

# BALD EAGLE - HALIAEETUS LEUCOCEPHALUS

**Taxonomy:** Kingdom: Animalia Phylum: Chordata Class: Aves Order: Accipitriformes Family: Accipitridae Genus: Haliaeetus Species: H. leucocephalus

## **Habitat:**

**Biomes:** Bald Eagles typically nest in forested areas adjacent to large bodies of water, staying away from heavily developed areas when possible. Bald Eagles are tolerant of human activity when feeding, and may congregate around fish processing plants, dumps, and below dams where fish concentrate. For perching, Bald Eagles prefer tall, mature coniferous or deciduous trees that afford a wide view of the surroundings. In winter, Bald Eagles can also be seen in dry, open uplands if there is access to open water for fishing.

## **Distribution:**

**In US:** The bald eagle's natural range covers most of North America, including most of Canada, all of the continental United States, and northern Mexico. It is the only sea eagle endemic to North America. Occupying varied habitats from the bayous of Louisiana to the Sonoran Desert and the eastern deciduous forests of Quebec and New England, northern birds are migratory, while southern birds are resident, remaining on their breeding territory all year. At minimum population, in the 1950s, it was largely restricted to Alaska, the Aleutian Islands, northern and eastern Canada, and Florida. During the interval 1966-2015 bald eagle numbers increased substantially throughout its winter and breeding ranges, and as of 2018 the species nests in every continental state and province in the United States and Canada. The majority of bald eagles in Canada are found along the British Columbia coast while large populations are found in the forests of Alberta, Saskatchewan, Manitoba and Ontario. Bald eagles also congregate in certain locations in winter. From November until February, one to two thousand birds winter in Squamish, British Columbia, about halfway between Vancouver and Whistler. The birds primarily gather along the Squamish and Cheakamus Rivers, attracted by the salmon spawning in the area. Similar congregations of wintering bald eagles at open lakes and rivers, wherein fish are readily available for hunting or scavenging, are observed in the northern United States.

**In Other Countries:** ^^^^^

**Holistic Description:** The Bald Eagle has been the national emblem of the United States since 1782 and a spiritual symbol for native people for far longer than that. These regal birds aren't really bald, but their white-feathered heads gleam in contrast to their chocolate-brown body and wings. Look for them soaring in solitude, chasing other birds for their food, or gathering by the hundreds in winter. Once endangered by hunting and pesticides, Bald Eagles have flourished under protection.

**Species Richness:** 2 SUBSPECIES

**Population Dynamic:** NONE

## **Evolution and Systematics:**

**Evolution:** Fossil evidence dating back at least 1 million yr, although likely existed prior to that. Reported as fossil from Pleistocene from Oregon, California, New Mexico, Nebraska, Michigan, and Florida; reported from prehistoric sites from Alaska, Washington, Oregon, California, Arizona, S. Dakota, Iowa, Illinois, Georgia, and Florida.

**Systematics:** NONE

**Number of Species:** 2 SUBSPECIES

**Number of Genera:** 2 SUBSPECIES

## **Physical Characteristics:**

**Size and Length:** Length: 27.9-37.8 in (71-96 cm) Weight: 105.8-222.2 oz (3000-6300 g)

**Wingspan:** 80.3 in (204 cm)

**Coloration:** Adult Bald Eagles have white heads and tails with dark brown bodies and wings. Their legs and bills are bright yellow. Immature birds have mostly dark heads and tails; their brown wings and bodies are mottled with white in varying amounts. Young birds attain adult plumage in about five years.

**General Body Features:** The Bald Eagle dwarfs most other raptors, including the Turkey Vulture and Red-tailed Hawk. It has a heavy body, large head, and long, hooked bill. In flight, a Bald Eagle holds its broad wings flat like a board.

**Special Features of the Body:** Bald eagles have several useful adaptations to help them devour their prey. In addition to talons, they use their sharp, pointed beaks to tear into and eat their meals. They primarily eat fish -- although also some birds, mammals and reptiles -- and their beaks are tough enough to tear and eat the flesh of larger prey bite by bite. When they catch a smaller dinner, they'll eat it in one sitting, but they'll regurgitate its bones and other indigestible parts.

**Special Features of the Head and Sensory Organs:** The term "eagle-eyed" is an accurate description for excellent vision. A bald eagle's eyesight is four to eight times better than that of a human. This means they can easily spot potential prey from far

above the ground, where other birds wouldn't see it. Eagles also have a bony ridge above their eyes that minimizes glare from the sun. These adaptations greatly improve their hunting ability, helping them to find all the food they need.

Dentition: Beak/Lamellae/Gizzard

Special Features of the Limbs and Digits: It's crucial to spot your prey, but if you can't grab it you won't be eating dinner.

Bald eagles have specially adapted feet and talons to help them out. A series of bumps on the bottom of their feet -- known as spicules -- help them hold on to their prey during flight. They also have razor-sharp talons that they use to grab their prey, kill it and tear into its flesh.

Any Special Internal Anatomy: Rather than flying and striking quickly, like other birds of prey, eagles soar slowly above the ground, utilizing natural air currents. Extremely large wingspans -- sometime more than 7 1/2 feet -- allow them to easily catch the currents and drift through the air. This conserves a lot of energy, meaning they can stay up in the air looking for prey for a longer amount of time before tiring.

Sexual Dimorphisms: The sexes are identical in plumage, but females are about 25 percent larger than males.

Differences Between Juvenile Stage and Adult: The beak is large and hooked. The plumage of the immature is brown.

### **Behavior:**

Diurnal, Nocturnal, or Crepuscular: Diurnal

Activity: Bald Eagles are powerful fliers—soaring, gliding, and flapping over long distances. In one of several spectacular courtship displays, a male and female fly high into the sky, lock talons, and cartwheel downward together, breaking off at the last instant to avoid crashing to earth. Bald Eagles frequently harass birds including Ospreys and other eagles to steal their food, and occasionally do the same to mammals such as river or sea otters. On the ground, Bald Eagles walk in an awkward, rocking gait. Capable of floating, a Bald Eagle may use its wings to “row” over water too deep for wading. Though often solitary, Bald Eagles congregate by the scores or even the hundreds at communal roosts and feeding sites, particularly in winter. These groups can be boisterous, with birds jostling for position and bickering over prey. During breeding season you may see Bald Eagles defending their territories from a variety of intruders, including raptors and ravens, coyotes and foxes. When feeding at carcasses, Bald Eagles may push Black and Turkey Vultures out of the way; other species including ravens, coyotes, bobcats, and dogs sometimes hold their own. Bald Eagles are often harassed or chased by their fellow raptors and by songbirds including blackbirds, crows, and flycatchers.

Locomotion: On ground, typically walks in awkward, rocking gait of alternating steps but rarely will hop. Uses wings to power hop, jumping off ground onto low-level perches (e.g., logs, rocks, stumps). Capable of extensive soaring, gliding, and flapping flight. Soaring and gliding used for food searching and migration. Capable of floating on surface of water and will use wings in “rowing” motion in water too deep to wade, or if individual is too wet to fly off of surface.

Communication and Perception: For such a powerful bird, the Bald Eagle emits surprisingly weak-sounding calls—usually a series of high-pitched whistling or piping notes. The female may repeat a single, soft, high-pitched note that has been called “unlike any other calls in nature”; apparently this signals her readiness for copulation.

Home Range: Territorial defense is common during the breeding season to ensure sufficient food resources to raise young, and to breed and raise young without interference. Defense can involve perching in prominent areas, using threat vocalizations, and, at the extreme, chasing intruders out of the area. Both sexes defend nest, and response may be gender specific. Territorial defense most pronounced during breeding season.

Degree of Sociality: High degree of social interaction at communal roosts and communal feeding sites where hundreds of individuals may congregate. Social interactions at communal sites associated with immature and nonbreeding adults throughout the year.

Level of Aggression: Most aggression among adults in response to territorial disputes during nesting; among all ages in response to competition for food any time of the year, but especially during winter, and for favorite foraging perches and roosting sites; and among nestlings for food. Territorial Bald Eagles may chase nonbreeders, especially adults, from the territory. Aggressive interactions among nestlings common, occasionally leading to death of the smaller, younger nestling. Death may occur because of food deprivation or actual physical harassment from older individual. Frequency of occurrence of siblicide not well documented in this species.

Migration: Resident to long-distance migrant. Complex migration patterns depend on age, breeding location, and food availability. Northern adults begin fall migration when lakes and rivers freeze, usually migrating coastward or to open water. They return to breeding grounds when weather and food permit, usually January–March

### **Predators:**

Predators: Black-billed Magpies, Gulls, Ravens, Crows, Black Bears, Raccoons, Arctic Fox, Hawks, Owls, Bobcat, Wolverine,.

Anti-Predator Defenses: Will defend nest against other avian species, especially ravens and other raptor species..

**Diet and Nutrition:**

Adult Diet: Fish of many kinds constitute the centerpiece of the Bald Eagle diet (common examples include salmon, herring, shad, and catfish), but these birds eat a wide variety of foods depending on what's available. They eat birds, reptiles, amphibians, invertebrates such as crabs, and mammals including rabbits and muskrats. They take their prey live, fresh, or as carrion. Bald Eagles sometimes gorge, ingesting a large amount of food and digesting it over several days. They can also survive fasting for many days, even weeks.

Juvenile Diet: ^^^^^

Special Adaptations for Getting Prey: CHECK FEATURES

**Reproduction:**

Mode of Reproduction: Monogamous

Mating System: Monogamous and thought to mate for life unless 1 mate dies, but not well documented by marked individuals.

Mating Season: March to May

Courtship: Spectacular courtship rituals, involving vocalizations and acrobatic flight displays. Perhaps most noted courtship act is Cartwheel Display, in which courting pair fly to great altitude, lock talons, and tumble/cartwheel back toward earth; pair break off display at the last moment to avoid collision with the ground. Other courtship displays include Chase Display, in which paired individuals will pursue each other, occasionally lock talons, roll, and dive; and so-called Roller-Coaster Flight, in which eagle will fly to great altitude, fold wings, and dive directly to earth, swooping back up at the last instance to avoid collision with the ground.

Territoriality: HOME RANGE

Mating: NONE

Nesting: Bald Eagles nest in trees except in regions where only cliff faces or ground sites are available. They tend to use tall, sturdy conifers that protrude above the forest canopy, providing easy flight access and good visibility. In southern parts of their range, Bald Eagles may nest in deciduous trees, mangroves, and cactus. It's unknown whether the male or the female takes the lead in selecting a nest site. Nests are typically built near the trunk, high up in the tree but below the crown (unlike Osprey nests). Bald Eagles build some of the largest of all bird nests—typically 5 to 6 feet in diameter and 2 to 4 feet tall, and ranging in shape from cylindrical to conical to flat, depending on the supporting tree. Both sexes bring materials to the nest, but the female does most of the placement. They weave together sticks and fill in the cracks with softer material such as grass, moss, or cornstalks. The inside of the nest is lined first with lichen or other fine woody material, then with downy feathers and sometimes sprigs of greenery. Ground nests are built of whatever's available, such as kelp and driftwood near coastal shorelines. Nests can take up to three months to build, and may be reused (and added to) year after year.

Egg-Laying: Clutch Size: 1-3 eggs Number of Broods: 1 brood Egg Length: 2.3-3.3 in (5.8-8.4 cm) Egg Width: 1.9-2.5 in (4.7-6.3 cm) Incubation Period: 34-36 days Nestling Period: 56-98 days Egg Description: Dull white, usually without markings.

Hatching and Incubation/Gestation: Covered with light-gray down; eyes brown; gape, legs, and skin pink. At hatching, covered with light-gray down, initially wet but dries quickly, eyes brown, gape and legs pink, and skin pink. Capable of limited locomotion. SEMI-ALTRICIAL

Development: NONE

Parental Care: Both sexes hunt and feed young. Adult brings food to nest, tears off small pieces, and delivers them to young at early age. Male provides most of food in first 2 wk, while female tends young in nest. After 3–4 wk, female delivers as much prey as male. After 3–4 wk, young able to peck at food but not able to tear off food and feed self until 6 wk.

Lifespan: Around 20 years.

**Conservation:**

Official Federal Status: Least Concern

Special Statuses in Individual States: NONE

Threats: The Bald Eagle's recovery is a spectacular conservation success story, and numbers have increased between 1966 and 2015, according to the North American Breeding Bird Survey. Partners in Flight estimates the global breeding population at 250,000, with 88 percent spending some part of the year in the U.S., 31 percent in Canada, and 8 percent in Mexico. The species rates a 9 out of 20 on the Continental Concern Score and are not on the 2016 State of North America's Birds' Watch List, but are a U.S.-Canada Stewardship Species. Once abundant in North America, the species became rare in the mid-to-late 1900s—the victim of trapping, shooting, and poisoning as well as pesticide-caused reproductive failures. In 1978 the bird was listed for protection under the Endangered Species Act. Since 1980, gentler treatment by humans along with the banning of DDT (the bird's main pesticide threat) have led to a dramatic resurgence. By the late 1990s, breeding populations of Bald

Eagles could be found throughout most of North America. In June 2007, the bird's recovery prompted its removal from the Endangered Species list. Continuing threats to Bald Eagle populations include lead poisoning from ammunition in hunter-shot prey, collisions with motor vehicles and stationary structures, and development-related destruction of shoreline nesting, perching, roosting and foraging habitats. They are still vulnerable to environmental pollution, as evidenced by the 1989 Exxon Valdez oil spill in Prince William Sound, Alaska. An estimated 247 Bald Eagles died from oil exposure. Population levels in the Sound decreased by almost four percent the following year. The local population returned to pre-spill levels by 1995.

Conservation Efforts: ^^^^

**Extra Facts:**

1. Rather than do their own fishing, Bald Eagles often go after other creatures' catches. A Bald Eagle will harass a hunting Osprey until the smaller raptor drops its prey in midair, where the eagle swoops it up. A Bald Eagle may even snatch a fish directly out of an Osprey's talons. Fishing mammals (even people sometimes) can also lose prey to Bald Eagle piracy. See an example here.
2. Had Benjamin Franklin prevailed, the U.S. emblem might have been the Wild Turkey. In 1784, Franklin disparaged the national bird's thieving tendencies and its vulnerability to harassment by small birds. "For my own part," he wrote, "I wish the Bald Eagle had not been chosen the Representative of our Country. He is a Bird of bad moral Character. He does not get his Living honestly ... Besides he is a rank Coward: The little King Bird not bigger than a Sparrow attacks him boldly and drives him out of the District."
3. Sometimes even the national bird has to cut loose. Bald Eagles have been known to play with plastic bottles and other objects pressed into service as toys. One observer witnessed six Bald Eagles passing sticks to each other in midair.
4. The largest Bald Eagle nest on record, in St. Petersburg, Florida, was 2.9 meters in diameter and 6.1 meters tall. Another famous nest—in Vermilion, Ohio—was shaped like a wine glass and weighed almost two metric tons. It was used for 34 years until the tree blew down.
5. Immature Bald Eagles spend the first four years of their lives in nomadic exploration of vast territories and can fly hundreds of miles per day. Some young birds from Florida have wandered north as far as Michigan, and birds from California have reached Alaska.
6. Bald Eagles occasionally hunt cooperatively, with one individual flushing prey towards another.
7. Bald Eagles can live a long time. The oldest recorded bird in the wild was at least 38 years old when it was hit and killed by a car in New York in 2015. It had been banded in the same state in 1977.

**Notable Species:**

1. *H. l. leucocephalus* (Linnaeus, 1766) is the nominate subspecies. It is found in the southern United States and Baja California Peninsula.
2. *H. l. washingtoniensis* (Audubon, 1827), synonym *H. l. alascanus* Townsend, 1897, the northern subspecies, is larger than southern nominate *leucocephalus*. It is found in the northern United States, Canada and Alaska.