ILLINOIS NATURAL HISTORY SURVEY

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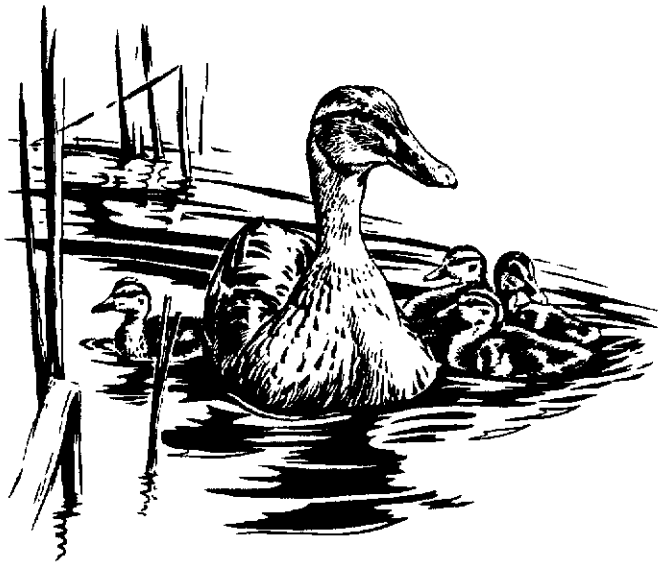

1995-1996 Aerial Waterbird Inventories of Chautauqua National Wildlife Refuge and Peoria Lake Environmental Management Program Sites

Annual Report

by

Michelle M. Georgi
and
Stephen P. Havera

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The purpose of this project was to aerially inventory waterfowl (ducks and geese), bald eagles, double-crested cormorants, and white pelicans during fall and spring, 1995-1996, at Upper Peoria Lake and Lake Chautauqua Environmental Management Program EMP sites. Inventories were conducted from light aircraft flying at low levels. Fall inventories were made on 5 and 14 September; 2, 11, 16, and 25 October; 6, 13, 20, and 28 November; 4 and 11 December; and 3 January. Spring inventories were made on 13, 19 and 29 February; 7, 12, 18, and 26 March; and 1 April. Species of waterbirds (Table 1) and their respective numbers were recorded during each inventory.

The inventory data are summarized by site in tabular form displaying the peak (highest number counted for all inventories) population count by species for each compartment at each site and for the entire site during fall (Sept.-Jan.) and spring (Feb.-Apr.) (Tables 2 and 5). The peak number for the entire site may not represent the sum of the peaks for all the compartments because the peak numbers in the various compartments could have occurred on different flights. Additionally, the results of each waterfowl inventory are provided by date for each site (Tables 3, 4, 6, and 7). Copies of maps delineating the areas inventoried at each site are also provided (Figures 1 and 2).

The Upper Peoria Lake EMP site is divided into two inventory areas, the lake segment and the 168-acre Forested Wetland Management Area (FWMA). In the lake segment, construction of a barrier island extending roughly one mile and the dredging of the East River side channel was completed in December 1994. A second island was formed during construction of the barrier island from dredged material unsuitable for use in the barrier island. The second island runs parallel to the barrier island. The fall of 1995 was the first complete waterfowl aerial censusing period (Sept. - Jan.) since the completion

of the islands. The peak number for mallards in the lake segment during fall 1995 and spring 1996 was 5,000 and 2,100 respectively, the highest peaks recorded since INHS began monitoring in 1991. Canada geese peaked at 2,000 during the fall of 1995; also the highest fall peak since 1991 (Table 2). Most of these mallards and Canada geese were observed on and around the barrier islands.

Construction of the FWMA was reported as 98% complete when the surveys began in September. In the beginning of this monitoring project we were unsure if the FWMA could be accurately surveyed from a fixed-wing plane. Waterfowl utilizing forested wetlands, wood ducks in particular, are difficult to inventory because they are concealed by vegetation and their numbers are underestimated (Geis 1966, Hawkins and Addy 1966, Conroy et al. 1988, Sherman 1990). In Mississippi, Sherman (1990) found that the speed and altitude of a fixed-wing plane make it difficult to survey birds in green-tree reservoirs and he concluded that aerial surveys with a fixed-wing plane were not a useful index of duck density in green-tree reservoirs. Likewise, Conroy et al. (1988) doubted that aerial transect surveys in a fixed-wing plane could be used effectively to survey wood ducks or American black ducks in forested wetlands due to the severe visibility biases.

The fall of 1995 was the first complete waterfowl aerial censusing period (Sept. - Jan.) of the FWMA since the levees were completed and the area was inundated. Waterfowl that could positively be identified by species and enumerated were recorded. Waterfowl that could not be identified by species due to poor visibility were not recorded; therefore, fall 1995 and spring 1996 counts of the FWMA are minimum estimates of birds in the area. For the upcoming 1996-1997 survey period, we suggest that waterfowl that cannot be identified by species be recorded as "unknowns", thereby acknowledging that

there are visibility biases but still treating the observations as an index to the relative abundance of waterfowl.

The Lake Chautauqua EMP site is divided into two inventory areas, Upper and Lower. Water levels on the Illinois River remained high through June 1995 and delayed the establishment of moist-soil plants. Consequently, waterfowl food conditions on Lower Chautauqua were only fair and consisted mostly of arrowhead (Sagittaria latifolia) while waterfowl food on Upper Chautauqua was sparse. The 1995 fall peak number for total ducks at Lake Chautauqua was 181,200, 51% lower than the 1994 peak of 368,800. However, the spring 1996 peak number for total ducks at Lake Chautauqua was 72,400, a 179% increase from the 1995 peak of 25,950 (Table 5).

Table 1. Common names of waterbirds aerially inventoried and abbreviations used in the report.

Common name		Abbreviation
Dabbling ducks		
Mallard	=	MALLARD
American black duck	=	BLK
Northern pintail	=	PNT
Blue-winged teal	=	BWT
Green-winged teal	=	GWT
American wigeon	=	WIG
Gadwall	=	GAD
Northern shoveler	=	SH
Diving ducks		
Lesser and greater scaup	=	SCAUP
Ring-necked duck	=	RN
Canvasback	=	CNVB
Redhead	=	RH
Ruddy duck	=	RDY
Common goldeneye	=	GLD
Bufflehead	=	BH
Mergansers		
Common merganser	=	CM
Red-breasted merganser	=	RBM
Hooded merganser	=	HM
Geese		
Canada goose	=	CG
Snow goose	=	SG
American coot	=	COOT
Bald Eagles		
Adult	=	AD
Immature	=	IMM
Double-crested cormorant	=	CORM
White pelican	=	PEL

UPPER PEORIA LAKE

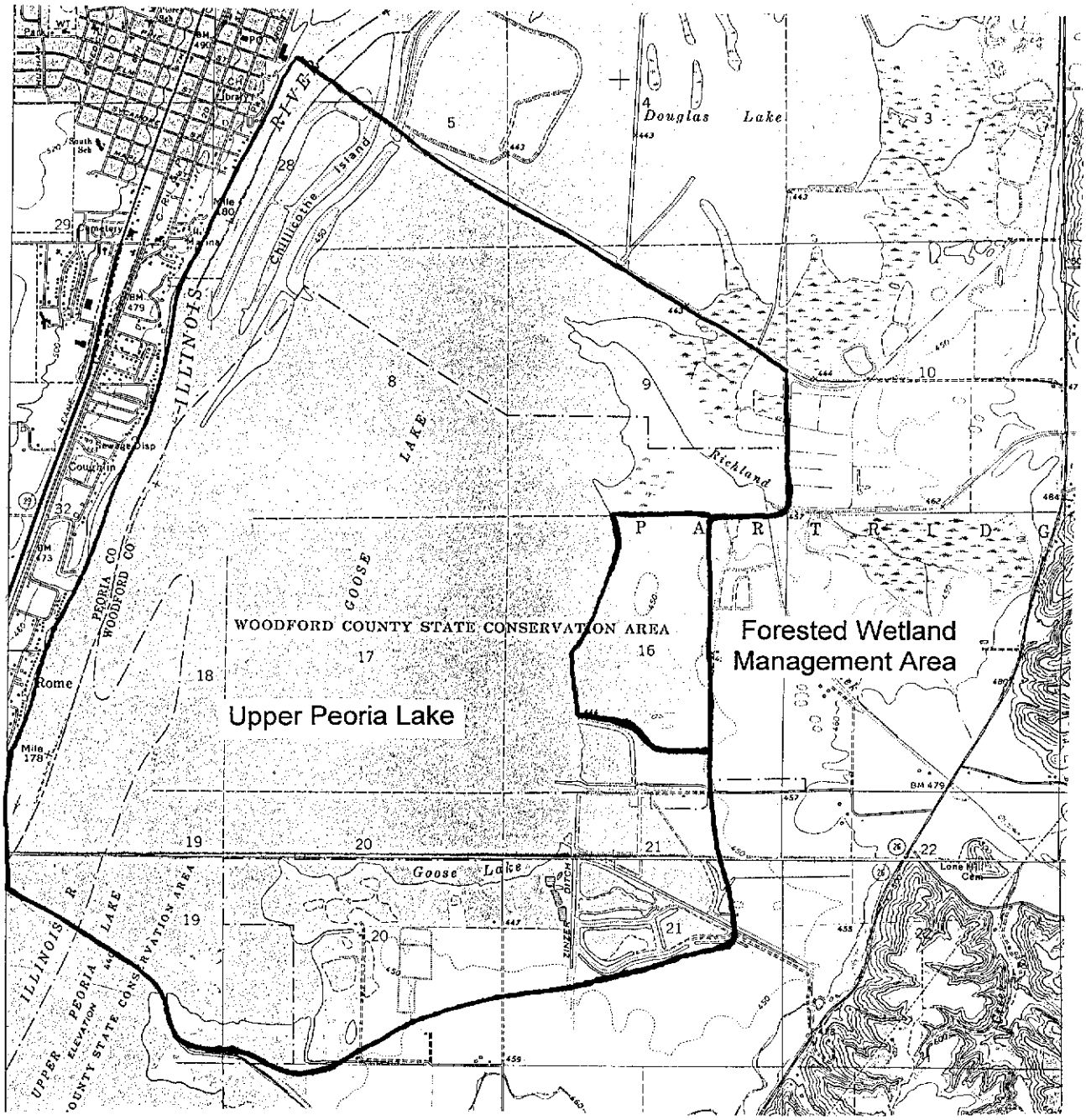

Figure 1. The Upper Peoria Lake EMP site with boundaries drawn delineating the census areas.

Table 2. Peak numbers of waterbirds aerially inventoried by the Illinois Natural History Survey at Upper Peoria Lake EMP site, fall 1995 and spring 1996[a].

	Upper Peoria Lake		Forested Wetland Management Area		Total EMP site	
	Fall	Spring	Fall	Spring	Fall	Spring
Dabbling ducks						
Mallard	5,000	2,100	300	25	5,000	2,100
American black duck	400	50	50	0	400	50
Northern pintail	600	0	0	0	600	0
Blue-winged teal	30	0	0	0	30	0
Green-winged teal	50	0	0	0	50	0
American wigeon	0	0	0	0	0	0
Gadwall	1,000	0	0	0	1,000	0
Northern shoveler	0	0	0	0	0	0
All dabbling ducks	6,000	2,150	350	25	6,000	2,150
Diving ducks						
Lesser & greater scaup	0		0	0	0	0
Ring-necked duck	300	0	0	0	300	0
Canvasback	0	0	0	0	0	0
Redhead	0	0	0	0	0	0
Ruddy duck	0	0	0	0	0	0
Common goldeneye	100	750	0	0	100	750
Bufflehead	0	0	0	0	0	0
All diving ducks	300	750	0	0	300	750
Mergansers						
Common merganser	700	1,800	0	0	700	1,800
Red-breasted merganser	0	0	0	0	0	0
Hooded merganser	0	0	0	0	0	0
All mergansers	700	1,800	0	0	700	1,800
All ducks	6,000	2,825	350	25	6,000	2,825
Geese						
Canada goose	2,000	40	0	0	2,000	40
Snow goose	50	0	0	0	50	0
American coot	1,000	100	0	0	1,000	100
Bald eagles						
Adult	8	0	0	0	8	0
Immature	3	0	0	0	3	0
All eagles	11	0	0	0	11	0
Double-crested cormorant	100	0	0	0	100	0
White pelican	0	0	0	0	0	0

[a] The peak number for the entire site may not represent the sum of the peaks for all the compartments because the peak numbers in the various compartments could have occurred on different flights.

Table 3. Waterbird aerial inventory data for each individual flight for Upper Peoria Lake EMP site, fall 1995.

	MALLARD	BLK	PNT	BWT	GWT	WIG	GAD	SH	SCAUP	RN	CNVB	RH	RDY	GLD	BH	CM	RBM	HM	TOTAL DABBLERS	TOTAL DIVERS	TOTAL MERG.	TOTAL DUCKS	CG	SG	COOT	BALD EAGLE AD	BALD EAGLE IMM	BALD EAGLE TOT	CORM	PEL
Upper Peoria Lake																														
09/05/95	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	0	0	50	15	0	0	0	0	0	0	0
09/14/95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/02/95	100	0	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	130	0	0	130	0	0	0	0	0	0	100	0
10/11/95	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	0	0
10/16/95	100	0	0	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	150	0	0	150	0	0	0	0	0	0	0	0
10/25/95	2,600	50	0	0	0	0	1,000	0	0	300	0	0	0	0	0	0	0	0	3,650	300	0	3,950	900	0	1,000	0	0	0	0	0
11/06/95	1,200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,200	0	0	1,200	500	50	100	0	0	0	0	0
11/13/95	5,000	400	600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,000	0	0	6,000	2,000	0	0	0	0	0	0	0
11/20/95	500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	500	0	0	500	400	0	0	0	0	0	0	0
11/28/95	700	400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,100	0	0	1,100	0	0	0	0	0	0	0	0
12/04/95	600	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	650	0	0	650	125	0	0	0	0	0	0	0
12/11/95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01/03/96	1,600	50	0	0	0	0	0	0	0	0	0	0	0	100	0	700	0	0	1,650	100	700	2,450	0	0	0	8	3	11	0	0
Forested Wetland Management Area																														
09/05/95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09/14/95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/02/95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/11/95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/16/95	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	0	0	50	0	0	0	0	0	0	0	0
10/25/95	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	0	0	200	0	0	0	0	0	0	0	0
11/06/95	300	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	350	0	0	350	0	0	0	0	0	0	0	0
11/13/95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/20/95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/28/95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/04/95	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	0	0	50	0	0	0	0	0	0	0	0
12/11/95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01/03/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upper Peoria Lake EMP Area Total																														
09/05/95	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	0	0	50	15	0	0	0	0	0	0	0
09/14/95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/02/95	100	0	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	130	0	0	130	0	0	0	0	0	0	100	0
10/11/95	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	0	0
10/16/95	150	0	0	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	200	0	0	200	0	0	0	0	0	0	0	0
10/25/95	2,800	50	0	0	0	0	1,000	0	0	300	0	0	0	0	0	0	0	0	3,850	300	0	4,150	900	0	1,000	0	0	0	0	0
11/06/95	1,500	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,550	0	0	1,550	500	50	100	0	0	0	0	0
11/13/95	5,000	400	600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,000	0	0	6,000	2,000	0	0	0	0	0	0	0
11/20/95	500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	500	0	0	500	400	0	0	0	0	0	0	0
11/28/95	700	400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,100	0	0	1,100	0	0	0	0	0	0	0	0
12/04/95	650	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	700	0	0	700	125	0	0	0	0	0	0	0
12/11/95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01/03/96	1,600	50	0	0	0	0	0	0	0	0	0	0	0	100	0	700	0	0	1,650	100	700	2,450	0	0	0	8	3	11	0	0

Table 4. Waterbird aerial inventory data for each individual flight for Upper Peoria Lake EMP site, spring 1996.

	MALLARD	BLK	PNT	BWT	GWT	WIG	GAD	SH	SCAUP	RN	CNVB	RH	RDY	GLD	BH	CM	RBM	HM	TOTAL DABBLERS	TOTAL DIVERS	TOTAL MERG.	TOTAL DUCKS	CG	SG	COOT	BALD EAGLE AD	BALD EAGLE IMM	BALD EAGLE TOT	CORM	PEL
Upper Peoria Lake																														
02/13/96	300	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	320	0	0	320	0	0	0	0	0	0	0	0
02/19/96	250	25	0	0	0	0	0	0	0	0	0	0	0	750	0	1,800	0	0	275	750	1,800	2,825	0	0	0	0	0	0	0	0
02/29/96	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	500	0	0	50	0	500	550	0	0	0	0	0	0	0	0
03/07/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/12/96	2,100	50	0	0	0	0	0	0	0	0	0	0	0	0	0	500	0	0	2,150	0	500	2,650	0	0	0	0	0	0	0	0
03/18/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/26/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04/01/96	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	0	0	30	40	0	100	0	0	0	0	0
Forested Wetland Management Area																														
02/13/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02/19/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02/29/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/07/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/12/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/18/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/26/96	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	0	0
04/01/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upper Peoria Lake EMP Area Total																														
02/13/96	300	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	320	0	0	320	0	0	0	0	0	0	0	0
02/19/96	250	25	0	0	0	0	0	0	0	0	0	0	0	750	0	1,800	0	0	275	750	1,800	2,825	0	0	0	0	0	0	0	0
02/29/96	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	500	0	0	50	0	500	550	0	0	0	0	0	0	0	0
03/07/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/12/96	2,100	50	0	0	0	0	0	0	0	0	0	0	0	0	0	500	0	0	2,150	0	500	2,650	0	0	0	0	0	0	0	0
03/18/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/26/96	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	0	0
04/01/96	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	0	0	30	40	0	100	0	0	0	0	0

LAKE CHAUTAUQUA

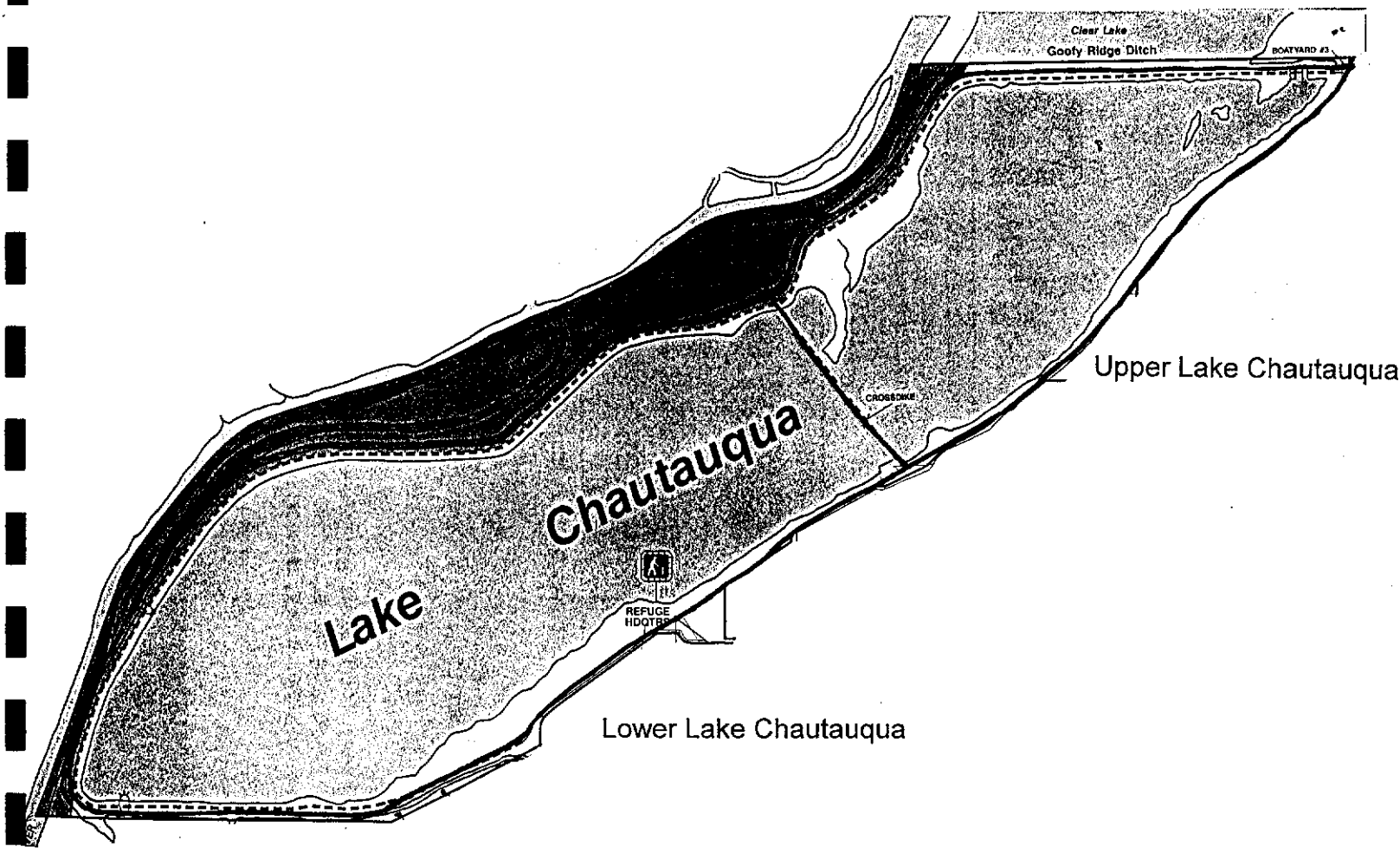

Figure 2. The Lake Chautauqua EMP site with boundaries drawn delineating the census areas.

Table 5. Peak numbers of waterbirds aerially inventoried by the Illinois Natural History Survey at Lake Chautauqua EMP site, fall 1995 and spring 1996[a].

	Upper Chautauqua		Lower Chautauqua		Total EMP site	
	Fall	Spring	Fall	Spring	Fall	Spring
Dabbling ducks						
Mallard	2,200	2,000	164,000	50,000	165,000	52,000
American black duck	0	0	3,000	100	3,000	100
Northern pintail	500	0	10,000	10,000	10,500	10,000
Blue-winged teal	3,500	200	6,200	1,700	9,700	1,700
Green-winged teal	2,000	800	5,000	8,000	5,000	8,800
American wigeon	650	0	700	0	1,150	0
Gadwall	0	0	4,000	250	4,000	250
Northern shoveler	150	50	2,000	1,000	2,100	1,000
All dabbling ducks	5,300	2,000	178,500	61,900	180,600	63,900
Diving ducks						
Lesser & greater scaup	0	0	0	3,000	0	3,000
Ring-necked duck	0	0	400	1,000	400	1,000
Canvasback	0	0	500	6,500	500	6,500
Redhead	0	0	0	0	0	0
Ruddy duck	0	0	0	0	0	0
Common goldeneye	0	50	100	0	100	50
Bufflehead	0	0	0	0	0	0
All diving ducks	0	50	600	8,000	600	8,000
Mergansers						
Common merganser	0	0	0	500	0	500
Red-breasted merganser	0	0	0	0	0	0
Hooded merganser	0	0	0	0	0	0
All mergansers	0	0	0	500	0	500
All ducks	5,300	2,000	179,100	70,400	181,200	72,400
Geese						
Canada goose	1,000	10	23,000	20,000	23,100	20,000
Snow goose	0	0	300	500	300	500
American coot	1,100	0	6,000	0	6,900	0
Bald eagles						
Adult	2	4	15	4	15	8
Immature	2	3	25	3	25	4
All eagles	4	5	40	7	40	12
Double-crested cormorant	130	0	0	0	130	0
White pelican	0	0	0	40	0	40

[a] The peak number for the entire site may not represent the sum of the peaks for all the compartments because the peak numbers in the various compartments could have occurred on different flights.

Table 6. Waterbird aerial inventory data for each individual flight for Lake Chautauqua EMP site, fall 1995.

	MALLARD	BLK	PNT	BWT	GWT	WIG	GAD	SH	SCAUP	RN	CNVB	RH	RDY	GLD	BH	CM	RBM	HM	TOTAL DABBLERS	TOTAL DIVERS	TOTAL MERG.	TOTAL DUCKS	CG	SG	COOT	BALD EAGLE AD	BALD EAGLE IMM	BALD EAGLE TOT	CORM	PEL
Upper Lake Chautauqua																														
09/05/95	1,700	0	100	3,500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,300	0	0	5,300	75	0	0	0	0	0	130	0
09/14/95	2,200	0	250	200	0	650	0	150	0	0	0	0	0	0	0	0	0	0	3,450	0	0	3,450	350	0	0	0	0	0	0	0
10/02/95	250	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	350	0	0	350	0	0	700	0	0	0	100	0
10/11/95	700	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	800	0	0	800	0	0	400	0	0	0	0	0
10/16/95	200	0	0	0	700	400	0	0	0	0	0	0	0	0	0	0	0	0	1,300	0	0	1,300	0	0	400	0	0	0	25	0
10/25/95	800	0	0	0	1,100	0	0	100	0	0	0	0	0	0	0	0	0	0	2,000	0	0	2,000	150	0	1,100	0	0	0	0	0
11/06/95	900	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,000	0	0	1,000	200	0	900	2	0	2	0	0
11/13/95	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	0	0	200	100	0	200	0	0	0	0	0
11/20/95	1,600	0	500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,100	0	0	2,100	100	0	0	2	2	4	0	0
11/28/95	1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,000	0	0	1,000	0	0	0	0	0	0	0	0
12/04/95	1,000	0	0	0	2,000	0	0	0	0	0	0	0	0	0	0	0	0	0	3,000	0	0	3,000	1,000	0	0	1	0	1	0	0
12/11/95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01/03/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lower Lake Chautauqua																														
09/05/95	1,000	0	500	6,200	850	125	0	0	0	0	0	0	0	0	0	0	0	0	8,675	0	0	8,675	0	0	0	0	0	0	0	0
09/14/95	3,900	0	1,000	1,800	400	500	200	0	0	0	0	0	0	0	0	0	0	0	7,800	0	0	7,800	400	0	400	0	0	0	0	0
10/02/95	7,500	0	1,200	400	200	700	0	500	0	0	25	0	0	0	0	0	0	0	10,500	25	0	10,525	500	0	800	0	0	0	0	0
10/11/95	7,500	0	600	0	1,000	600	1,200	0	0	0	0	0	0	0	0	0	0	0	10,900	0	0	10,900	500	0	3,500	0	0	0	0	0
10/16/95	4,500	0	800	0	1,000	300	500	50	0	0	0	0	0	0	0	0	0	0	7,150	0	0	7,150	400	0	4,000	0	0	0	0	0
10/25/95	9,000	0	600	0	2,900	400	1,500	2,000	0	400	0	0	0	0	0	0	0	0	16,400	400	0	16,800	2,500	0	4,000	0	0	0	0	0
11/06/95	118,000	1,500	10,000	0	5,000	0	4,000	1,800	0	0	0	0	0	0	0	0	0	0	140,300	0	0	140,300	5,000	0	6,000	2	6	8	0	0
11/13/95	34,000	200	5,500	0	0	500	1,000	0	0	0	100	0	0	0	0	0	0	0	41,200	100	0	41,300	9,000	300	0	15	25	40	0	0
11/20/95	160,000	3,000	10,000	0	4,000	500	1,000	0	0	0	500	0	0	100	0	0	0	0	178,500	600	0	179,100	23,000	0	3,000	7	10	17	0	0
11/28/95	35,000	3,000	1,500	0	900	0	0	0	0	0	0	0	0	0	0	0	0	0	40,400	0	0	40,400	5,000	0	0	5	6	11	0	0
12/04/95	164,000	3,000	0	0	500	0	0	800	0	0	200	0	0	0	0	0	0	0	168,300	200	0	168,500	15,000	0	0	5	10	15	0	0
12/11/95	200	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	220	0	0	220	50	0	0	0	0	0	0	0
01/03/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lake Chautauqua Total																														
09/05/95	2,700	0	600	9,700	850	125	0	0	0	0	0	0	0	0	0	0	0	0	13,975	0	0	13,975	75	0	0	0	0	0	130	0
09/14/95	6,100	0	1,250	2,000	400	1,150	200	150	0	0	0	0	0	0	0	0	0	0	11,250	0	0	11,250	750	0	400	0	0	0	0	0
10/02/95	7,750	0	1,200	400	200	700	0	600	0	0	25	0	0	0	0	0	0	0	10,850	25	0	10,875	500	0	1,500	0	0	0	100	0
10/11/95	8,200	0	700	0	1,000	600	1,200	0	0	0	0	0	0	0	0	0	0	0	11,700	0	0	11,700	500	0	3,900	0	0	0	0	0
10/16/95	4,700	0	800	0	1,700	700	500	50	0	0	0	0	0	0	0	0	0	0	8,450	0	0	8,450	400	0	4,400	0	0	0	25	0
10/25/95	9,800	0	600	0	4,000	400	1,500	2,100	0	400	0	0	0	0	0	0	0	0	18,400	400	0	18,800	2,650	0	5,100	0	0	0	0	0
11/06/95	118,900	1,500	10,100	0	5,000	0	4,000	1,800	0	0	0	0	0	0	0	0	0	0	141,300	0	0	141,300	5,200	0	6,900	4	6	10	0	0
11/13/95	34,200	200	5,500	0	0	500	1,000	0	0	0	100	0	0	0	0	0	0	0	41,400	100	0	41,500	9,100	300	200	15	25	40	0	0
11/20/95	161,600	3,000	10,500	0	4,000	500	1,000	0	0	0	500	0	0	100	0	0	0	0	180,600	600	0	181,200	23,100	0	3,000	9	12	21	0	0
11/28/95	36,000	3,000	1,500	0	900	0	0	0	0	0	0	0	0	0	0	0	0	0	41,400	0	0	41,400	5,000	0	0	5	6	11	0	0
12/04/95	165,000	3,000	0	0	2,500	0	0	800	0	0	200	0	0	0	0	0	0	0	171,300	200	0	171,500	16,000	0	0	6	10	16	0	0
12/11/95	200	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	220	0	0	220	50	0	0	0	0	0	0	0
01/03/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 7. Waterbird aerial inventory data for each individual flight for Lake Chautauqua EMP site, spring 1996.

	MALLARD	BLK	PNT	BWT	GWT	WIG	GAD	SH	SCAUP	RN	CNVB	RH	RDY	GLD	BH	CM	RBM	HM	TOTAL DABBLERS	TOTAL DIVERS	TOTAL MERG.	TOTAL DUCKS	CG	SG	COOT	BALD EAGLE AD	BALD EAGLE IMM	BALD EAGLE TOT	CORM	PEL
Upper Lake Chautauqua																														
02/13/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02/19/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	1	0	1	0	0
02/29/96	800	0	0	0	0	0	0	0	0	0	0	0	0	50	0	0	0	0	800	50	0	850	0	0	0	0	0	0	0	0
03/07/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/12/96	2,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,000	0	0	2,000	0	0	0	4	1	5	0	0
03/18/96	200	0	0	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	400	0	0	400	0	0	0	4	1	5	0	0
03/26/96	0	0	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	25	0	0	25	0	0	0	1	3	4	0	0
04/01/96	300	0	0	0	800	0	0	50	0	0	0	0	0	0	0	0	0	0	1,150	0	0	1,150	0	0	0	1	0	1	0	0
Lower Lake Chautauqua																														
02/13/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02/19/96	50	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	0	0	75	25	0	0	0	0	0	0	0
02/29/96	700	50	300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,050	0	0	1,050	2,800	0	0	2	3	5	0	0
03/07/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/12/96	50,000	0	10,000	500	400	0	0	1,000	3,000	0	5,000	0	0	0	0	500	0	0	61,900	8,000	500	70,400	20,000	500	0	4	3	7	0	15
03/18/96	6,700	0	200	0	300	0	0	0	1,000	1,000	3,500	0	0	0	0	0	0	0	7,200	5,500	0	12,700	800	0	0	0	0	0	0	30
03/26/96	2,700	20	100	100	200	0	0	200	0	0	0	0	0	0	0	0	0	0	3,320	0	0	3,320	200	0	0	0	0	0	0	15
04/01/96	14,000	100	0	1,700	8,000	0	250	400	700	0	6,500	0	0	0	0	0	0	0	24,450	7,200	0	31,650	800	0	0	0	1	1	0	40
Lake Chautauqua Total																														
02/13/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02/19/96	50	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	0	0	75	35	0	0	1	0	1	0	0
02/29/96	1,500	50	300	0	0	0	0	0	0	0	0	0	0	50	0	0	0	0	1,850	50	0	1,900	2,800	0	0	2	3	5	0	0
03/07/96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/12/96	52,000	0	10,000	500	400	0	0	1,000	3,000	0	5,000	0	0	0	0	500	0	0	63,900	8,000	500	72,400	20,000	500	0	8	4	12	0	0
03/18/96	6,900	0	200	200	300	0	0	0	1,000	1,000	3,500	0	0	0	0	0	0	0	7,600	5,500	0	13,100	800	0	0	4	1	5	0	30
03/26/96	2,700	20	100	100	200	0	0	225	0	0	0	0	0	0	0	0	0	0	3,345	0	0	3,345	200	0	0	1	3	4	0	15
04/01/96	14,300	100	0	1,700	8,800	0	250	450	700	0	6,500	0	0	0	0	0	0	0	25,600	7,200	0	32,800	800	0	0	1	1	2	0	40

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SUBMITTED BY:

Stephen P. Havera

Stephen P. Havera
Professional Scientist
Illinois Natural History Survey

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