Background Information for Teachers

Introduction

The Trumpeter Swan is the largest species of native North American waterfowl. It is a long-lived, social species, conspicuous by its large size, all-white plumage, and trumpetlike call. Although it was formerly abundant and geographically widespread, its numbers and distribution were greatly reduced during the early fur trade and European settlement (1600s-1800s), when it was prized for its skins and feathers. Thousands of robes made with the feathers of Trumpeters were shipped to Europe each year.

By the early 1900's, Trumpeter Swans were nearly extinct. However, a small group of 68 Trumpeters was found in the Centennial Valley of Montana in 1935 (unrecorded flocks also inhabited parts of Alaska and Canada). Red Rocks Lakes National Wildlife Refuge was created to provide protected habitat for these swans. Biologists at the refuge supplemented their natural food supply of aquatic plants with grain. Over the next couple of decades, the population of Trumpeter Swans gradually rebounded at Red Rocks Lakes. It became high enough that biologists captured and transported small groups of Trumpeters to other areas.

These efforts to reintroduce Trumpeters to other areas have helped to distribute the population of Trumpeter Swans to more areas in the Rocky Mountain region. The overall Rocky Mountain population of Trumpeter Swans, which migrates through Montana, Wyoming, and Idaho, has rebounded from its dangerously low population size of 68 in the early 1900's to over 2,500. Numbers have steadily increased with modern conservation, including protection from shooting, habitat preservation, and restoration programs. A 1990 continentwide survey found 15,630 individuals in the wild.

Because of its delayed maturation, single broods, highly variable production, and high winter mortality, population growth of this species is usually slow. Although its numbers and distribution are increasing, populations are still at risk from continued loss of wintering habitat, concentration of wintering flocks at relatively few sites, lead poisoning, and lack of migration in several wild and restored flocks.

Identification

There are three species of swans in North America. The Trumpeter Swan (*Cygnus buccinator*) and Tundra Swan (*C. columbianus*) are indigenous, or native, while the Mute Swan (*Cygnus olor*) is a Eurasian species that has been introduced and now breeds in the wild in some areas. All three are very large all-white birds.

Mute Swans are easily distinguished by the bright orange bill and distinctive knob on the forehead. Trumpeters and Tundras are similar looking species that are more difficult to identify. Positive identification is essential, as Trumpeters often mix with flocks of the relatively common Tundra Swan throughout their migration and winter range.

Distinguishing Trumpeters from Tundras is not easy, but it is possible by paying close attention to a few distinctive characteristics.

VOICE

Trumpeter: resonant, sonorous, loud, low-pitched, bugle like call.

Tundra: high pitched often quavering oo-oo-oo accentuated in the middle; or who, who-ho: woo-oo-woo; or who-who.

Size Information

Species	**Wing Span (inches)**	**Weight (pounds)**	**Length (inches)**
Trumpeter	84-96	21-30	60
Tundra	72-80	13-18	52
Mute	82-94	20-30	57
Snow Goose	36-44	4-6	27

Trumpeter swans frequently bob their head and necks up and down (head bobbing). With this motion they also have a variety of vocalizations. This combined activity apparently serves as a form of communication between individuals and within the group. Head bobbing and vocalization activity increase when the birds are disturbed and reaches maximum intensity just prior to the birds taking flight. This behavior may be brief or absent if the birds are suddenly startled and take flight.

Head and Bill Shape

Trumpeter—bill heavy in proportion to head with a straight profile. Angular head shape somewhat resembling canvasback duck. Eye not distinct from bill.

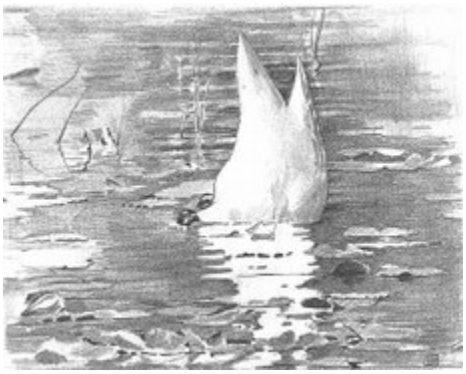
Tundra—bill more dish-shaped in profile, bill smaller in proportion to head compared to trumpeter. Head smoothly rounded; eye usually distinct from bill.

Snow Goose—less than one-half the size of a swan; total bill length is about 2"; bill is shorter compared to head length than in swans; bill does not extend very close to eye. Neck length is about the same length and distance from tip of bill to back of head.

The male swan is called the Cob. He typically weighs more and looks larger than the female (the Pen). Swans in their first year are called Cygnets.

Food Habits

Trumpeter Swans are mostly herbivorous. Adults eat submerged and emergent vegetation, occasionally fish and fish eggs. Feeding on pasture grasses, small grains, and tuberous crops has been observed in some areas. Trumpeters will consume supplemental feed (wheat, corn, commercial poultry food) where provided. Cygnets eat aquatic invertebrates and fragments of vegetation such as horsetail until 2–5 weeks of age.



Trumpeter Swan foraging. These birds generally forage in shallow water where they can reach the shoots of emergent vegetation and other water plants, as well as roots and tubers below. Drawing by D. Otte

Migration

Most northern flocks move south to ice-free waters. Several flocks in west, north-central U.S., and eastern Canada are sedentary or migrate only short distances. Most long-distance migration to southernmost wintering areas has been eliminated by over-shooting of migrants and/or loss of migratory or wintering habitat.

Birds leave their breeding areas in mid-Oct to late November, as waters freeze. They often make intermediate stops between breeding and final wintering sites, moving from smaller to larger waters as ice cover and available food dictate. Most make local movements during winter. Local tristate trumpeters make local movements to ice-free waters as open water freezes and limits access to forage. Occasionally some migrate to Utah, Colorado, and Arizona.

Raising a Family

Trumpeter swans establish life-long mates at approximately 3 years of age and nest the following year. Sometime between late March and early May, they build their nests, choosing locations close to the water, either on shore, small islands, or muskrat and beaver lodges. The male (called a cob) gathers nest material, uprooting marsh plants such as cattails, sedges, bulrushes, and horsetail, and brings them to the female (called a pen) for placement. The nest mound, which

takes about 2 weeks to build, reaches a diameter of 6 to 12 feet and an average height of 18 inches. The same nest site may be used for several years.

Once the nest is complete, the pen lays one egg every other day until she has a full clutch, usually from 3 to 9 eggs. The pen spends an average of 35 days incubating the eggs while the cob stays nearby to defend the nest against intruders or predators. When they hatch, the downy young (called cygnets) are grayish with pink bills and weigh about 1/2 pound each. Although able to swim immediately, they usually stay in the nest for at least another 24 hours.

Newly hatched cygnets feed mainly on aquatic insects and crustaceans. At about 5 weeks of age, their diet changes to include more vegetation. By the age of 2 to 3 months, the cygnets' diet is basically the same as that of the adults. The tubers of duck potato and sago pondweed are important foods for trumpeter swans. They also feed on the stems, leaves, and seeds of other aquatic plants. Trumpeter swans use their strong webbed feet to dig into the pond or lake bottom for roots, shoots, and tubers, then plunge their heads and necks underwater to eat what they've dug up. In deeper water, they tip up completely to snap off the leaves and stems of plants growing underwater. Their heads and necks are often stained a rusty color from feeding in ferrous (containing iron) waters.

Trumpeter swans grow rapidly. By 8 to 10 weeks of age, young trumpeters have reached half their adult size and are fully feathered. They retain their gray juvenile plumage until the second winter.

Average age at first flight is 14 to 17 weeks in Alaska and 13 to 15 weeks in other areas of their range (some of the cygnets may not survive to flight stage).

Conservation

The trumpeter swan is vulnerable to illegal shooting, collisions with power lines, and predators such as snapping turtles, great horned owls, raccoons, and minks which steal the eggs and attack the young.

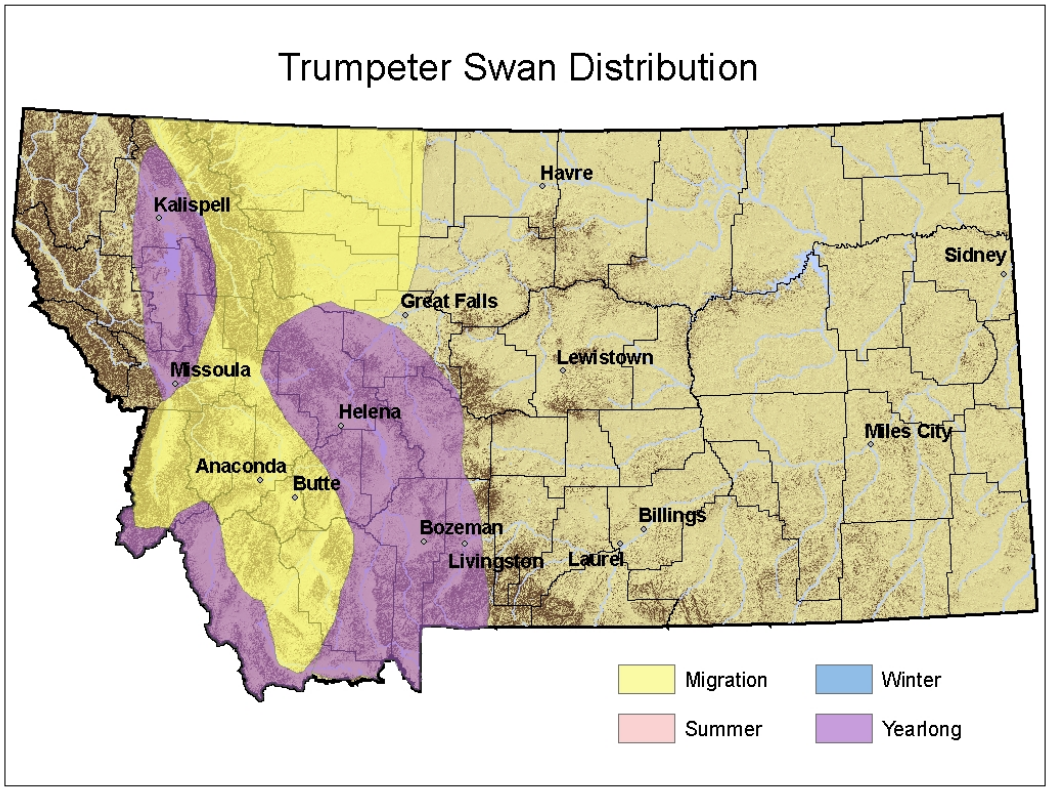
Studies have also shown that trumpeter swans may develop lead poisoning by ingesting lead shot and fishing sinkers during feeding. A relatively recent ban on lead shot for waterfowl hunting has helped significantly decrease this threat in that no new pellets are being deposited in the environment, but old pellets may remain in the sediment of lakes and wetlands for several decades.

Under the Migratory Bird Treaty Act, carefully managed hunting of some migratory birds is allowed under regulations developed each year by the U.S. Fish and Wildlife Service. The trumpeter swan's close resemblance to the tundra swan and the snow goose, which are both legal game in some areas, makes it vulnerable to a certain amount of hunting pressure due to mistaken identity. Widespread destruction and degradation of wetland areas also decreases the suitable habitat areas for the trumpeter swan.

In the early 1900s, the trumpeter was hunted nearly to extinction for its skin, feathers, meat, and eggs. Passage of the Migratory Bird Treaty Act of 1918 gave protection to trumpeter swans and other birds and helped curb illegal killing.

In 1932, fewer than 70 trumpeters were known to exist worldwide, at a location near Yellowstone National Park. This led to the establishment of Red Rock Lakes National Wildlife Refuge in 1935. Red Rock Lakes is located in Montana's Centennial Valley and is part of the Greater Yellowstone ecosystem. Nearly half of the known trumpeter swans in 1932 were found in this area. The area's system of hot springs provides year-round open waters where trumpeters, as well as other wildlife, find food and cover even in the coldest weather.

Over the years, the Red Rock Lakes refuge flock has served as an important source of breeding birds for reintroduction efforts in other parts of the country, primarily on other national wildlife refuges in the Midwest.



Trumpeter Swan Nesting Biology