

## Swans

**Trumpeter swans** (*Cygnus buccinator*) and **tundra swans** (*C. columbianus*) are the two species of swans native to North America, both nesting in Alaska. The tundra swan was formerly named the whistling swan. A few **whooper swans** (*C. cygnus*), an Asian temperate region relative to trumpeters, are occasionally seen in the Aleutian Islands during winter.

**General description:** The trumpeter is the world's largest member of the waterfowl family, with males averaging 28 pounds (12.7 kg) and females averaging 22 pounds (10.0 kg). Eggs of trumpeters sometimes are 5 inches long (12.6 cm)! Like all swans, the sexes have identical plumage, and both tundra and trumpeter swan adults are all white. However, in some Alaska locales, iron-rich marshes stain head and neck feathers a rusty color. Feathers of immature swans are an ash gray color, and some gray feathers remain evident on the heads and necks of swans that are 1 and 2 years old. Trumpeter swans have an angular wedge-shaped head profile, with the black of the bill appearing to merge with the eye. Their bills are all black, with a red border on the mandible (lower jaw). One sure way to identify trumpeters is by their deep, French horn-like call, compared to the higher "whoop" of the tundra swan.

Although less than two-thirds the size of trumpeters, tundra swans are often difficult to distinguish from their close relative when seen in the field. Adult tundra swans frequently, but not always, have a yellow spot on their black bill near the eye. Their profile suggests a forehead and the eye appears separate from the bill.

**Status and distribution:** Formerly, the trumpeter swan occupied a breeding range over much of northern North America. Typically, it is a bird of temperate region forests and prairies. Due to intense exploitation by market hunters in the Lower 48 States, who sold both the swan's meat and feathers, the trumpeter was considered an endangered species by the early 1900s. Hunting of swans was stopped soon after. By 1932, biologists knew of only 69 trumpeters in the wild (birds in Alaska were not yet known). Trumpeters were first identified in Alaska in 1850 but, surprisingly, it was not until 1954 that breeding trumpeters were discovered in Alaska. An extensive survey of known Alaska breeding habitat was first flown in 1968 when personnel of the U.S. Fish and Wildlife Service counted 2,844 trumpeters. In 1968 trumpeters were taken off the national endangered species list, but they are classified as rare or endangered in some other states. Rangewide surveys have better defined trumpeter breeding areas, generally in the forested zones of Interior and Southcentral Alaska, resulting in better population estimates. The census of 1990 indicated over 13,000 trumpeters in Alaska (over 80 percent of the world's population) and a continuing increase over the past 20 years. Alaska's trumpeter swans winter near coastal waters from Cordova south to the Columbia River in Washington. A large concentration of trumpeters winters on Vancouver Island.

Although they were never as scarce as trumpeters, tundra swans were also subjected to market hunting but have increased in number since 1920. North American tundra swans occur as two distinct populations. Eastern tundra swans breed from northwest Alaska through the Canadian arctic (about 10,000 are from Alaska) and migrate across the continent to winter on the Atlantic coast. Historically, most of them were attracted to abundant aquatic vegetation in Chesapeake Bay, but pollution and degradation of the bay have led the majority of swans to winter in North Carolina. Relatively high survival rates and recently learned patterns of feeding in agricultural fields have produced a steady increase in the eastern population to over 100,000 swans in 1992.

The western population of tundra swans nests along the west coast of Alaska from Kotzebue Sound to the Alaska Peninsula. Major breeding concentrations are found on the Yukon-Kuskokwim Delta and in the Bristol Bay region. This population migrates both coastally through Cook Inlet and through the Interior (via Alberta, Montana, and Utah) to wintering grounds from southern British Columbia to central California. The western population of tundra swans has increased since the 1940s and has averaged about 60,000 since 1970.

**Life history:** Swans pair with mates for life, usually as 2-year-olds, but delay breeding until their third, fourth, or even fifth year. If one of the pair is lost, a new mate will be found before the next breeding season. Because of the lengthy development period for their young, swans begin nesting as early as spring thaw permits. Trumpeters select a nest site typically in an undisturbed marsh adjacent to a small lake. Tundra swans usually nest on elevated sites near large ponds or lakes that have emergent plant beds. Construction begins by uprooting nearby plants to form a nest mound that may be used year after year. When finished, a trumpeter nest is 6 to 12 feet in diameter and about 1 to 2 feet above water level with a ring of open water surrounding it. The female lays two to seven eggs (average four) over the next 5 to 12 days. While the trumpeter female (called a "pen") attends to nesting duties, her mate (the "cob") defends a territory around the nest. Tundra swans are also very territorial, but male and female tundra swans take turns incubating the eggs. During incubation, the cob begins a wing feather molt which leaves him flightless for about a month. The young, or cygnets, hatch after 31 to 35 days of incubation. For the next 11 to 15 weeks the breeding pair guards their cygnets until they fledge. During this time, the adult female completes her molt. Tundra swans require about three weeks less time than trumpeters for the cygnets to achieve flight, allowing them to nest in tundra areas having shorter summers than the more temperate regions used by trumpeters. In some years, early freeze-up causes significant losses of young for tundra and trumpeter swans. After this critical period in its life, a swan's chances of survival are generally high and their life span is relatively long for birds.

Unmated tundra swans gather in small flocks in coastal marshes to spend the summer, and unmated trumpeters often flock on large lakes within their breeding range. Alaska's swans begin flying south in late September or October, depending on the weather. Both species of swan migrate as family units or in small flocks comprised of several families and some nonbreeders.

**Food habits:** In summer, swans eat foliage, seeds, and tubers of various marsh plants such as horsetail, pondweeds, sedge, bulrush, water milfoil, widgeongrass, and pond lily. During feeding experiments in Montana, adult trumpeters ate more than 20 pounds of moist aquatic vegetation each day! Young cygnets grow rapidly and require a high protein diet of aquatic invertebrates during the first few weeks. Gradually they shift to a vegetable diet similar to that of adults. On staging areas and wintering grounds in the Lower 48 States, tundra and trumpeter swans have learned to feed in agricultural fields, on vegetables, winter wheat, and unharvested grain. In most cases, swans benefit from these rich winter food sources, but conflicts with farmers can arise from roving flocks of swans that can cause significant damage to crops.

**Management:** The two species of swans native to North America are both more numerous today than they were 30 years ago, thanks to the waterfowl conservation movement and the remoteness of their northern breeding range. Although trumpeters are not hunted, limited hunting is permitted for western



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tundra swans in Alaska, Utah, Nevada, and Montana. Eastern tundra swans are hunted in Montana, North and South Dakota, Virginia, and North Carolina. Tundra swans have been a traditional subsistence resource in Alaska and northern Canada. Swans are very sensitive to disturbance and may have an unsuccessful breeding season if high levels of human activity occur near their chosen nesting site. In most areas, special habitat protection measures are intended to ensure continued use and production by swans. Recently, eggs from Alaskan trumpeter swans have been sent to several midwestern states where restoration programs are establishing nesting swans where they have not been seen in 100 years.

Tundra Swan

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