DISTRICT
January - December, 1965

Robert L. Wright
District Manager

United States Department of the Interior
Fish and Wildlife Service
Bureau of Sport Fisheries and Wildlife
Prairie du Chien, Wisconsin

C O N T E N T S

Page

I. General	
A. Weather Conditions.....	1
B. Habitat Conditions.....	
1. Water.....	2
2. Food and Cover.....	3
II. Wildlife	
A. Migratory Birds.....	3
B. Upland Game Birds.....	18
C. Big Game Animals.....	18
D. Fur Animals, Predators, Rodents, and Other Mammals.....	19
E. Hawks, Eagles, Owls, Crows, Ravens, and Magpies.....	20
F. Other Birds.....	20
G. Fish.....	20
H. Reptiles.....	20
I. Disease.....	20
III. Refuge Development and Maintenance	
A. Physical Development.....	20
B. Plantings.....	
C. Collections and Receipts.....	
D. Control of Vegetation.....	
E. Planned Burning.....	
F. Fires.....	
IV. Resource Management	
A. Grazing.....	21
B. Haying.....	21
C. Fur Harvest.....	21
D. Timber Removal.....	
E. Commercial Fishing.....	22
F. Other Uses.....	22
V. Field Investigation or Applied Research	
A. Duck Trapping	22
B. Band Returns	23
C. Bag Check Data	23
D.	
E.	
VI. Public Relations	
A. Recreational Uses.....	25
B. Refuge Visitors.....	25
C. Refuge Participation.....	25
D. Hunting.....	25
E. Violations.....	26
F. Safety.....	26
VII. Other Items	
A. Items of Interest.....	26
B. Photographs.....	Appendix
C. Signature.....	

I. GENERAL

A. Weather Conditions

MONTH	Precipitation			Temperature			
	Total	Normal	Snowfal	Max.	Min.	Mean	Normal
						Av.	Mean Av.
January	.72	.92	2	45	-29	15	8
February	.92	.90	10	53	-30	18	17
March	1.82	1.96	12	53	-10	26	38
April	3.64	3.46	0	80	24	49	48
May	5.06	3.70	0	88	30	64	60
June	1.67	5.01	0	95	44	68	69
July	2.23	4.31	0	101	48	72	74
August	4.78	3.26	0	99	41	70	71
September	7.17	3.86	0	80	37	59	64
October	1.52	2.20	0	82	25	53	52
November	2.34	1.70	0	69	14	39	37
December	1.91	1.31	0	51	6	31	23
Annual Totals	33.78	32.59	24	101	-30	47	47

During 1965 monthly precipitation ranged from 3.34" below normal in June to 3.31" above normal in September. Overall the yearly precipitation was slightly above normal and 7.08" above 1964. There were 9.5" more snow in 1965 than in 1964.

The first five months of the year were colder than the corresponding period in 1964. In February the temperature dropped to -30 degrees F. Temperature during the remainder of the year averaged near normal. The mean temperature for the year was equal to the normal mean of 47 degrees F.

B. Habitat Conditions

1. Water

POOL LEVELS

Pool No. 10 at Clayton, Iowa

Normal: 611.00

MONTH	: HIGHEST	: LOWEST	: AVERAGE	: DATES OF	: DATES OF
	: LEVEL	: LEVEL	: LEVEL	: HIGH LEVEL	: LOW LEVEL
January	: 10.80	: 10.20	: 10.42	: 10th	: 29th
February	: 11.32	: 10.15	: 10.73	: 12th	: 2nd, 5th, & 6th
March	: 15.65	: 11.38	: 12.99	: 8th	: 1st
April	: 27.51	: 12.60	: 20.23	: 24th	: 5th
May	: 24.20	: 15.00	: 17.60	: 1st	: 31st
June	: 15.32	: 11.75	: 14.06	: 9th	: 29th, 30th
July	: 12.18	: 11.30	: 11.81	: 15th	: 29th
August	: 11.66	: 11.22	: 11.44	: 10th	: 20th
September	: 12.65	: 11.25	: 11.71	: 30th	: 5th, 6th & 15th
October	: 13.25	: 9.75	: 12.29	: 6th	: 23rd
November	: 12.08	: 11.76	: 11.93	: 15th, 21st & 30th	: 6th
December	: 13.90	: 11.60	: 12.21	: 30th	: 24th & 27th.

Water was plentiful throughout the year. The river fluctuated 1.13' during January and February. The first major ice breakup occurred during the first week of March in the area between Lock & Dam # 9 and McDonald slough. The pool was free of ice by April 12th.

The first rise in pool levels occurred about the same time. On March 4th the Clayton, Iowa gauge indicated 612.60'. By March 8th the pool had risen to 615.65'. Overall pool fluctuation during March was 4.27'.

On April 10th the river at Clayton was at an elevation of 612.70' (which is equal to a stage of 10.1). For the next 14 days the river rose culminating in a record crest of 627.51' on April 24th. The entire refuge was flooded as were the low lying portions of the communities along the river.

At Prairie du Chien, Wisconsin the river crested at a record stage of 25.4 feet at 8:00 PM on April 23rd. In 1952 flood waters reached a height of 22 feet.

1. Water (continued)

For a pictorial review of the flood in the Prairie du Chien area refer to "Highlights of 1965 Disaster" in the appendix.

During May the pool fell 9.20 feet, but still remained nearly four feet above its normal elevation. Water levels receded throughout the period but remained above normal until August when levels reached and remained at or near the normal elevation of 611.00 feet.

The river rose again in September and October due in part to the 4.78" of rain in August and the 7.17" of rain in September. The river rose to an elevation of 613.25 feet in October, dropped a foot in November and was at an elevation of 613.90 on December 30th.

2. Food and Cover

Persistent ice and spring flooding made refuge feeding areas generally unattractive to migrant waterfowl. The migrants did benefit from newly inundated areas beyond the limits of the refuge and the river. Dabbler use dropped tremendously during the spring period, due primarily to the lack of available food supply on the refuge.

All land dwelling mammals were forced to leave the refuge and all fur bearers were flooded from their dens and lodges.

High waters during May and June retarded the growth and development of aquatic plants. However, once growth did begin, the plants seemed to "pop" from the water. Emergents, particularly lotus, sagittaria, and river 3-square, continue to be the most abundant.

Extensive beds of Vallisneria, Potamogeton americanus and coontail are common, as are growths of "duck weed" which completely cover most of the ponds in the backwaters of the refuge.

Food and cover are adequate for all forms of wildlife, particularly waterfowl and furbearers.

II WILDLIFE

A. Migratory Birds

1. Waterfowl

The first migrant ducks were noted during the first week of March. These were exclusively divers. Freezing temperatures during the second two weeks of March delayed the migration. 2500 scaup were noted during the first week of April. The bulk of the migrants were here by the second week of April. Nearly all species were represented as the spring peak of 14,750 ducks was recorded during the week ending April 17.

1. Waterfowl (continued)

The spring migration was unusual in that it was delayed by unseasonably cold weather but when it did occur it came and passed rapidly.

Due to the above mentioned factors, dabbling use was 59% less than the comparable 1964 period.

Wood duck spring flight counts were not made this year because the flood waters had completely covered the sample areas.

Wood duck broods were seen for the first time during the second week of May. All artificial nesting boxes were flooded during April and it is doubtful if any of these were used successfully.

During the summer this district does not support large numbers of birds. (The average weekly population this year was about 2800 birds). The predominant species is the wood duck of which there was an average weekly population of 2350.

Estimated duck production this year was 2420, most all of which were wood ducks.

The fall population peaked at 6250 Birds during the week ending October 9th.

Duck use days were 30% fewer in 1965 than in 1964.

Goose use is very low on the Prairie du Chien district. In 1964 3500 Canada goose use days were recorded; in 1965, 1495 days were recorded, a decrease of 57%.

An additional 1400 goose use days were made by a flock of 200 snow geese that were here during the week of October 9th. There were no snow geese noted in 1964.

Coot use days were 397,230 fewer in 1965 than in 1964. The largest drop was in the fall when there was a 76% decrease in use days.

Further information is presented on UM forms 3, 3A, 4, and 5.

2. Other Water Birds

American egrets were present, but in greatly reduced numbers, this year. Peak numbers of 75 birds were recorded in July and September. Egrets were seen most often in the north end of the district about one half mile below Lock & Dam # 9.

Great Blue Herons are common in the district. There was a one-third drop in peak populations this year from 1200 to 800 birds. No data on nesting success are available.

2. Other Water Birds (Continued)

Green Herons were much less evident in 1965 than in 1964; 140 peak compared to 500.

A peak of 150 pied billed grebes was recorded during the week ending April 24th. This is more than the peak recorded in 1964.

3. Shorebirds, Gulls, and Terns

Smaller than usual numbers of these birds were present throughout the year. A large change was noted in the population of killdeer. For some unknown reason peak numbers were down over 90% throughout the year. A large decrease also occurred in the spring population of ring-billed gulls. In 1964 2500 gulls were censused; in 1965 only 1000 were recorded.

4. Dove populations were down during the spring and summer but were slightly above last years recorded fall peak of 500.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE
 Refuge: Upper Mississippi, Prairie du Chien District
 Period: January - April, 1965

Species	Peak Numbers		Percent of Change		Peak Dates*	TOTAL DUCK DAYS USE		Percent of Change	
	1964	1965	Decrease	Increase		1964	1965	Decrease	Increase
Mallard	4000	1000	75		3/21 : 4/17	135800	13850	90	
Black	100	250		100%	3/28 : 4/17	2800	2490	11	
Gadwall	200	50	75		4/18 : 4/17	4375	700	84	
Baldpate	3000	300	90		4/11 : 4/17	60725	4200	93	
Pintail	1000	100	90		4/4 : 4/17	23100	1110	94	
G.w. teal	100	300		100%	4/25 : 4/17	1225	4550		100%
B.w. teal	500	750		50	4/18 : 4/24	7875	12600		60
Shoveler	500	300	40		4/18 : 4/17	10500	4900	53	
Wood duck	650	500	23		4/25 : 4/24	9800	9490	3	
Redhead	150	250		67	4/4 : 4/10	2800	2885		3
Ring-neck	2500	350	86		4/11 : 4/17	58275	6850	88	
Canvasback	300	450		50	3/21 : 4/10	5600	5515	2	
L. scaup	10000	10000	-	-	4/4 : 4/10	244300	189885	22	
Golden-eye	1000	1500		50	4/4 : 4/10	23100	25790		12
Bufflehead	25	200		100%	4/11 : 4/10	350	4250		100%
Ruddy	-	-				-	-		
Mergansers	300	1300		100%	4/11 : 4/10	9625	22205		100%
Old squaw									
Scoters									
Unident.									
TOTALS	21575	14750	32		4/11 : 4/17	600250	311600	48	

*Week ending.

Comments: Migration was delayed until the first week in April at which time we received the first major flight. The mallard and bandpate flights apparently bypassed the district as these two species attributed to the major difference in total waterfowl use. Both peak numbers and total days use fell nearly 50% from that of the same period in 1964.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE
 Refuge: Upper Mississippi, Prairie du Chien District
 Period: May - August, 1965

Species	Peak Numbers		Percent of Change		Peak Dates*	TOTAL DUCK DAYS USE		Percent of Change	
	1964	1965	Decrease	Increase		1964	1965	Decrease	Increase
Mallard	2000	650	68		8/29 : 8/28	38325	30940	19	
Black	50	20	60		8/29 : 8/28	350	140	60	
Gadwall	0	-				-	-		
Baldpate	500	10	98		5/2 : 5/22	4200	70	98	
Pintail	100	50	50		8/15 8/21-28	2100	700	67	
G.w. teal	100	30	70		5/2 : 8/28	700	350	50	
B.w. teal	1000	600	40		5/2 : 8/28	15050	15190		9
Shoveler	100	10	90		5/2 : 5/22	700	70	90	
Wood duck	4000	4500		13	7/18 : 8/28	298375	280140	6	
Redhead	-	10		100%	- : 5/8	-	70		100%
Ring-neck	-	50		100%	- : 5/8	-	350		100%
Canvasback	-	-				-	-		
L. scaup	200	250		25	5/2 : 5/8	1400	2100		50
Golden-eye	-	-				-	-		
Bufflehead	-	-				-	-		
Ruddy	-	-				-	-		
Mergansers	100	50	50		5/2 5/8-22	2170	2380		10
Old squaw									
Scoters									
Unident.									
TOTALS	5310	5850		10	8/22 : 8/28	363370	332500	9	

*Week ending.

Comments:

UM-3

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE
 Refuge: Upper Mississippi, Prairie du Chien District
 Period: September - December, 1965

Species	Peak Numbers		Percent of Change		Peak Dates*	TOTAL DUCK DAYS USE		Percent of Change	
	19 64	19 65	Decrease	Increase		1964	1965	Decrease	Increase
Mallard	3000	1500	50%		9/26 :10/23	117717	64960	45%	
Black	500	50	90		9/26 :10/9	12789	2660	79	
Gadwall	126	200		59	11/16 :10/23	3745	4200		12
Baldpate	4000	1000	75		10/10 :10/23	54684	25900	53	
Pintail	1000	200	80		10/3 :10/23	31745	5600	82	
G.w.teal	663	100	85		10/17 :10/9	21301	2800	87	
B.w.teal	2000	1000	50		9/26 :9/4	73304	34790	53	
Shoveler	500	0	100		10/10 :	7322	0	100	
Wood duck	2000	3800		90	9/26 :9/4	96880	218050		100%
Redhead	100	0	100		10/10 :	1722	0	100	
Ring-neck	100	500		100%	10/3 :10/9	4956	10850		100%
Canvasback	41	0	100		11/14 :	469	0	100	
L.scaup	448	50	89		10/24 :10/9	10402	1400	87	
Golden-eye	50	0	100		12/5 :	910	0	100	
Bufflehead	17	50		100%	11/21 :11/13	154	350		100%
Ruddy	100	10	90		11/21 :10/2	1008	70	93	
Mergansers	150	50	67		12/5 :10/23	2674	1400	48	
Old squaw									
Scoters									
Unident.									
TOTALS	12900	6250	52		10/10 :10/9	441782	373030	16	

*Week ending.

Comments:

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Upper Mississippi, Prairie du Chien District

Period: January - April, 1965

Species	Peak Numbers		Per cent of Change		Peak Dates*		TOTAL DAYS USE		Per cent of Change	
	1964	1965	Decrease	Increase	1964	1965	1964	1965	Decrease	Increase
Canada geese (lg.)	50	100		100	3/21	4/17	350	1060		100%
Cackling										
White-fronted										
Snow										
Blue										
TOTALS	50	100		100	3/21	4/17	350	1060		100%

Comments: Many Canada geese were observed flying northward but only an occasional flock utilized the refuge. The district receives very little Canada goose use during the year.

Coot	5000	13000	40		4/18	4/24	72800	61200	16	
Florida gallinule										

Comments: A complete reversal occurred this year from last; the ducks moved through the district rapidly while the coot lingered for a longer period of time. Coot created considerable interest to many observers as the flood waters drove the birds into nearly everyone's back yard.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE
 Refuge: Upper Mississippi, Prairie du Chien District
 Period: May - August, 1965

Species	Peak Numbers		Per cent of Change		Peak Dates*		TOTAL DAYS USE		Per cent of Change	
	1964	1965	Decrease	Increase	1964	1965	1964	1965	Decrease	Increase
Canada geese (lg.)	:	:	:	:	:	:	:	:	:	:
Cackling	:	:	:	:	:	:	:	:	:	:
White-fronted	:	:	:	:	:	:	:	:	:	:
Snow	:	:	:	:	:	:	:	:	:	:
Blue	:	:	:	:	:	:	:	:	:	:
TOTALS	:	:	:	:	:	:	:	:	:	:

Comments: There were no geese present during the period.

Coot	:	2000	:	1500	:	75	:	5/2	:	5/8	:	22050	:	10080	:	54	:
Florida gallinule	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:

Comments: Due to the spring floods, coot remained on the district for an extended period during May. By mid-summer the population was approximately 20. There were no observations of gallinules.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE
 Refuge: Upper Mississippi, Prairie du Chien, District
 Period: September - December, 1965

Species	Peak Numbers		Per cent of Change		Peak Dates*		TOTAL DAYS USE		Per cent of Change	
	1964	1965	Decrease	Increase	1964	1965	1964	1965	Decrease	Increase
Canada geese (lg.)	150	50	67		10/3	10/9	3150	435	86	
Cackling										
White-fronted										
Snow	0	200		inf/100+	-	10/9	0	1400		inf/100+
Blue										
TOTALS	150	250		67			3150	1835		42

Comments:

Coot	12000	3500	71		10/10:10/23-30	490770	117110	76	
Florida gallinule	25	0	100		10/10: -	700	0	100	

Comments:

UM-4

PERCENTAGE COMPOSITION BY SPECIES OF TOTAL DUCK DAY USE
 Refuge: Upper Mississippi, Prairie du Chien District
 Period: January - April, 1965

Species	Per cent of total duck day use					
	1963		1964		1965	
	% of use	Order	% of use	Order	% of use	Order
Mallard	20	2	22	2	4.44	4
Black duck	-	-	tr.	13 & 14	.80	14
Gadwall	1	12	1	12	.22	16
Baldpate	7	5	10	3	1.35	12
Pintail	1	13	4	5 & 6	.46	15
G.w.teal	3	10	tr.	15	1.46	10
B.w.teal	5	7	1	10	4.04	5
Shoveller	5	8	2	7	1.57	9
Wood duck	10	4	2	8	3.05	6
Redhead	tr.	14	tr.	13 & 14	.93	13
Ring-neck	6	6	10	4	2.20	7
Canvasback	-	-	1	11	1.77	8
Lesser scaup	21	1	41	1	60.93	1
Golden-eye	12	3	4	5 & 6	8.28	2
Bufflehead	2	11	tr.	16	1.36	11
Ruddy	-	-	-	-	-	-
Mergansers	4	9	2	9	7.13	3
Old squaw	-	-	-	-	-	-
Scoters	-	-	-	-	-	-

Comments:

UM-4

PERCENTAGE COMPOSITION BY SPECIES OF TOTAL DUCK DAY USE
 Refuge: Upper Mississippi, Prairie du Chien District
 Period: May - August, 1965

Species	Per cent of total duck day use						
	1963		1964		1965		
	% of use	Order	% of use	Order	% of use	Order	
Mallard	7	2	11	2	9.30	2	
Black duck	-	-	tr.	10	.04	8	
Gadwall	tr.	10	-	-	-	-	
Baldpate	tr.	8	1	4	.02	10 & 11	
Pintail	tr.	7	1	6	.21	6	
G.w.teal	tr.	9	tr.	8 & 9	.10	7	
B.w.teal	3	3	4	3	4.57	3	
Shoveller	1	6	tr.	8 & 9	.02		
Wood duck	83	1	82	1	84.24	1	
Redhead	-	-	-	-	.02	10 & 11	
Ring-neck	tr.	11	-	-	.21	9	
Canvasback	-	-	-	-	-	-	
Lesser scaup	2	4	tr.	7	.63	5	
Golden-eye	tr.	13	-	-	-	-	
Bufflehead	tr.	12	-	-	-	-	
Ruddy	-	-	-	-	-	-	
Mergansers	1	5	1	5	.71	4	
Old squaw							
Scoters							

Comments:

PERCENTAGE COMPOSITION BY SPECIES OF TOTAL DUCK DAY USE

Refuge: Upper Mississippi, Prairie du Chien District

Period: September - December, 1965

Species	Percent of total duck day use							
	1963		1964		1965			
	% of use	Order	% of use	Order	% of use	Order		
Mallard	18.8	2	27	1	17.4	2		
Black duck	2.5	7	3	7	.7	9		
Gadwall	1.3	9	tr.	11	1.1	7		
Baldpate	4.4	6	12	4	6.9	4		
Pintail	7.5	4	7	5	1.5	6		
G.w.teal	5.2	5	5	6	.8	8		
B.w.teal	15.8	3	16	3	9.3	3		
Shoveler	tr.	13	2	9	-			
Wood duck	40.3	1	21	2	58.4	1		
Redhead	tr.	12	tr.	13	-			
Ring-neck	tr.	11	1	10	2.9	5		
Canvasback	tr.	15	tr.	15	-			
Lesser scaup	1.4	8	2	8	.4	10 & 11		
Golden-eye	-		tr.	16	-			
Bufflehead	tr.	16	tr.	17	.1	12		
Ruddy	tr.	14	tr.	14	tr.	13		
Mergansers	tr.	10	tr.	12	.4	10 & 11		
Old squaw								
Scoters								

Comments:

WEEKLY DUCK POPULATIONS AND PEAK NUMBERS

Refuge: Upper Mississippi, Prairie du Chien District
 Period: January - April, 1965

Week of period:	1961	:	1962	:	1963	:	1964	:	1965
1	16	:	35	:	10	:	0	:	0
2	2	:	10	:	0	:	0	:	0
3	1	:	5	:	0	:	0	:	0
4	1	:	5	:	0	:	0	:	0
5	10	:	2	:	0	:	0	:	0
6	2	:	2	:	0	:	0	:	0
7	22	:	0	:	15	:	0	:	35
8	35	:	0	:	15	:	0	:	35
9	670	:	20	:	0	:	0	:	300
10	1472	:	25	:	40	:	1085	:	105
11	2884	:	75	:	260	:	2440	:	140
12	3655	:	1790	:	850	:	7200	:	595
13	16335	:	2100	:	2225	:	6875	:	3960
14	18070 *	:	12300 *	:	6800	:	21250	:	14750 *
15	5795	:	12025	:	10950 *	:	21575 *	:	12400
16	9160	:	6450	:	8000	:	17625	:	8150
17	4920	:	4200	:	5550	:	7700	:	5500
18	-	:	-	:	-	:	-	:	-
TOTAL DAYS USE:	132250	:	273308	:	242655	:	600250	:	311600

*Indicates peak concentration.

COMMENTS: Total days use for the period dropped nearly 50% from that of the same period in 1964. A delayed spring migration sent the birds through the district rapidly. The reduction in days use is attributed primarily to climatic conditions, particularly persistent ice and record flood waters which made the district most unattractive to the dabbling species, and not to lack of ducks.

WEEKLY DUCK POPULATIONS AND PEAK NUMBERS

Refuge: Upper Mississippi, Prairie du Chien District

Period: May - August, 1965

Week of period :	19 61	:	19 62	:	19 63	:	19 64	:	19 65
1	2255	:	2255	:	3225	:	2900	:	1410
2	1338	:	1338	:	2100	:	910	:	1000
3	787	:	787	:	1825	:	810	:	970
4	702	:	702	:	1350	:	810	:	820
5	761	:	761	:	1350	:	835	:	870
6	930	:	930	:	1625	:	910	:	900
7	1193	:	1193	:	2025	:	1135	:	960
8	1895	:	1895	:	2650	:	1635	:	1630
9	2215	:	2215	:	2925	:	2645	:	2690
10	2525	:	2525	:	3325	:	3620	:	3690
11	2680	:	2680	:	3325	:	4020	:	3730
12	2880	:	2880	:	3975	:	4220	:	4380
13	3091	:	3091	:	4250	:	4210	:	4300
14	3190	:	3190	:	4300	:	4210	:	4390
15	3750	:	3750	:	4300	:	4360	:	4660
16	4505	:	4505	:	4550	:	4710	:	5170
17	5012	:	5012	:	4625	:	5310 *	:	5850
18	5431 *	:	5431 *	:	4775 *	:	4660	:	5940 *
TOTAL DAYS USE :	316180	:	316180	:	396900	:	363370	:	374080

*Indicates peak concentration.

COMMENTS: The five year average is 353,392 duck use days. This year's total is approximately 6% above the five year average. The peak, which occurred during the week ending September 4, 1965, is the highest in the last 5 years.

WEEKLY DUCK POPULATIONS AND PEAK NUMBERS

Refuge: Upper Mississippi, Prairie du Chien District

Period: September - December, 1965

Week of period:	1961	:	1962	:	1963	:	1964	:	1965
1	: 11900 *	:	: 6410	:	: 6175	:	: 5200	:	: 5910
2	: 10540	:	: 6530	:	: 7625	:	: 4200	:	: 5910
3	: 7990	:	: 6800	:	: 8550	:	: 4600	:	: 4800
4	: 5250	:	: 9600	:	: 9100 *	:	: 9300	:	: 4600
5	: 7100	:	: 14000	:	: 8575	:	: 10100	:	: 4510
6	: 9150	:	: 11750	:	: 8475	:	: 12900 *	:	: 6250 *
7	: 5750	:	: 11150	:	: 4800	:	: 5879	:	: 5250
8	: 2200	:	: 14100 *	:	: 4850	:	: 3101	:	: 6100
9	: 1195	:	: 11200	:	: 2400	:	: 1691	:	: 5000
10	: 1125	:	: 8450	:	: 2050	:	: 1944	:	: 2300
11	: 985	:	: 3200	:	: 2275	:	: 2216	:	: 2100
12	: 410	:	: 3345	:	: 1050	:	: 1319	:	: 500
13	: 406	:	: 4195	:	: 175	:	: 146	:	: 0
14	: 720	:	: 2750	:	: 350	:	: 250	:	: 0
15	: 5	:	: 135	:	: 125	:	: 400	:	: 0
16	: 5	:	: 120	:	: 50	:	: 80	:	: 0
17	: 10	:	: 20	:	: 0	:	: 0	:	: 0
18	: 0	:	: 0	:	: 0	:	: 0	:	: 0
TOTAL DAYS USE:	: 453187	:	: 796285	:	: 468475	:	: 441782	:	: 373030

*Indicates peak concentration.

COMMENTS:

1965
UM-9A

18

Refuge: Upper Mississippi, Prairie du Chien District
Period: Calendar Year 1965

B. Upland Game Birds

SPECIES	: POPULATION:	YOUNG	: NUMBER	: GREATEST	: TAKE:	LOSS:	POPULATION
	: JAN. 1	: PRODUCED:	: STOCKED:	: NO. PRESENT:			: DEC. 31
Ring-necked:							
pheasant :	5	0	0	5	0	0	5
Ruffed							
grouse :	25	0	0	25	0	10	15
Bob-white							
quail :	10	0	0	10	0	0	10
Gray							
partridge:	0		0				0
Wild							
turkey :	0		0				0

There are very few upland game birds in this district due to the lack of suitable habitat. This year the birds were also subjected to the flood which covered the islands for six to ~~eight~~ weeks.

C. Big Game Animals (White-tailed deer)

POPULATION:	YOUNG	: GREATEST	: HUNTER:	LOSSES:	POPULATION
JAN. 1	: PRODUCED:	: NO. PRESENT:	: TAKE :		: DEC. 31
100	15	100	10	0	90

There are not many deer in the district. What few are here frequently migrate on and off the refuge.

Iowa had a four day shotgun season in that part of the state which includes the refuge. Due to very foggy conditions hunting success was very low. Only one deer was counted as being removed from the bottoms. There may have been a few more.

Wisconsin had a longer season but the better hunting opportunities inland resulted in little pressure on the refuge.

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190

Refuge: Upper Mississippi, Prairie du Chien District
Period: Calendar Year 1965

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

SPECIES	: POPULATION : : JAN. 1 :	YOUNG : : PRODUCED :	GREATEST : : NO. PRESENT :	: CON- : : TAKE :	: TROL : : LOSS :	: POPULATION : : DEC. 31 :
Muskrat	: 3500	: 12000	: 15500	: 7263	: 0 : 1000	: 7237
Mink	: 200	: 40	: 240	: 37	: 0 : 13	: 200
Beaver	: 300	: 50	: 350	: 27	: 0 : 23	: 300
Otter	: 30	: 5	: 35	: 0	: 0 : 5	: 30
Raccoon	: 250	: 20	: 270	: 31	: 0 : 10	: 230
Red Fox	: 75	: 25	: 100	: 20	: 0 : 5	: 75
Gray Fox	: 5	: 0	: 5	: 0	: 0 : 0	: 5
Skunk	: 100	: 25	: 125	: 0	: 0 : 25	: 100
Cottontail:						
Rabbit	: 100	: 100	: 200	: 50	: 0 : 50	: 100
Opossum	: 200	: 100	: 300	: 0	: 0 : 100	: 200
Gray & Fox:						
Squirrels:	: 100	: 150	: 250	: 100	: 0 : 0	: 150
Woodchuck	: 50	: 10	: 60	: 0	: 0 : 10	: 50
Badger	: 0	: 0	: 0	: 0	: 0 : 0	: 0

A muskrat house count was made between November 2 and November 4, 1965. On the four sample areas counted (Grass Lake, Buck Creek, Grass and Pond Lily, and Mudhen) 103 houses were seen. This is 68% fewer than the number seen in 1964.

For details of the fur harvest, refer to section IV, Resource Management, subsection C, Fur Harvest.

E. Hawks, Eagles, Owls, Crows, Vultures

This year red tail hawks were present from the beginning of the year until the first part of September. Last year they were here from April until November.

Three osprey were seen in April and five were seen in September and October.

Twenty-one bald eagles were counted during the January census. The number fluctuated until the week ending April 3rd, when 2 were noted. Bald eagles were seen sporadically throughout the rest of the summer and into the fall. They were again seen regularly during December.

One bald eagle was found dead in Pig slough on November 19th. The cause of death was not immediately determined. The carcass was sent to Patuxent.

No golden eagles were observed during the year.

Turkey vultures were common throughout the summer, peaking at 40.

F. Other Birds

Nothing to report.

G. Fish

Almost 70,000 visitor days for fishing purposes were recorded this year. One reason for the decrease was the high water during the spring. In general, it appeared that fishing success was not very good. Many small sunfish and crappies were taken by ice fishermen. A few fair size walleyes were taken during the fall.

H. Reptiles

Snapping turtles were trapped in several of the backwater areas. Trappers were receiving ten to fifteen cents per pound live weight for snappers.

I. Disease

No evidence of disease was noted during the year.

III REFUGE MAINTENANCE

All interior and portions of the exterior boundaries were inspected for flood damage. Bent and damaged sign posts and signs were replaced. This work took much of the manager's and laborer's time during the year.

The Grant County, Wisconsin, Neighborhood Youth Corps was made available to the refuge on June 8th for flood clean up work. The two crews of 14 boys cleaned up sandbars and landing areas at Wyalusing, Glen Haven, Bagley

and Jay's lake.

A total of 3160 man hours were used in this project. Work supervisors Dennis Baures and Lauris Miller did a very good job of directing the boys. There were no lost time accidents.

IV RESOURCE MANAGEMENT

A. Grazing

There was no grazing on the district this year.

B. Haying

There was no haying on the district this year.

C. Fur Harvest

The fur harvest was much less in the 1964-65 season than in the 1963-64 season. Average price per pelt was also lower for all species trapped. 83 permittees were sold a total of 3137 trap tags.

Fur Harvest, 1964-65 Season Prairie du Chien District

	Muskrat	Mink	Beaver	Raccoon
No. Harvested	8421	34	23	10
No. Harvested, Projected	9792	40	27	12
Ave. No. pelts per trapper	119	1.79	2.30	1.67
Ave. price per pelt	\$ 1.02	\$ 9.37	\$ 5.38	\$ 1.28
Total value, by returns	8566.89	318.50	123.80	12.75
Total value, Projected	9961.50	370.35	143.95	14.83
Ave. Income per trapper	120.66	16.76	12.38	2.13

D. Commercial Fishing

1. Fish

There are a few commercial fishermen who fish the district throughout the year. Carp, Buffalo and catfish are the principal species sought. No data are available as to the total amounts taken.

2. Clams

Commercial fishing for clams was again done in the district this year.

Clammers were receiving \$40 per ton for live clams. There were at least three buyers operating in the area. The buyers purchased the clams, cooked the meat from them and then shipped the clams by rail to Chicago where they were re-shipped to Japan for use in the cultured pearl industry.

In Japan, the shells are ground into small round pellets. These pellets are then put into oysters as seed for the pearls.

At a meeting called by the Wisconsin Conservation Department on October 12th to discuss rules and regulations, it was brought out that this clamming industry may not last more than another year or two, at least in this area. Shells from the Mississippi are not as desirable as those from the southern rivers. One buyer stated that he had to ship a car of shells taken from the Illinois River before he could ship one from the Mississippi.

F. Other Uses

Thirty-three encroachments on Corps of Engineers' land at Jay's Lake were served trespass notices. Thirty-two have been issued licenses at an annual fee of \$10.00 each; one case remains to be settled.

Most of the trespassers willingly agreed to pay the fee; some required special consultation.

V FIELD INVESTIGATION OR APPLIED RESEARCH

A. Duck Trapping

The wood duck trapping program began on July 9th with pre-baiting. Trapping was started on July 19th. Water levels were above normal and fluctuated for nearly three weeks.

As of September 1, when the traps were closed, 489 wood ducks, 1 green winged teal and 7 mallards had been banded. The best trap sites were Bridge Pond, Round Pond and Sunfish Pond. Eight wood ducks were lost in trapping. Trap mortality and owl and raccoon predation were the causes.

Duck Trapping(continued)

Sex and age distribution of the wood ducks banded are as follows:

Males: 238 immatures, 4 locals, 11 adults; Females: 230 immatures, 2 locals, 4 adults.

B. Band Returns

Thirteen band returns have been received this year. Five were of mallards banded in 1964, 3 were of wood ducks banded in 1964, 4 were of wood ducks banded in 1963 or earlier, and one each of a mallard and a pintail banded in 1963.

C. Bag Check Data

Bag Check data are summarized on form UM-13.

Wood ducks were first in number taken, the same as last year. The next most frequently taken duck was the blue winged teal which comprised 14% of the bag. 147 coot were checked this year.

UM-

Bag Check Summary of Species Taken
Upper Mississippi River Wildlife and Fish Refuge
Period: September - December, 1965

	::	19 63	::	19 64	::	19 65
No. hunters checked	::	408	::	38	::	135
No. ducks checked	::	688	::	80	::	153
Average ducks per day	::	1.68	::	2.1	::	1.13

Species	::	No.	:	%	::	No.	:	%	::	No.	:	%
Mallard	::	198	:	28.8	::	15	:	18.8	::	12	:	8
Black	::	5	:	.7	::	-	:	-	::	2	:	1
Gadwall	::	2	:	.3	::	-	:	-	::	6	:	4
Baldpate	::	7	:	1.2	::	6	:	7.5	::	2	:	1
Pintail	::	37	:	5.4	::	3	:	3.8	::	4	:	3
G.w.teal	::	80	:	11.6	::	1	:	1.3	::	14	:	9
B.w.teal	::	161	:	23.4	::	18	:	22.5	::	22	:	14
Shoveller	::	3	:	.4	::	-	:	-	::	-	:	-
Wood duck	::	195	:	28.3	::	33	:	41.3	::	56	:	37
Redhead	::	-	:	-	::	-	:	-	::	8	:	5
Ring-neck	::	-	:	-	::	-	:	-	::	19	:	14
Canvas-back	::	-	:	-	::	-	:	-	::	-	:	-
Scaup	::	-	:	-	::	4	:	5.0	::	7	:	4
Golden-eye	::	-	:	-	::	-	:	-	::	-	:	-
Buffle-head	::	-	:	-	::	-	:	-	::	1	:	tr.
Ruddy	::	-	:	-	::	-	:	-	::	-	:	-
Mergansers	::	-	:	-	::	-	:	-	::	-	:	-
Scoter	::	-	:	-	::	-	:	-	::	-	:	-
Old squaw	::	-	:	-	::	-	:	-	::	-	:	-

Hunters took ducks as follows:

						5		13.2				
4*	::	59	:	14.5	::	5	:	13.2	::	N8 Data	5.9	
3*	::	65	:	15.9	::	2	:	5.3	::	11	:	8.2
2	::	82	:	20.1	::	4	:	10.5	::	15	:	11.1
1	::	93	:	22.8	::	3	:	7.9	::	51	:	37.8
0	::	109	:	26.7	::	3	:	7.9	::	50	:	37.0

* Ave. # Ducks Lost	.41	.29	.36
Ave. # Hrs/Duck	2.6	2.7	3.9
Ave. # Hrs. Hunted	4.4	5.7	4.4
# Coot Checked	26	0	147
# Geese Checked	3	0	1

UM-
11A

VI. PUBLIC RELATIONS

A. Recreational Use

1965	FISHING	MISCEL- LANEOUS	HUNTING			TOTAL DAYS USE
			DUCKS	DEER	OTHER	
Spring	7675	361	0	0	70	8106
Summer	46300	48038	0	0	0	94338
Fall	15750	7960	4760	100	0	28570
TOTAL DAYS USE	69725	56359	4760	100	70	131014

Overall public use was down 29% compared to 1964. The spring flood accounted for the decrease in the spring period; however, the reason for the decrease throughout the rest of the year is unknown. All categories, except duck hunting, in all seasons were down compared to 1964. This may be partially explained by the fact that the two year's data were collected by three different managers.

B. Refuge Visitors

Refer to UM form 15.

C. Refuge Participation

Refer to UM form 16.

The radio program entitled "Refuge Report" was given approximately every other week over WPRE in Prairie du Chien, Wisconsin. Subjects were varied; sometimes dealing with the refuge, sometimes with wildlife matters of a wider concern.

D. Hunting

1. Waterfowl

Duck hunting success was considerably less in 1965 (1.13 ducks/day) than in 1964 (2.1 ducks/day). Hunting pressure, as measured by hunter days, was 64% greater in 1965.

Only one goose, a Canada, was known to be shot on the refuge.

D. Hunting (continued)

2. Big Game

Deer hunting was not very successful in the bottoms. Iowa had a four day season along the river. The opening weekend was very foggy; visibility was sometimes less than 100 feet. Only one deer was seen taken out of the bottoms.

Wisconsin's deer season was more liberal throughout the state. Consequently, many of the people who live near the river went inland to hunt.

Total hunter days were estimated to be 100 this year compared to 740 in 1964.

E. Violations

Violations are listed on UM - 17.

F. Safety

All safety bulletins and reports were reviewed upon receipt. Safe boating tips were the subject of a radio program in the spring.

There were no lost time accidents or injuries at this station.

VII OTHER ITEMS

A. Items of Interest

On September 8, 1965, Joseph Kotok transferred to the Ottawa Job Corps Conservation Center. Robert L. Wright, former assistant manager at Tamarac Refuge, replaced Mr. Kotok on the same date.

The timber trespass case involving Crawford County Attorney Rodney Satter and Mr. W.J. Jones is still pending.

Data for the first two periods were compiled by former manager Kotok.

Mr. Larry Clanton of Prairie du Chien served as Laborer, WAE, from June 14 until August 31, 1965. His knowledge of the district was of immense help to both Managers Kotok and Wright.

B. Photographs

The photos attached are a selection of those obtained by Mr. Kotok.

REFUGE VISITORS

Refuge: Upper Mississippi, Prairie du Chien District
Period: 1965

DATE	PERSONS	PURPOSE
1/5	Harv Petersen, Mgr. Wyalusing State Park	Courtesy
1/5	Stuart Maule & Garland Gordon, Effigy Mounds Nat'l Mon.	Courtesy
1/21	Stuart Maule & Garland Gordon, Effigy Mounds	Request for films
1/25	Don Gray, Refuge Manager, Winona, Minn.	Inspection
1/25	Bill Howe, Editor, Courier - Press	News Items
1/28	Chas. McCall, Lynxville, Wisc.	Discuss SUP for fish float
1/28	Larry Clanton, PdC, Wisc	Interview for summer employment
1/29	Ted Shoekler, PdC, Wisc.	Trapping Regulations
2/18	Ken Krumm, Asst. Refuge Mgr., Winona, Minn.	Inspection
2/19	Ora Millin, Bagley, Minn.	Discuss SUP for encroachment on Jay's Lake
2/23	Stuart Maule & Garland Gordon, Effigy Mounds	Courtesy
2/23	Chas. McCall, Lynxville, Wisc	Fish float
2/23	Chris Sime, PdC, Wisc.	Fish float
2/24	Don Gray, Refuge Manager, Winona, Minn	Inspection
3/2-3	Bart Foster, Admin. Asst., Winona, Minn.	Serve encroachment notices at Jay's lake.
3/3	Chas. McCall & Chris Sime	Transfer of fish float lease.
3/10	Don Gray, Refuge Manager, Winona, Minn.	Timber Trespass

REFUGE VISITORS Page 2

Refuge: Upper Mississippi, Prairie du Chien District
Period: 1965

DATE	PERSONS	PURPOSE
3/18	Larry Clanton, PdC, Wisc.	Summer Employment
3/19	George Hines, Clayton, Iowa	Determine Refuge Lines
3/24	Harv Petersen, Mgr., Wyalusing St. Park	Offer park facilities for refuge staff meeting
3/26	Edwin Fleming, Jay's lake	Encroachment application
3/26	Bill Bair, Mgr., Cassville District	Pool 11 orientation
3/29	Larry Clanton, PdC, Wisc.	Summer Employment
4/2	Bart Foster & Ken Krumm, Winona, Minn.	Inventory
4/8	Lyman Reynoldson, GMA, Eau Claire, Wisc.	Enforcement
4/12	Lloyd Smith, PdC, Wisc.	Discuss career opportunities in conservation
4/12	Eric Lawson, District Mgr. LaCrosse, Wisc	Courtesy call
4/29	Bart Foster, Winona, Minn.	Leave boat for Bair.
5/3	Bill Bair, District Mgr. Cassville, Wisc.	Pick up equipment
5/3	Larry Clanton, PdC, Wisc.	Summer Employment
5/6	Garland Gordon, Effigy Mounds, Iowa	Flood photos
5/6	Don Gray, Winona, Minn.	Performance rating
5/12	Iver Benson & John Fergusson, C of E, Mpls.	Discuss Mecum lease
5/13	Refuge Staff	Staff meeting

REFUGE VISITORS Page 3

Refuge: Upper Mississippi, Prairie du Chien District
 Period: 1965

DATE	PERSONS	PURPOSE
5/19	Robert G. French, Kansas City, Mo.	Obtain info re; maps of PdC bridge engineering plan
5/19	Tom Charmley, District Mgr., Lansing, Iowa	Work Plan
5/20	Ken Krumm, Winona, Minn.	Conservation Program at Wyalusing Park
6/2	Don Gray, Winona, Minn.	Inspection - flood damages
6/3	Bill Bradham, Iowa Cons. Comm. Planning	Courtesy
6/28	Charles Colburn, Pd C Chamber of Commerce	Obatin picture of waterfowl for brochure
7/11	Ed Trecker, Mpls R.O.	Recreational facility tour
7/11	Gale Monson, Washington C.O.	Recreational facility tour
7/13	Ken Krumm, Winona, Minn.	Inspection
7/23	Don Gray, Winona, Minn .	Courtesy
8/9-13	Bob Wright, Tamarac NWR, Minn.	Orientation prior to transfer.
8/30	Harv Petersen, Wyalusing	Courtesy call
8/30	Bill Hiebing, WCD Warden	Courtesy
8/30	Bill Howe, PdC Courier - Press	News
9/9	Refuge Staff, GMA's Ellerbrock, Stinnet & Newcomb	Staff Meeting at Wyalusing
9/11	Mrs. C.C. Howard, Crawford Co., Wisc.	Federal Aid for trout stream
9/13	Bob Cole & Howard Smith, Navy Recruiters	Courtesy

REFUGE VISITORS Page 4

Refuge: Upper Mississippi, Prairie du Chien District
Period: 1965

DATE	PERSONS	PURPOSE
9/14	Mrs. Elizabeth Davies, Crawford Co. Agents Office	Use of office
9/16	J.B.Baker, E.C.Schroeder Co., McGregor, Ia.	Discuss graveling of landing at Bagley
9/19	Garland Gordon, Effigy Mounds, Ia.	Obtain movies
9/21	Royce Havlekt, ACSC	Courtesy
9/21	Bill Hiebing, WCD Warden	Law enforcement
9/21	Ora Millin, Bagley, Wisc.	Encroachment at Jay's Lake
9/24	Bill Howe, Editor, Courier Press	Interview
9/27	Mrs. Leo Sprosty, Pdc, Wisc	Discuss use of salt to attract deer
9/28	Bill Howe, Courier - Press	Invitation to Rod & Gun Club Meeting
9/29	Frank Martin, Mpls. R.O. & Don Gray, Winona	Inspection
9/30	Tom Charmley, District Mgr. Lansing, Ia.	Boat repair
10/6	Jerry Lapadakis, WCD Forester	Career Days at Pdc high school
10/8	Bill Hiebing, WCD Warden	Introduction to County Judge
10/8	Al Kwallek, WCD Warden, Lancaster, Wisc.	Make arrangements for duck season
10/13	Ron Irish, WCD Warden	Law enforcement
10/14	Tom Charmley, Lansing; Iver Benson & John Ferguson, Coe	Realty problems on Corps land
10/19	Jerry Lapadakis, WCD Forester	Pick up Career days material

REFUGE VISITORS Page 5

Refuge: Upper Mississippi, Prairie du Chien District
Period: 1965

DATE	PERSONS	PURPOSE
10/21	Don Gray, Winona, Minn.	Inspection
10/27	Gene Skrade, PdC, Wisc	Obtain info for wildlife mgt. student
11/8	Stan Hamann, PdC, Wisc	Turn in duck bands
11/8	Maule & Gordon, Effigy Mounds, Ia	Law enforcement
11/15	Bill Howe, Courier - Press	News items
11/15	Ronald Dworak, PdC, Wisc.	Turn in duck bands
11/16	Frank W. Meyer & son, LaCrosse	Inquire about buying timber near Sny Magill
11/19	Larry Clanton, PdC, Wisc	Report Dead Eagle
11/21	Larry Clanton, PdC, Wisc	Bring in dead eagle
11/21	Paul Schutte & son, Steven, Postville, Ia	Summer employment
11/24	Walt Schlaugat, PdC, Wisc.	Turn in duck bands
11/24	Bill Howe, Courier - Press	Discuss proposed medical exam for deer hunters
11/29	Maule & Gordon, Effigy Mounds, Ia	Discuss zoning meeting
11/30	Jerry Hoilen & John Horton, Iowa C.C. Wardens	Zoning meeting

REFUGE PARTICIPATION

Refuge: Upper Mississippi, Prairie du Chien District
 Period: 1965

DATE	PERSONNEL	ACTIVITY
1/26	Kotok	Prairie Rod & Gun Club Meeting
2/4	"	Crawford County Law Enforcement Assoc.
2/23	"	Prairie Rod & Gun Club
3/4	"	Crawford County Law Enforcement Assoc.
3/10	"	IWLA, Garnovilla, Ia. Gave talk and showed 2 movies to 35 members
3/15	"	IWLA, Garnovilla, Ia. Discussed state litter law
3/15	"	Nat'l Wildlife Week. Showed film to 80 members of PdC High School science classes.
3/16	"	Nat'l Wildlife Week. Showed 2 films to 300 PdC High School students.
3/16	"	Nat'l Wildlife Week. Showed 2 films to 350 members of St. Gaberial's Church.
3/17	"	Nat'l Wildlife Week. Showed 2 films to Effigy Mounds N.M. staff
3/30	"	Showed movies to 15 members of Prairie Rod & Gun Club.
4/1	"	Attended Crawford County Law Enforcement Assoc.
4/5	"	Attended County Game Hearing; discussed teal season & turkey season.
5/18	"	Showed film to Extension office staff & Effigy Mounds N.M. staff
5/17	"	Attended WCD training session in Mountain Survival & Rescue at Wyalusing Park
5/20	Kotok & Krumm	Presented conservation program to 80 Mendota 6th graders
6/3	Kotok	Attended WCD training session on rescue.

Refuge: Upper Mississippi, Prairie du Chien District
Period: 1965

Refuge: Upper Mississippi, Prairie du Chien District
Period: 1965

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VIOLATION APPREHENSION SUMMARY

Refuge: Upper Mississippi, Prairie du Chien District
Period: 1965

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SIGNATURE PAGE

Submitted by:

Robert L. Wright
(Signature)
Robert L. Wright

Date: February 11, 1966

District Manager
Title

Approved, Regional Office:

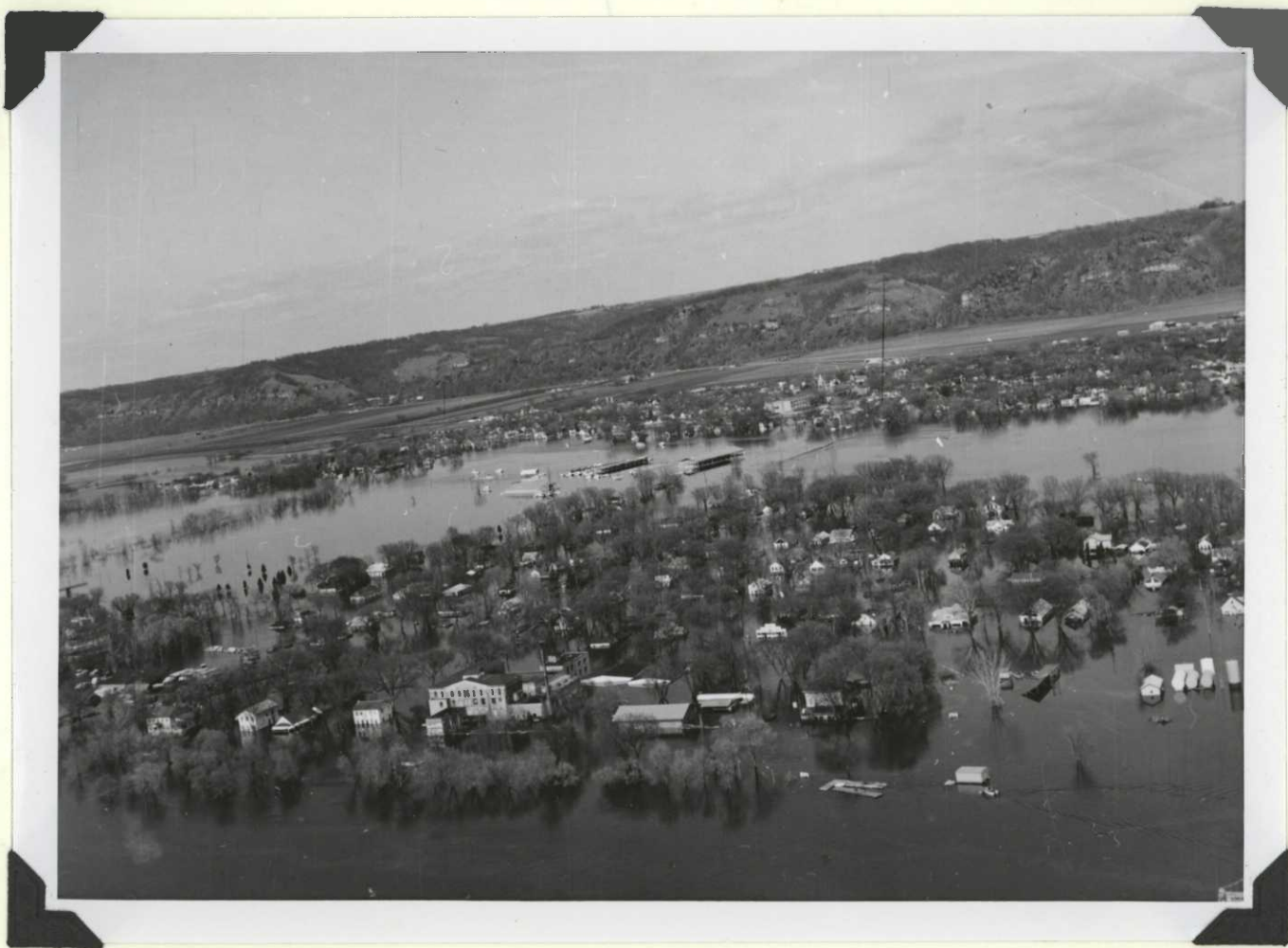
Date: March 11, 1966

Frank R. Martin
(Signature)

Asst.
Regional Refuge Supervisor



McGregor, Iowa during the spring flood of 1965



The fourth ward of Prairie du Chien, Wisconsin during the spring
flood of 1965



.Typical scene during flood - along Lynxville dike
in pool 9

NARRATIVE REPORT
UPPER MISSISSIPPI RIVER NATIONAL WILDLIFE REFUGE
CASSVILLE DISTRICT
1965

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Bureau of Sport Fisheries and Wildlife
Cassville, Wisconsin

C O N T E N T S

	<u>Page</u>
I. General	
A. Weather Conditions.....	1
B. Habitat Conditions.....	2
1. Water.....	2
2. Food and Cover.....	3
II. Wildlife	
A. Migratory Birds.....	3
B. Upland Game Birds.....	19
C. Big Game Animals.....	19
D. Fur Animals, Predators, Rodents, and Other Mammals.....	20
E. Hawks, Eagles, Owls, Crows, Ravens, and Magpies.....	21
F. Other Birds.....	21
G. Fish.....	21
H. Reptiles.....	22
I. Disease.....	22
III. Refuge Development and Maintenance	
A. Physical Development.....	22
B. Plantings.....	22
C. Collections and Receipts.....	23
D. Control of Vegetation.....	23
E. Planned Burning.....	23
F. Fires.....	23
IV. Resource Management	
A. Grazing.....	23
B. Haying.....	23
C. Fur Harvest.....	23
D. Timber Removal.....	24
E. Commercial Fishing.....	24
F. Other Uses.....	24
V. Field Investigation or Applied Research	
A. Wood Duck Management Studies	24
B. Wood Duck Banding	24
C. Waterfowl Hunter Bag Checks	25
D. Vegetative Transects	25
E.	25
VI. Public Relations	
A. Recreational Uses.....	26
B. Refuge Visitors.....	27
C. Refuge Participation.....	28
D. Hunting.....	29
E. Violations.....	30
Bag Check Summary	31
F. Safety.....	32
VII. Other Items	
A. Items of Interest.....	32
B. Photographs.....	34
C. Signature.....	50

I. GENERAL

A. Weather Conditions

MONTH	Precipitation			Temperature			
	Total	Normal	Snowfal	Max.	Min.	Mean	Normal
						Av.	Mean Av.
January	2.70	1.83	11.7	45	-17	16.1	19.2
February	1.06	1.44	5.2	55	-21	19.1	22.0
March	3.81	2.76	19.5	50	0	24.2	31.9
April	6.92	3.08	trace	79	28	45.4	46.9
May	6.30	4.22	-	85	31	61.3	58.1
June	1.68	4.21	-	92	46	66.5	67.9
July	4.82	3.51	-	97	51	72.1	72.6
August	8.33	3.73	-	90	44	68.4	70.5
September	15.46	3.74	-	85	37	60.2	61.7
October	3.83	2.74	-	78	28	50.9	50.7
November	3.18	2.59	.1	67	14	37.4	34.8
December	3.33	1.90	4.2	58	3	31.1	23.5
Annual							
Totals	61.42	35.75	40.7	97	-21	46.1	46.7

Weather Station: U.S. Weather Bureau, Dubuque, Iowa

This was a year of moisture with the big flood coming in April and then the heavy rains of August and September. Only two months in the entire year were below the average for total moisture, February and June. August and September had a total of nearly 24 inches which is over 16 inches more than normal for these two months.

Temperature wise it was an average year with only March being significantly colder and December being significantly warmer than normal.

B. Habitat Conditions
1. Water

POOL LEVELS

Pool No. 11 at Guttenberg, Iowa Normal: 604.50

MONTH	HIGHEST LEVEL	LOWEST LEVEL	AVERAGE LEVEL	DATES OF HIGH LEVEL	DATES OF LOW LEVEL
January	4.52	3.42	3.86	9	1
February	5.84	3.46	4.60	12	4
March	11.68	5.10	7.94	7	1
April	23.62	6.26	16.36	25	1
May	20.92	11.54	14.08	1	31
June	11.76	7.69	10.64	9	30
July	7.26	4.20	5.76	1	30
August	5.22	3.77	4.35	10	25
September	9.17	4.09	6.08	30	5
October	9.90	6.43	8.28	3	31
November	6.56	5.13	6.00	1	30
December	10.08	5.23	7.46	21	1

Gauge reading: 8 AM tailwater reading, Lock & Dam 10, Guttenberg, Iowa

The high pool levels especially for March through June speak for themselves. The high reading of 23.62 in April was for the tailwater readings at L&D 10, Guttenberg, Iowa while here at Cassville we had a peak of 24.1 feet (see special write-up and comparison of previous flood highs in items of interest section). Actually the pool levels were well above normal almost the entire year with other significant highs in September, October and December.

The flood in April was very slow to recede and we still had very high waters well into June. This prevented the planting of many of the farm fields and also the planned drawdown of Big Pond. As Big Pond couldn't be lowered as desired it was decided to keep as much water on it as possible all summer and in this way attempt to control the undesirable vegetation.

2. Food and Cover

A total of 33.1 acres of standing corn and 10 acres of millet were left in the field as the refuge share of the co-operative farming program. This food was heavily used by deer during the winter and by waterfowl both before and after the flood.

Aquatics although held back somewhat by the deep water of the flood made a valiant effort to get to the surface and in some cases made it while the water was as much as eight feet above normal. The flood though causing havoc with man made objects did little actual damage to the vegetation of the area. In a few places it spread a layer of sand over vegetation and choked it out but in other places it helped spread aquatics to new areas. Lotus (*Nelumbo lutea*) didn't seem to be affected much and is still making steady progress in its bid to completely take over many areas. Arrowhead (*Sagittaria* spp.) and Rice-cutgrass (*Leersia oryzoides*) didn't seem to be affected too much by the flood but long-leaf Pondweed (*P. americanus*) and Smartweed (*Polygonum* spp.) came up in numerous places where it had not been recorded previously.

Only about 80 out of 216 acres of refuge farm land was planted this year due to the flood, however, the affect of this short crop won't show up until the late winter and the spring migration when the crop left in the field receives its heaviest use.

II WILDLIFE

A. Migratory Birds

1. Waterfowl

Ducks: Golden-eye, bufflehead, mallard and mergansers made up the approximately 300 birds spending the winter in this district. The opening week in March saw the first sign of a migration when a few divers started showing up. Then the third week in March showed another moderate influx of divers but it wasn't until the first week in April that the dabblers started to move in and then only in moderate numbers. The major part of the migration came through during the second and third weeks of April when as many as 45,000 scaup were on the area along with 5 to 7 thousand mallard and a scattering of golden-eye and baldpate and about 1,000 ring-necks.

Then along came the real migration going the opposite direction, but it was waterfowl with the fowl left off. The big flood inundated the entire river bottoms and a considerable amount of the higher lands.

By the first week of May the migration was about over except for about 2,500 scaup which hung on for another week then started to dwindle away until all had left by the end of May.

Migratory Birds.....continued

The summer population of this area is made up almost exclusively of wood ducks with a few mallards and blue-winged teal scattered here and there.

Due to the flood and the manager being away to The Refuge Managers Training School for five weeks, the wood duck roost flight counts were not accomplished. How conclusive the data would have been even if obtained is questionable due to the unusual amounts of water in the area thereby causing the flight paths to be changed considerably.

Wood duck production on the district was approximately 900 birds. This is down nearly 10 percent from last year and about 15% down from the previous five year average. Mallard and blue-winged teal nesting is only occasional on this district with possibly 25 of each being produced each year.

Early fall migrants had started to drift into the area by the first week of September but migration this year was very spread out with approximately 7-8 thousand ducks in the area for nearly 3 straight months and no real peak to the movement. This was at least particularly due to the mild fall with no cold snap to start the flight moving.

Please refer to tables numbered 1 through 9 for further information on ducks.

Geese: Please refer to tables 10 & 12 and comments thereon.

Coots: Please refer to tables 10 & 12 and comments thereon.

Swans: Please refer to tables 10 & 12 and comments thereon.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE
 Refuge: Cassville District, Upper Miss. River
 Period: January - April, 1965

Species	Peak Numbers		Percent of Change		Peak Dates*		TOTAL DUCK DAYS USE		Percent of Change	
	1964	1965	Decrease	Increase	19 64	19 65	19 64	1965	Decrease	Increase
Mallard	13,500	7,000	48		4/4	4/17	215,220	125,065	42	
Black	220	350		59	4/4	4/17	5,109	5,840		14
Gadwall	175	100	43		3/28	4/17	3,550	1,500	58	
Baldpate	525	2,000		100%	4/4	4/17	12,600	19,150		52
Pintail	850	300	65		4/4	4/17	21,000	3,150	85	
G.w. teal	500	750		50	4/11	4/17	7,557	4,900	35	
B.w. teal	450	1,000		100%	4/11	4/17	10,700	13,650		28
Shoveler	150	500		100%	4/25	4/17	3,175	7,740		100%
Wood duck	950	300	68		4/25	5/1	35,150	7,520	79	
Redhead	250	300		20	3/14	4/10	5,825	5,230	10	
Ring-neck	1,100	1,000	9		4/4	4/10-17	20,575	19,675	4	
Canvasback	135	200		48	3/28	3/20	3,635	8,600		100%
L. scaup	33,000	45,000		36	4/4	4/10	510,650	887,100		74
Golden-eye	450	2,000		100%	3/28	4/10	15,055	64,995		100%
Bufflehead	200	500		100%	4/4	4/10	9,320	11,450		23
Ruddy	175	30	83		3/21	3/20	3,370	620	82	
Mergansers	385	2,250		100%	3/28-4/4	4/10	15,684	74,155		100%
Old squaw										
Scoters										
Unident.										
TOTALS	52,170	57,950		11%	4/4	4/10	898,175	1,260,340		40%

*Week ending.

Comments: Peak numbers show a moderate increase over last year but the total days use is up 40% mostly due to the increase in scaup numbers and their staying for a longer period of time. Mallards, gadwall, pintail, and wood ducks were down considerably with baldpate, golden-eye and mergansers showing significant gains.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE
 Refuge: Cassville District, Upper Miss. River
 Period: May - August, 1965

Species	Peak Numbers		Percent of Change		Peak Dates*		TOTAL DUCK DAYS USE		Percent of Change	
	1964	1965	Decrease	Increase	1964	1965	1964	1965	Decrease	Increase
Mallard	900	850	6		8/29	8/28	31,425	26,050	17	
Black	75	75		-	8/29	8/28	525	675		29
Gadwall										
Baldpate	150	25	83		8/29	5/8	1,000	150	85	
Pintail	200	50	75		8/29	8/28	1,575	250	84	
G.w. teal	250	20	92		8/15	5/8	3,805	150	96	
B.w. teal	950	350	63		8/9	5/21	17,925	13,835	23	
Shoveler	50	50	-	-	5/9	5/8	200	300		50
Wood duck	2,200	2,450		11	8/22-29	8/28	189,800	159,100	16	
Redhead										
Ring-neck	10	25		100%	5/9	5/8	50	750		100%
Canvasback										
L. scaup	250	2,500		100%	5/16	5/8&15	4,955	25,500		100%
Golden-eye		20		100%		5/8		100		100%
Bufflehead		25		100%		5/8		125		100%
Ruddy										
Mergansers	2	30		100%	5/23	5/8	11	505		100%
Old squaw										
Scoters										
Unident.										
TOTALS	4,675	3,990	15%		8/29	5/8	251,271	227,490	9%	

*Week ending.

Comments: In general the divers increased for this period due to them staying on later in the spring and the dabblers showed a general decrease probably due mostly to the flood and its affect on the distribution of the birds.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Cassville District, Upper Miss. District

Period: September - December, 1965

Species	Peak Numbers		Percent of Change		Peak Dates*	TOTAL DUCK DAYS USE		Percent of Change	
	1964	1965	Decrease	Increase		1964	1965	Decrease	Increase
Mallard	17,000	7,000	59		11/28: 12/11	308,300	243,000	21	
Black	1,100	400	64		11/28: 11/29&27	20,100	14,850	26	
Gadwall	150	350		100%	9/19-10/10-10/13&23	6,850	10,725		57
Baldpate	1,500	2,200		47	10/3&17 10/9	55,925	67,470		21
Pintail	900	700	22		10/17: 10/23	39,700	24,350	39	
G.w. teal	1,600	1,200	25		10/31: 10/2	51,400	27,625	46	
B.w. teal	2,000	1,600	20		9/19: 10/2	87,615	38,825	56	
Shoveler	400	100	75		11/14: 10/2	11,800	3,250	72	
Wood duck	2,200	2,600		18	10/10: 10/23	113,350	154,225		36
Redhead	350	500		43	11/14: 10/30	9,850	13,300		35
Ring-neck	600	350	42		11/14: 10/30	18,800	11,200	40	
Canvasback	250	400		60	11/14: 11/27	6,520	9,000		38
L. scaup	600	500	17		11/14: 11/6-20	19,700	17,100	13	
Golden-eye	300	600		100	11/28: 12/11	9,550	14,700		54
Bufflehead	125	250		100	11/28: 12/11-18	4,625	7,750		68
Ruddy	0	50		100%	- 10/9-30	0	1,500		100%
Mergansers	250	1,000		100%	12/5: 12/18	4,970	16,570		100%
Old squaw									
Scoters									
Unident.									
TOTALS	20,005	9,365	53.19%		11/28: 12/11	769,055	675,440	12.18%	

*Week ending.

Comments: Peak numbers were well down this year as a mild fall allowed a gradual migration without any really high peaks. The total duck days use was down also but not nearly as much as peak numbers.

PERCENTAGE COMPOSITION BY SPECIES OF TOTAL DUCK DAY USE

Refuge: Cassville District, Upper Miss. River

Period: January - April, 1965

	Percent of total duck day use						
	1963		1964		1964		
Species	% of use	Order	% of use	Order	% of use	Order	
Mallard	29.5	2	24.0	2	9.92	2	
Black duck	1.2	10	0.6	13	.46	12	
Gadwall	0.5	14	0.4	15	.12	16	
Baldpate	3.0	7	1.4	8	1.52	6	
Pintail	1.4	9	2.4	4	.25	15	
G.w.teal	0.6	13	0.8	11	.39	14	
B.w.teal	3.0	8	1.2	9	1.08	7	
Shoveler	0.3	15	0.4	17	.61	10	
Wood duck	9.2	3	3.9	3	.60	11	
Redhead	0.6	11	0.6	12	.41	13	
Ring-neck	6.3	4	2.3	5	1.56	5	
Canvasback	0.2	16	0.4	14	.68	9	
Lesser scaup	30.4	1	56.9	1	70.34	1	
Golden-eye	5.4	6	1.7	7	5.15	4	
Bufflehead	0.6	12	1.0	10	.91	8	
Ruddy	0.2	17	0.4	16	.05	17	
Mergansers	5.7	5	1.7	6	5.88	3	
Old squaw							
Scoters							

Comments: Scaup as usual hold down the number one spot for total days use for this period, however, this year they do so by a much greater margin than in pervious years. Mallards again held the number two spot but with a much smaller percentage than previously. The third spot was taken over by mergansers which increased considerably as they stayed around in greater numbers for a much longer time this spring. Wood ducks the normal number three spot holder dropped clear to number eleven as they didn't move in until much later than normal and then only gradually.

PERCENTAGE COMPOSITION BY SPECIES OF TOTAL DUCK DAY USE

Refuge: Cassville District, Upper Miss. River

Period: May - August, 1965

Species	Percent of total duck day use							
	1963		1964		1965			
	% of use	Order	% of use	Order	% of use	Order	% of use	Order
Mallard	13.8	2	12.5	2	11.45	2		
Black duck	-	-	0.2	8	.29	6		
Gadwall	-	-	-	-	-	-		
Baldpate	1.8	6	0.4	7	.07	10		
Pintail	0.1	9	0.6	6	.11	9		
G.w.teal	0.3	7	1.5	5	.07	11		
B.w.teal	10.6	3	7.1	3	6.08	4		
Shoveler	2.1	5	0.1	9	.13	8		
Wood duck	62.2	1	75.9	1	69.92	1		
Redhead	-	-	-	-	-	-		
Ring-neck	0.1	8	0.1	10	.33	5		
Canvasback	4	-	-	-	-	-		
Lesser scaup	9.2	4	2.0	4	11.21	3		
Golden-eye	-	-	-	-	.04	13		
Bufflehead	-	-	-	-	.05	12		
Ruddy	-	-	-	-	-	-		
Mergansers	-	-	0.1	11	.22	7		
Old squaw	-	-	-	-	-	-		
Scoters	-	-	-	-	-	-		

Comments: Wood ducks again held nearly three quarters of the total days use for this period with mallards again in second place. Scaup moved up to third place due to their staying later in the spring than usual and blue-winged teal were pushed down to Number 4. The numbers of other species is so small as to be almost insignificant.

PERCENTAGE COMPOSITION BY SPECIES OF TOTAL DUCK DAY USE

Refuge: Cassville District, Upper Miss. River

Period: September - December, 1965

Species	Percent of total duck day use							
	1963		19 64		19 65			
	% of use	Order	% of use	Order	% of use	Order		
Mallard	34.3	1	40.1	1	36.0	1		
Black duck	1.5	9	2.6	7	2.2	9		
Gadwall	0.9	12	0.9	13	1.6	13		
Baldpate	6.0	5	7.3	4	10.0	3		
Pintail	3.2	6	5.2	6	3.6	6		
G.w.teal	1.8	7	6.7	5	4.1	5		
B.w.teal	11.2	4	11.4	3	5.7	4		
Shoveler	1.2	10	1.4	10	0.5	16		
Wood duck	19.3	2	14.6	2	22.8	2		
Redhead	0.4	15	1.3	11	2.0	11		
Ring-neck	1.0	11	2.5	9	1.7	12		
Canvasback	0.1	16	0.9	14	1.3	14		
Lesser scaup	16.2	3	2.6	8	2.5	7		
Golden-eye	1.6	8	1.2	12	2.2	10		
Bufflehead	0.7	13	0.6	16	1.1	15		
Ruddy	0.1	17	-	-	0.2	17		
Mergansers	0.5	14	0.7	15	2.5	8		
Old squaw								
Scoters								

Comments: Mallards and wood ducks retained their numbers one and two ranking again this year but baldpate moved up to third while, blue-winged teal went down to the number four spot. Mergansers although still claiming only a small percentage of the total days use, moved up from fifteenth to eighth.

WEEKLY DUCK POPULATIONS AND PEAK NUMBERS

Refuge: Cassville District, Upper Miss. River

Period: January - April, 1965

Week of period:	19 61	:	19 62	:	19 63	:	19 64	:	19 65
1	159	:	115	:	10	:	125	:	123
2	144	:	100	:	10	:	105	:	372
3	215	:	75	:	45	:	105	:	320
4	243	:	100	:	40	:	116	:	295
5	150	:	107	:	35	:	102	:	300
6	150	:	112	:	125	:	125	:	330
7	130	:	112	:	115	:	299	:	345
8	140	:	112	:	100	:	304	:	380
9	1,305	:	110	:	175	:	334	:	525
10	1,725	:	108	:	175	:	1,835	:	510
11	9,670	:	88	:	330	:	2,185	:	5,613
12	27,700	:	650	:	1,995	:	3,865	:	6,105
13	85,500*	:	27,135	:	8,225	:	11,040	:	13,610
14	84,800	:	22,675	:	9,125*	:	52,170*	:	51,950*
15	69,475	:	26,375	:	3,580	:	36,170	:	53,300
16	46,275	:	54,510*	:	4,150	:	24,675	:	28,200
17	12,290	:	42,400	:	1,665	:	9,405	:	15,050
18	-	:		:		:	3,290	:	
TOTAL DAYS USE:	2,380,497	:	1,248,688	:	209,300	:	898,175	:	1,260,340

*Indicates peak concentration.

COMMENTS: The use of the districts by weeks also shows the slightly larger numbers of ducks staying over the winter plus the effect of the larger numbers of scaup, mergansers and golden eye using the district for a longer period of time. This years figure is about 160,000 days use above the previous five year average.

WEEKLY DUCK POPULATIONS AND PEAK NUMBERS

Refuge: Cassville District, Upper Miss. River
 Period: May - August, 1965

Week of period:	1961	:	1962	:	1963	:	1964	:	1965
1	3,320*	:	11,635*	:	1,950	:	2,160	:	3,990*
2	1,275	:	2,280	:	1,500	:	1,450	:	3,825
3	775	:	765	:	1,650	:	1,402	:	1,240
4	495	:	775	:	1,600	:	1,330	:	1,035
5	495	:	790	:	1,650	:	1,415	:	995
6	495	:	835	:	1,975	:	1,525	:	1,020
7	545	:	805	:	2,325	:	1,635	:	1,090
8	670	:	795	:	2,615	:	1,935	:	1,285
9	670	:	835	:	2,750	:	2,080	:	1,495
10	930	:	850	:	2,960	:	2,205	:	1,690
11	930	:	855	:	3,130	:	2,346	:	1,850
12	1,100	:	935	:	3,275	:	2,470	:	2,070
13	1,325	:	1,115	:	3,330	:	2,540	:	2,220
14	1,350	:	1,310	:	3,380	:	2,675	:	2,430
15	1,565	:	1,710	:	4,285	:	3,316	:	2,775
16	2,215	:	2,000	:	3,985	:	3,670	:	3,075
17	2,440	:	2,180	:	4,185	:	4,675*	:	3,680
18	2,615	:	2,305	:	4,310*	:	-	:	-
TOTAL DAYS USE:	161,092	:	229,425	:	355,985	:	251,271	:	227,490

*Indicates peak concentration.

COMMENTS: Weekly duck population and peak numbers show a slight reduction over last years, but are almost exactly equal to the previous five-year average.

WEEKLY DUCK POPULATIONS AND PEAK NUMBERS

Refuge: Cassville District, Upper Miss. River

Period: September - December, 1965

Week of period:	1961	:	1962	:	19 63	:	19 64	:	19 65
1	6,365	:	2,830	:	4,325	:	5,775	:	3,430
2	8,425	:	3,305	:	5,480	:	6,045	:	3,775
3	7,475	:	6,025	:	6,400	:	6,500	:	5,200
4	9,775	:	6,200	:	9,550	:	7,225	:	7,015
5	5,250	:	7,125	:	7,350	:	7,575	:	7,610
6	10,050	:	8,250	:	7,500	:	8,850	:	7,920
7	9,875	:	9,750	:	6,535	:	8,625	:	8,050
8	7,850	:	11,420	:	8,555	:	9,475	:	7,360
9	11,575*	:	11,175	:	10,050	:	8,725	:	7,650
10	10,125	:	15,580	:	8,840	:	10,300	:	7,835
11	9,910	:	15,740*	:	5,550	:	11,860	:	8,385
12	8,125	:	12,740	:	5,155	:	14,825	:	7,160
13	6,025	:	13,110	:	21,725*	:	20,005*	:	7,720
14	2,400	:	1,750	:	11,630	:	980	:	4,725
15	875	:	900	:	4,870	:	750	:	9,365*
16	950	:	600	:	600	:	390	:	7,060
17	525	:	475	:	500	:	370	:	1,485
18	-	:	-	:	-	:	155	:	950
TOTAL DAYS USE:	807,325	:	888,825	:	872,230	:	769,055	:	675,440

*Indicates peak concentration.

COMMENTS: Peak numbers were down considerably from previous years, however, total days use was down only a moderate amount. This situation was due to the very gradual migration this fall which was spread out over a much longer period than is usual with no really significant peak periods.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Cassville District, Upper Miss. District

Period: January - April, 1965

Species	Peak Numbers		Per cent of Change		Peak Dates*		TOTAL DAYS USE		Per cent of Change	
	1964	1965	Decrease	Increase	1964	1965	1964	1965	Decrease	Increase
Canada geese (lg.)	150	350		100%	3/4&28	4/17	4,467	4,792		7
Cackling										
White-fronted										
Snow	-	75		100%		3/20	-	250		100%
Blue	-	75		100%		3/20	-	250		100%
TOTALS	150	350		100%	3/14&28	4/17	4,467=	5,292		18%

Comments: More Canada geese were observed at any one time on the area this year, but they stayed for a much shorter time. A few blues & snows were also observed this year.

Coot	2,100	3,000		43	4/18	4/17-24	65,175	71,000		9
Florida gallinule										
W. Swans	29	40		38	3/28-4/21	4/10	200	440		100%

Comments: Coots and swans were both up over last year with as many as 40 swans observed at one time in the large pool below Potosi.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Cassville District, Upper Miss. Refuge

Period: May - August, 1965

Species	Peak Numbers		Per cent of Change		Peak Dates*		TOTAL DAYS USE		Per cent of Change	
	1964	1965	Decrease	Increase	1964	1965	1964	1965	Decrease	Increase
Canada geese (lg.)	:	:	:	:	:	:	:	:	:	:
Cackling	:	:	:	:	:	:	:	:	:	:
White-fronted	:	:	:	:	:	:	:	:	:	:
Snow	:	:	No geese this period 64 or 65				:	:	:	:
Blue	:	:	:	:	:	:	:	:	:	:
TOTALS	:	:	:	:	:	:	:	:	:	:

Comments: No geese spend the summer on this district.

Table No. 11

Coot	:	375	:	800	:	100%	:	8/29	:	5/1	:	7,055	:	7,350	:	4
Florida gallinule	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:

Comments: Some coot stayed on a little later in the spring giving the increase in peak numbers but the total days use was about the same.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Cassville District, Upper Miss. River

Period: September - December, 1965

Species	Peak Numbers		Per cent of Change		Peak Dates*		TOTAL DAYS USE		Per cent of Change	
	19 64	19 65	Decrease	Increase	19 64	19 65	1964	1965	Decrease	Increase
Canada geese (lg.)	400	175	56		11/21	9/25	8,016	3,070	62	
Cackling	25		100		10/24		190		100	
White-fronted										
Snow	250	40	84		10/24	10/30	3,620	915	75	
Blue	300	50	83		10/24	10/30	3,730	965	74	
TOTALS	775	175	77		10/24	9/25	15,556	4,950	68	

Comments: Both peak numbers and total days use were down for all kinds of geese. There never are very many that use the district but this year there were even less than normal.

Table No. 12

Coot	9,000	12,000		33	10/24	10/30	380,800	298,500	22	
Florida gallinule										
Swan	7	15		100	11/28	12/4	28	85		100

Comments: Coot peak numbers were up some but total days use was down as it was later before the coot returned this year. Swan use is small and fluctuates considerably percentage-wise from year to year.

2. Other Water Birds

Egrets: The american egrets returned to this area the first week of April and gradually built up to a peak number of 200 by the end of July. For some unknown reason this entire population left the area the latter part of the second week of August which is two months earlier than they normally leave and none were observed until the 1st week of September when a few were noted. The population built up until about 75 were observed the middle of September and then declined again about the normal time for them to leave, the first or second week of October. Egrets seldom fly very high but one was observed flying like a large hawk, circling and climbing higher and higher, it was last observed at an estimated 7,000 feet and still attempting to go up.

Herons and Bitterns: Great blue herons started showing up the third week in March and quickly increased their numbers until 300 were present by the first of May. This population held throughout the summer, reduced some in the fall down to 230 the first week of September and then gradually decreased until all were gone by the middle of November. Black crowned night herons are observed in small numbers throughout the summer and little green herons are fairly common around here. Bitterns are occasionally observed here but only in very small numbers and not for any length of time.

Grebes: Pied-billed grebes are usually observed in moderate numbers in the spring and fall. This fall the population was approximately 100 birds which is lower than normal and the spring migration was not recorded this year due to the absence of the manager.

Cormorants: Cormorants are usually observed in both the spring and fall in small numbers usually numbering between 10 and 30 birds.

Gulls and terns: Ring-billed gulls were observed in both the spring and fall with the population building up to a peak of 3,000 the 2nd week of April then dropping to 0 by the middle of May. They started to return by the middle of July and built up to a peak of 850 by the middle of September then gradually decreasing until only 50 were left at the end of the year. Herring gulls were noted about the same time as the peak of the ring-bill's population but in much smaller numbers, 150 in the spring and 250 in the fall. Common and black terns were observed both spring and fall with peak numbers of about 60 & 30 birds, respectively. Caspian terns are seldom observed but this year was an exception when about 60 showed up the middle of September then declined until none were present by the second week of October.

Pelicans: None observed this year.

Rails: None were observed this year but undoubtedly there were a scattered few on the district at times.

3. Shorebirds

Common snipe: Snipe are present both spring and fall with a peak population of 110 and 200 respectively. They are here for only a relatively short time in the spring but are around from the first of September to the middle of November in the fall.

Other shore birds: Killdeer, spotted sandpiper and greater and lesser yellow-legs are present on the district during the summer. Killdeer and spotted sandpipers are relatively common but yellow-legs especially the greater are not too common.

4. Doves

No morning doves overwintered on this district as they sometimes do but they started arriving the second week of March and were still here in substantial numbers at the end of the year (40 or 50). The summer population peaked at about 150 birds and seem to be increasing as of late.

Refuge: Cassville District, Upper Miss. River
Period: Calendar Year 1965

B. Upland Game Birds

SPECIES	: POPULATION: YOUNG	: NUMBER : GREATEST	: TAKE: LOSS: POPULATION
	: JAN. 1 : PRODUCED: STOCKED: NO. PRESENT:		: : DEC. 31
Ring-necked:	:	:	:
pheasant :	5 :	5 : 0 :	12 : 2 : 5 : 5
Ruffed	:	:	:
grouse :	10 :	10 : 0 :	20 : 4 : 1 : 15
Bob-white	:	:	:
quail :	20 :	15 : 0 :	20 : 0 : 15 : 20
Gray	:	:	:
partridge:	0 :	0 : 0 :	0 : 0 : 0 : 0
Wild	:	:	:
turkey :	0 :	0 : 0 :	0 : 0 : 0 : 0

Upland game is relatively scarce in the river valley with only an occasional pheasant observed. Ruffed grouse also are seldom seen in the bottoms or on the islands. There is one covey of quail in the Turkey River Bottoms.

C. Big Game Animals (White-tailed deer)

POPULATION: YOUNG	: GREATEST	: HUNTER: LOSSES: POPULATION
JAN. 1 : PRODUCED: NO. PRESENT: TAKE :		: DEC. 31
55	40	80
	25	5
		30

White-tailed deer never came back into the bottoms after the flood in the numbers that were here before it. This along with the mild weather and no snow made for a very light kill this hunting season. Hunting pressure including bow hunting was also down from previous years due to the lack of deer.

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Refuge: Cassville District, Upper Miss. River
Period: Calendar Year 1965

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

SPECIES	: POPULATION: YOUNG : GREATEST : : CON-: : POPULATION
	: JAN. 1 : PRODUCED: NO. PRESENT: TAKE : TROL: LOSS : DEC. 31
Muskrat	: 1,100 : 6,000 : 7,000 : 6,500 : 0 : 1,000 : 1,000
Mink	: 205 : 60 : 240 : 45 : 0 : 40 : 175
Beaver	: 280 : 150 : 300 : 50 : 0 : 20 : 270
Otter	: 22 : 25 : 35 : 9 : 0 : 10 : 32
Raccoon	: 500 : 900 : 1,200 : 700 : 15 : 200 : 500
Red Fox	: 290 : 400 : 550 : 160 : 0 : 250 : 250
Gray Fox	: 0 : 0 : 0 : 0 : 0 : 000 : 0
Skunk	: 20 : 30 : 45 : 20 : 2 : 20 : 20
Cottontail: Rabbit	: 170 : 300 : 350 : 30 : 0 : 250 : 170
Opossum	: 300 : 500 : 600 : 80 : 8 : 300 : 300
Gray & Fox: Squirrels:	: 850 : 1,600 : 2,300 : 500 : 0 : 800 : 1,000
Woodchuck	: 18 : 15 : 25 : - : 0 : 12 : 15
Badger	: 4 : 4 : 6 : - : 0 : 2 : 4
	: : : : : : : :

The 1965-66 trapping season is not complete as yet as Wisconsin still has their spring beaver and otter trapping but only east of the CB&Q railroad tracks. From the number of tags sold and the scattered returns that are in, it looks like the take will be down considerably from previous years. Probably the main reason in this pool is that the river level came up 5 to 6 feet above normal about the time the trapping was getting started. This discouraged many trappers as their pet spots were flooded out. Mink are even more scarce than before and there take will probably be down considerably.

Raccoons survived the flood easily and are numerous as ever, hunting and trapping kill was moderate. The red fox kill is up sharply, mainly due to the increase in fur prices from a couple of dollars up to 5 and even 7 dollars for good furs. The cottontail population, low before the flood was pushed down even further.

E. Hawks, Eagles, Owls, Crows, Ravens, and Magpies

Hawks: Red-tailed, red-shouldered and rough legged hawks are all year around residents of this area with populations of from 5 to 15 of each. The only real change from this is the spring and fall red-tail migration which sometimes raises the numbers present to between 20 and 30. This years spring red-tail migration started on February 5th and lasted about two weeks. Marsh hawks between 8 and 10 in numbers spend from early spring to late fall on the district but do not winter-over here. Night hawks are also observed during the summer but only in small numbers except once in a while during a migration when possibly 30 or 35 birds will be observed at one time.

Eagles: A Golden eagle is occasionally observed in this area, however the bald eagle is a common winter resident. They take advantage of the water kept open by the two local power plants plus the fast water at Ackermans Cut which never seems to freeze over. This years population never reached the high peak like it did last year but we had a constant 60 to 75 eagles all winter until the latter part of March when they started to move north and had all left the area by the last week of April.

Owls: Great horned, barred and screech owls are heard and occasionally observed the entire year with populations of from 5 to 20 of each being normal.

Crows: Common year around residents with a peak fall population this year of 1,200 birds.

Vultures: The turkey vulture is a common summer resident staying near the heron rookeries to pick up the fish they drop and also any young that die and are pushed out of the nest. Their summer peak is around 50 birds with lower numbers in both early spring and late fall.

F. Other Birds

Osprey: Osprey are occasionally observed in the fall but usually only 2 or 3 birds, however this year we had a peak of 18 and as many as 8 to 10 birds for better than a month from the second week of September through the second week of November.

Robins: A few robins stayed in the area most of the winter which is unusual for this area.

G. Fish

Fishing this year got a late start due to the flood but was very good this psring and quite good throughout the year. Some of the best catches are made in the winter through the ice when crappies, bluegills and sunfish are easily taken.

H. Reptiles

Numerous species were observed but nothing of unusual significance.

I. Disease

No outbreaks observed.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

After the mighty spring flood there was much to be replaced and repaired. The major item was a new warehouse for the district. A 28 x 56 Armco all metal building with 4- 12 foot overhead doors. It seems to be an excellent building and was badly needed. (See photo section for pictures of old and new warehouse). A 550 gallon underground tank and an electric pump was installed at the new refuge warehouse site at no cost to the service. The local DX distributor put it in for us.

A lot of work was necessary to replace many of the boundary and landing signs lost in the flood. Also all of the litter signs on the beaches and landings had to be replaced.

We made use of the Neighborhood Youth Corps to do much of our clean up work. They put in nearly 6,000 hours on such jobs as picking up trash, tearing down washed in shanties etc., brushing out boundaries and removing willows and trash from the sand bars.

Willows were cleared in places from the old closing dam to facilitate fishing and 2-4D was put on cut stubs to prevent re-growth.

Our annual anti-litter patrol was held on June 27, but was only partly successful as high winds and forecast of showers kept the number of river users down. Forty-six groups totaling 181 individuals were contacted and asked for their support in helping keep the river clean.

B. Plantings

1. Aquatic and Marsh Plants

The flood and lingering high waters prevented any planned draw-downs and subsequent plantings of waterfowl foods.

2. Trees and Shrubs

None

3. Upland Herbaceous Plants

None

Plantings.....continued

4. Cultivated Crops

The flood prevented much of the crop land from being farmed but we did get in 65 acres of corn and 15 acres of millet. Some of this was planted as late as the middle of July and still gave a pretty good crop.

C. Collections and Receipts

1. Seed and other Propagules

None

2. Specimens

A few confiscated ducks were turned in to sent to Patuxent for age studies.

D. Control of Vegetation

None was accomplished as continued high water after the flood prevented a program planned to break up the solid bed of saggettaria spp. in the Big Pond.

E. Planned Burning

None

F. Fires

We finally found something that the flood is good for. No trouble with fires as most of the refuge was under water during the normally dangerous time of the year.

IV. RESOURCE MANAGEMENT

A. Grazing

None

B. Haying

None

C. Fur Harvest

A better than average number of trapping permits were sold again this year as prices were good last year and the forecast was for good prices this year. This prediction held up pretty well with \$1.50 being about the average price for good rats. Trapping days were down however, as shortly after the season opened we had quite a large fall water rise and this drove out all but the hardiest and best trappers.

Fur Harvest.....continued

Iowa's beaver season was poor because of high water and Wisconsin's season doesn't open until late in the winter.

Red Fox pelts which in past years were worth only a dollar or two were going for five to seven dollars each. Naturally this had a tendency to stimulate fox trapping and hunting.

D. Timber Removal

One permit issued by the Corps of Engineers was worked this year and completed. The logging was from an island and the company went back to an old method of hauling logs to market. They cabled them into large "Balls" and used a tug to float them from Cassville, Wisconsin down to Savanna, Illinois.

E. Commercial Fishing

The spring flood held up commercial fishing for quite a long time this spring and the following high waters didn't help any either. Therefore the commercial fisherman had a rather rough year even though fishing was pretty good after the waters went back down.

F. Other Uses

None

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Wood Duck Management Studies

All wood duck boxes were cleaned and new litter put in them as they emerged from the flood waters but by then most of the wood ducks had already nested.

The wood duck flight counts were not made this year as the manager was at the Refuge Managers Training School for 5 weeks during the time of the count, and the flood waters prevented other personnel from making the count. Actually they probably would have been of little value as the flood broke up the normal pattern of the wood ducks habits.

The roost flight counts this fall gave about the normal population in the Wisconsin roosts as they didn't have the blue-winged teal season. However, in Iowa the counts were to be made just at the close of the special season and since most of the roosts are in open hunting areas the wood ducks were not returning normally. Many seemed to come in very late, well after dark and were impossible to count.

B. Wood Duck Banding

Our wood duck banding was again successful with 984 birds banded.

Wood Duck Banding.....continued

Eight hundred thirty-seven of these were wood ducks and the rest were broken down in the table below. The usual difficulties with predators and fluctuating water levels were encountered but pretty well overcome.

		<u>IF</u>	<u>IM</u>	<u>AF</u>	<u>AM</u>	<u>LF</u>	<u>LM</u>	<u>L?</u>
Wood ducks	837	322	438	17	41	-	3	16
Blue-winged teal	11	3	7	-	1	-	-	-
Mallard	124	48	70	2	4	-	-	-
Pintail	4	1	1	-	2	-	-	-
Black	7	1	6	-	-	-	-	-
Merganser	<u>1</u>	-	1	-	-	-	-	-
Total	984							

Something that I have never encountered before cropped up this year. Many of the birds seemed extremely weak when removed from the traps and couldn't fly away, also a few were found dead with no sign of physical injury. The water temperature was 62° F and although there were some rains this also happened on clear days. Traps were being run both morning and evening and we still had trouble. We checked for oil on feathers and couldn't detect any. I thought they possibly were getting into some sort of wetting agent or detergent but in talking to others trapping on the river, they were having the same trouble 150 miles north of my area so it would have to have been a general pollution. I took numerous birds back to my garage and kept them overnight in a dark pen and almost always they were strong and healthy the next morning so possibly it was just exhaustion from trying to escape.

C. Waterfowl Hunter Bag Checks

Bag checks were down this year as hunting was down 50% on my area. Please refer to bag check summary, Page 30.

D. Vegetative Transects

Bill Green was too busy to make the vegetative transects on my district this year. I did however, make a rough check of the area and took photo's to keep this part up to date. The rough check was made by estimate only as it is difficult to hold both ends of the chain when the water and mud is nearly over your head.

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VI. PUBLIC RELATIONS

A. Recreational Use

1965	FISHING	MISCEL- LANEOUS	HUNTING			TOTAL DAYS USE
			DUCKS	DEER	OTHER	
Spring	11,515	825	0	0	90	12,430
Summer	33,400	25,200	0	0	0	58,600
Fall	17,700	8,135	3,690	341	855	30,221
TOTAL DAYS USE	62,615	34,160	3,690	341	445	101,251

Five year average (1960-64), on total days use, Cassville District

Five year average:		1964	1965
Fishing:	57,895	62,610	62,615
Hunting:	4,376	7,091	4,476
Misc. use:	43,754	65,675	34,160
Totals:		135,376	101,251

Fishing days use was almost exactly the same as last year even though the flood kept them off the river for awhile. What was lost during the flood was made up by the heavier ice fishing during the late winter and the middle & late summer fishing. After the flood waters had subsided from the record breaking peak the fishing was better than normal for some time well on into the summer.

Hunting for ducks was down about 40% from last year due mostly to lack of birds. The hunting season was as usual to early for this part of the state and was over before the mallards really started to move in. Big game hunting was very poor in the river bottoms as some of the deer never returned to the bottoms after the flood this spring and those that did left the bottoms before the season opened. This along with no tracking snow made for poor hunting in general.

Miscellaneous use was down about 50% due to the spring flood and the water staying up over the swimming beaches well on into the summer. After this quite a few of the week-ends were rainy and cool, holding down the public use still more.

REFUGE VISITORS

Refuge: Cassville District, Upper Miss. River
 Period: 1965

DATE	PERSONS	PURPOSE
1/11/65	Terrance Ingram	Bald Eagle Work
1/11/65	Frank Ligas National Audubon Society	Bald Eagle Work
1/14/65	Aultfather with Gray R O Forester	Passing through, showed forestry map of area
3/1/65	Wesley Sander Soil Conservation Service	Follow up on Soil & Moisture Report
3/22/65	Ambrose Schwab	Railroad foreman about Dago Slough lease
6/8/65	Jake Schurman	Neighborhood Youth Corps work
6/25/65	Mr. Baker & 24 boyscouts, Dundee, Ill. Troop 35	Information on birds, banding & conservation
6/27/65	Ron Irish Wisconsin C D	Assist with annual anti-litter patrol
7/11/65	Monson & Trecker C.O. & R.O.	Look over recreation aspects & refuge
8/11/65	Charlie Scheffe	Easment for access to warehouse area
8/11/65	John Winship R.O. pilot	Flying district & photo's
9/8/65	Joe Rickey & Gray R.O. engineer	Laying out location of new warehouse
9/17/65	Charles Reding	Kruses gov't land across Railroad tracks
9/17/65	Brown & Wilkinson Corps of Engineers	Bertom lake landing development
9/29/65	Frank Martin & Gray	Refuge inspection
	Dr. J. J. David	Numerous occasions, Visiting
	WCD warden Valley & Kwallek	Numerous occasions, Law enforcement
	Boy scouts	Numerous occasions, Wildlife information
	Farm Co-operators & trappers	Information & trap tags

REFUGE PARTICIPATION

Refuge: Cassville District, Upper Miss. River
 Period: 1965

DATE	PERSONNEL	ACTIVITY
1/25	Bair	Showed movie to Boy Scouts
3/16	Bair	Talk and movie given to 4th thru 8th grade public school
3/23	Bair	Showed movie to Girl Scouts
3/28 4/30	Bair	Attended Refuge Manager Training School, Arden Hills
5/13	Bair	Attended Staff meeting Wyalusing State Park
6/14	Bair	Showed film to 22 Boy Scouts
6/16	Bair	Showed film to 45 at SW Wisconsin Veterinarian Club
6/27	Bair	Annual anti-litter patrol
7/21	Bair & Laib	Took Girl Scouts on nature tour identifying trees and birds
9/7	Bair	Attended meeting of Iowa wardens at Anamosa, Iowa
9/9	Bair	Attended staff meeting Wyalusing State Park, Wisconsin
10/11	Bair	Showed movie to Boy Scouts
10/25	Bair	" " " "
11/8	Bair	" " " "
11/22	Bair	" " " "
	Bair	Boy Scout meetings every week

D. Hunting

Big game gun hunting was poor on the district (see comments under table No. 13, Public Relations) with only about 20 deer being taken during the gun season. The Iowa gun season was almost a complete bust in the bottoms as a very heavy fog covered the area almost the entire season and visibility was down to a few feet most of the time. Wisconsin's season wasn't much better as a combination of lack of deer, no snow and warm weather in general made for poor hunting on the refuge.

Bow hunting was about as good as last year with 186 man days of hunting. The deer didn't leave the bottoms until just before the rifle season and about 5 or 6 were taken with the bow.

Very little upland game hunting is done on the refuge except for some raccoon and a little squirrel hunting. Squirrels particularly were plentiful as the flood had little affect on them.

Duck hunting was poor as the birds were pretty well spread out and weren't moving much. This and the general lack of hunters to help move the birds made for a small bag. (See UM 13 on next page). Anyone willing to work for his birds could get his limit almost any day of the season. The migration was very gradual with almost no peak at all and the largest movement of mallards was after the season had closed as usual in this area.

UM-

Cassville District
 Bag Check Summary of Species Taken
 Upper Mississippi River Wildlife and Fish Refuge
 Period: 1965

	::	1963	::	1964	::	1965
No. hunters checked	::	304	::	307	::	190
No. ducks checked	::	378	::	461	::	187
Average ducks per day	::	1.25	::	1.50	::	.98

Species	::	No.	:	%	::	No.	:	%	::	No.	:	%
Mallard	::	63	:	16.66	::	97	:	21.04	::	13	:	6.95
Black	::	1	:	.26	::	2	:	.43	::	2	:	1.07
Gadwall	::	-	:	-	::	1	:	.22	::	5	:	2.67
Baldpate	::	10	:	2.65	::	22	:	4.77	::	24	:	15.51
Pintail	::	4	:	1.06	::	9	:	1.95	::	7	:	3.94
G.w.teal	::	18	:	4.76	::	70	:	15.19	::	10	:	5.35
B.w.teal	::	115	:	30.42	::	98	:	21.26	::	9	:	4.81
Shoveller	::	3	:	.79	::	-	:	-	::	-	:	-
Wood duck	::	155	:	41.01	::	143	:	31.02	::	99	:	52.94
Redhead	::	-	:	-	::	1	:	.22	::	5	:	2.67
Ring-neck	::	-	:	-	::	13	:	2.82	::	4	:	2.14
Canvas-back	::	-	:	-	::	-	:	-	::	-	:	-
Scaup	::	7	:	1.85	::	2	:	.43	::	-	:	-
Golden-eye	::	-	:	-	::	-	:	-	::	-	:	-
Buffle-head	::	-	:	-	::	-	:	-	::	-	:	-
Ruddy	::	-	:	-	::	-	:	-	::	1	:	.54
Mergansers	::	2	:	.54	::	3	:	.65	::	2	:	1.07
Scoter	::	-	:	-	::	-	:	-	::	-	:	-
Old squaw	::	-	:	-	::	-	:	-	::	-	:	-

Hunters took ducks as follows:

4*	::	30	:	9.87	::	40	:	13.03	::	3	:	1.58
3*	::	31	:	10.15	::	36	:	11.73	::	2	:	1.05
2	::	52	:	17.15	::	55	:	17.92	::	38	:	20.00
1	::	62	:	20.39	::	83	:	27.03	::	93	:	48.95
0	::	129	:	42.44	::	93	:	30.29	::	54	:	28.42

Average ducks lost;		.15	::	.19	::	.32
* Aver. hrs. per day:		4.34	::	3.63	::	3.27
Aver. hrs. per duck:		3.48	::	2.42	::	3.32
Coot killed:		16	::	3	::	22
Gees e killed:		1	::	0	::	0

VIOLATION APPREHENSION SUMMARY

Refuge: Cassville District, Upper Miss. River
Period: 1965

[illegible]

F. Safety

I am glad to report that there were no accident involving refuge personnel again this year. Safety was continually stressed in memo's, at all refuge staff meetings and all safety reports were read as received. The Family Safety magazine we receive through the service was read by refuge personnel and at home. Newspaper articles were written for safe boating week and a thorough check was made of all our equipment including trailer lights, boat lights, life jackets and cushions, fire extinguishers and anti-skid material on all walking surfaces of each boat.

VII. OTHER ITEMS OF INTEREST

A. Items of Interest

The worst flood on record passed through the Upper Mississippi River Wildlife and Fish Refuge this spring. The official crest of 24.10 feet at Cassville, Wisconsin was reached on April 24. To show the significance of this figure, flat pool is 603.00 or 21.1 feet lower than the crest. The following table will give you some previous years crests and also an idea as to normal spring rises.

April	15,	1880	22.3	'
April	12,	1888	19.8	'
May	21,	1916	18.3	'
April	5,	1920	19.4	'
April	19,	1922	21.0	'
Sept.	20,	1938	18.8	'
April	21,	1951	20.32	'
April	2,	1963	15.38	'
May	21,	1963	15.56	'
May	20,	1964	14.15	'
April	24,	1965	24.10	'

The volume of water going by at the peak this year was 307,000 cubic feet per second, that is 138 million gallons per minute or almost 200 billion gallons of water every 24 hours.

The damage to my district was moderate compared to some areas, with most of the damage done to the access areas and the old warehouse. The warehouse is being scrapped as it was to be replaced either this year or next anyway. Big Pond dikes held except for one place on the upper structure near the inlet tube where a place 5 or 6 feet wide and 2½ feet deep washed out. All the crossings into the Dago Slough farm land were washed out, but a little bulldozer work will correct this situation.

I received considerable help in the cleanup operation by a federally sponsored "Neighborhood Youth Corps". Boys 16-22 were payed \$1.25 per hour to do flood cleanup work. Almost 6,000 hours of work by the Neighborhood Youth Corps was helpful in cleaning up trash, brushing out landings, removing driftwood from farm fields and cleaning sandbars of trash and willows.

Items of Interest.....continued

Again this summer we had student assistants to help with the summers work. My assistand was Gary Laib and he was an excellent worker and put many overtime hours on banding and his mammal trapping project.

My wife Sharron, gave birth to our second daughter "Brenda Sue" on July 8th, 1965. She was welcomed into the family by her proud parents and one sister "Diana Lynn".

The first river barges were through Cassville on March 12th but the river re-froze March 20th, trapping many tows. Shortly after they worked their way loose, along came the flood and ~~it~~ it was the middle of May before traffic got running again.

Some commercial clamming was tried in my pool this year without much success, however, around Prairie du Chien some were making a little money at it.

I observed a young fox squirrel near McCartney Landing that was normal in every respect but it had a pure white tail.

B. Credits

Report written by William C. Bair and typed by my wife Sharron.

SIGNATURE PAGE

Submitted by:

William C. Bair
(Signature)

Date: February 2, 1966

William C. Bair
Title
Refuge Manager

Approved, Regional Office:

Date: March 11, 1966

Frank R. Martin
(Signature)

Asst.
Regional Refuge Supervisor



Benskins boat rental and public launch ramp to the left
built this year at Guttenberg, Iowa. 8/11/65

Both photo's by William Bair



Farm land in Turkey River bottoms. Quite a lot of it
could not be planted this year due to high water this
spring. 8/11/65



Pond on 12-Mile Island behind Spill Coffee Island
where we band woodducks. Note two traps in center,
left third of picture. 8/11/65

Both photo's by William Bair.



Spring Lake above North Buena Vista, Iowa where
we trap woodducks. Note four traps near center
of photo. 8/11/65



Big Pond, water controlled area and Lock & Dam 10 in upper left corner. Guttenberg National Fish Hatchery in upper right of photo between Big Pond and open water beyond. Note vegetation ring in Big Pond, this was the level of last years drawdown. 8/11/65



Dago Slough marsh below Cassville, Wisconsin which is shown in upper right of picture. 8/11/65

Both photo's by William Bair.



Flood already down about four feet from its peak,
looked like this at the old warehouse.

Both photo's by William Bair.



Flood damage to shore and picnic table mounts at
Grant river public use area, south of Potosi.

JAN 66



Pouring foundation for new district warehouse.

Both photo's by William Bair.

JAN 66



Up go the sides of the 28 x 56 Armco metal building.



New Warehouse Under Construction

Cassville District

JAN 66



Now for the roof of the four stall building.

Both photo's by William Bair

JAN 66



Completed building, wired with electric eye night light. Also 550 gallon underground gas tank and pump installed free by DX distributor.



This is how we get our nice sandbars on the upper Mississippi. Dredge is the Corps of Engineers THOMPSON and they are cleaning out the navigation channel.

Both photo's by Don Gray.



Close-up of above photo, Refuge Manager Bair is to the left, mud is to the right.



JUN • 65

Brood of Wood ducks in ditch near Manager's residence.

Above photo by Willimm Bair

Lower photo by Don Gray



Aircraft landing mat installed on ramp at Bertom lake landing. We use about 21 mats and weld them together so they won't be stolen. The mats extend out under the water as far as the trailer will be backed and do an excellent job of keeping the ramps from being torn up.

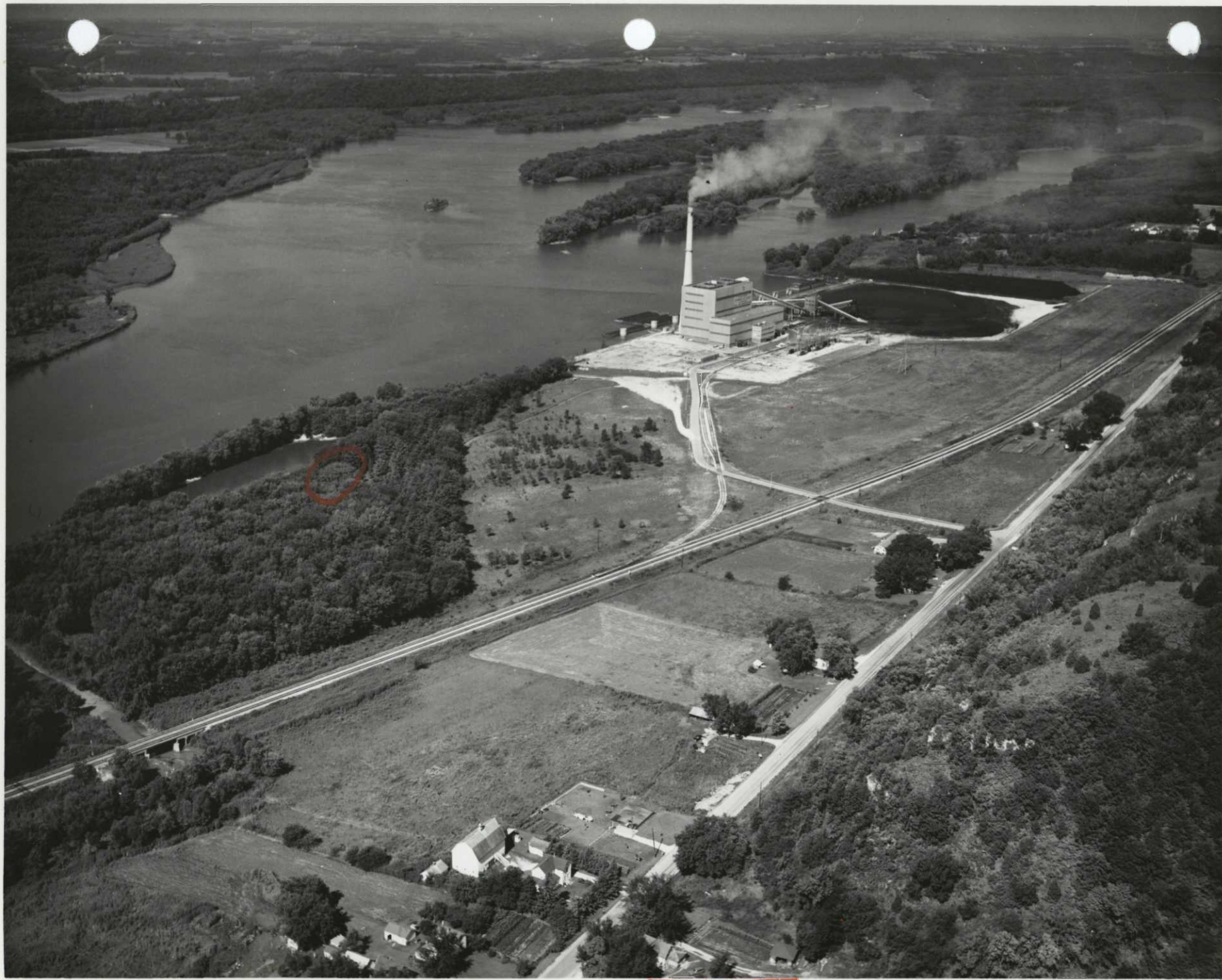
New district warehouse was built in the woods near
slough in lower right-hand third of picture. Nelson
Dewey Power generating station, Wisconsin Power and
Light Company, left center of photo. 8/11/65

All 8 X 10 photographs by Refuge Manager William Bair



Another view of area where district warehouse
was built, left center of picture. Residence
which Manager rented extreme bottom of photo,
right-hand side of road.

8/11/65



Bertom Lake landing, public access to Mississippi
River and backwaters.

8/11/65



McCartney parking area and launch ramp for access
to Mississippi river .

8/11/65



Lynn Hollow Landing, public access to Mississippi
River and backwaters.

8/11/65



City of Potosi's attempt at a road extention out
to old Potosi channel, for the launching of boats
as water depth near shore is not sufficient for
the operation of outboards.

8/11/65



Mud Lake public access and park, north of
Dubuque, Iowa, 8/11/65



Another view of Mud Lake public access and
park, north of Dubuque, Iowa. 8/11/65



NARRATIVE REPORT
UPPER MISSISSIPPI RIVER NATIONAL WILDLIFE REFUGE
Savanna-Clinton Districts
-
Calendar Year - 1965
-

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

C O N T E N T S

Page

I. General	
A. Weather Conditions.....	1
B. Habitat Conditions.....	3
1. Water.....	3
2. Food and Cover.....	6
II. Wildlife	
A. Migratory Birds.....	7
B. Upland Game Birds.....	24
C. Big Game Animals.....	24
D. Fur Animals, Predators, Rodents, and Other Mammals.....	26
E. Hawks, Eagles, Owls, Crows, Ravens, and Magpies.....	27
F. Other Birds.....	28
G. Fish.....	28
H. Reptiles.....	28
I. Disease.....	28
III. Refuge Development and Maintenance	
A. Physical Development.....	28
B. Plantings.....	29
C. Collections and Receipts.....	30
D. Control of Vegetation.....	30
E. Planned Burning.....	30
F. Fires.....	30
IV. Resource Management	
A. Grazing.....	30
B. Haying.....	30
C. Fur Harvest.....	30
D. Timber Removal.....	30
E. Commercial Fishing.....	30
F. Other Uses.....	31
V. Field Investigation or Applied Research	
A. Wood Duck Banding Program	31
B. Mourning Dove Banding	32
C. Wood Duck Nest Box Survey	32
D. Vegetation Transects	33
E.	
VI. Public Relations	
A. Recreational Uses.....	33
B. Refuge Visitors.....	33
C. Refuge Participation.....	33
D. Hunting.....	33
E. Violations.....	34
VII. Other Items	
A. Items of Interest..Summary.Record.Flood.1965.....	40
B. Photographs.....	41
C. Signature.....	41

I. GENERAL

A. Weather Conditions

MONTH	Precipitation			Temperature			
	Total	Normal	Snowfal	Max.	Min.	Mean	Normal
						Av.	Mean Av.
January	3.35	1.57	6.0	55	-11	21.0	24.3
February	.92	1.31	6.25	60	-15	24.2	27.7
March	2.70	2.73	16.00	52	7	27.7	38.1
April	6.12	3.29		76	30	46.8	50.8
May	4.14	3.42		86	41	65.3	62.1
June	3.32	4.78		90	51	69.8	72.1
July	4.92	3.33		94	52	73.7	77.3
August	7.75	3.65		91	47	71.8	74.5
September	9.85	4.06		87	42	63.5	68.9
October	2.42	2.26	Trace	80	29	54.3	55.5
November	2.37	2.17	Trace	72	16	41.2	39.8
December	2.93	1.69	1.3	58	8	34.5	26.0
Annual Totals	50.79	34.26	29.55	94	-15	49.48	51.42

Overall, the year 1965 was one of the wettest in years. Total rainfall for the year was 50.79 inches or over 16.5 inches more than the normal annual rainfall. More than twice the normal precipitation occurred during the months of Jan., April, August, and September. Normal or above occurred each month except in February and June.

Snowfall for the calendar year amounted to 29.55", of which more than 54 percent fell during March. Only 1.3" of snow fell during the fall migration season - corn and rye fields were readily available to mallards and geese using the Spring Lake Area until after the end of the year.

The mean average temperature during the period January through April was colder than normal. Relatively cool weather persisted through the summer with temperatures never exceeding 94 degrees. Except for the month of October, the average temperatures during the fall migration season was well above normal.

B. Habitat Conditions1. Water

POOL LEVELS

Pool No. 13 at Sabula Railroad BridgeNormal: 11.1

Month	: HIGHEST	: LOWEST	: AVERAGE	: DATES OF	: DATES OF
	: LEVEL	: LEVEL	: LEVEL	: HIGH LEVEL	: LOW LEVEL
Jan.	: 11.2	: 10.0	: 10.52	: 23-24	: 31
Feb.	: 11.4	: 9.8	: 10.67	: 11-12	: 1, 5
Mar.	: 14.5	: 11.0	: 12.28	: 9	: 1
April	: 22.9*	: 11.7	: 16.76	: 27-28*	: 4
May	: 22.2	: 13.6	: 16.06	: 1	: 31
June	: 13.5	: 11.9	: 12.95	: 1	: 30
July	: 11.7	: 10.8	: 11.30	: 1-2	: 29-30
Aug.	: 11.2	: 10.9	: 11.03	: 1, 3, 9, 19	: 7, 15-16, 23-26
Sept.	: 13.5	: 10.8	: 11.65	: 22	: 17-18
Oct.	: 12.6	: 11.4	: 12.09	: 4-8	: 29-31
Nov.	: 11.6	: 11.2	: 11.42	: 28-29	: 10-11
Dec.	: 12.6	: 11.1	: 11.83	: 23	: 2

* Record flood crest.

River levels in Pool 13 remained near the one foot winter draw-down stage and were frozen during January and February.

The spring ice break-up on the channel of Pool 13 occurred twice this year. Mild weather, rain, and run-off caused a 5 ft. raise that broke up channel ice on March 6th. The channel froze again during the following week and remained frozen until the final break-up on March 30th. Channel ice cleared in 1965 about 1 week later than normal and about 1 month later than 1964. Spring Lake was 70 percent ice-free by April 3 and smaller backwater lakes had cleared of ice by April 10th.

With intermittent thaws in conjunction with near record snow-fall in March, tributary streams went out of their banks 5 times during this month. Much increased waterfowl habitat developed with the flooding of adjacent bottom farmland in areas located outside the refuge.

Refuge bottomland timber areas were flooded from the first week in April through the end of June. The worst flood on record swept through the District in late April with levels 11.1 ft. above normal at Spring Lake and over 19 ft. above normal river levels in the Pleasant Creek Area. The river remained slightly above normal during July through mid September. Refuge bottomlands were again flooded from Sept. 20 through early Nov. and again from Dec. 15-28.

Spring Lake - Water levels were at elevation 584.4' when the spring ice broke up. Because of forecasted spring flood waters, efforts to equalize water levels, to prevent hydraulic pressure and erosion of the levee, were begun as soon as river levels facilitated inflow into the lake. River water was allowed to enter the lake through the north tube on April 9 and through the south tube on April 12.

River levels raised to 588.7' on April 17th. With both tubes flow-at full capacity, Spring Lake raised only to elev. 585.1', leaving 3.6 ft. head. It was then determined that the 2 ~~42~~ inch water control structures were not adequate to raise the lake fast enough to keep up with the rate of raise in river levels and that predicted flood crest would be sure to top the levee.

Authorization was requested and approved by the RO, April 17, to intentionally breach the levee in an attempt to equalize water levels as rapidly as possible to prevent as much as possible more extensive erosion of the levee embankment when the river spilled over it. A location, about 400 yds. west of Fin-an-Feather Resort on the south levee, was chosen for the breach. This location would be the most convenient for later rebuilding. Using an end-loader, the breach was completed on the afternoon of 4/17.

Spring Lake, with the intentional breach in the south levee flowing heavily, raised at a more rapid rate than did the river. By April 24, the lake level was about 1 foot below river levels when the river overflowed the northwest levee and cut through it in several locations. Enough inflow at the north end caused the current to reverse back into the river through the breach in the south levee and water was beginning to trickle over the south levee. By the afternoon of April 25 water was returning to the river over the entire length of the south levee.

The record Flood of 1965 crested on April 27 at an elevation of 593.6 at the south tube or about 11.1 ft. above normal river levels.

At the flood crest, about 2 miles of the south levee, the entire west levee, and 30 percent of the north levee was inundated. The remaining portion of the north levee and the east levee projected only inches above flood levels.

After flood waters subsided, cost to replace fill material lost on the 8 miles or so of levee was estimated between \$100,000 to \$140,000. Fourteen holes were washed through the levee, 2 of which continue to flow at normal river stages. Considerable erosion of levee embankments was caused by wave action.

Control of water levels has been lost and water continued to fluctuate in Spring Lake with river levels. for the remainder of the year.

Near normal river levels left Spring Lake about 10 inches shallower, than previous impounded levels during July to mid September. Higher river levels raised the lake levels in late Sept. through October, enough to flood emergent vegetation that could not be flooded in the past two years of insufficient water from the river.

Pleasant Creek Unit - All 3 impoundments in this unit remained frozen through March and were at winter draw-down levels through February. Tail-water of L/D 12 raised during the 1st week in March, to fill and overflow all impoundments and adjacent timber. The flooded area decreased to that of the normal lake areas during the last 2 weeks of March.

The main spring run-off period began on April 1st. With steadily increasing water levels, the river had again overflowed all impoundment areas and adjacent timber by April 4th. Increasing river levels flooded even the highest farmland areas within the unit to a depth of 14 ft. at the crest on April 27. Crest levels reached 16.7 ft. above the top of all water control structures.

The impoundments remained out of control through June due to lingering high water. Plugs 2 and 3 were closed on July 7 and Plug 1 was closed July 23 when these lakes dropped to normal full capacity elevation of 586.0 ft. All impoundments varied little from this level through Sept. 20, maintaining water levels from 1 to 2 ft. above river stages during this period.

Increasing river levels during the last ten days of Sept. again overflowed all control structures, filled the impoundments, and flooded adjacent timber edges. The entire area remained largely flooded during all of October. River levels did not drop below full capacity levels for the remainder of the year. Timber edges were flooded during the entire waterfowl migration season.

Relatively mild weather in December prevented a hard freeze of the river channel. The river channel remained ice-free except for 2 days of drifting ice: Nov. 31 and Dec. 19.

Wind-sheltered backwater lakes including those in Pleasant Creek were frozen Nov. 17 to 21, cleared, and refroze again Nov. 28 and remained frozen with thin ice for the remainder of the year. Spring Lake was 95 percent frozen on Nov. 28th but had opened up again by Dec. 25 until the end of the year.

See "Items of Interest" for more details of the Record Flood of 1965.

2. Food and Cover

Spring Period Intermittent rain, snow, and quick thaws sent the local tributary streams out of their banks 5 times in March, flooding large areas of adjacent low farmland. In April, the Mississippi had flooded thousands of additional acres of farmland and bottomland timber. Returning spring migrant waterfowl found "easy pickings" almost everywhere. They were widely scattered, usually feeding in flooded farmland along tributary streams. Relatively few dabblers were found on refuge lands in April, probably due to increased depths of flood waters that influenced availability of food supplies.

Scaup, as usual, found adequate food supplies along the river channel north of La Clair, Ia. and in lower Pool 13. About 43,000 scaup were present in these two areas early in April before the higher flood waters arrived.

Summer & Fall Periods Sago pondweed made a sharp comeback in Spring Lake. A year ago no aquatic (submerged) vegetation was present. With the river flowing in one side and out the other side, the stagnant water condition was much reduced - no Anebeana bloom occurred and water clarity was much improved in 1965. Much of the Sago had been up-rooted by wave action and blown onto the shoreline before main migration of scaup and mallards had arrived in the fall, however.

Elsewhere, including the 3 impoundments in Pleasant Creek, submerged aquatics were much reduced from previous years. It is believed that these areas were subjected to increased depths of silt laden water during early summer which caused turbidity to be a limiting factor.

Brood cover was abundant in flooded timber and brushy areas; so abundant, in fact, that normal brood count attempts by boat were abandoned because broods could not be located.

Above normal river levels, in Oct. and early Nov., flooding bottomland timber in tailwater areas provided mallards and wood ducks ample supplies of pin oak acorns, etc. in the Pleasant Creek Area.

Because of wet ground conditions the majority of corn fields near Spring Lake were not picked until late November. Mallards and geese traveled 20 to 35 miles east to find adequate corn supplies in early picked fields. No more than a fraction of an inch of snow fell at any one time during the fall and early winter period. Corn and rye fields were available to mallards and Canada geese until the end of the year.

What was left of the sago, on Spring Lake after wave action, was cleaned up by about 4,000 coots prior to the arrival of mallards and divers.

II WILDLIFE

A. Migratory Birds

1. Waterfowl

Ducks (Jan. - April, 1965)

Total duck days use for the Spring period was 754,631 or a 37.2 percent decrease from the same period last year and was 27.7 percent below the 5 year average (1961-65).

The Spring mallard migration began rather abruptly during the 1st week in April, about 2 weeks later than last year. Ice in the river was late to open up and, when it did, water levels raised rapidly, deeply flooding the usual favored refuge feeding marshes. As a result, mallards and other puddle ducks found flooded farmlands up tributary streams more attractive. Reports were received that pot-holes and flooded fields along the Rock River between Rock Island and Sterling, Ill. held large concentrations of mallards and other puddle ducks. The refuge attracted and held comparatively few of these birds this year.

Scaup, as usual, ranking number 1 during the Spring migration, made up over 62 percent of the total duck days use. Canvasback showed a noticeable increase this year and were mixed in with the scaup concentrations.

Refer to the following TABLES for more details.

Ducks (May - August, 1965)

It was estimated about 800 mallards made up the breeding population, however, the Spring flood apparently disrupted production. Little evidence of reneesting was apparent as only one mallard brood was sighted during the period.

As the river regained normal levels in July the mallard population decreased to half of the earlier breeding population. A rather large influx of mallards and Blue-winged teal occurred during the last week of August, reaching the peak summer population of 2,000 and 2,500, respectively. Mallards nearly dominated the wood duck trap sites in the Pleasant Creek Unit in late August.

Wood duck breeding population showed little change from last year. Some evidence was found that some wood duck nesting loss occurred with those birds nesting in the river bottoms that were subjected to flood water - - see Wood Duck Nest Box Studies, discussed later in this report. Normal brood counts were abandoned in June because thousands of acres of bottomlands were still flooded and broods seldom could be located. With much more abundant wood duck habitat, it is assumed that duckling mortality was near negligible; thus over all production much improved.

Water levels in the Pleasant Creek Unit were kept more than a foot higher than river levels through July and August - wood duck use increased considerably over the previous 2 years. Banding operations in this area nearly tripled the wood duck catch of 1964 which up until this year was the most successful year ever on the district.

Ducks (September - December, 1965)

About 2500 mallards were on the district at the beginning of the period, more than 3 times the population occurring at this time in 1964. A gradual build up to 6,000 occurred by the end of October. Most of these were situated in flooded timber in the tail-water sections of upper Pool 13, including the Pleasant Creek Area. Another 4,000 mallards arrived during the week ending Nov. 13th.

Sheltered backwater lakes froze up on Nov. 16th, causing all mallards in the Pleasant Cr. Area to move down onto the Spring Lake & Elk River Closed Areas. About 17,300 mallards were on Spring Lake at the peak population during the week ending Dec. 4th. Mild weather through December with practically no snowfall allowed unobstructed access to food supplies in cornfields. Near peak populations of mallards and black ducks remained around open holes in the ice of Spring Lake and lower Pool 13 until the end of the period - about a month longer than usual.

Nearly all gadwall and baldpate were concentrated in the lower end of Elk River Closed Area. The most extensive bed of coontail on the District was located here. Very few of these birds used the Pleasant Creek Area as in past years - coontail growth had been curtailed and what was there was covered with several feet of water.

Peak numbers of blue-winged teal and wood ducks, on the District in general, occurred during the week ending Sept. 11th. This is 3 to 6 weeks earlier than usual. Apparently, hunters "blazing away" during the special teal season disrupted roosting activities on the Potter's and Green Island Marshes to the extent that these activities never returned to the usual.

Scaup use continued the decline of recent years - only 1,000 at the period on Spring Lake. Mild weather and much open water late in the year enhanced merganser usage.

Refer to the following TABLES for more details.

Geese: The first 30 "honkers" returned this Spring on Feb. 26th. Peak populations reached 2,500 on March 26th - 2 weeks later than last year and 3 times as many. As usual, lower Pool 13 held most of these birds. By April 10th, all of the migrant geese had departed. No other species of geese was noted this Spring.

Twenty-one canadas, believed to be of pen-reared stock released in 1962, remained on Spring Lake and vicinity as a breeding flock. Of these, 5 known pairs began nesting activities but were flooded out. Nest sites, prior to the flood, were located: 1 on an island north of the pump house on Spring Lake; 1 in a pothole behind Hoffman's Lumber Yard; 1 on an island in the Elk River Closed Area; and 2 along the drainage ditch spoil bank south of Doty Road. Only 2 pairs have been known to have renested, raising 7 goslings.

On Sept. 25th 180 canadas dropped into the Potter's Marsh - the first of the fall migrants. About 500 were on Spring Lake and lower Pool 13 by Sept. 28th. Twenty-seven whitefronts made a one day stop at Spring Lake on Oct. 2nd. The first blues and snows, about 80, arrived on Oct. 8th. The blues & snows had departed on Nov. 17th after respective peak populations of 200 and 100 early in November.

From 300 to 350 canadas remained on Spring Lake until the end of the year. The extended stay of canadas doubled the days use of that in 1964.

Refer to the following TABLES for more information.

Swans: No swans were sighted this Spring. Eight whistling swans made a 2 day stop on Spring Lake on Nov. 16-17. Two were sighted earlier, during the 3rd week of October, in Elk River. One immature whistler remained on Spring Lake during the entire month of Dec.

Coots: Coot numbers have changed little this fall. Gomer's and Brown's Lakes and the Green Island and Potter's Marshes held usual fall populations. Spring Lake held more than the usual coot population this year - about 4,000 in the last week of October. Apparently the increased sago slicks furnished the attraction.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Upper Mississippi Refuge, Savanna-Clinton District

Period: January through April, 1965

Species	Peak Numbers		Percent of Change		Peak Dates*		TOTAL DUCK DAYS USE		Percent of Change	
	1964	19 65	Decrease	Increase	1964	19 65	1964	1965	Decrease	Increase
Mallard	9,000	8,500	5.56		4/4	4/10	231,416	115,460	50.3	
Black	220	700		100	4/4	4/10	6,318	9,580		51.7
Gadwall	60	400		100	4/4	4/10	1,355	2,140		57.8
Baldpate	400	300	25.0		4/4	4/10	13,488	3,350	75.4	
Pintail	1,000	650	35.0		4/4	4/10	23,219	6,220	73.4	
G.w. teal	600	500	16.7		3/28	4/10	11,115	4,200	62.2	
B.w. teal	650	500	23.1		4/25	4/10	13,350	9,800	26.6	
Shoveler	400	400	-	-	4/4	4/10	9,772	3,600	63.3	
Wood duck	1,620	1,500	7.4		4/18	4/17	28,378	23,800	16.2	
Redhead	250	300		20.0	3/28	4/10	7,175	3,020	58.0	
Ring-neck	500	1,000		100	4/4	4/10	15,955	11,255	29.4	
Canvasback	370	900		100	4/4	4/10	8,683	11,386		31.2
L. scaup	52,200	43,000	17.6		4/11	4/10	753,080	470,100	37.6	
Golden-eye	515	2,000		100	3/14	4/3	26,462	36,700		38.7
Bufflehead	126	250		98.5	4/11	4/10	1,999	3,350		67.8
Ruddy	180	50	72.4		4/4	4/24	2,596	470	82.0	
Mergansers	378	1,200		100	3/14	4/3	22,670	40,200		77.4
Old squaw										
Scoters										
Unident.										
TOTALS	64,111	60,530	5.6		4/11	4/10	1,200,547	754,631	37.2	

*Week ending.

Comments: The reduction of suitable puddle duck habitat due to flood waters in April and the late arrival of spring migrant birds influenced duck days use in 1965. During April puddle ducks were widely scattered in flooded farmland along tributary streams, especially in the Rock River Valley, instead of on refuge areas.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE
 Refuge: Upper Mississippi Refuge, Savanna-Clinton District
 Period: May through August, 1965

Species	Peak Numbers		Percent of Change		Peak Dates*		TOTAL DUCK DAYS USE		Percent of Change	
	19 64	1965	Decrease	Increase	19 64	19 65	19 64	19 65	Decrease	Increase
Mallard	1,400	2,000		42.8	8/8	8/28	108,750	85,800	21.1	
Black	20	50		100	8/8	8/28	1,050	1,155		1.0
Gadwall										
Baldpate	50	-	100		5/9	-	410	-	100	
Pintail	-	50		100	-	8/28	-	306		100
G.w. teal:	100	-	100		8/29	-	1,650	-	100	
B.w. teal:	900	2,500		100	8/29	8/28	28,995	24,575	15.5	
Shoveler	50	-	100		5/9	-	350	-	100	
Wood duck:	1,700	2,000		17.6	8/29	8/28	137,585	107,750	21.8	
Redhead										
Ring-neck:										
Canvasback:										
L. scaup	200	50	75.0		5/9	5/8	2,520	300	88.1	
Golden-eye										
Bufflehead:										
Ruddy										
Mergansers:	10	10	-	-	8/29	8/28	700	1,190		70.0
Old squaw:										
Scoters										
Unident.										
TOTALS	3,520	6,610		87.8	8/29	8/28	282,010	221,076	21.6	

*Week ending.

Comments:

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE
 Refuge: Upper Mississippi Refuge, Savanna-Clinton District
 Period: September through December, 1965

Species	Peak Numbers		Percent of Change		Peak Dates*		TOTAL DUCK DAYS USE		Percent of Change	
	19 64	19 65	Decrease	Increase	1964	1965	19 64	19 65	Decrease	Increase
Mallard	20,000	17,300	7.40		11/21: 12/4		562,500	962,800		71.2
Black	600	1,000		66.7	11/14: 12/11		19,490	64,010		100
Gadwall	450	450	-	-	10/31: 11/13		13,480	15,890		17.9
Baldpate	2,500	2,000	20.0		10/24: 10/30		55,700	47,400	14.9	
Pintail	600	400	33.3		10/17: 10/16		19,229	13,360	30.3	
G.w. teal	1,300	1,200	7.7		11/7 : 10/30		46,300	40,080	13.4	
B.w. teal	3,000	2,700	10.0		10/3 : 9/11		98,600	78,400	20.5	
Shoveler	180	100	44.4		10/31: 10/30		4,750	2,005	57.8	
Wood duck	3,400	2,800	17.6		10/17: 9/11		139,350	128,350	7.9	
Redhead	100	100	-	-	10/31: 10/30		2,315	1,190	48.7	
Ring-neck	525	650		23.8	11/7 : 10/30		13,940	19,510		39.9
Canvasback	150	250		66.6	10/31: 10/23		3,850	8,245		100
L. scaup	1,700	1,000	42.2		11/7 : 11/6		44,060	32,310	26.7	
Golden-eye	200	150	25.0		12/5 : 12/4		7,210	5,600	22.3	
Bufflehead	50	10	80.0		11/21: 11/20		688	20	97.1	
Ruddy	160	200		25.0	11/7 : 10/23		4,945	6,040		22.2
Mergansers	300	1,000		100	12/5 : 12/11		9,900	38,820		29.2
Old squaw										
Scoters										
Unident.										
TOTALS	23,030	19,070	17.2		11/21: 12/4		1,046,307	1,464,030		40.0

*Week ending.

Comments: Unusually mild weather in December with practically no snowfall allowed near peak populations of mallards and black ducks to remain in the area for a month longer than usual - - thus the increase in days use of these birds.

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Upper Mississippi Refuge, Savanna-Clinton District

Period: January to April, 1965

Species	Peak Numbers		Per cent of Change		Peak Dates*		TOTAL DAYS USE		Per cent of Change	
	19 64	19 65	Decrease	Increase	19 64	19 65	19 64	19 65	Decrease	Increase
Canada geese (lg.)	804	2,500		100	3/14	3/27	8,548	28,058		100
Cackling	10	-	100		3/14	-	20	-	100	
White-fronted	1	-	100		4/4	-	3	-	100	
Snow	8	-	100		4/18	-	40	-	100	
Blue	5	-	100		3/21	-	15	-	100	
TOTALS	814**	2,500**		100	3/14	3/27	8,626	28,058		100

Comments:

* Week Ending.

** Peak number of all geese in any one week period.

Canada goose use much increased this year - peak populations arrived 2 weeks later than last year. 2,000 - 2,500

"Honkers" remained on Spring Lake and lower Pool 13 for the two week period in late March and early April.

Coot	3,000	5,000		66.6	4/25	4/17	69,236	88,800		28.4
Florida gallinule										

Comments:

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Upper Mississippi Refuge, Savanna-Clinton District

Period: May - August, 1965

Species	Peak Numbers		Per cent of Change		Peak Dates*		TOTAL DAYS USE		Per cent of Change	
	19 64	19 65	Decrease	Increase	19 64	19 65	19 64	19 65	Decrease	Increase
Canada geese (lg.)	36	25	30.8		8/22	8/7	3,416	2,674	21.7	
Cackling										
White-fronted										
Snow										
Blue										
TOTALS	36**	25**	30.8		8/22	8/7	3,416	2,674	21.7	

* Week Ending

Comments:

** Peak number of all geese in any one week period.

*** 59 pen-reared Honkers were released on Spring Lake in April, 1962 by the Ill. Cons. Dept. These peak numbers represent the number of surviving adults and their offspring on the refuge in 1964-65. Eleven pairs returned in Spring of 1963 - raised 21 goslings. Six nesting pairs and 11 non-breeding geese returned in 1964 - raised 13 goslings. Twenty-one honkers, including 5 known breeding pairs returned in Spring of 1965 - all 5 known nests were broken up by spring flood waters - 2 pairs renested and raised 7 goslings.

Coot	1,100	300	72.7		5/9	5/8	13,090	1,720	86.8	
Florida gallinule										

Comments: Spring Coot migration ended earlier this year. Virtually all coots had moved through this District by May 15th

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Upper Mississippi Refuge, Savanna-Clinton District

Period: September - December, 1965

Species	Peak Numbers		Per cent of Change		Peak Dates*		TOTAL DAYS USE		Per cent of Change	
	19 64	19 65	Decrease	Increase	19 64	1965	19 64	19 65	Decrease	Increase
Canada geese (lg.)	309	500		62.0	10/31	10/2	14,075	28,962		100
Cackling	21	13	38.0		11/7	10/16	712	104	85.5	
White-fronted	1	27		100	10/3	10/2	4	27		100
Snow	110	100	9.1		10/31	10/30	3,836	2,940	23.4	
Blue	200	200	-	-	10/31	10/30	7,562	5,815	23.1	
TOTALS	639**	663**		3.76	10/31	10/23	26,189	37,848		44.3

Comments: * Week Ending

** Peak number of all geese in any one week period.

Not enough snowfall during the period to influence the feeding of Canada geese in adjacent corn and rye fields near Spring Lake Closed Area - as a result, together with mild weather, canadas remained on Spring Lake 4 to 5 weeks later than last year. In the past, the canadas have moved out of the area by the end of the 1st week in Dec. -- 200 still remained on Spring Lake at the end of the period.

Coot	14,000	12,000	14.3		10/24	10/30	251,500	273,400		8.7
Florida gallinule										

Comments:

PERCENTAGE COMPOSITION BY SPECIES OF TOTAL DUCK DAY USE

Refuge: Upper Mississippi Refuge, Savanna-Clinton District

Period: Jan, - April, 1965

Species	Percent of total duck day use							
	1963		1964		1965			
	% of use	Order	% of use	Order	% of use	Order		
Mallard	27.17	2	19.74	2	15.30	2		
Black duck	.42	16	.53	14	1.27	9		
Gadwall	.62	14	1.11	17	.28	16		
Baldpate	1.97	5	1.18	9	.45	13		
Pintail	1.61	9	1.94	5	.82	10		
B. W. teal	1.57	9	1.46	7	1.30	8		
G. W. teal	.90	13	1.04	10	.56	11		
Shoveler	1.05	11	.90	11	.48	12		
Wood duck	4.05	4	2.94	3	3.16	5		
Redhead	.51	15	.60	13	.40	15		
Ring-neck	1.06	10	1.33	8	1.49	7		
Canvasback	1.81	7	.72	12	1.51	6		
Lesser scaup	47.69	1	62.99	1	62.19	1		
Golden-eye	1.96	6	2.20	4	4.87	4		
Bufflehead	.17	17	.17	16	.45	14		
Ruddy	.91	12	.20	15	.06	17		
Mergansers	6.53	3	1.89	6	5.34	3		
Old squaw								
Scoters					trace	18		

Comments:

M-4

PERCENTAGE COMPOSITION BY SPECIES OF TOTAL DUCK DAY USE
 Refuge: Upper Mississippi Refuge, Savanna-Clinton District
 Period: May through August, 1965

Species	Percent of total duck day use							
	1963		1964		1965			
	% of use	Order	% of use	Order	% of use	Order		
Mallard	39.00	2	38.56	2	38.90	2		
Black duck	.14	9	.37	6	.52	5		
Gadwall	.01	11						
Baldpate	.30	5	.14	8				
Pintail	.12	10			.14	6		
G.w.teal	.27	6	.58	5				
B.w.teal	12.80	3	10.30	3	11.20	3		
Shoveler	.16	8	.12	9				
Wood duck	45.00	1	48.80	1	48.50	1		
Redhead								
Ring-neck								
Canvasback								
Lesser scaup	1.96	4	.89	4	.13	7		
Golden-eye								
Bufflehead								
Ruddy	trace	12						
Mergansers	.24	7	.24	7	.54	4		
Old squaw								
Scoters								

Comments:

M-4

PERCENTAGE COMPOSITION BY SPECIES OF TOTAL DUCK DAY USE
 Refuge: Upper Mississippi Refuge, Savanna-Clinton District
 Period: Sept. through Dec., 1965

Species	Percent of total duck day use							
	1963		1964		1965			
	% of use	Order	% of use	Order	% of use	Order		
Mallard	54.60	1	53.76	1	65.70	1		
Black duck	2.83	5	1.86	7	4.37	4		
Gadwall	1.11	9	1.28	10	1.09	10		
Baldpate	1.86	8	5.32	4	3.24	5		
Pintail	1.87	7	1.83	8	.91	11		
G.w.teal	2.68	6	4.43	5	2.77	6		
B.w.teal	10.00	3	9.42	3	5.35	3		
Shoveler	.26	14	.45	14	.13	15		
Wood duck	15.85	2	13.31	2	8.78	2		
Redhead	.14	16	.22	16	.08	16		
Ring-neck	.29	13	1.23	9	1.33	9		
Canvasback	.21	15	.37	15	.56	12		
Lesser scaup	6.70	4	4.22	6	2.20	8		
Golden-eye	.77	10	.68	12	.38	14		
Bufflehead	.06	17	.06	17	trace	17		
Ruddy	.30	12	.47	13	.41	13		
Mergansers	.54	11	.94	11	2.65	7		
Old squaw								
Scoters					trace	18		

Comments:

WEEKLY DUCK POPULATIONS AND PEAK NUMBERS

Refuge: Upper Mississippi Refuge, Savanna-Clinton District

Period: January through April, 1965

Week of period:	19 61	:	19 62	:	19 63	:	19 64	:	19 65
1	5,617	:	1,450	:	420	:	520	:	530
2	1,333	:	585	:	665	:	510	:	530
3	1,550	:	605	:	565	:	585	:	630
4	860	:	905	:	433	:	585	:	520
5	1,076	:	905	:	472	:	585	:	240
6	1,100	:	**	:	512	:	585	:	400
7	1,430	:	**	:	632	:	715	:	670
8	2,657	:	**	:	670	:	645	:	680
9	6,833	:	**	:	685	:	475	:	1,232
10	9,549	:	**	:	685	:	3,061	:	1,412
11	11,127	:	**	:	2,870	:	3,844	:	2,110
12	16,356	:	**	:	14,619	:	14,775	:	6,170
13	26,918	:	23,940	:	29,210	:	18,510	:	16,800
14	34,445*	:	58,605*	:	31,340*	:	27,440	:	60,530*
15	27,350	:	33,425	:	29,472	:	64,111*	:	24,630
16	18,520	:	16,480	:	12,650	:	31,170	:	13,060
17	5,211	:	9,469	:	4,010	:	8,755	:	3,325
18		:		:		:	3,423	:	
TOTAL DAYS USE:	1,293,110	:	1,025,283	:	909,300	:	1,200,547	:	754,631

*Indicates peak concentration.

** No census was recored for the 6th - 12th weeks, 1962, as the District was vacant.

COMMENTS:

Five year average Days Use is 1,036,574.

Days Use in 1965 is 37.2 percent below 1964 and 27.2 percent below the 5 year average.

Scaup made up 71.6 percent of the peak population in 1965.

WEEKLY DUCK POPULATIONS AND PEAK NUMBERS

Refuge: Upper Mississippi Refuge, Savanna-Clinton District
 Period: May through August, 1965

Week of period :	1961	:	1962	:	1963	:	1964	:	1965
1	3,950	:	1,800	:	2,401	:	2,430	:	1,770
2	1,441	:	1,620	:	2,220	:	2,150	:	1,670
3	874	:	1,400	:	1,910	:	1,900	:	1,530
4	992	:	1,200	:	1,822	:	1,810	:	1,590
5	1,033	:	1,150	:	1,742	:	1,730	:	1,652
6	1,051	:	1,185	:	1,742	:	1,555	:	1,652
7	1,111	:	1,260	:	1,812	:	1,850	:	1,562
8	1,126	:	1,293	:	1,811	:	1,960	:	1,372
9	1,136	:	1293	:	1,941	:	1,970	:	1,370
10	936	:	1,302	:	1,934	:	2,420	:	1,320
11	1,096	:	1,444	:	1,951	:	2,565	:	1,365
12	1,247	:	1,558	:	1,951	:	2,580	:	1,325
13	1,757	:	1,632	:	2,021	:	2,690	:	1,325
14	1,907	:	1,862	:	2,126	:	3,250	:	1,540
15	1,909	:	2,272	:	3,136	:	3,170	:	2,715
16	2,109	:	2,490	:	3,636	:	3,260	:	3,920
17	3,583	:	2,930	:	4,291	:	3,520*	:	6,610*
18	4,490*	:	4,221*	:	4,991*	:		:	
TOTAL DAYS USE :	222,655	:	223,384	:	304,066	:	282,010	:	221,076

*Indicates peak concentration.

COMMENTS:

Five year average Days Use is 250,638.

Days Use in 1965 is 21.6 percent below 1964 and is 11.8 percent below the 5 year average.

WEEKLY DUCK POPULATIONS AND PEAK NUMBERS

Refuge: Upper Miss. Refuge, Savanna-Clinton District

Period: September through December, 1965

Week of period:	1961	:	19 62	:	19 63	:	19 64	:	19 65
1	7,400	:	4,721	:	5,294	:	4,547	:	7,960
2	11,050	:	5,421	:	6,549	:	5,275	:	8,310
3	12,350	:	7,142	:	7,199	:	5,275	:	5,280
4	11,910	:	9,260	:	9,035	:	7,070	:	5,705
5	9,630	:	9,300	:	8,410	:	9,485	:	6,850
6	9,630	:	12,540	:	4,020	:	8,752	:	8,950
7	19,240	:	16,425	:	6,845	:	13,880	:	11,620
8	14,135	:	15,710	:	7,850	:	15,395	:	10,780
9	25,105*	:	19,215	:	11,304	:	16,430	:	13,450
10	24,030	:	19,235*	:	11,285	:	18,275	:	12,545
11	19,020	:	14,710	:	12,994	:	19,125	:	15,205
12	15,250	:	14,610	:	14,375*	:	23,030*	:	16,300
13	16,420	:	15,500	:	12,200	:	17,686	:	16,675
14	6,931	:	4,220	:	12,314	:	969	:	19,070*
15	7,750	:	805	:	7,725	:	815	:	15,930
16	2,210	:	530	:	1,780	:	820	:	15,380
17	2,010	:	520	:	1,080	:	620	:	16,250
18		:		:		:	570	:	17,200
TOTAL DAYS USE:	1,507,177	:	1,189,048	:	980,413	:	1,046,307	:	1,464,030

*Indicates peak concentration.

COMMENTS: Five year average Days Use is 1,237,395.

Duck Days Use in 1965 increased 39.8 percent over 1964 and is 18.3 percent over the 5 year average.

2. Other Water Birds

Egrets: About 40 nests of american egrets were located within the blue heron rookeries on the Savanna Army Depot and along the river on the Ill. bank below Lock & Dam 13. Peak populations occurred about Sept. 30th-- 800. The usual fall feeding concentration in the Pleasant Creek Unit did not materialize this year because higher water levels dispersed fish populations.

Heron and Bitterns Great blue heron is common, increasing in the fall months to about 800 by the first of October. Three active rookeries are known: one in the Savanna Army Depot, about 40 nests; one on the northeast end of Keller's Island, about 15 nests; and one about one-half mile south of Lock & Dam 13 on the Ill. bank.

The little green heron is also common - active rookeries were not located this year, however. Black-crowned night heron are less common and yellow-crowned night heron is comparatively rare here.

Only one American bittern was observed in late April.

Grebes: Pied-billed grebes migrate through this area each Spring and Fall. About 400 was the peak population in late October.

Cormorants: Only 7 pairs of double-crested cormorants nested in dead snags in open water of Pool 13 near Thomson, Ill. Three nests were constructed in dead snags near the Silo on Spring Lake for the first time in at least 3 years. These were abandoned, however, due to increased public fishing activities spooking the birds after the flood. About 700 was the peak population during the fall migration in mid October.

Gulls and Terns: As usual, highest concentrations of gulls occur in the Spring as winter-killed fish are exposed by the ice break-up in backwater lakes. About 2,000 ring-billed and 1,000 herring gulls was the peak population during the last week of March.

Pelicans: Each fall for four years in succession, one white pelican has made an appearance on the District. This year one was observed in the Potter's Marsh during the last week of Sept.

3. Shorebirds

Snipe: Few snipe, if any, nest within the District. High water levels this fall seemed to limit peak populations to about 100 in early October. About 600 was the peak last year while having comparatively low water levels.

Woodcock: Woodcock are seldom seen in the area - only 2 were seen at the end of April on the Spring Lake levee.

Other Shorebirds: Generally speaking, high waters curtailed shorebird habitat and usage this year. About 300 killdeer, 600 spotted sandpipers, 50 lesser yellowlegs were peak populations.

4. Doves Refuge mourning dove populations center on the Sand Ridge of the retired portions of the Potter Farm Unit. Natural grasses and sedges attract peak populations of 600 to 800 in July and August. The fall migration this year was about a month later than the 2 previous years. About 400 doves remained in the area through the September portion of the Ill. dove hunting season. See section, "Field Investigation or Applied Research", for details on dove banding operations.

Refuge: Upper Mississippi Refuge, Savanna-Clinton Dist.
Period: Calendar Year 1965

B. Upland Game Birds

SPECIES	: POPULATION:	YOUNG	: NUMBER	: GREATEST	: TAKE:	LOSS:	POPULATION
	: JAN. 1	: PRODUCED:	: STOCKED:	: NO. PRESENT:	:	:	: DEC. 31
Ring-necked:							
pheasant :	60	: 10	: -	: 60	: 10	: 5	: 50
Ruffed							
grouse :	-	: -	: -	: -	: -	: -	: -
Bob-white							
quail :	50	: 40	: -	: 75	: 10	: 10	: 55
Gray							
partridge:	15	: 20	: -	: 25	: 5	: 5	: 15
Wild							
turkey :	5	: -	: -	: 5	: -	: -	: 5

As usual, pheasant populations increase in winter as they move from nearby private farmland into refuge marshes for better cover conditions. Cattail areas in the Spring Lake and Potter's Marsh Units hold most of the winter pheasant population s. All of the Gray partridge and most of the quail are found on the Potter Farm Unit.

C. Big Game Animals (White-tailed deer)

POPULATION:	YOUNG	: GREATEST	: HUNTER:	LOSSES:	POPULATION
JAN. 1	: PRODUCED:	: NO. PRESENT:	: TAKE :	:	: DEC. 31
250	: *	: 400	: 48	: 150	: 200

High losses were contributed to hunting pressure driving deer off refuge lands to nearby private owned timber ridges, high water in Oct. and Dec., and crippling loss during the hunting seasons. Three dead deer were found in Pleasant Creek Area with arrow wounds.

Shotgun deer hunters, with 630 hunter days on refuge lands, killed a total of 43 deer. Six of these were taken in the Marcus Area in Carroll County, Ill; 10 were taken from islands along the river in Jo Daviess County, Ill; and 13 were taken on the Railroad Island and Wapsipinicon River Bottoms in Iowa.

The Pleasant Creek Unit, the most heavily hunted area contributed 14 deer to the total kill. Deer hunter days use in this unit this year is estimated at 47 or a 50 percent reduction from previous years. It rained on both days of the weekend opening, causing most hunters to leave by

Noon each day. Hunters could not drive access roads because of muddy conditions, thus were comparatively bunched up near the highway and the refuge farmland. About $1/3$ of the total area was not hunted. For comparison, the yearly deer kill recorded in Pleasant Creek is: 60 in 1960, 22 in 1962, 21 in 1963, 16 in 1964, 17 in 1965, and 14 in 1966.

The following Table compares the Ill. Deer Kill by Counties Adjacent to the refuge:

COUNTY	1960	1961	1962 ¹	1963 ²	1964 ³	1965 ²
Jo Daviess	193	420	550	597	334	455
Carroll	226	343	413	465	461	364
Savanna Army Depot*	33	44	30	35	37	55
Whiteside	59	127	150	165	120	78

* Included in totals for Carroll County.

1 Hunting season - 6 consecutive days.

2 Split season - 3 days each, over weekends.

3 Hunting season - 4 consecutive days including a weekend.

Bow hunter, with about 225 hunter days use, took at least 5 deer off refuge lands - 3 of these taken from the Pleasant Creek Unit.

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Refuge: Upper Mississippi Refuge, Savanna Dist.
Period: Calendar Year 1965

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

SPECIES	: POPULATION : JAN. 1	: YOUNG : PRODUCED	: GREATEST : NO. PRESENT	: CON- : TAKE	: TROL : LOSS	: POPULATION : DEC. 31
Muskrat	2,500	12,000	14,500	10,000	-	3,000
Mink	200	200	400	100	-	250
Beaver	800	520	1,230	200	3	900
Otter	50	20	70	1*	-	50
Raccoon	2,800	1,200	4,000	600	21	2,380
Red Fox	100	10	200	20	1	100
Gray Fox	10	-	30	5	-	15
Skunk	30	10	50	10	-	30
Cottontail:						
Rabbit	100	100	200	50	-	50
Opossum	300	200	375	125	3	300
Gray & Fox:						
Squirrels:	1,500	1,000	2,500	200	-	1,500
Woodchuck	100	20	100	10	22	20
Badger	10	10	20	-	-	10

* One otter was caught in beaver trap by mistake - carcass turned over to Ill. Warden Freeman. Otter are protected in Ill.

Muskrats and beaver were forced to den up in bank-holes along deep-water running sloughs during the low levels prevalent in 1964. In 1965, however, with generally much higher water levels, these animals scattered widely over much improved habitat found in the backwater lake areas. Lodge construction, rather than bank-holes were much more apparent this year.

Little evidence was apparent that the Spring flood had an important

adverse mortality affect on either aquatic or arboreal animals. Muskrats and beaver were, of course, forced out of their lodges in April but readily found shelter in hollow snags, floating logs and debris. Few dens of raccoon and squirrels were flooded, however availability of food supplies was temporarily hampered.

Rabbits, fox, woodchuck, & skunk were forced to leave refuge bottom lands. Rabbits, forced out of the marshlands, were concentrated on highest portions of islands as flood waters raised. Heavy predation on rabbits by fox occurred on Spring Lake levee and the upper Potter's Marsh just prior to the flooding of the highest land areas. As water completely inundated these islands the fox were forced to swim to high land but rabbits were found clinging in crotches of tree tops still above water. With a boat, one could literally pick up rabbits like one would pick apples off the trees. Nine rabbits were plucked from the tree tops, in this manner, on one island south of Spring Lake Resort.

High waters forced woodchucks out of their holes in the Spring Lake levee. Taking advantage of the situation, 22 of these were shot to prevent future burrowing damage to the levee.

Control trapping within 200 ft. of 2 duck trap sites in Pleasant Creek removed 21 raccoons - - 23 were taken in similar trapping in 1964.

E. Hawks, Eagles, Owls, Crows, etc.

Hawks: Red-tailed and marsh hawks are commonly seen, with increased numbers in early spring and fall migrations. Sparrow hawks are often seen on the Potter Sand Ridge during summer months. Red-shouldered and rough-legged hawks are occasionally noted. One pigeon hawk was noted in Sept.

Eagles: Bald eagles are common during the winter months but are not present in the nesting season. The aerial Mid-winter Waterfowl-Eagles Census on Jan. 4, 1965, totaled 91. A ground count in the Savanna Army Depot revealed 41 adults and 7 immature birds in mid February. With the expansion of open holes in the channel-ice, eagles began to move north in late March. The last eagles to depart for the nesting regions were seen during the first week of April this year - 3 immature birds.

One adult bald eagle was the first sighted in the fall - last week of September. The river channel never froze solid this fall and the eagle population did not build up to normal numbers. Peak populations occurred during the first week of Dec. with 28 sighted -- 17 of these were immature eagles. Thirty-four bald eagles were counted on Jan. 3, 1966 in conjunction with the Mid-winter Waterfowl Count over the entire District - 7 of these were immature. Normally 100 plus is counted.

Largest wintering eagle concentrations usually occur along the river channel near the Savanna Army Depot. Fish are available in open water and on the ice where commercial fishermen, making seine-hauls, discard the unmarketable shad. Several eagles will patrol the Closed Areas, during the hunting season, to feed on crippled waterfowl. Thirteen eagles were observed on the ice near several thousand mallards on Spring Lake in early December.

Owls: Great horned and barred owls are common the year around in bottomland timber areas.

Crows: Crows are common. Concentrations, upwards of 600, are in the Pleasant Creek Unit in early fall.

Vultures: These are occasionally noted along the rock bluffs near Railroad Island in Pool 13.

F. Other Birds - nothing to report.

G. Fish Sportfishing, especially for crappies, is excellent in May and again in October. Good catches of sheepshead crappies, and striped bass were caught in flooded backyards and parking lots just after the flood crest in early May. Fishing in June was slow because of high, muddy water.

Ice fishing, never as popular here as it is in the more northern Districts of the Refuge, was good in Jan. and Feb. Crappies and bluegills were really "hitting" in Barge Lake and Hickory Lake. Practically no ice fishing was done in November or December because of dangerously thin ice.

H. Reptiles Small painted turtles are abundant in the bottoms; snapping and soft-shelled turtles are common, and so are bull and water snakes.

Box turtles and hog-nosed snakes are common only on the Potter Sand Ridge.

I. Disease - None noted.

III. REFUGE DEVELOPMENT & MAINTENANCE

A. Physical Development and Maintenance

A bucket-loader and a dump truck with operator was contracted for 20 hours work in cleaning flood deposited driftwood out of drainage ditches and from farmland in the Pleasant Creek Unit.

Another 7 hours rent of ^a bull-dozer with operator was contracted to

clear fallen trees and to smooth out the edges of wash-outs on 2 miles of the north Spring Lake levee roadway. This facilitated vehicular law enforcement patrols of the north end of the Closed Area.

Several days were utilized in cleaning up 2 inches of silt in the Bellevue Warehouse. Water stood 6 ft. deep inside the warehouse at flood crest.

About 300 refuge signs were posted or replaced on 63 miles of refuge boundaries. Thirty-eight combination refuge-Anti-litter signs were erected or replaced on heavily used island sandbars and Public Boat Ramps.

Lettering on 2 refuge recognition signs were repainted. The refuge canoe was also scraped down and repainted.

Fourteen hours rental of a tractor and plow with operator was contracted to plow a fire-break completely around the Potter Farm Unit.

In January, 320 tons of limestone were spread at a rate of 3 tons per acre on the remaining 20 acres of the Potter Farm Unit and all of the farm land on the Spring Lake Unit - total of 107 acres.

In December, a new equipment storage warehouse was completed on the Spring Lake Unit. The building is an Armco prefab. metal structure, 288x56', with 4 overhead fibre-glass doors. Electrical wiring and an outside "Reddy light" were installed. Fifty-one tons of crushed rock were spread and leveled on the turn-around area in front of the building.

Thirteen additional wood duck nest boxes were installed in the Pleasant Creek Unit, bringing the total number of boxes available for nesting use to 86.

B. Plantings

1. Aquatics and Marsh Plants - None.

2. Trees and Shrubs - None.

3. Upland Herbaceous Plants - None.

4. Cultivated Crops No crops were planted as a service operation. Eight Cooperative Farming Operations and one Cash Rental Agreement were in effect, a total of 411 acres - 121.7 acres of this total were left idle because conditions were too wet following the Spring flood.

The Cooperator who farms the 79 acres in the Pleasant Creek Unit managed to plow out the dense stand of maple seedlings that sprouted after the flood waters subsided in late June. Soybeans, Millet, and some sorghum were planted about July 6th in hopes that they would mature by the first frost -- they didn't.

Refer to NR-8, "Cultivated Crops - Haying- Grazing", for more details.

C. Collections & Receipts - None.

D. Control of Vegetation - Proposed and approved control spraying of encroaching brush on the Spring Lake levee and along the Pleasant Creek Access Roadway was not attempted because of high water and flood damage to roadbeds preventing access to spray areas with the necessary equipment.

E. Planned Burning - None.

F. Fires - None.

VI. Resource Management

A. Grazing No permits were in effect this year. The Spring flood flattened the fence across the north end of the Potter's Marsh -- grazing here was abandoned.

B. Haying One permit was issued for 2 cuttings of 32.2 acres of alfalfa on the Potter Farm Unit - 43.1 tons were harvested for which the refuge received payment of \$270.00.

C. Fur Harvest The 1964-65 fur trapping harvest was comparatively poor. On the opening day of the Ill. trapping season a general freeze-up occurred which curtailed trapper access by boat and snow obscured the rat runs under the ice. The muskrat harvest was down 41.6 percent, beaver down 46.5 percent, and raccoon down 32.0 percent from the previous year.

See TABLE, "Analysis of Fur Catch- Value-Tag Sales", for more details. Fur catch data for the current trapping season (1965-66) is not available at this time.

D. Timber Removal - None on refuge lands.

E. Commercial Fishing Recorded data of commercial rough fish removal from the Spring Lake impoundment was abandoned after the flood tore out the levee. Fish populations are no longer confined by the levee, thus species and numbers fluctuate with river levels.

ANALYSIS OF FUR CATCH - VALUE - TAG SALES

Upper Mississippi Refuge - Savanna-Clinton District
Period: 1964-65 Trapping Season

Pool No.	No. fur catch re- ports returned	Muskrat	Mink	Beaver	Raccoon	Fox	Otter	Skunk	Opposum
12	33	3,045	21	94	81	--	1	--	--
13	56	3,653	63	115	192	3	--	--	7
14	11	167	20	13	26	--	--	--	84
TOTAL (District)	100	6,865	104	222	299	3	1	0	91
Average per trapper:		68.65	1.04	2.22	2.99	.03	.01	--	.91
Average Price:		1.08	8.57	6.61	1.52	2.00	--	--	0.37
TOTAL VALUE:		7,451.47	891.40	1,468.26	455.65	6.00	--	--	33.70

Total Value of all fur: \$10,306.48

Total No. trapping permits issued: 141

Total No. trap tags sold: 5,500 @ 10¢ ea. = \$550.00

Trap tag sales up 1.4% and permits up 11.0% over last year.

15 more trappers catch reports indicated they did not trap.

Total Reported Catch by Year:

	1961-62	1962-63	1963-64	1964-65
Muskrat	4,653	10,779	11,703	6,865
Mink	104	137	153	104
Beaver	328	337	416	222
Raccoon	245	262	439	299
Fox	0	4	12	3
Otter	0	0	2	1
Skunk	0	0	0	0
Opposum	0	4	76	91

Commercial fishermen indicated they had much more difficulty locating carp and buffalo this year as compared to last during the summer months. They were very successful during the spring spawning period, however.

F. Other Uses Five cabin site permits at \$25 per year; 2 sportsmen's group developments of public recreation areas; 2 free artesian well taps - one to the Ia. Cons. Comm., one to the City of Bellevue for washroom facilities at their sewer disposal plant; and one permit for a temporary sawmill site at Pleasant Creek.

V. Field Research

1. Wood Duck Banding Program Trapping and banding wood ducks more than doubled all prior records for this District with a total of 936.

BIRD BANDING TOTALS * SAVANNA*CLINTON DISTRICT

SPECIES	1962	1963	1964	1965
Wood duck	161	319	475	936
Mallard	62	97	7	371
Mallard (pen-reared)				86
Black Duck	2	4	2	13
Pintail				5
B. W. Teal		4	5	1
G. W. Teal		3		
Hood. Merganser				1
Mourning Dove				200
Bob-white Quail			1	8
G. Blue Heron				1
Am. Egret				1
Total	225	427	490	1,623

Except for the pen-reared mallards, all ducks this year were caught in shelled-corn baited funnel traps in the Pleasant Creek Unit.

Trap sites, that have so far proved most successful here, are those where the traps can be set in shallow water along the south bank of a relatively narrow remnant of an old running slough. Little of no emergent vegetation at the trap site is preferred. The traps are set near the bank in the shade of mature trees having the least amount of ~~underbrush~~ of shoreline underbrush.

Several 6 to 10 inch diameter sections of driftwood material are anchored in the water under the shade trees near the trap site for use as loafing sites. It was found that even on hot summer days,

with the combination of shade and suitable loafing locations, woodies would remain at the trap site throughout the day. It only seems logical that the longer the birds stay at the trap site the chances to decoy new birds are increased. It was observed in previous years of trapping in areas without shaded locations nearby the woodies would gang around the trap in sizable numbers only in early morning and late afternoon feeding periods and seek out shaded loafing areas at other locations during the heat of the day.

2. Mourning Dove Banding - The 200 mourning doves were trapped and banded near Ebner Tower on the Potter's Sand Ridge south of Thomson, Illinois. Thirteen collapsible welded wire traps, with walk-in funnels, were set on barren sand of two large blow-holes. A combination of equal parts of Proso, German, and Jap millets, wheat, and grain sorghum was used as bait.

Dove trapping was done during the first three weeks of July. Traps were checked twice daily, 9:00 AM and again at sundown, otherwise some mortality would occur from heat exhaustion and/or dehydration if the morning catch was left in the traps on the hot sand during the heat of the day.

Several doves were lost to predation by sparrow hawks that entered the traps. Control of these avian predators was gained through the use of one pole trap - 5 were taken.

3. Wood Duck Nesting Box Survey - A total of seventy-three sheet metal nest boxes with cone shaped roofs were available for nesting use in the Pleasant Creek area this spring. A usage check was made during the first week of May, just after the flood crest. Water stood at depth of about 12 ft. above the forest floor and all boxes were checked by standing in a boat.

Fifty-five of the seventy-three boxes had been flooded or still were flooded - two of the flooded boxes contained abandoned wood duck nests. Of the remaining eighteen boxes not flooded, three were occupied by wood ducks, one by hooded merganser, and one by a wren. A recheck made in July failed to find any evidence of late clutches. Those boxes that were occupied in May, and untouched by flood, were successful.

Thirteen more nest boxes were installed in summer of 1965.

4. Vegetation Transects - None of the vegetation transects in Pleasant Creek and Spring Lake were run this year. However, general observation notes are summarized and recorded with the 1966 Annual Water Plan.

VI. PUBLIC RELATIONS

A. Recreational Use

	:	:	MISCEL-	:	:	:	TOTAL					
1965	:	FISHING	:	LANEOUS	:	DUCKS	:	DEER	:	OTHER	:	DAYS USE
Spring	:	12,700	:	19,150	:	—	:	—	:	200	:	32,050
Summer	:	91,200	:	98,100	:	—	:	—	:	—	:	189,300
Fall	:	27,200	:	29,350	:	7,820	:	955	:	730	:	66,055
Total	:		:		:		:		:		:	
Days	:		:		:		:		:		:	
Use	:	131,100	:	146,600	:	7,820	:	955	:	930	:	287,405

Fishing usage during the spring months decreased 42 percent because of rising flood waters and because boating was restricted by U. S. Coast Guard in April. After boating restrictions were lifted and as flood waters were dropping, fish were biting real well. Fishing use increased about 5% during the summer. On the whole, fishing use decreased 5.1% for the year.

Included in miscellaneous uses, boating and picnicking, camping, etc., on sandbars was greatly influenced by high water in May and June. Miscellaneous uses decreased 33% for the year.

The total of 287,405 recreational days use for the year 1965 was 21.2% below last year.

B. Refuge Visitors - Refer to Table, "Refuge Visitors."

C. Refuge Participation - Refer to Table, "Refuge Participation."

D. Hunting - Blue-wing teal were plentiful during the special teal season and so were mallards and woodies. Local experienced hunters that could "hit 'em" had good success in filling their teal limits and were very capable of distinguishing teal from other ducks.

Inexperienced hunters, which were in the majority, had plenty of shooting, but had trouble separating teal from woodies and even mallards. This type of hunter, that was under spy-blind observation, had much trouble "hitting" teal, as well as other ducks shot at. No violations were noted during spy-blind operations, whereby a hunter actually killed protected ducks. However, many known experienced hunters reported observing others often shooting at and

killing wood ducks.

Waterfowl hunting days use, including the special teal season, and considering the one mallard limit during the regular season, was 7,820 more days, or an increase of 12.8% over last year.

During the first week of Iowa's regular duck season, opening on October 23, hunters that normally hunt the marshes in areas of mid pool and below, found it difficult to kill their one mallard limit. Instead of mallards and woodies taking the usual shooting pressure on the opening week in the Green Island area, green wing teal, ringneck and a few other mixed species took the pressure this year. Those hunting flooded timber in tail-water areas had little difficulty taking their mallard and wood duck limits.

By the last week of November, sheltered backwater lakes were covered with sheet ice, and most of the duck hunting (practically all mallards by this time) centered around the Spring Lake Closed Area and open water of lower Pool 13. A few hunters gaining access to these areas by sliding boats or scullboats over shore ice were very successful.

The goose flock on Spring Lake attracted many more hunters to the refuge boundaries this year. A firing line about 3/4 mile long developed near the southeast edge of the Closed Area. Every week day morning about twenty-five hunters would be waiting to ambush geese on their outbound feeding flights. Up to fifty hunters would gather there on week ends. About forty blues and snows and thirty-five Canadas is the estimate total kill within a two mile radius east of Spring Lake during the season.

For details concerning the deer hunting season, refer to section "Big Game Animals."

E. Violations - Refer to Table, "Violation Apprehension Summary."

F. Safety - No lost time accidents occurred on this district this year. No safety meetings were held at this station. Regular safety bulletins and refuge reminders are forwarded here from Winona. The usual automotive and equipment safety checks were made.

Refuge: Upper Mississippi Refuge, Savanna-Clinton District
Period: Year 1965

Period: Year 1965

35,

REFUGE PARTICIPATION

Refuge: Upper Mississippi Refuge, Savanna-Clinton District
Period: Year 1965

DATE	PERSONNEL	ACTIVITY
1/26	Gray & Nord	Attended meeting in Bellevue, Ia. w/officials of Corps of Eng., Ia. Cons. Comm., and Jackson Co. Cons. Bd. re Gov't. land use & zoning in Miss. R. Pool 12.
2/15	Gray & Nord	Attended meeting in Sabula, Ia. w/officials of Corp of Eng., Ia. Cons. Comm., and City re location of City Sewage Treatment Plant on Gov't. land.
2/16	Gray & Nord	Attended meeting in Rock Island, Ill. w/officials of Corp of Eng. and the City of Thomson, Ill. re location Sewage treatment plant on Gov't. land near Thomson, Ill.
3/12	Nord	Sent 2 news releases re Wildlife Week to 7 local newspapers.
4/6	Nord	Attended meeting at Savanna Army Depot with Ill. Game Biologist, D. Porter and Post Forester K. Wald re planning, Cooperative Conservation Agreement.
4/7	Nord	Attended meeting at Savanna Army Depot with Acting Depot Commander, Depot Forester, Depot Sportsmen's Club re planning, Cooperative Conservation Agreement.
4/24,25 5/1,2	Nord	Assisted County Sheriff in coop. w/Coast Guard in patrolling flooded property to guard against unauthorized boating and possible looting.
5/13	Nord	Attended refuge staff meeting at Prairie du Chien, Wis.
6/16	Nord & White	Assisted Ill. Fisheries Biologists, Rook & Pickering, in Fish Pop. Study using rotenone on creek near Milledgeville, Ill.
6/27	Nord & White	Conducted Anti-litter Patrol on upper Pool 13 - personally contacted 11 groups of campers etc. total person 43.
8/7	Nord & White	Assisted Ill. Cons. Dept. in registration of 325 duck hunters for annual drawing of blind sites on refuge lands.
8/28	Nord & White	Guided tour of Pleasant Cr. Unit & banding operations - T. Drake, Chicago News Photographer, and 5 Explorer Scouts attended.
9/7	Nord	Attended Iowa Conservation Officer's Conference at Amana, Ia.
9/9	Nord	Attended Refuge Staff & Law Enforcement Meeting at Prairie du Chien, Wis.
9/26	Nord	Taped 15 min. radio program, KROS Radio, Clinton, Ia. with Ill. Cons. Officer, M. Howe discussed hunting regulations, teal season, & refuge banding program.
9/30	Nord	Issued news releases re refuge hunting regulations to 6 local newspapers.
10/4,5	Nord	Attended Law Enforcement meeting with USGMAs at Springfield, Ill.

Refuge: Upper Mississippi Refuge, Savanna-Clinton District
Period: Year 1965

Period: Year 1965

37.

VIOLATION APPREHENSION SUMMARY

Refuge: Upper Mississippi Refuge, Savanna-Clinton District

Period: Calendar Year 1965

[illegible]

VII. OTHER ITEMS

A. Items of Interest - Record Flood of 1965.

The record flood spawned by rapid melting of abnormally heavy snow accumulations in Minnesota and Wisconsin forced excessive run-off before the ground was sufficiently thawed to absorb moisture. The run-off brought all the major Mississippi tributaries out of their banks and caused an awesome trail of property damage along the Mississippi as the flood waters came rampaging downstream through the Savanna District.

On April 28 the flood waters reached a crest of 24.85 ft. at Clinton, Iowa - almost 4 ft. higher than the previous record of 20.9 established in 1952.

The Moline Weather Bureau began issuing flood warnings on March 22 and had raised their flood crest predictions five times before the peak levels were reached. With the Weather Bureau's April 8 prediction of 22.5 ft., city officials and Civil Defense organizations of all river towns set to work in a determined fight against the flood with every available weapon. Thousands of volunteer sandbaggers, hundreds of trucks and earthmoving machines were put to work building levees to protect cities and highway systems. On April 16 the Moline Weather Bureau pushed the crest prediction up another foot - to 23.5 ft. by April 25. The National Guard troops were called to duty on April 16 to help with the sandbagging and to patrol areas of flooded homes, already evacuated to guard against looting.

It became a nerve-racking race against time. Sandbagging operations continued around the clock - teenagers dropped the books at school and went to work on the dikes. Hundreds of thousands of yards of sand were trucked to strategic locations, dumped and lined with polyethylene film to prevent seepage. Sandbags were filled and placed - 12,000 at Fulton, 2,000 at Sabula, and 150,000 at Clinton.

The river hit 21 ft. on April 22, breaking all previous water marks. President Johnson declared counties adjoining the river a disaster area. The flood crest was revised up again to 24.5 ft. at Clinton and was raised again, on April 23, to 24.8 ft.

The flood crest of 24.85 ft. at Clinton, Iowa, was reached on April 28. An undetermined amount of property damage was averted through the valuable assistance of flood crest predictions by the Weather Bureau and valient effort of the thousands of people involved in flood fighting operations. Nevertheless, property damage was totaled in the millions of dollars.

At least 850 Clinton homes were surrounded by water; 36 business

firms and 16 industrial plants were out of operation. About 1000 residents were evacuated from their homes. Walls and foundations of many homes buckled under the water pressure. Two sandbag dikes protected the central business district, however.

Fulton, Illinois, suffered the heaviest flood loss. About 300 East Fulton homes were flooded, with 7% of them having water to the eaves. Twenty percent had water on the first floor. In the rest of the city there were at least 550 homes with water on the first floor. Many homes were pushed off their foundations by swift currents; hundreds of foundations were badly damaged.

Water reached the street gutter on the west side of Main Street, Savanna, Illinois, flooding the basements of downtown business section and the entire railroad yards south of town. The flood halted all rail transportation along and across the river as tracks were inundated in many locations.

Illinois Highway 84 was flooded both north and south of Savanna, and north and south of Fulton. U.S. 30 was closed east of Fulton, cutting off that city from all forms of transportation except by boat and helicopter. U.S. Highway 67 was closed four miles south of Bellevue, Iowa, and in the vicinity of the Wapsipinicon River, south of Clinton, approaches to both the Gateway and the Fulton-Lyons Bridges over the Mississippi were closed at Clinton, as was the approach to the Savanna-Sabula Bridge.

Record of High Water Stages, Clinton, Iowa:

1870	4/27	19.7
1871	4/15	18.5
1880	6/28	20.5
1881	10/15	19.2
1888	6/1	20.2
1916	5/5	18.0
1920	4/8	19.0
1922	4/23	19.1
1938	9/23	18.3
1951	3/27	20.7
1952	3/26	20.9
1954	5/14	18.2
1965	4/28	24.85

Flood Crest, Savanna - 23.9, 4/27-4/28, 1965.

B. Photographs - Appended.

SIGNATURE PAGE

Submitted by:

Richard G. Nord
(Signature)

Date: January 20, 1966

Richard G. Nord
Refuge Manager
Title

Approved, Regional Office:

Date: March 11, 1966

Frank R. Martin
(Signature)

ASST.

Regional Refuge Supervisor

Upper right - Water pouring through hole in levee, Spring Lake, that was intentionally dug with a dozer in an effort to equalize flood waters as rapidly as possible. This was done to reduce hydraulic pressure against the levee and to reduce erosion of the levee embankment, as much as possible, when the river spilled over the levee.

Lower right - Aerial view of peak flood water overflowing the major portion of the south levee at Spring Lake. Note: only the tree line on the levee is not obscured from view by flood water.

• JAN • 66



• JAN • 66



Upper right - Record flood crest levels reached the top surface of the hand-wheel on the south control structure at Spring Lake. View looking north with trees in near-background on top surface of levee.

Lower right - View of same control structure as shown above with river, in foreground, at near normal levels. Flood crest, as shown by the line on photo, reached 11.1 feet above normal river levels on April 27, 1965.

• JAN • 66



JAN • 66



Upper right - View looking west along the south levee of Spring Lake near the Fin-an-Feather Resort, with peak flood water flowing about a foot deep over the levee. Water, here, was returning to the river, left-background. Line, drawn on photo, shows location of the center-section of levee.

Lower right - Photo showing one of two deep washes through levee at the site of the "old break" near Fin-an-Feather Resort. These washes are located about 20 yards beyond the sign shown in the photo above.

• JAN • 66



• JAN • 66



Upper right - Photo, showing river water spilling over the west levee, Spring Lake, on April 24, 1965 - 3 days before flood-crest levels arrived. With man-made break in the south levee flowing into the lake since April 17, the lake levels, shown in foreground, were raised to within 2 ft. of river levels before the river spilled over the levee.

Lower right - View of west levee, as shown in above photo, after flood water receded. River water, spilling over top of levee, caused severe erosion of levee embankment.

JAN • 66



JAN • 66

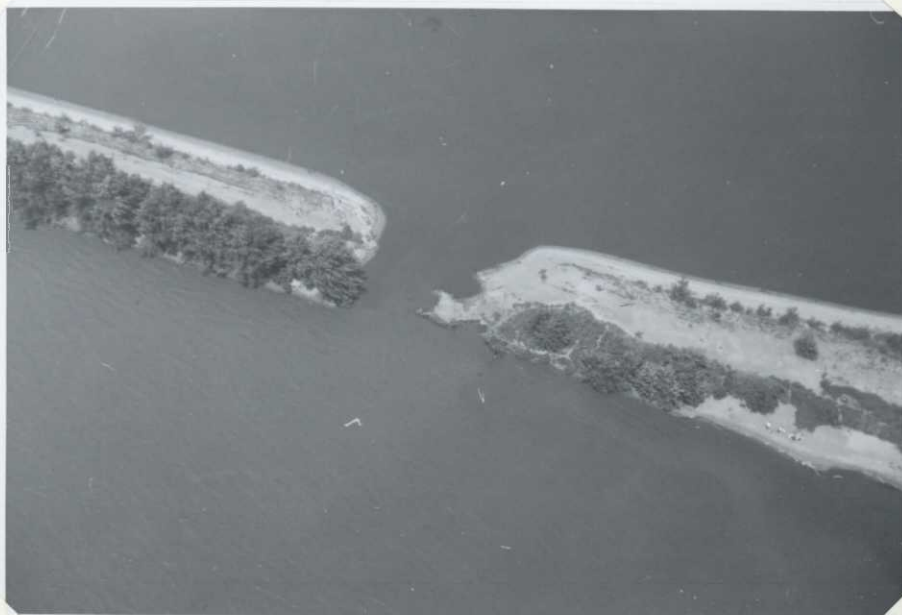


Upper right - Aerial view of wash-out in Spring Lake levee at the site of the "Old No.3 Break". This break had been repaired with dredge-sand in 1958. When the flood topped the levee, here, the sand offered little resistance to erosion. Water continues to flow into the lake through this break - even at normal river levels.

Lower right - Aerial view of man-made break used in attempt to equalize water levels as the flood crest approached. Water still continues to flow out of Spring Lake to return to the river, even at normal river levels.



• JAN • 66



• JAN • 66

Upper right - One of 55 wood duck nest boxes out of 73 that were inundated by flood waters in the Pleasant Creek Unit. Line, drawn on photo, indicates flood crest elevations of 603.7 feet, which was 14 feet above the forest floor.

Lower right - Aerial view of Lock & Dam 13, Fulton, Illinois, at flood crest. Headquarters buildings, center, and super-structure of the radial-gates are all that is visible above flood waters. The remainder of the dam, extending to center-background, and the lock walls, between the Headquarters and the radial gates, are completely inundated.

• JAN • 66



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Upper right * Photo, showing water 6 feet deep in refuge equipment storage warehouse at Bellevue, Ia. Flood waters left 2 inches of silt inside and caused some settling of the foundation resulting ⁱⁿ the development of cracks in the brick walls.

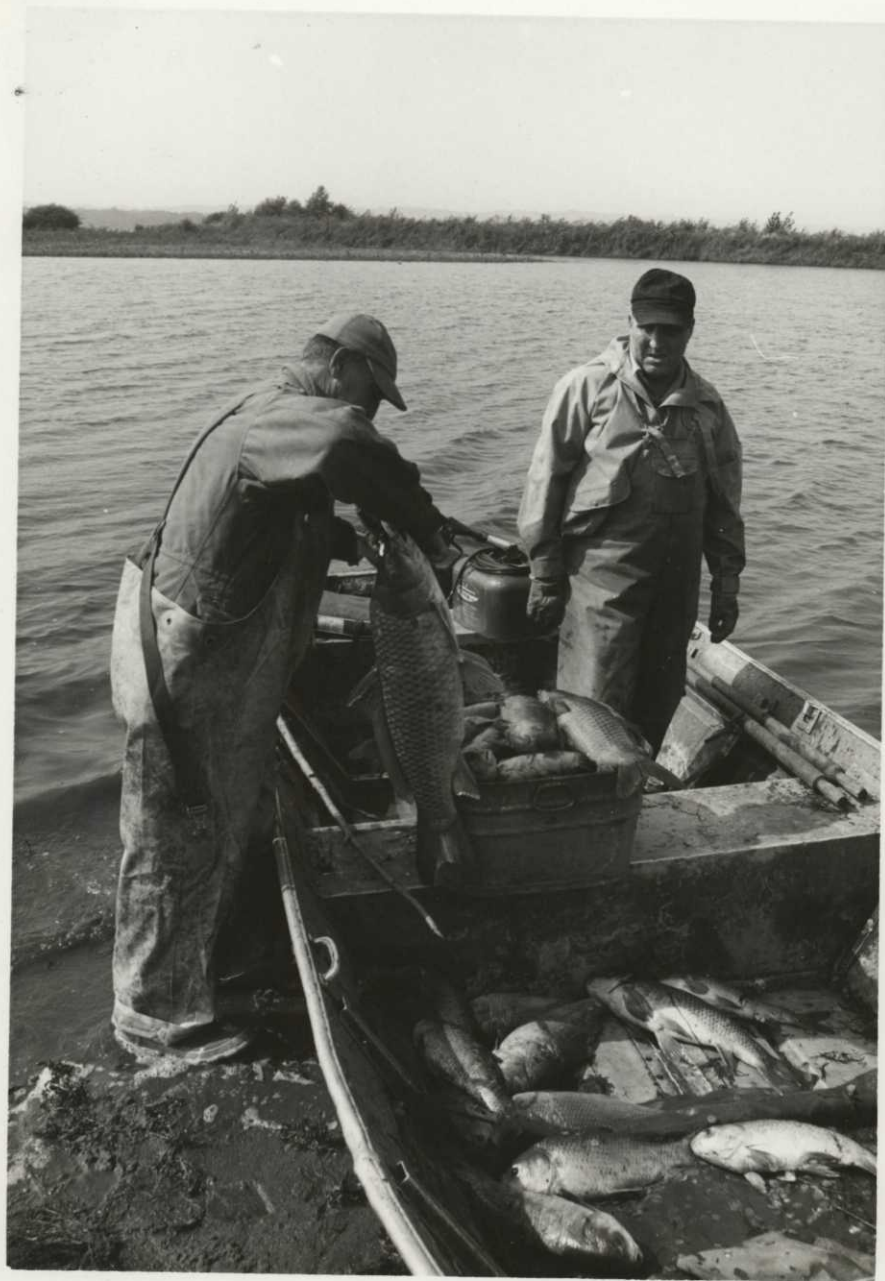
Lower right - This new Armco prefab. metal equipment storage warehouse was completed in December on the more centrally located Spring Lake Unit. The building is 28 x 56 feet with 4 over-head fibre-glass doors. By the way - it is built on top of a sand ridge that is well out of flood danger.

• JAN • 66



JAN • 66

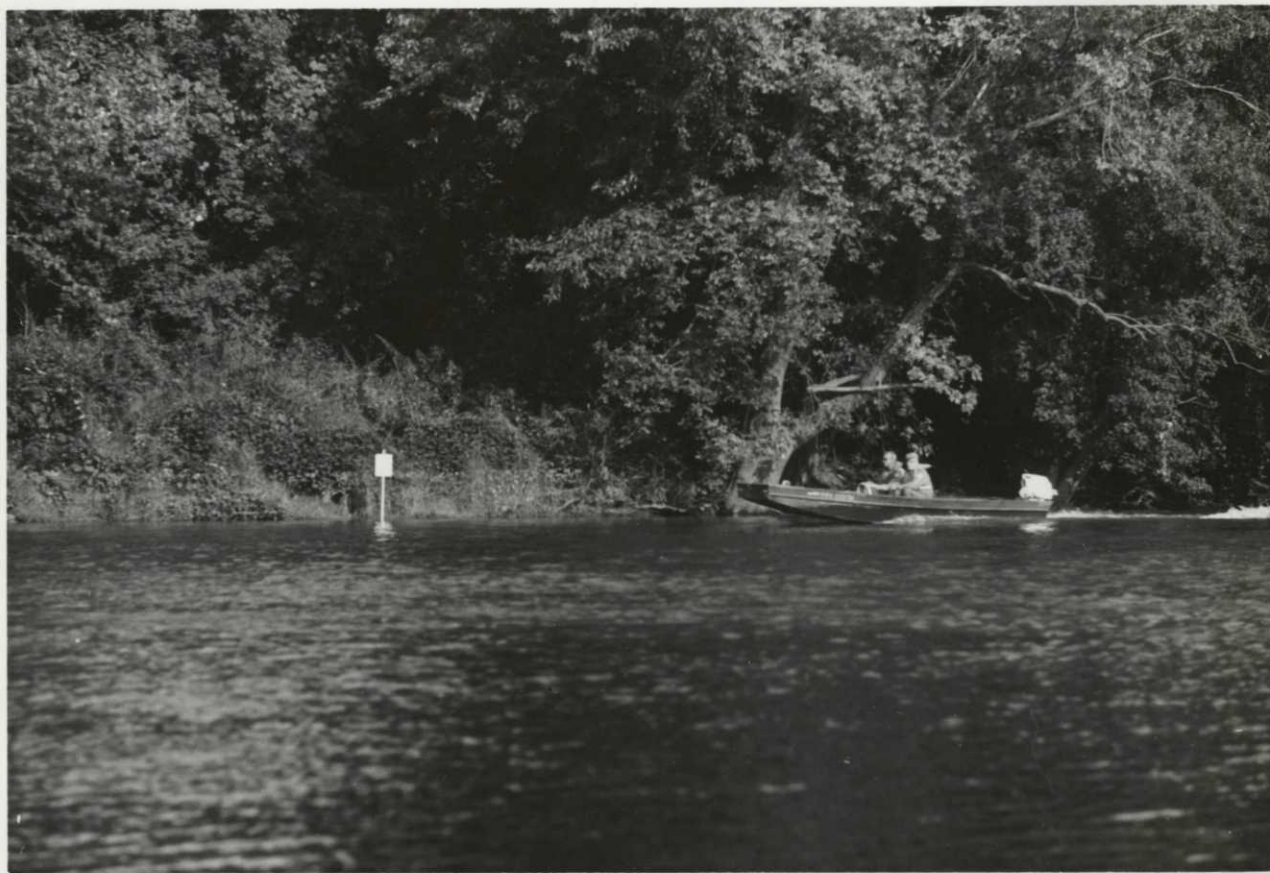




Commercial Fishing Operations on Spring Lake
Savanna District



Commercial Fishing Operations at Spring Lake
Savanna District



Refuge Manager Gray and District Manager Nord
On Patrol in the Savanna District



Refuge Manager Gray and District Manager Nord
On Patrol in the Savanna District



Approaching houseboat on river for inspection of Moorage



Refuge Manager Gray and District Manager Nord
On Inspection of the Savanna District