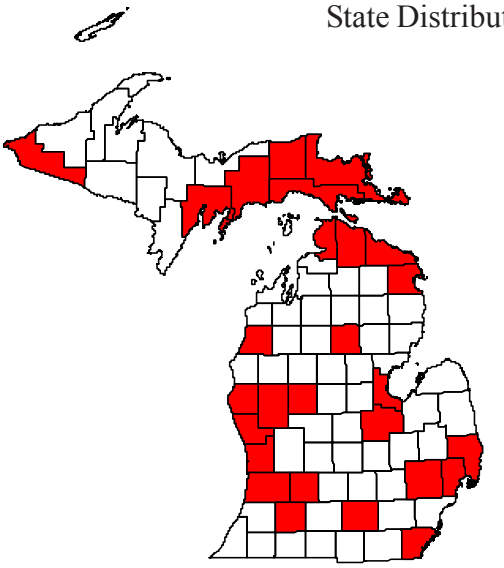
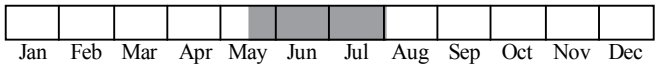
Chlidonias niger Linneaus — black tern

Photo by Barbara Simpson

State Distribution



Best Survey Period



Status: State special concern

Global and state rank: G4/S3

Family: Laridae (gull and terns)

Total range: Two subspecies are recognized, *C. niger surinamensis* found in North America, and *C. niger niger*, the Eurasian counterpart. In North America, black terns occur across most of southern Canada and the northern United States. They breed in all provinces of Canada except Prince Edward Island and Newfoundland. However, they are most common from central British Columbia across the prairie provinces to central Ontario and southern Quebec (Novak 1991). In the northern United States, black terns breed south to central California, northern Utah, Wyoming, Kansas, Iowa, Illinois, Indiana and Ohio to central and northern New York and northern New England. In Michigan, this species occurs mainly along the Great Lakes shorelines, but are also found at some inland locations (Chu 1994). Black terns usually migrate along the Atlantic coastline and mainly winter in marine and coastal areas south of the Gulf Coast through Central America to northern South America.

State distribution: Nesting black terns have been recorded in 27 Michigan counties (Brewer et al 1991; Natural Heritage Biological and Conservation Datasystem 2000). About half of all breeding records occur along the shores of the Great Lakes. In the southern Lower Peninsula they are well established at inland marshes and lakes. They occur primarily along Lake Michigan and Lake Huron as well as at several of the larger inland lakes in the northern Lower Peninsula. In the Upper Peninsula, black terns are also present along the shores of Lake Michigan and Lake Huron. However, they are absent from the Lake Superior shoreline west of Chippewa county and are almost absent in the western Upper Peninsula (Brewer et al. 1991).

Recognition: The **distinctive black head and underbody** with **gray wings, back, and tail** easily distinguishes this species from any other tern species in the state. Their size is also a key to recognition. With an **average length of only 9.75 inches (25 cm)** and a **wingspan average of 2 feet**, black terns are the smallest tern species to occur in Michigan. In North America, only the least tern is smaller averaging 9 inches (23 cm). **Under-tail coverlets are white**, while **eyes and beak are dark**. **Legs are reddish-black**, but this can be a difficult characteristic to identify. **In flight, the tail is short and slightly forked** and the species is highly acrobatic, often swooping and diving low over land or water. Juveniles and wintering adults are white or patchy black-and-white below with a gray tail. Wintering black terns can be easily confused with the Eurasian white-winged tern. However, a dark ear patch extending down from a black crown is a distinguishing characteristic of the black tern. Vocalizations include a harsh metallic *kik*, often produced when alarmed. Another softer common call is the *kyew* or *kyew-dik*.

Best survey time: The best survey time for black terns in Michigan begins during mid-May and

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continues through mid-August. Survey time for breeding birds is best between mid-May and late July. However, they can be seen in the state as early as mid-April in the Lower Peninsula and early May in the Upper Peninsula. Early October is the latest they have been found in Michigan (Chu 1994).

Habitat: Black tern colonies occur in freshwater marshes and wetlands with emergent vegetation found along lake margins and occasionally in rivers (Dunn and Argo 1995). Vegetation can vary greatly, but cattails (*Typha* sp.) or bulrushes (*Scirpus* sp.) are characteristically dominant in black tern colonies (Dunn 1979, Cuthbert 1954). Vegetative cover varies between dense and sparse but nests are usually protected from direct open water to avoid dangers such as wind and wave action. Overall, black terns tend to nest at sites with a 50:50 vegetation cover:open water ratio (Hickey and Malecki 1997). However, suitable marsh habitat of 5 ha or more is thought to be necessary. Nests are largely composed of the previous seasons' vegetation, found near the building site. In many instances nests are depressions in floating matted vegetation, found on logs or boards, and occupying abandoned muskrat lodges. Nesting occurs in water depths ranging from 0.5 m to 1.2 m (Dunn 1979, Mazzocchi et al. 1997). Spatial separation between nests can vary between 3 m to 30 m (Cuthbert 1954; Dunn 1979). This semi-social distribution is unusual for tern species and black terns are often labeled as a loosely colonial breeding bird (Brewer et al. 1991).

Biology: Black terns are a neotropical migratory species. Most reach the southern areas of the breeding range in early to mid-May. By mid to late August they are returning to their wintering locations in Central and South America. Pair mating occurs prior to arrival on the breeding grounds, and a short period of communal feeding and courtship behavior occurs before nest building begins (Dunn and Argo 1995). Both parents are involved in creating the nest and egg laying begins soon after nest completion. In Michigan's northern Lower Peninsula, egg laying starts in late May to early June (Cuthbert 1954), while in the southern part of the state, mid to late May is quite possible. Egg laying can continue into late July. Black terns generally lay 3 eggs per clutch, but numbers ranging from 1 to 5 are possible. Although black terns are considered a single-brooding species, nest failure does occur and they will re-nest if the first attempt fails. Both parents assist with the incubation process, which lasts 20-23 days (Bergman et al. 1970). Young black terns fledge 18-21 days after hatching. After fledging, parents continue to assist in feeding the young with food items consisting largely of small fish and insects (Dunn and Argo 1995). By late July or early August large numbers of black terns concentrate along Michigan's southern Great Lakes shores in preparation for fall migration. The southern migration begins soon after and few remain in Michigan by late September. Juvenile terns will not return to the breeding grounds until their second summer after fledging. They remain further south along the Gulf Coast. The maximum age recorded for the North American subspecies (*C. n. surinamensis*) is just less than 8.5 years.

Conservation/management: Black tern populations have decreased markedly since the mid 1960s. From 1966-1996, population declines throughout the North American breeding range were 3.1% annually. In Michigan, the decline was as high as 8.8% annually for the same time frame (Peterjohn and Sauer 1997). The drop in black tern populations in Michigan has been most evident in the southern tier of counties as well as the southeastern portion of the state. Many limiting factors exist as the cause or causes for such drastic declines including habitat loss, contaminants, and human disturbance.

An estimated 50% of Michigan's original wetlands have been drained, filled or altered and 70% of coastal wetlands have been lost throughout Michigan since European settlement (Cwikiel 1996). Similar situations have occurred in Canada. Compounding the problem, very little information concerning black tern winter ecology or the limiting factors on the wintering grounds is available. In addition to outright habitat loss are the corollary problems of habitat degradation, water and food quality and successional change. If pollutants, disturbance, or exotic invasion has changed the character of a wetland, it may become unsuitable for nesting black terns. Many wetlands exist today, which simply do not sustain colonies (Novak 1990). Toxic chemicals or contaminants including organochlorides (PCBs, DDT) and metals have been found in black tern eggs (Weseloh et al. 1997). Although studies have not determined biological effects on the birds, evidence indicates accumulation of these contaminants may lower reproductive success (Faber and Nosek 1985). The effects of human disturbance on black terns are poorly studied. However, activities other than habitat destruction include fishing, swimming, boating and prolonged human presence. Boat wakes can wash out black tern nests thereby submerging eggs or drowning chicks. Repeated and prolonged human presence in black tern colonies will prevent adults from incubating eggs or feeding offspring. When the adults are not present at the nest, exposure to weather or predation is more likely (Novak 1991).

Conservation and management options for the black tern, necessary to ensure a population stabilization or increase, include habitat preservation through land acquisition and conservation easements. Active management techniques involving artificial wetland production and management as well as artificial nest platform implementation are also viable options.

Finally, a standardized methodology for surveying and sampling black tern populations in the state is essential (Hands et al 1989).

Research needs: Additional study is required to properly assess black tern numbers and trends in Michigan. Productivity measurements, foraging, diet and nutrition studies will assist in conservation efforts. Also, comparative studies across habitats and regions are necessary for insight into behavior and ecology. Finally, metapopulation dynamics and demography investigations are both essential components to understanding black tern population ecology (Nisbet 1997).

Related abstracts: common tern (*Sterna hirundo*), Caspian tern (*Sterna caspia*)

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Abstract citation:

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