



United States
Department of
Agriculture

Animal and
Plant Health
Inspection
Service

Wildlife Services

1201 Storbeck Dr.
Waupun, WI 53963
(920) 324-4514
Fax: (920) 324-5367

2005 WISCONSIN DOUBLE-CRESTED CORMORANT BREEDING SURVEY

Collaborators and Cooperating Agencies

Bob Nack	WI Wildlife Services
Charles Lovell	WI Wildlife Services
Steve Krueger	WI Wildlife Services
DeWayne Snobl	WI Wildlife Services
Sarah Meadows	University of Wisconsin – Madison
Ken Stromborg	U.S. Fish & Wildlife Service
Bill Thrune	U.S. Fish & Wildlife Service
Tony Batya	U.S. Fish & Wildlife Service
Brian Pember	U.S. Fish & Wildlife Service
Wendy Woyczic	U.S. Fish & Wildlife Service
Jon Krapful	U.S. Fish & Wildlife Service
Brenda Hill	WI Department of Natural Resources
Brian Peters	WI Department of Natural Resources
Sumner Matteson	WI Department of Natural Resources
Julie Van Stappen	National Park Service – Apostle Islands National Lakeshore
Tom Ziebell	Private citizen

The interior population of the Double-crested cormorant (*Phalacrocorax auritus*) has increased dramatically over the last 30 years. In Wisconsin, cormorants were listed as state endangered in 1972; presumably due to the effects of DDT, habitat deterioration, and human disturbance. Following protection and management efforts, the cormorant breeding population increased dramatically and the bird was delisted from “threatened” status in 1986. Between 1973 and 1997, the State’s breeding population increased 25% annually from 66 nests at 3 colonies to 10,546 nests at 23 colonies (Matteson et al. 1999).

The population increase and associated impacts are not exclusive to Wisconsin. Breeding populations in the Great Lakes region have increased from 200 nesting pairs in 1968 to approximately 115,000 nesting pairs in 2000 (Ludwig 1984, D. V. C. Weseloh, unpublished data). Concurrent with the population increase, conflicts and concerns over economic impacts associated with cormorant depredation at aquaculture facilities (mainly catfish farms) in the south have increased.

The nation-wide population increase prompted a multi-agency initiative to establish a cormorant management plan. In Wisconsin, the U.S. Fish and Wildlife Service (FWS), USDA – Wildlife Services (WS), Wisconsin Dept. of Natural Resources (DNR), National Park Service (NPS), and private individuals coordinated efforts to count nests at active breeding colonies. The last state-wide population survey was conducted in 1997 (Matteson et al. 1999) and all active colonies were revisited in 2005. Objectives of the breeding survey were to update the state-wide number of breeding pairs, identify new breeding colonies, and verify the status of historically active colonies.



Resolving conflicts between people and wildlife.

METHODS

Nest counts at breeding colonies were conducted following the protocol outlined by colonial waterbird researchers. Breeding colonies were visited during the month of June (when possible) and in temperatures < 85F. All nest structures (whether eggs are present or not) that appeared to have been “worked on” or maintained in the 2005 breeding season were recorded. When possible, total ground counts were conducted; however, some colonies were surveyed by boat and spotting scope from a distance.

RESULTS

Nest count data collected in 1997 and 2005 are presented in Table 1. In 2005, 14,462 nesting pairs were counted state-wide. The state was divided into the same regions described by Matteson et al. 1999 (Figure 1). A majority of the nesting cormorants occurred on islands in the Green Bay region, followed by the East-Central, Apostle Islands, Central/North-Central, and the Upper Mississippi River (Table 2).

A historical comparison between 1997 and 2005 reveals a 37.1% increase in the state-wide number of nesting pairs; however, the regional distribution of nesting pairs remained similar (Table 2.). The number of nests counted on colonies in the Green Bay Island region increased 45.2% since 1997 (Table 2). Nest counts on Cat Island remained relatively unchanged; however, significant increases in nest counts were observed on Jack, Hat, Pilot, and Strawberry Islands (Table 1). The number of nests counted on Spider Island decreased by almost 50% since 1997; however, nest counts in 2005 may have been influenced by investigator disturbance (Ken Stromborg, FWS, personal communication). The number of nests counted on the northern islands (excluding Cat Island) increased by 4025 nesting pairs (Table 1).

The number of nests counted in the East-Central region has increased 46.8% (Table 2). Of interest is the decrease in the number of nesting pairs on Lake Puckaway from 459 in 1997 to 51 in 2005. Notably fewer cormorants have been observed frequenting lakes in the area (Jim Holzward, DNR, personal communication). A new colony was established in Miller’s Bay on Lake Winnebago in 2000. This colony has been increasing since 2000 and currently accounts for 66% of the nesting pairs counted in the region (Figure 2).

Breeding colonies in the Upper Mississippi River, Apostle Islands, and Central/North-Central regions appear to have declined since 1997 (Table 2). The Mead Wildlife Area and Turner Creek Cranberry Bog both experienced considerable declines in the number of nesting birds since 1997 (Table 1). In 2005, all 16 nests on artificial platforms on the Berkahn Flowage (Mead Wildlife Area) were unsuccessful due to predation by great-horned owls (*Bubo virginianus*). Historical nesting colonies in the Burnett County area of northwestern WI did not have active colonies in 1997 and continued to be inactive in 2005 (Bob Hanson, DNR, personal communication; Figure 1).

SUMMARY

Since 1997, the number of double-crested cormorant nesting pairs has increased 37.1% in Wisconsin. The Green Bay Island and East-Central regions have increased 45.2% and 46.8% respectively. The establishment of a new colony in Miller’s Bay on Lake Winnebago is likely responsible for the East-Central regional increase. This colony may have received cormorants emigrating from the colony on Lake Puckaway; however, cormorants are thought to show high fidelity to colony sites. Nest counts in the Upper Mississippi River, Apostle Islands, and Central/North-Central regions appear to have declined. This survey is a count of breeding cormorants at known active colonies and does not account for non-breeding birds. The actual number of cormorants in the state is therefore much higher than what our survey results suggest.

LITERATURE CITED

Matteson, S.W., P.W. Rasmussen, K.L. Strombrog, T.I. Meier, J. Van Stappen, and E.C. Nelson. 1999. Changes in the status, distribution, and management of Double-crested Cormorants in Wisconsin. P. 27-45 in M.E. Tobin [editor] Symposium on Double-crested Cormorants: population status and management issues in the Midwest. USDA/APHIS Technical Bulletin Number 1879.

Table 1. Nest count data collected in Wisconsin in 2005 compared with data collected from active nesting colonies in 1997.

Colony	Region	Survey date	1997	2005	% change
Trempealeau NWR ^a	Upper Mississippi River	1997	12	0	-100.0
Mertes Slough	Upper Mississippi River	1-Jun-05	3	9	200.0
Smith Slough	Upper Mississippi River	13-Jun-05	20	8	-60.0
Berkhahn Flowage - Mead WMA	Central/North-Central	27-Jun-05	114	16	-86.0
Teal Flowage - Mead WMA	Central/North-Central	7-Jul-05	113	53	-53.1
Turner Creek Cranberry Bog	Central/North-Central	9-Jun-05	139	0	-100.0
Millers Bay - Lake Winnebago	East-Central	5-Jun-05	0	681	
S.C. Dredge Island – L. Puckaway	East-Central	2-Jun-05	306	0	-100.0
E. Dredge Island – L. Puckaway	East-Central	2-Jun-05	153	51	-66.7
Unit 1-5 - Horicon NWR	East-Central	1997	105	0	-100.0
Colleins Ditch - Horicon NWR	East-Central	1997	85	0	-100.0
Main Pool – Horicon NWR	East-Central	20-May-05	13	306	2253.8
Four Mile Island - Horicon Marsh	East-Central		46	1	-97.8
Gull Island ^b	Apostle Islands	2004	416	374	-10.1
Eagle Island ^b	Apostle Islands	2004	151	81	-46.4
Fish Island - Green Bay ^a	Green Bay Islands	1997	5	0	-100.0
Lone Tree Island - Green Bay ^a	Green Bay Islands	1997	3	0	-100.0
Hog Island - Green Bay ^a	Green Bay Islands	1997	8	0	-100.0
Cat Island - Green Bay	Green Bay Islands	10-May-05	2126	2113	-0.6
Pilot Island - Green Bay	Green Bay Islands	7-Jun-05	247	2937	1089.1
Strawberry Island - Green Bay	Green Bay Islands	7-Jun-05	5	312	6140.0
Jack Island - Green Bay	Green Bay Islands	7-Jun-05	1154	3429	197.1
Hat Island - Green Bay	Green Bay Islands	7-Jun-05	1457	2106	44.5
Spider Island - Green Bay	Green Bay Islands	7-Jun-05	3865	1985	-48.6
Total			10546	14462	

^a Active colonies in 1997, but not surveyed in 2005 because of inactivity

^b Active colonies surveyed in 2004

Table 2. Double-crested cormorant nest counts by region in 1997 versus 2005. Percent of total nests counted is given in parenthesis.

Region	1997	2005	% change
Green Bay Islands	8,870 (84.1)	12,882 (89.1)	45.2
East-Central	708 (6.7)	1,039 (7.2)	46.8
Apostle Islands	567 (5.4)	455 (3.1)	-19.8
Central/North-Central	366 (3.5)	69 (0.5)	-81.1
Upper Mississippi River	35 (0.3)	17 (0.1)	-51.4
Total	10,546	14,462	37.1

Figure 1. Breeding regions for double-crested cormorants in Wisconsin (Matteson et al. 1999).

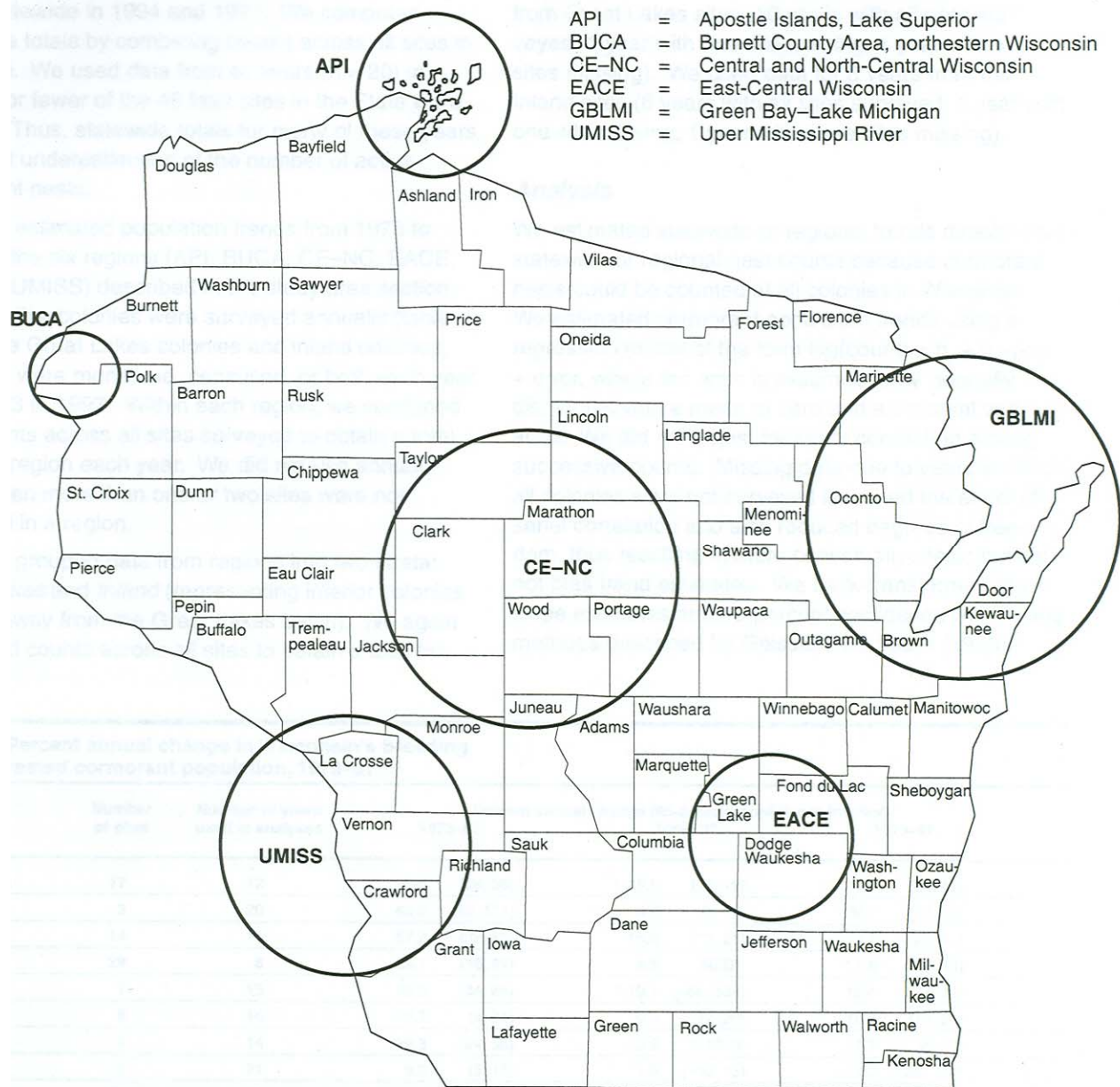


Figure 2. Double-crested cormorant nest counts in Miller's Bay, Lake Winnebago from 2000-2005 (data from T. Ziebell).

