



Credit: Jim Williams

Forster's Tern Minnesota Conservation Summary

*Audubon Minnesota
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The *Blueprint for Minnesota Bird Conservation* is a project of Audubon Minnesota written by Lee A. Pfannmuller (leepfann@msn.com) and funded by the Environment and Natural Resources Trust Fund. For further information please contact Mark Martell at mmartell@audubon.org (651-739-9332).

Forster's Tern

Priority for Minnesota's Bird Conservation Plan:

- Prairie Hardwood Transition: Moderate Level Priority
- Prairie Hardwood Transition: Conservation Target Species for Shallow Lakes

Other Status Classifications:

- Officially listed as Special Concern in Minnesota
- Minnesota Species of Greatest Conservation Need
- Minnesota Audubon Action List
- United States Waterbird Conservation Plan: Moderate Concern; apparent population decline (PT = 4)
- Northern Prairie and Parkland Waterbird Region: Low Risk
- Upper Mississippi River and Great Lakes Waterbird Region: Moderate Priority in BCR12, BCR22 and BCR23; Focal Species for Region-wide monitoring because it is a Conservation Priority species in the UMVGL Region.

Population Information:

- The Northern Great Plains, including western Minnesota, comprise the species' primary range.
- Estimated North American population: 47,000 – 51,500 breeders (U.S. Waterbird Plan).
- In 1985 and 1986, researchers visited all the major Forster's Tern colonies in the state; based on this research, the total breeding population of Forster's Terns in Minnesota was estimated at 900 -1,000 pairs, significantly lower than the largest previous estimate of 2,500 pairs in 1942 (MNDNR Species Profile).
- Estimated population in BCR12: 460 pairs; BCR23: 1,400 pairs (UMVGL Waterbird Conservation Plan)
- Species is declining in most of the UMVGL Region; Binational Great Lakes Colonial Waterbird Census between 1989-1991 and late 1990s indicates decline of approximately 25%.
- Estimated population in BCR11: 3,175 pairs (NPP Waterbird Conservation Plan); increasing population trend in this region

Minnesota BBS Data:

- Red Regional Credibility of BBS Data (i.e. MN BBS Data has a significant deficiency)
- Minnesota supports about 3.88% of the species global breeding population
- 1966-2009: positive trend (not significant) of 0.2; 1999-2009: positive trend (not significant) of 5.3
- Minnesota has one tiny center of highest national abundance in northwestern Minnesota
- Approximately 9.09% of the Forster's Tern North American breeding range occurs in Minnesota.

Minnesota Residency:

- Breeds primarily in western and central Minnesota; migrant throughout the state
- The species range in Minnesota expanded eastward towards the Twin Cities metropolitan area in the last 50 years (MNDNR Species Profile).
- Although the range of the Forster's Tern covers at least one third of Minnesota, the species does not occur as commonly on prairie marshes as it did 50 years ago (MNDNR Species Profile).
- Approximately 30 active colonies have been documented since 1990, but only 11 of these included either an adult population of at least 100 birds or more than 50 nests. Furthermore, much apparently suitable habitat in the state is not being utilized (MNDNR Species Profile).
- Studies in 1985 and 1986 found most breeding terns were limited to just four colonies in central Minnesota and one colony in northwest Minnesota (MNDNR Species Profile).
- It is estimated that the species population declined approximately 60% since 1942 (MNDNR Species Profile).

Habitat Requirements: Emergent Marsh; Shallow Lake

Shallow semi-permanent marshes; A “marsh tern,” breeds in marshy borders of lakes, islands, or streams. Found more often in open, deeper portions of marshes, generally in wetlands w/much open water & large stands of island-like vegetation and /or large mats of floating vegetation (from Birds of North America)

From MNDNR Species Profile:

- Prefers extensive marshes with an interspersed of emergent vegetation and open water.
- Floating platforms of vegetation or muskrat houses are selected for nesting sites.
- Water levels appear to be a crucial factor in selecting suitable nesting habitat as well as for overall nesting success.
- Forster’s terns prefer deeper, open portions of marshes.

From Wisconsin Bird Conservation Initiative:

- Nest sites in Wisconsin are most often in large marshes or wetland complexes containing large stands of thin to moderately thick emergent vegetation, such as cattail, bulrush, Phragmites, arrowhead, and/or bur-reed.
- Nests are commonly within close proximity to open water and are placed on muskrat houses, rooted cattail bases, floating vegetation mats, dredge spoil islands and artificial nesting platforms.
- The Forster’s Tern often nests in the same marshes as Black Terns but select larger substrates elevated higher above the water. Thus, the two species do not appear to compete for nest sites.
- Usually nest in colonies ranging from several pairs to hundreds of pairs, but solitary nests also occur.
- Colony sites shift from year to year depending upon water levels and availability of suitable habitat.

From Northern Prairie and Parkland WCP:

- Often nests in association with grebes, American Coots, gulls, terns, and marsh-nesting passerines including Yellow-headed Blackbirds. The latter may help in nest success by driving away predators.

Migration: Temperate

Climate Change Vulnerability: Low (0)

Threats/Issues

From MNDNR Species Profile:

- Species is very vulnerable to human disturbance, water level fluctuation, chemical contamination, nest predation and habitat destruction.

From Wisconsin Bird Conservation Initiative (WBCI):

- Artificially high water levels maintained by man-made dams, carp activity that prevents the establishment of aquatic vegetation, lakeshore development, and the spread of invasive plant species impact the quality of colony sites.
- The impacts of habitat degradation at colony sites are compounded by the irreparable loss of wetland habitat.
- The primary factor limiting populations appears to be the availability of high-quality nest sites that are free of mammalian and avian predators and not subject to water level fluctuations.

From UMWGL Waterbird Conservation Plan

- Habitat loss, especially during periods of low water levels
- Contaminants (PCBs, TCCD, and mercury)
- Human disturbance at colonies

OVERALL MINNESOTA GOAL: Annually monitor known nesting colonies in Minnesota and maintain a population of at least 1000 pairs; protect and restore approximately 1,146 ha of shallow lake, hemi-marsh habitat in an effort to increase the state population by at least 100 pairs.

BEST MANAGEMENT PRACTICES:

From MNDNR Species Profile:

- Sources of disturbance to known breeding areas should be identified, and minimized or eliminated if possible.
- Suitable Forster's tern habitat should also be protected or restored, especially near established colonies.
- Natural features common to successful breeding colonies should be identified and incorporated into restoration projects.

From Birds of North America:

- Wetland preservation, especially of areas known to have been used for nesting, has been recommended for this species
- Ability to colonize newly created marsh-like habitats suggest that management and restoration of large wetland systems should benefit breeding populations.
- Management plans in Wisconsin have included placement of 60 x 64 cm wooden platforms to serve as artificial nesting sites.

From Wisconsin Bird Conservation Initiative:

- Artificial nest platforms have provided alternative nest sites and improved nest success considerably in some areas.
- The restoration of large marsh and wetland complexes and the prevention of further wetland loss should be management priorities for this species.
- At traditional colony sites, managers should avoid using pesticides to prevent reduction and contamination of food sources and stabilize water levels during the breeding season.
- In areas where water levels cannot be managed, installing artificial nesting platforms may provide a secure nest site.
- Wherever feasible, managers should consider restricting access near colony sites to eliminate or reduce adverse effects of human disturbance.

From UMVGL WCP:

- Artificial nesting platforms can be very effective in suitable habitat (e.g. hemi-marsh with good interspersed open water), and can be provided in areas where traditional nesting substrates (windrowed Phragmites and bulrush, muskrat ledges, etc.) are limited and water level fluctuations occur. Platforms are best placed in pocket of open water within a stand of emergent vegetation that is part of a larger complex of emergent and open water.

MONITORING NEEDS

From MNDNR Species Profile:

- A thorough survey to locate nesting colonies throughout the state is needed, followed by periodic monitoring to determine their occupancy, size and productivity.

From UMVGL WCP

- Focal species for monitoring (conservation priority). Should continue to monitor through Binational Great Lakes Colonial Waterbird Census efforts, and include in marsh bird monitoring efforts.

Action: An annual survey of known nest colonies and periodic inquiry (via conservation partners) of new and restored colonies.

CONSERVATION ACTIONS

- **Upper Mississippi Valley/Great Lakes Joint Venture Region:**

1. Population targets:

- ✓ BCR12: Maintain numbers (nearly all in Michigan)
- ✓ BCR22: Maintain > 75 pairs
- ✓ BCR23: Increase to approximately 1,900 pairs (potential for 100 more pairs in Minnesota, 375 more in Wisconsin).

No more than half of these new nests should be on nesting platforms

2. Adopt habitat objectives for the King Rail and apply them for Forster's Tern in the UMVGL JV

- ✓ Maintain and protect the following hectares of shallow, semi-permanent marsh, hemi-marsh habitat in Minnesota:
 - 54 ha in BCR12
 - 66 ha in BCR22
 - 453 ha in BCR23
- ✓ Restore and enhance the following hectares of shallow, semi-permanent marsh, hemi-marsh habitat in Minnesota:
 - 54 ha in BCR12
 - 66 ha in BCR22
 - 453 ha in BCR23

Action: Work with conservation partners to increase Minnesota's nesting population of Forster's Tern by 100 pairs by protecting and restoring a total of 1,146 hectares of shallow, semi-permanent marsh, hemi-marsh habitat.

RESEARCH NEEDS

From Wisconsin Bird Conservation Initiative:

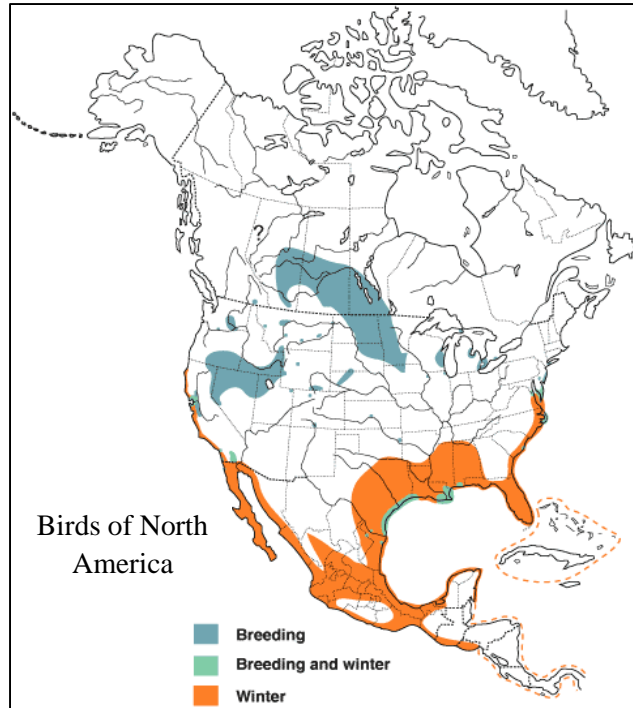
- Mossman (1988) suggested several research needs for Wisconsin:
 1. Conduct statewide survey to determine breeding population, number of colonies, production of young, and causes of reproduction failures and mortality at colonies.
 2. Identify sites to receive artificial nest platforms and dredge spoil deposits
 3. Conduct comparative studies of reproductive rates at natural and artificial sites

4. Determine the effects of ongoing habitat management on colonies
5. Determine wintering and migration areas of Wisconsin's Forster's Tern
6. Continue monitoring of contaminants in the Great Lakes.
7. Study the species winter ecology.

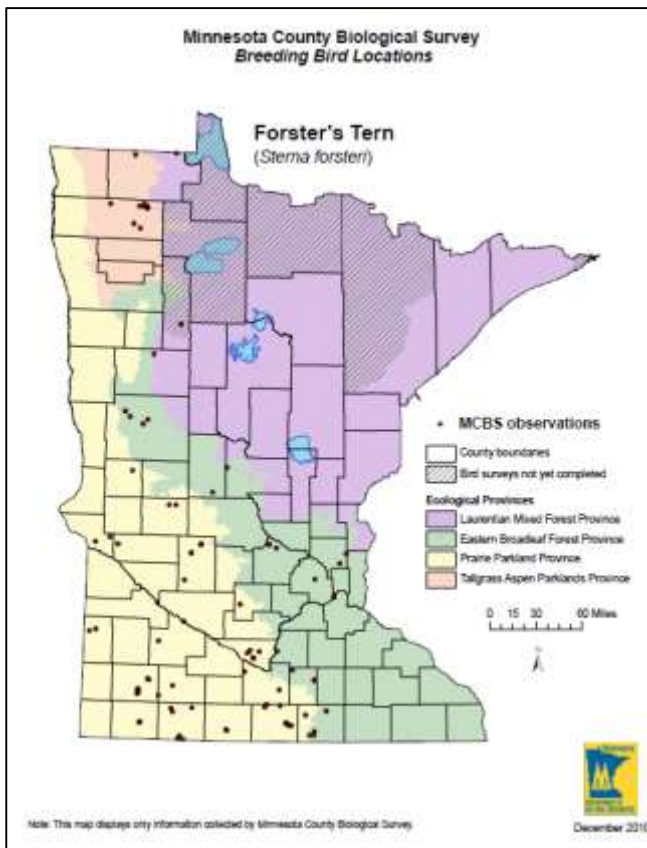
Specific Actions for Audubon Chapters:

- Help monitor local colonies

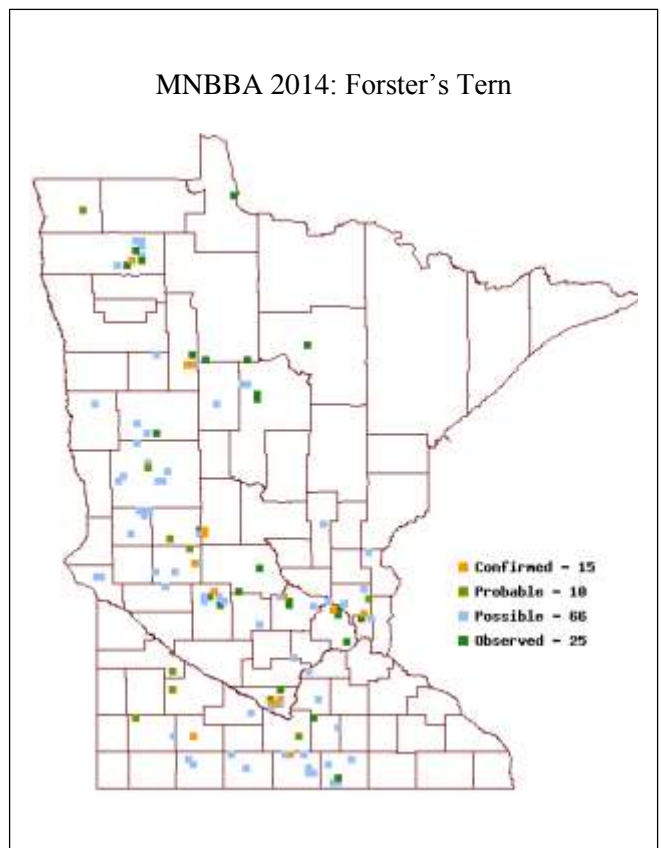
Forster's Tern Distribution Maps



Birds of North America <http://bna.birds.cornell.edu/bna/>



MN DNR http://www.dnr.state.mn.us/eco/mcbs/bird_map_list.html



MN Breeding Bird Atlas <http://www.mnbba.org/>