

GREAT LAKES
WATERBIRDS

Priority Colonies for Great Lakes Waterbirds

Black-crowned Night-Heron
Black Tern
Common Tern



Common Tern.
Photo: Jack Nevitt



Black-crowned Night-Heron.
Photo: Dennis Stewart

Black-crowned Night-Heron Priority Colonies

Although Black-crowned Night-Heron are widespread and common in North America, their coloration and behavior, as well as their nocturnal and crepuscular feeding habits render them less noticeable than many diurnal herons. These characteristics make it difficult to ascertain trend, abundance, and distribution of the species.

Currently, populations in some areas are declining for a variety of reasons, most of which are habitat-related. Additionally, this species may be particularly vulnerable to changes in climate, including changes in Great Lakes water levels that may reduce marsh foraging areas, modify the availability and timing of prey, and shift the distributions of predators.

Black-crowned Night-Heron are well-suited as sentinels of environmental contamination in urban areas, given their piscivorous feeding habits and wide geographic distribution.

Priorities for future research include (1) improving management of nesting colonies, particularly those on islands; (2) characterizing population dynamics across their range; and (3) determining alternative methods of predator control at fish hatcheries.

Below are priority colonies for Black-crowned Night-Heron in the Great Lakes region, as well as their current status. Please refer to page 12 for a map of priority colonies.

Table 1. Black-crowned Night-Heron priority colonies in the Great Lakes region^{1,2}. Known historic colonies and those likely to be currently inactive are in italics.

COLONY	GREAT LAKES WATERWAY	STATUS
<i>Detroit River</i>	<i>Detroit River</i>	<i>Unknown status</i>
<i>Calumet region, IL</i>	<i>Inland</i>	<i>10 nests in 2007 at Lake Calumet dikes; historic colony</i>
Detroit Zoo	Inland	Well-managed; long-term color-banding of individuals
Lincoln Park Zoo	Inland	253 nests in 2018. Monitored by Lincoln Park Zoo Urban Wildlife Institute; nesting on zoo grounds & nearby parks
<i>Point Mouillee</i>	<i>Lake Erie</i>	<i>250 nests in 2008; possibly no longer active</i>
Sandusky Turning Point	Lake Erie	53 nests in 2007
West Sister Island	Lake Erie	460 nests in 2007
<i>Saginaw Bay – Spoils Island</i>	<i>Lake Huron</i>	<i>210 nests in 2008; likely no longer active</i>
ArcelorMittal, Indiana Harbor	Lake Michigan	23 nests in 2018. Monitored by IN DNR; competition with other nesting species has been a threat
Bird Island	Lake Huron	22 nests in 2009; active in 2018 but unknown colony size
Garden Peninsula – Rocky Island	Lake Michigan	Likely still active, but unknown colony size
Green Island	Lake Michigan	5 nests in 2007; still active in 2018 but unknown size
Little Strawberry Island	Lake Michigan	113 nests in 2007
Lower Green Bay	Lake Michigan	77 nests in 2018
Gull Island & Calf Island	Lake Ontario	94 nests in 2008
Round Island	Lake Superior	5 nests in 2007; still active in 2018 but unknown size
<i>Niagara River</i>	<i>Niagara River</i>	<i>98 nests in 2007; possibly no longer active</i>



Black Tern.
Photo: Mark Stensaas

Black Tern Priority Colonies

Black Tern nest semi-colonially amidst emergent vegetation in freshwater wetlands. Because nests are floating, they are easily destroyed by wind or changing water levels. Hence, this species is sensitive to changing water levels in the Great Lakes region.

Populations of Black Tern in North America have declined markedly since the 1960s, primarily due to wetland habitat loss from agricultural conservation and urbanization. Although loss of wetlands on breeding grounds and migration routes has been significant, population declines may also be the result of reduced food supply through agricultural control of insects and overfishing in their winter range.

Given the recent declining trends in populations of this species, identifying critical wetlands complexes for conservation and filling gaps in knowledge of breeding/wintering ecology remain critical research priorities. Future research should also focus on quantifying (1) chick and adult survival rates; (2) renesting rates; and (3) the contributions of each demographic rate to population dynamics.

Below are priority colonies for Black Tern in the Great Lakes region, as well as their current status. Please refer to page 13 for a map of priority colonies.

Table 2. Black Tern priority colonies in the Great Lakes region^{1,2}. Known historic colonies and those likely to be currently inactive are in italics.

COLONY	GREAT LAKES WATERWAY	STATUS
<i>Indian River Marsh</i>	<i>Inland</i>	<i>Historic site; unknown current status but likely still present. Connected to Lake Huron</i>
<i>Dingman Marsh</i>	<i>Inland</i>	<i>Historic site; unknown current status</i>
Perch River State Game Area	Inland	Unknown status but appears active according to eBird and NY Breeding Bird Atlas data. Connected to Lake Ontario
Tawas Lake	Inland	Unknown colony size. 2018 eBird record of ~70 bird flock with many juveniles. Connected to Lake Huron
Tiny Marsh, Ontario	Inland	Nests monitored by Environment Canada since 2017
Duck Bay, Marquette Island	Adjacent to Lake Huron	Small colony over past 10 years; potential for restoration
<i>St. Martin's Bay</i>	<i>Lake Huron</i>	<i>Long history of nesting at this site until invasion by cattail; has potential for restoration</i>
Cheboygan Marsh	Lake Huron	Long history of nesting at this site until invasion by hybrid cattail; current restoration efforts led by Loyola Univ.
Wigwam Bay	Lake Huron	45 nests in 2018. Cattail management ongoing; monitoring of nests since 2018
<i>Pte. La Barbe</i>	<i>Lake Michigan</i>	<i>Long history of nesting at this site, but hybrid cattail likely altered habitat; potential for restoration</i>
Dead Horse Bay	Lake Michigan	~ 10 nests in 2018. BLTE were regular breeders in lower Green Bay, but became absent around the 1990s
Ogontz Bay	Lake Michigan	10 nests in 2018. Inactive in 2017 due to high water levels but active in 2018; annual nest monitoring since 2016
St. Clair Flats	Lake St. Clair	111 nests in 2018; largest colony in Michigan. Monitoring since 2013; nanotags and geolocators deployed since 2017
Munuscong	St. Marys River	35 nests in 2018; monitored by Northern Michigan Univ. in 2017-18. Current restoration efforts led by Loyola Univ.

<i>Allouez Bay, WI</i>	<i>St. Louis River Estuary</i>	<i>Historic site; 20 breeding adults in 1977, 32 adults in 1979</i>
<i>Pokegama River, WI</i>	<i>St. Louis River Estuary</i>	<i>Historic site; 10 breeding adults in 1978, 8 adults in 1979</i>
<i>Indian Point, MN</i>	<i>St. Louis River Estuary</i>	<i>Historic site; 2 breeding adults each in 1978 and 1979</i>
<i>Morgan Park mudflats</i>	<i>St. Louis River Estuary</i>	<i>Historic site; 50 breeding adults in 1978, 8 adults in 1979</i>
<i>Mud Lake, MN</i>	<i>St. Louis River Estuary</i>	<i>Historic site; 4 breeding adults in 1978</i>
<i>South Spirit Lake, WI</i>	<i>St. Louis River Estuary</i>	<i>Historic site; 20 breeding adults each in 1978 and 1979</i>



Common Tern Priority Colonies

There has been increased concern for the conservation status of many inland breeding Common Tern populations, as well as those in the Great Lakes and large lakes of Manitoba. The history of recent successes and failures in managing and restoring breeding colonies demonstrates that North American Common Tern are heavily dependent on restored and artificial sites, and require continuing management to thrive long-term.

There are two major knowledge gaps related to Common Tern: (1) detailed breeding ecology in their inland range; and (2) overwintering ecology, although the latter is improving due to recent tracking technologies.

Since the majority of Common Tern colonies on the Atlantic coast and in the Great Lakes depend on managed sites and/or artificial structures, which require regular maintenance, additional research on the most cost-effective management strategies is needed. Successful restoration of these regional populations requires a better understanding of what is required to ensure persistence of artificial sites versus restoration of natural sites. A long-term recovery goal should be to shift breeding populations towards sites where they can be self-sustaining and no longer need intensive management.

Below are priority colonies for Common Tern in the Great Lakes region, as well as their current status. Please refer to page 14 for a map of priority colonies.

Table 3. Common Tern priority colonies in the Great Lakes region^{1,2}. Known historic colonies and those likely to be currently inactive are in italics.

COLONY	GREAT LAKES WATERWAY	STATUS
Cedar Point NWR	Lake Erie	98 nests in 2018. Artificial platforms managed by Ohio DNR
Willow Point	Lake Erie	146 nests in 2018. Artificial platforms managed by Ohio DNR
<i>Au Sable Point</i>	<i>Lake Huron</i>	<i>Documented as confirmed breeding in 2002-2008 Michigan Breeding Bird Atlas. Unknown current status</i>
<i>Helmet Shoal</i>	<i>Lake Huron</i>	<i>81 nests in 2008. Inactive likely due to high Great Lakes water levels</i>
<i>Beaver Island</i>	<i>Lake Michigan</i>	<i>98 pairs in 2007. Limited data collected since the last decadal survey due to high water levels</i>
<i>Epoufette Island Shoal</i>	<i>Lake Michigan</i>	<i>105 nests in 2007. Inactive for 10+ years, likely due to high Great Lakes water levels</i>
<i>Great Lakes Naval Training Academy</i>	<i>Lake Michigan</i>	<i>30 nests in 2007. Recent colony failures due to predation; colony in Waukegan also failed related to contaminants at Superfund site</i>
Lower Green Bay	Lake Michigan	36 nests in 2018; nesting on artificial platforms
Sand Products, Brevort	Lake Michigan	50 nests in 2007. A consistent, but small, colony that could be improved with increased gull management
St. Ignace Coast Guard Station	Lake Michigan	209 nests in 2007; 1184 nests in 2018. Intensive management by Seney National Wildlife Refuge & US Coast Guard using electric fencing, camera monitoring & selective predator removal. Pipeline construction issue is a potential threat
Ashland, Wisconsin	Lake Superior	110 nests in 2007; 106 nests in 2018. Nesting on old ore dock; dispersal of some individuals likely between here and Duluth Harbor. Periodic restoration work at this site
Duluth Harbor	Lake Superior	180 nests in 2007; 131 nests in 2018. Ongoing mercury assessment; dispersal of some individuals likely between here and Ashland colony

Lake St. Clair	Lake St. Clair	Active site, but potential for improved management
Buffalo Buckhorn Island State Park/Niagara River	Niagara River	286 nests in 2007; 220 pairs reported in 2018 at Towanda & North Towanda Water Intakes. Nesting on human-created structures and several upcoming management projects at this site
St. Lawrence River	St. Lawrence River	656 nests in 2008; 1028 nests at 17 sites in NY SLR waters in 2018. Nesting on navigation platforms
Lime Island	St. Marys River	427 nests in 2008. Difficult to maintain colony persistence due to heavy predation; creation of artificial islands in this area or consistent predator removal/fencing may be viable options for boosting regional populations

Priority Areas for Audubon Action

Straits of Mackinac (Upper Michigan) – map on page 15

Each spring, thousands of birds migrate north, and because of its geography between Lake Michigan and Lake Huron, the Straits of Mackinac represents a critical migratory pathway for many species. The area is also home to active Black Tern, Common Tern, and Black-crowned Night-Heron colonies. Priority actions in this area include:

- Ensure optimal compliance and safety standards of oil pipelines beneath the Straits of Mackinac
- Increase gull management and selective predator removal at Brevort and St. Ignace Coast Guard Station Common Tern colonies
- Determine status of historic and unknown waterbird colonies (via on-the-ground and camera monitoring)
- Optimize breeding conditions of Black Tern colonies through vegetation management and productivity monitoring

Green Bay, Wisconsin – map on page 15

Despite habitat fragmentation and wetland destruction, the Green Bay area still has great significance for birds. It is used extensively during migration by waterfowl, shorebirds, and Neotropical migrants. Pelicans, herons, and egrets from colonies elsewhere in Green Bay forage in the wetlands, as do Caspian, Common, and Forster's Terns. Many high conservation priority species breed here, including Bald Eagle, Osprey, Red-shouldered Hawk, and Piping Plover. Urbanization has degraded wetlands, and water level fluctuations in the Fox River can alter wetland composition. Yet many areas have restoration potential; the high diversity of species using restored wetlands like the Sikma mitigation area suggests that restoration efforts can be successful. Priority actions in this area include:

- Restore natural hydrology, improve water quality, and aggressively control invasive species in high priority wetlands

- Implement sustainable forest management and Best Management Practices for water quality in surrounding forested areas
- Focused, adaptive management and threat monitoring of priority bird colonies, especially in restored areas such as the Cat Island chain
- Construct artificial platforms to promote nesting by Black and Common Terns

Detroit/Lake St. Clair (Western Lake Erie) – map on page 15

The Detroit/Lake St. Clair area, along with the western shores of Lake Erie, include coastal wetlands, Lake Erie islands, a large bay, sand beaches, river mouths, and shrublands. The variety of habitats support many bird species, including active colonies of Black Tern, Common Tern, and Black-crowned Night-Heron. This area also represents important stopover locations for migrating landbirds, staging areas for waterfowl, and an important Bald Eagle fall/wintering area. Threats include wetland invasion by purple loosestrife and common reed, competition by nesting Double-crested Cormorants, and increased recreational use/development. Priority actions in this area include:

- Control invasive species in high priority wetlands areas
- Manage Double-crested Cormorants at active, high priority Common Tern colonies
- Assess and improve water quality to stem pollution effects at Lake St. Clair Common Tern colony

Saginaw Bay (Lake Huron) – map on page 16

An array of waterbird and waterfowl species use Saginaw Bay as a migratory stopover site, wintering ground, and breeding ground. This area is also home to several important waterbird breeding colonies for Common Tern, Caspian Tern, Great Egret, and Black-crowned Night-Heron. The tip of the thumb also supports the lower peninsula's largest spring raptor migration, with at least 18 species concentrated in nearby areas. Threats include eutrophication, pollution, and sedimentation. Wind energy development in the area poses an additional threat if turbines are not sited properly in relation to key breeding areas and migratory corridors. Priority actions in this area include:

- Assess and improve water quality to stem pollution effects at heavily impacted Black Tern colonies
- Ensure wind turbine siting and management considers and mitigates impacts to waterbirds and migrating raptors
- Control invasive species (*Phragmites*, cattail) in marshes lining the Bay to restore sufficient interspersed (as done currently at Wigwam Bay Black Tern colony)
- Determine the status of historic and unknown waterbird colonies

References

- ¹Cuthbert, F. J. and L. Wires. 2013. The fourth decadal U.S. Great Lakes colonial waterbird survey (2007- 2010): results and recommendations to improve the scientific basis for conservation and management. Report, U.S. Department of the Interior, Fish and Wildlife Service, Fort Snelling, Minnesota.
- ²Cuthbert, F. J. and L. Wires. Unpublished data.

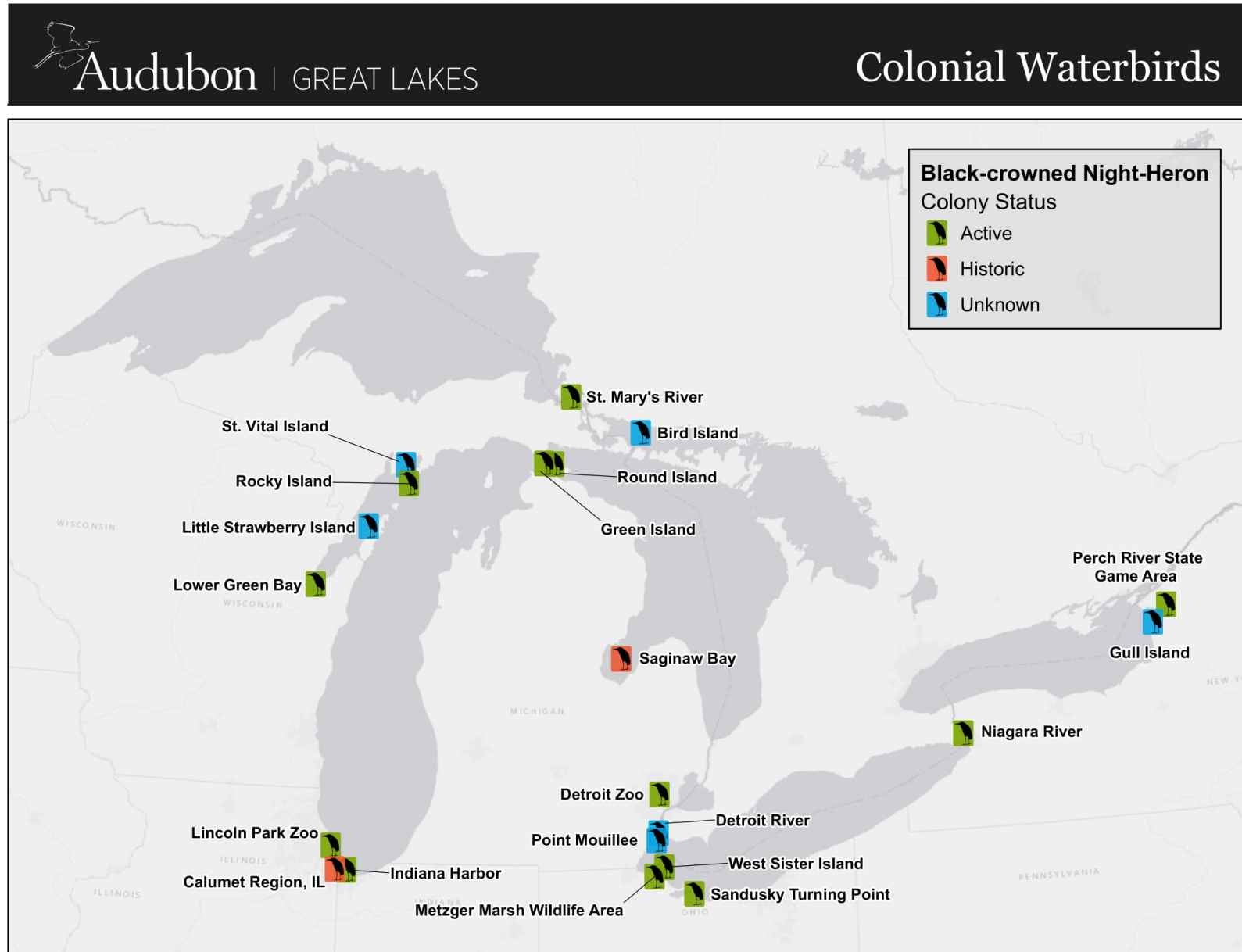
Maps

Please refer to pages 12 – 16 for the following maps:

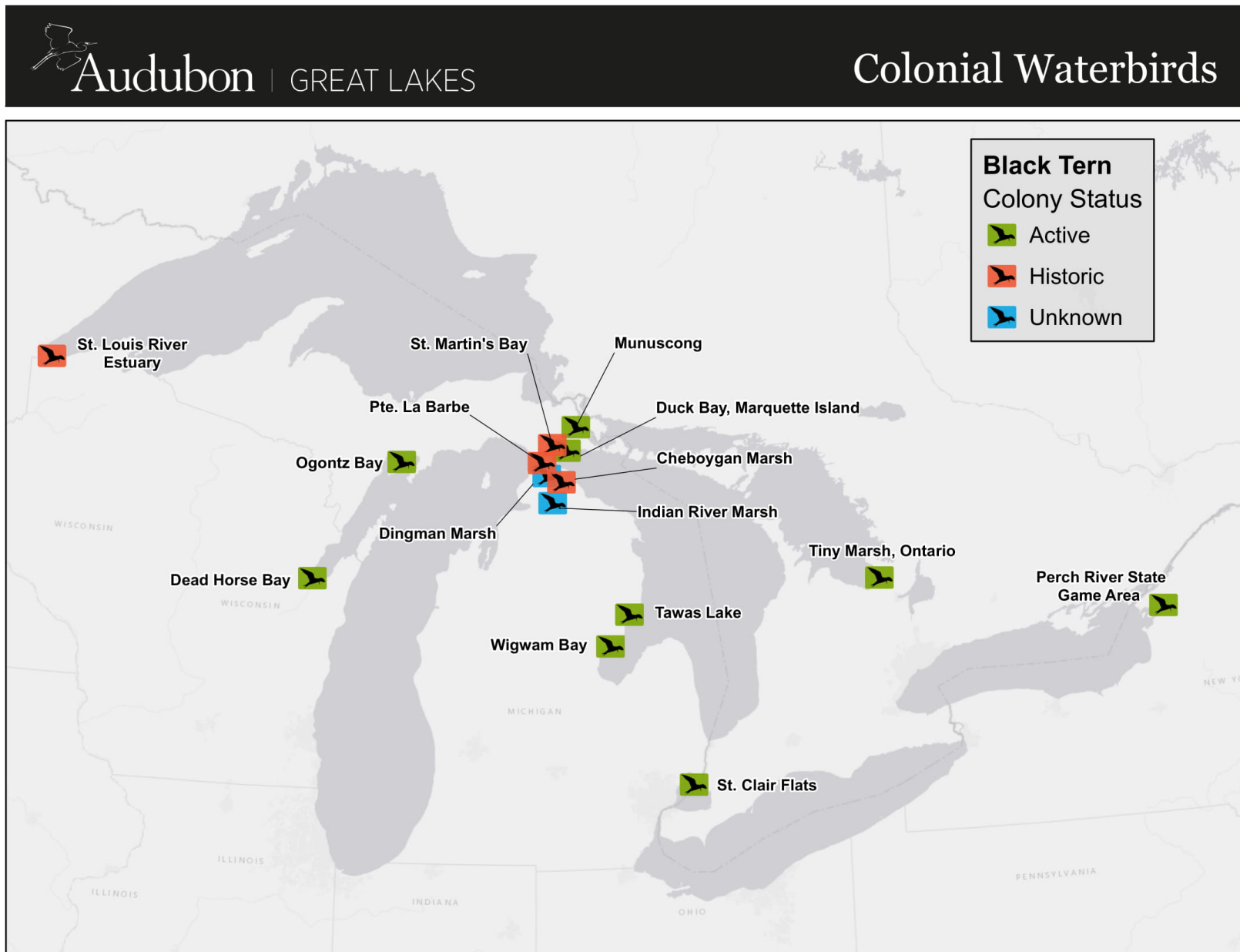
1. *Black-crowned Night-Heron priority colonies*
2. *Black Tern priority colonies*
3. *Common Tern priority colonies*
4. *Shared priority areas for multiple waterbird species, part I*
5. *Shared priority areas for multiple waterbird species, part II*

Maps of Priority Colonies for Great Lakes Waterbirds

Black-crowned Night-Heron priority colonies



Black Tern priority colonies



Common Tern priority colonies

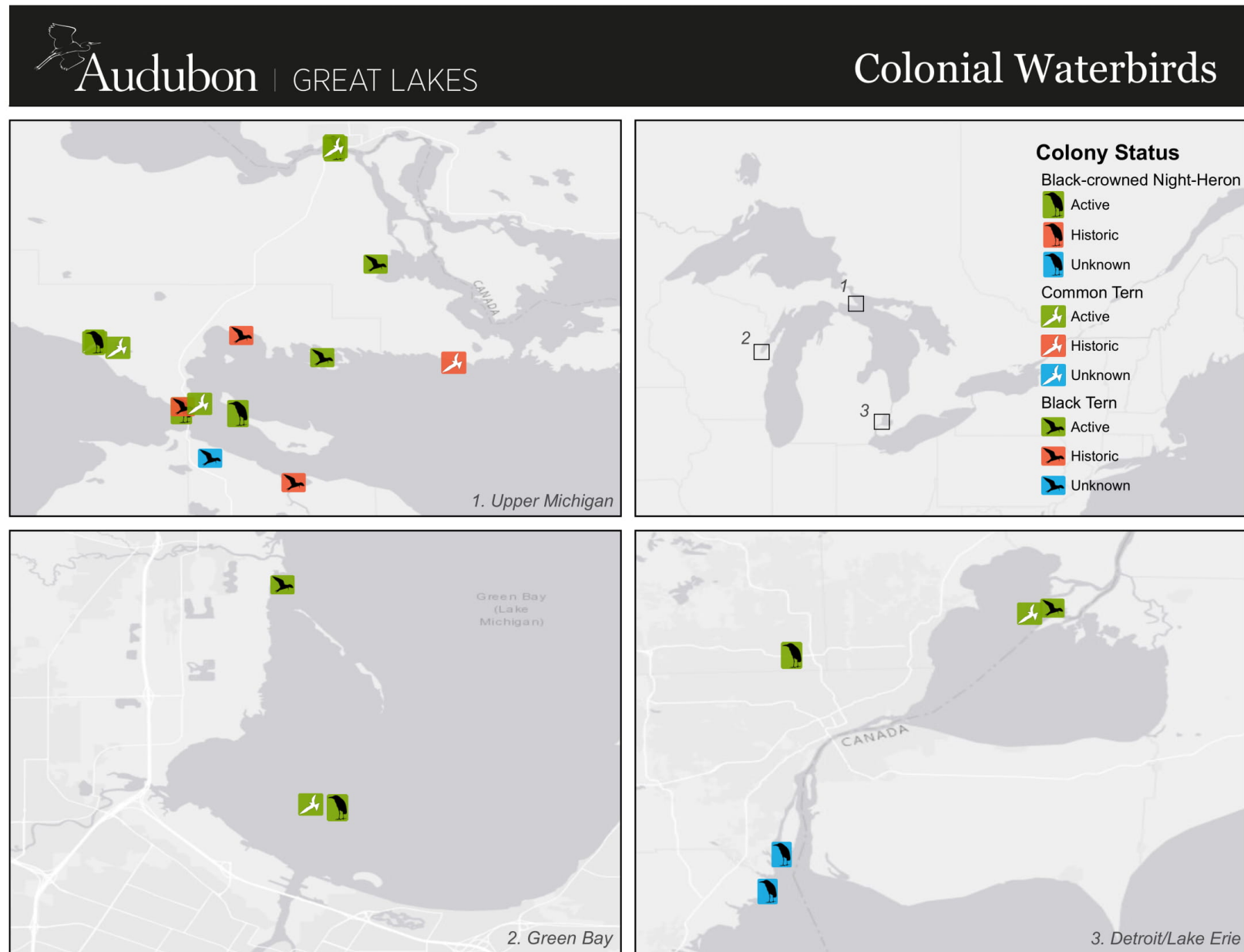


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Colonial Waterbirds



Priority areas for multiple waterbird species: Upper Michigan, Green Bay & Detroit/Lake Erie



Priority areas for multiple waterbird species: Chicago, Lake Huron & Eastern Lake Ontario

