

WISCONSIN ENDANGERED RESOURCES REPORT 10

1984 BREEDING BIRD SURVEY OF LAKES POYGAN, WINNECONNE, AND
BUTTE DES MORTS, WISCONSIN

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SUMMARY

During the 1984 breeding season we surveyed Lakes Poygan, Winneconne, and Butte des Morts, in Winnebago and Waushara counties, Wisconsin to obtain baseline data on breeding birds and to determine the status of various critical species. At least 77 species probably nested in the study area, including several state-listed endangered, threatened, and watch species. We located a total of 312 pairs of Forster's terns (*Sterna forsteri*) that included 2 unsuccessful colonies on natural substrates and 5 successful colonies on artificial nesting platforms. Common terns (*S. hirundo*) nested here in the 1960's but did not nest in 1984. We discovered Wisconsin's only known inland colony of ring-billed gulls (*Larus delawarensis*) (327 pairs), at the possible site of a former common tern colony. A total of 95 herring gull (*L. argentatus*) pairs nested on riprap islands and barriers; this represents the state's largest inland nesting concentration of this species. Marshes along the lake edges provided habitat for many wetland birds, including at least 145 nesting pairs of black terns (*Chlidonias niger*). A lowland hardwood tract along the Pine River contained a number of unusual and "watch" species, including yellow-bellied sapsucker (*Sphyrapicus varius*), brown creeper (*Certhia americana*), acadian flycatcher (*Empidonax virescens*), cerulean warbler (*Dendroica cerulea*), and northern waterthrush (*Seiurus noveboracensis*). We recommend a continuation of the Forster's tern platform program, protection of lakeshore marshes, riprap islands, and the Pine River swamp, a reconsideration of water level management in the Lake Winnebago system, and periodic monitoring of bird populations and habitat conditions.

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INTRODUCTION

We conducted an extensive survey to document the breeding bird fauna occurring within a chain of 3 lakes: Poygan, Winneconne, and Butte des Morts. The area surveyed included adjacent marshes and lowland woods. This area is of particular interest because of its colonies of Forster's terns³ (endangered in Wisconsin), the first colony here being recorded in 1977. The breeding population has since expanded with the development of an artificial nest platform program, but there has never been a thorough survey of the lakes and marshes to determine the distribution of Forster's terns nesting on natural substrates outside of the platform sites.

Common terns (endangered in Wisconsin) nest on Lake Winnebago within 20 km of the study area. Unpublished records of common terns nesting on Lakes Butte des Morts and Winneconne in the 1960's led us to suspect that the species might still nest on some of the rocky islands that occur in the 3 lakes. We undertook the survey to determine this species' nesting status in the study area, and to evaluate potential nesting habitat.

Little is known of nesting gulls at Wisconsin sites away from the Great Lakes. Because the ring-billed and herring gulls are potential nest-site competitors with common terns in Wisconsin, a survey of potential tern nesting habitat would be incomplete without information on the nesting status and distribution of the 2 gull species.

Double-crested cormorants (threatened in Wisconsin) have been recorded on the lakes in recent summers. Statewide, this species has increased markedly since the early 1970's and has expanded its breeding range. We needed to determine its breeding status here.

Other species of interest include the black tern (a Wisconsin "watch" species) and great egret (threatened), for which statewide surveys are being completed, and other "watch" species such as great blue heron, black-crowned night-heron, American black duck, northern harrier, king and yellow rails, and acadian flycatcher.

Although endangered, threatened, and "watch" species were of special interest, we also took the opportunity during this survey to document the breeding bird fauna of the immediate Poygan-Winneconne-Butte des Morts area. The survey not only provides information on the current and potential nesting status of critical and other nongame species, but serves as baseline data against which future surveys can be compared.

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³Bird species nomenclature follows American Ornithologists' Union (1983).

THE STUDY AREA

Lakes Poygan, Winneconne, and Butte des Morts cover an area of 76 km² at the confluence of the Wolf and Fox rivers in central Winnebago and eastern Waushara counties, Wisconsin (Fig. 1). A distance of 30 km separates the Village of Tustin, at the northwest end of the chain, from the City of Oshkosh (pop. 50,000) at the southeast end, where the lakes drain into Lake Winnebago via the Fox River. The surrounding area is gently rolling and primarily agricultural, the substrate consisting of Late Cambrian sandstones overlain by glacial drift and alluvial deposits.

Although formerly known for their abundant meadows, marshes, wild rice beds, and waterfowl, today the lakes consist of open water, generally 1-3 m deep, with riprap islands maintained for duck-hunting blinds, and a few scattered thin beds of phragmites (*Phragmites australis*)¹. Emergent vegetation has gradually disappeared since the mid-1800's, when water levels were raised by the Fox River dams at the outlet of Lake Winnebago.

Several small marshes still exist along the shores, especially at the inlets of streams such as Pumpkinseed and Willow creeks, and the Pine, Wolf, and Fox rivers. Many of the marshes are protected from the open water by riprap barriers. Dense stands of cattails (*Typha* spp.) dominate most marshes. Scattered rows or patches of shrubs and trees, mostly dogwoods (*Cornus stolonifera*, *C. amomum*), willow (*Salix* spp.), cottonwood (*Populus deltoides*), and box elder (*Acer negundo*) also occur. There are occasional patches of more open or diverse marsh dominated by hardstem, softstem, and river bulrushes (*Scirpus acutus*, *S. validus*, *S. fluviatilis*), cattail, sedges (*Carex* spp.), burreed (*Sparganium* spp.), and/or phragmites. Poygan Marsh Wildlife Area, at the mouths of the Pine River and the Willow and Pumpkinseed creeks, is the only public property in the study area, aside from the lake itself. Along the Pine River in this Wildlife Area is a ca 200-ha tract of lowland hardwoods, including a stand of southern wet-mesic forest (cf. Curtis 1959) dominated by silver maple (*Acer saccharinum*), red maple (*A. rubrum*), and basswood (*Tilia americana*), and a stand with more northern affinities dominated by black ash (*Fraxinus nigra*), alder (*Alnus rugosa*), and silver and red maples.

METHODS

On 10 May, 1984, Mossman, David Dunsmore, and Wisconsin Department of Natural Resources (WDNR) pilot Jeff Heide conducted a fixed-wing aerial survey of the entire area, 0730-0930 hr, recording the locations of terns, gulls, cormorants, and potential nesting sites.

On 18 May, Mossman and Matteson surveyed most islands and several shore and marsh areas by motorboat, 1010-2040 hr. We inspected each area (except for the Scotts Bay Island) for gull and tern nests.

¹Plant species nomenclature follows United States Department of Agriculture (1982).

Mossman and Hartman conducted canoe surveys of the remaining islands and most marshes during the 1984 breeding season; one canoe survey was also run during 1983 (Table 1, Fig. 1). We did not visit some of the smaller marshes in the area. During canoe surveys we attempted to estimate accurately the total numbers of nesting gulls and terns on all islands and marshes visited. We also attempted to locate nests of other species and to record all birds seen or heard. We estimated numbers of nesting pairs of black terns by identifying distinct sites from which birds flushed when we approached; however, for survey data presented in Table 6, we counted only those terns observed prior to flushing birds from nests.

Techlow and Katherine Rill installed 220 artificial nesting platforms for Forster's terns at 5 sites in the study area during 19 April-4 May 1984. Techlow inspected 199 platforms on 11 May, 200 platforms on 31 May and all platforms on 21 July. On 28 June and 11 July he counted numbers of adults and young within 4 of the 5 colonies. He also visited the 2 Forster's tern colonies on natural substrates.

Detailed notes on routes, methods, and observations are maintained in the files of the Bureau of Endangered Resources in Madison.

RESULTS

Double-Crested Cormorant

Cormorants did not nest in the study area, but nonbreeders were seen throughout the spring and summer. On 10 May we noted ca 50 cormorants on Courtney-Plummer Island and 12 swimming in phragmites islands in northcentral Lake Poygan. On 18 May we noted 1 at Sunset Bay, 13 on riprap and water south of Lone Willow Island, and 56 swimming on Lake Poygan near the mouth of the Wolf River. At twilight (2040 hr) on 18 May, we saw at least 40 cormorants flying above the north end of Courtney-Plummer Island, evidently preparing to roost; others may already have roosted.

Ring-billed Gull

We found a colony of 327 nesting pairs on the north end of Courtney-Plummer Island on 18 May, with an average clutch size of 2.58 (Table 2). This species is highly colonial and thus unlikely to nest singly or in small groups. We are fairly certain that none others nested in the study area. We have no information on this species' past nesting status here.

Herring Gull

We recorded 95 herring gull nests at a total of 17 sites in the study area (Table 2). Of 65 active nests with eggs, clutch sizes ranged from 1-5 ($\bar{x} = 2.60$). One (unsuccessful) nest stood 2 m above water atop the roots of a blown-over willow tree at the boundary of marsh and lake; one occupied a small islet of mud and emergent vegetation (possibly atop a base of rock or riprap); and a third lay on a muskrat house at the boundary of marsh and lake.

The remaining 92 nests were on riprap islands built or substantially modified by humans; all of these islands contained 1 or more duck blinds. Two of these nests were atop hay bales used as protection for duck blinds and the others occurred on riprap or the rock-and-soil substrate of islands. Several were found within or on top of riprap duck blinds. On Courtney-Plummer Island, 31 nests occurred along the riprap edge of the southern three-quarters of the island and 2 occurred at the northern end within the ring-billed gull colony.

We have no information on previous nesting of this species in the study area except that we saw 2 downy young swimming from Courtney-Plummer Island on 19 July 1983.

Common Tern

In the early 1960's, Jack Kaspar (pers. comm. and in litt. April 1984) found a nesting colony of ca 20-25 pairs of common tern on a rocky island north or northeast of Terrell Island, probably on either Courtney-Plummer or Bare Islands, and another colony of at least 20 pairs nesting on a rocky island off the south shore of Lake Poygan or Lake Winneconne; this was not Lone Willow Island, but was evidently an island 1.5 km west of Harper's Point (T19N R15E S.7). This island has now almost disappeared, but it was larger at that time according to a 1961 USGS topographic map. It held a single herring gull nest in 1984 (Table 2).

We saw only 3 common terns during our breeding season surveys; these birds loafed among Forster's terns and shorebirds on a mud flat of Terrell Island. No common terns were seen or heard among nesting Forster's terns at any of the colonies. We checked all possible nesting sites and conclude that the species did not nest here in 1984.

Forster's Tern

In 1984, 312 pairs of Forster's terns nested within the study area; 219 of these occupied artificial nest platforms.

WDNR personnel placed a total of 220 platforms (Linde and Techlow 1982, Techlow and Linde 1983) in phragmites islands at 5 locations (Table 3, Fig. 1). Terns were perching on most platforms in each area when viewed from the air on 8 May. On 11 May, 8 of the 199 platforms in the Clark's Point and Lake Poygan colonies contained nests with incomplete clutches. On 18 May we found birds perched or incubating eggs on nearly all platforms; we replaced a platform swept away in early May. On 31 May the 200 platforms in the Clark's Point and

Lake Poygan colonies contained a total of 199 nests and 631 eggs ($\bar{x} = 3.17$ eggs per nest) (Table 3). An 11-egg nest and at least 1 of the 5-egg nests evidently included eggs from more than one adult. Excluding these 2 nests, mean clutch size for 197 nests was 3.12. No birds nested on the platform that we replaced at the Clark's Point-North colony on 18 May.

On 18 May we found nest structures on nearly all Terrell Island platforms, and on both 18 May and 21 June there were 1-2 adults on each platform. We believe Forster's terns nested on all of the 20 platforms at this site.

