



**STATUS: HIGH
CONSERVATION
PRIORITY IN IOWA**

Forster's Tern *Sterna forsteri*

Introduction

Forster's Tern is similar in appearance and ecology to several other terns, but is the only tern restricted almost entirely to North America throughout the year.

This is primarily a marsh bird, spending the breeding season from Iowa northward across the prairie pothole region and into north central Canada, and at scattered wetlands throughout the American west. It is also found along Atlantic, Pacific, and Gulf coasts, where it winters.



Habitat Preferences

In Iowa, Forster's Terns most often utilizes larger wetlands, including marshy borders of lakes, islands, or streams. Open, deeper portions of wetlands with considerable open water and large stands of island-like vegetation and/or large mats of floating vegetation are preferred. Forster's Terns are primarily noted in wetlands of 10 acres in size or larger.

Feeding Habits

The primary food is small fish, insects, other arthropods and small aquatic life. Most foraging takes place across the deeper portions of the wetlands it prefers; but this species also forages in shallow water in the wetlands and marshy areas in which it breeds or uses during migration.

While foraging, Forster's Terns fly back and forth, typically about 18-25 feet above water, with bill pointing downward and feet folded against body, and either plunges directly into the water towards prey or hovers briefly before diving. The plunges are typically shallow with only bill and part of head submerged, but at times the whole body is completely submerged.

Sometimes foraging is from perches such as posts, bridges, telephone wires, or floating wood. Small fish are often swallowed as this tern regains foraging height. Larger fish may be dropped from a height of approximately 50 feet and then caught again at half that height. This behavior is often repeated 3–4 times and may be a necessary part of food processing. Forster's Terns also catch flying insects while in flight.

Most information that is available on diet is anecdotal or based on casual observations. However, one analysis of stomach contents of 15 individual birds identified 64 prey items, which were primarily small, or young of the year fish. Of 166 courtship feedings observed in Minnesota, the fish that were

presented included 65 Yellow Perch, 25 shiners, 13 sunfish, and 5 Northern Pike. And, at this same location, 148 prey items brought to chicks included 79 Yellow Perch, 24 shiners, and 8 sticklebacks. Forster's Tern is not known to store food.

Breeding Biology

Pair formation begins or continues after arrival at breeding locations in mid-April to mid-May. Forster's Terns may breed in loose colonies, in which nest spacing is considered by some to be dictated by the arrangement of good nesting sites. At times nesting colonies may be associated with colonies of Yellow-headed Blackbirds.

Nest construction begins with courtship displays after arrival at breeding locations. Nests are on top of dense vegetation or mats of floating dead plants, often on top of muskrat houses. At times nests are placed on the ground or on an abandoned nest of a grebe. When nesting in the same wetland as Black Tern, Forster's Terns tend to choose higher and drier nest sites.

Both male and female construct the nest, and use various forms of wetland vegetation to do so. The center is a deep hollow lined with finer textured materials such as grasses, and often shells. Most often 3 eggs are laid, but eggs may range from 1 to 4. In Iowa, egg-laying takes place from early May to mid-June. Incubation is done by both sexes, and lasts from 23 to 25 days.

Both adults feed the young in the nest. The size of fish is correlated with age and size of young. Age at first flight is not well known, and little is known of post-fledging, or pre-breeding terns.

Concerns and Limiting Factors

Prior to Migratory Bird Treaty protection in 1919, Forster's Terns were shot for the millinery trade, but the impact on this species is unknown. Forster's Tern had the habit of flying towards and hovering over

those individuals that had been shot and thus was particularly vulnerable to millinery collectors.

Pesticides and other contaminants and toxins have been a concern over time, but no studies of Forster's Terns were done in the 1960s and 1970s, when effects of contaminants were greatest in other fish-eating birds. As a "top of the food chain," species, Forster's Tern can serve as a "biomonitor" of potentially harmful synthetic chemicals, and serve as a "littoral zone indicator." Thus, studies to examine chemical contaminants in Forster's Tern eggs and their effects on reproductive success would be useful, especially if extended to broader portions of the range of this species.

Loss of habitat due to degradation and fragmentation suggest that further studies of Forster's Tern ecology are desirable. Because low reproductive success within a given year is common, long-term studies of individually marked birds are required to determine longer-term population dynamics. Population trends cannot be measured easily in a species of such mixed breeding site-tenacity until more birds are marked individually and followed for several years.

Forster's Terns have been known to habituate to human presence and while some human disturbance at breeding colonies is unintentional, premeditated human vandalism has caused some breeding colonies to fail. Mink are known to prey upon eggs, young, and even adult birds. Nests are also sometimes lost from wave action during storms, and muskrat activity.

However, the most serious concern and limiting factor is habitat. As with most species, the Forster's Tern has suffered from habitat loss, fragmentation, and degradation; and its numbers have declined. Thus, concerns and limitations

related to the quantity and quality of habitat continue to be a top priority.

Habitat Management Recommendations

Forster's Terns have demonstrated an ability to colonize newly created wetlands and marsh-like habitats, suggesting that management and restoration of large wetland systems should benefit breeding populations. Wetland preservation, restoration and management, and especially nest areas, which were previously used for breeding, are recommended for this species.

As one of Iowa's species of high conservation priority, Forster's Tern populations should to be monitored carefully and conservation plans should be developed and implemented – at IBAs as well as at other habitats used by this species – to ensure that this generally declining species does not fall into the threatened or endangered categories.

Specific wetland management recommendations that will benefit Forster's Tern are provided in Part 3 within sections entitled Wetland Management for Birds, and Recommended Wetland Management Practices.