

EIDER JOURNEY It's Summer Time for Eiders – On the Breeding Ground

The only location where Steller's eiders are still known to regularly nest in North America is in the vicinity of Barrow, Alaska (Figure 1).

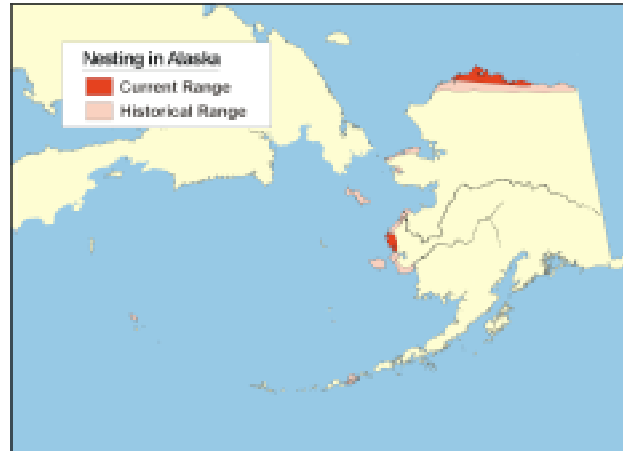


Figure 1. Current and historic Steller's eider nesting habitat.
(Map courtesy of U.S. Fish and Wildlife Service.)

In summer, Steller's eiders nest on coastal tundra adjacent to small ponds or within drained lake basins, generally near the coast but range in at least as far as 90 km (56 miles) inland” (Figure 2.) Most ponds and lakes are shallow, and fish cannot survive there because they freeze to the bottom each winter. Migratory birds that use these wetlands have no vertebrate competitors for the aquatic insects and crustaceans that comprise their principal prey during the summer.



A male Steller's eider in breeding plumage.



A female Steller's eider.

(Photographs courtesy of U.S. Fish and Wildlife Service.)

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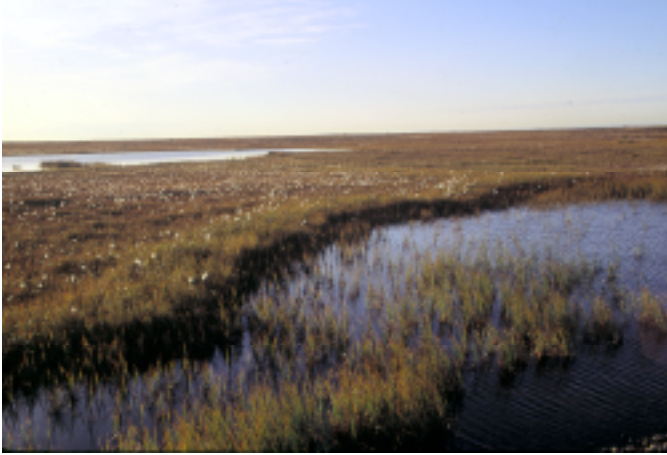


Figure 2. Tundra wetland is the eiders' summer, breeding habitat.

Natural History and Biology

Breeding

Steller's eiders typically arrive in Barrow in late May or early June. In the days following survival, they can be found aggregated in flocks in flooded wetlands. After a few days to two weeks, they separate into discrete pairs or small groups and disperse across the tundra to breed. In almost all nesting years, pairs are observed in nesting areas and nests are initiated by mid-June. Nesting does not occur every year.

From 1991-2003, Steller's eiders nested near Barrow only intermittently, apparently only breeding in six of thirteen years. The cause for this 'periodic non-breeding' remains unknown, but one hypothesis centers on the association between Steller's eiders, brown lemming (a small mammal) populations (*Lemmus trimucronatus*), and their predators. Brown lemming populations demonstrate tremendous annual variation in population level, a phenomenon often referred to as "lemming cycles." Years in which Steller's eiders nested near Barrow in significant numbers were characterized by abundant lemmings., Snowy owls and pomarine jaegers also nested in Barrow in those years, which normally near Barrow only when and where lemmings are abundant

One hypothesis is that predation of the Stellers' eider nests by arctic foxes is reduced when lemmings are numerous because: 1) lemmings provide adequate food for foxes, reducing predation on alternate prey such as ground-nesting birds and their eggs; and/or 2) Steller's eiders frequently nest near snowy owls and pomarine jaegers, which aggressively drive foxes from the vicinity of their nests, providing security for nearby nests of other species. Continued research is needed on the breeding biology of the eider to determine these interrelationships.

Nesting

Eiders nest on tundra adjacent to small ponds or within drained lake basins. Nests are a shallow depression on the ground, amongst moss or sedge vegetation. The nest is lined with a thick bed of

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down, mixed with breast feathers and bits of vegetation (Figure 3). Many nests are partially or completely destroyed from predation by foxes, ravens, jaegers, or other predators.



Figure 3. Steller's eider's nest and eggs.

Eggs and Incubation

Eggs are olive buff, mottled with darker shades (Figure 3). They are approximately 2.4 inches (61 mm) long. The most common clutch sizes at Barrow are 5 or 6 eggs, but range up to 8. Only the female incubates, and for 24 days she remains on the nest, taking a few short breaks (under an hour) each day to feed. Males may remain near the nest during early incubation, but in general they become increasingly associated with nest sites and females after the onset of incubation. Most males leave the breeding areas by early July.

Chicks

Chicks are 'precocial' meaning 'independent, eyes open, downy' (Figure 4). Soon after hatching, the female leads the ducklings to nearby wetlands to feed on insects and plants until they are capable of flight at approximately 40 days.



season, so does the diet of the eider.

Figure 4. Steller's eider chicks.

Feeding / Diet

The eider's diet varies between the wintering, marine environment and the summer, breeding, tundra environment. During spring migration and early breeding season, eiders feed by dabbling, head-dipping, and up-ending on freshwater shallow. According to researchers, brood-rearing females dive for food in the deepest centers of the pond, leaving shallow sides of the same ponds for ducklings to forage. As foraging strategies change with the site and

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During the breeding season eiders feed primarily the larvae of aquatic flies and plant materials, in addition to crustaceans and mollusks. Freshwater crustaceans (such as gammarid amphipods) and worms may also be a main component of the diet in some portions of the eider's breeding range.

Ongoing Research

Research- Scientists have conducted both aerial and foot surveys of the Steller's eider's historic nesting range in recent years (Figure 5). These surveys helped them determine that Barrow is the only area where the eiders continue to nest consistently.

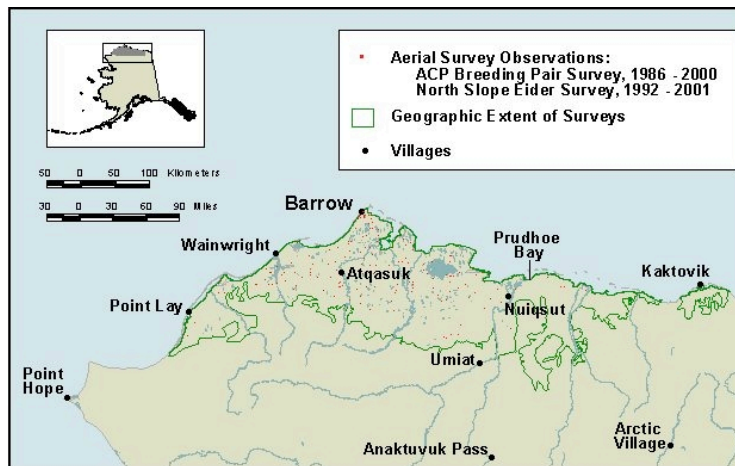


Figure 5. Geographic extent of Steller's eider surveys from 1986 to 2001.

Foot surveys to locate pairs and conduct nest searches are now conducted only in the Barrow area. The following map (Figure 6) compares Steller's eider sightings in 1999 and 2000.

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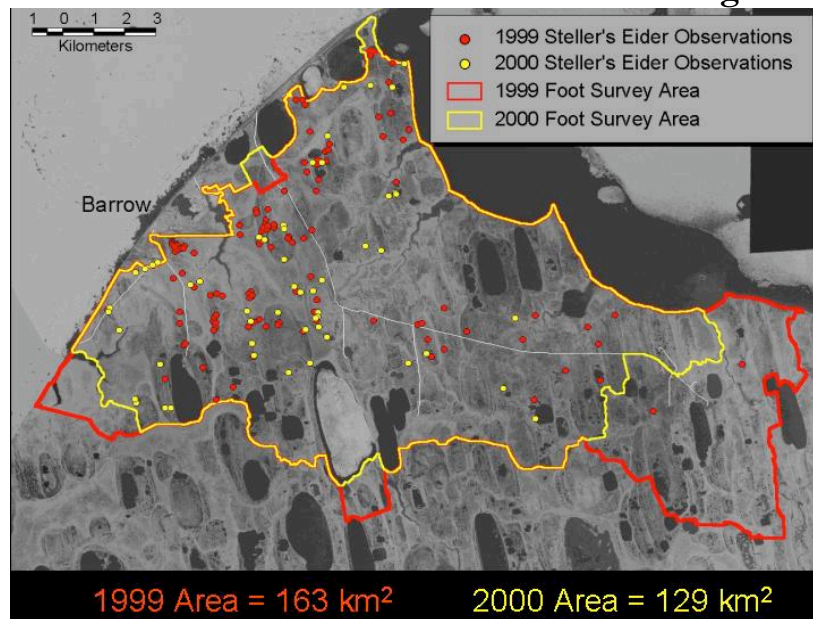
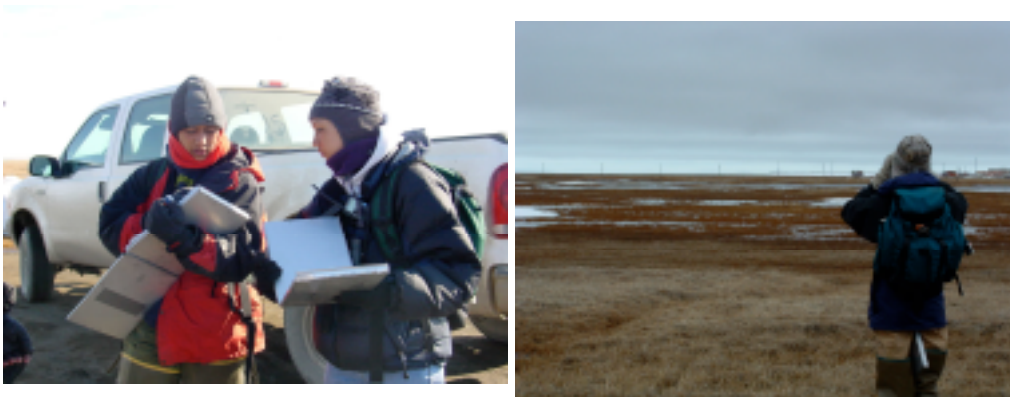


Figure 6. Foot surveys in Barrow, Alaska, 1999-2000.

Each summer, Barrow high school students (Figures 7 and 8) work alongside U.S. Fish and Wildlife scientists to conduct these foot surveys. In mid-June, they walk transects across the tundra, carrying detailed maps of the area. The survey biologists map the locations where they see Steller's eider pairs, as well as possible nesting areas of snowy owls or Jaegers, with which the eiders seem to associate. Each eider pair location is revisited in early July for an intensive search for nests.



Figures 7 and 8. Barrow high school students participating in foot surveys.