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NORTHWEST WILDLIFE PRESERVATION SOCIETY

Bald Eagle

Haliaeetus leucocephalus



Photo credit: Darren Colello

By Nicole Lee

The bald eagle (*Haliaeetus leucocephalus*), literally named in Latin “white-headed sea eagle”, is one of 59 eagles species, two found within North America, and the only one found exclusively on the continent. Now a proud and protected symbol of the United States, it was formerly on the federal list of threatened and endangered species in the U.S. between 1978 and 2007 as a result of various types of human activity: habitat loss and increased competition for food; intentional hunting and trapping; and poisoning from the pesticide DDT and lead shots left in the environment. Both the Bald Eagle Act banning the hunting of bald eagles in the lower 48 states and the banning of the pesticides DDT played a role in the species’ recovery. Bald eagles’ prevalence today is a conservation success story!

One of the largest birds in North American skies—found from Alaska down through Canada and the U.S. to northern Mexico—it is likely you have seen this raptor soaring in the distance, its broad wings held out flat and its distinctive white head and tail contrasting its dark brown body and wings (young eagles instead have a dark brown head and tail until about four or five years of age). Or, perhaps you have heard its high-pitched chattering call uttered in a laugh-like tempo. Interestingly, the shrill and sustained scream that is commonly used in film productions to accompany a bald eagle is actually a vocalization made by the red-tailed hawk.

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Thanks to many changes and protection under the Endangered Species Act, the bald eagle population has rebounded. However, as our actions in the past were able to have such a negative impact upon this species, we must be careful and continue to make a conscious effort to protect it. Conserving shoreline habitats and buffers around nesting areas, eliminating oil spills, and keeping other potential poisons from the environment would all help protect this species so we can enjoy its beauty and it can enjoy its rightful habitat for many more years to come.

Characteristics

An adult bald eagle is easy to identify soaring in the distance with its broad wings held out flat and its unique white-feathered head and tail peeking out from a much darker brown body and wings. Harder to see from far away, its eyes, legs, and sharp, hooked beak are a bright yellow.

This large aerial predator is one of the largest birds in North America with a 2m (7ft) wingspan great in comparison to those of many of the other raptors with which it shares the sky. About 1m (3ft) tall, this bird weighs anywhere from 3kg (6.6lb) to upwards of 6.5kg (14lb) – relatively heavy for a bird. While identical in plumage, females tend to weigh more than their male counterparts. Geographically, there also seems to be some difference in size, with individuals that breed farther north tending to be larger than individuals that breed farther south.



Juveniles, until they are about 4 or 5 years of age, have generally dark brown bodies with varying amounts of white mottling that progress to a solid dark brown as they reach adulthood. At this time, they are unlike their parents, having head and tail feathers that match their body and wing plumage instead of being a distinct white. While the characteristic adult colouration makes the species easy to identify, the brown head and tail of a young bald eagle make it appear more similar to other species, including the turkey vulture, black vulture, golden eagle, and from a distance, the red-tailed hawk. However, there are other traits that set these species apart. Unlike turkey and black vultures which hold their wings in a distinct V-shape while in flight, juvenile bald eagles (like adult bald eagles) soar with their wings spread wide in a single plane. Additionally, the white mottling on the juvenile bald eagle would not be seen on the two-toned silvery black underside of the turkey vulture or the solid black underside of the black vulture. Both of these vultures have relatively smaller heads for their body size than do juvenile bald eagles. Golden eagles similarly hold their wings differently in flight—in this case, they hold them slightly raised. Compared with young bald eagles, golden eagles have relatively smaller heads and longer tails for their size. Although juvenile golden eagles also have some white to their undersides, it occurs in much more distinct patches – a thick strand at the base of the tail



and one patch on the underside of each wing. Geographically, golden eagles favour mountainous areas and are not usually found in eastern North America. From a distance, the silhouette of a red-tailed hawk

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may be misleading; however these creatures have much smaller heads and wings and much lighter underside.

Life Cycle

H. leucocephalus reaches sexual maturity at 4 or 5 years of age, although it may not mate right away if resources are low. Courtship involves a set of spectacular aerial displays, one such mating ritual involving a pair flying high into the sky where the two lock talons and spiral down towards earth together, letting go only just before crashing into the ground. Once paired, these eagles are believed to stick together as mates until one of the two dies; at which point, the surviving individual may take another mate.

Bald eagles lay their eggs in an enormous stick nest, called an eyrie. The preferred location for an eyrie is near the water within a tall tree with a good vantage point; although, in places where trees are scarce, bald eagles may make their nests on cliff sides or on the ground. A pair will choose to re-use an already constructed nest over making a new one, adding new material (lichen, soft woody pieces, moss, greenery, downy) to the lining each year. Nest shape will vary based on the shape of the particular tree. As they are being added to each year, eyries can become quite massive, typically 1.5 or 1.8m (5 or 6ft) in diameter and 62 to 122cm (2 to 4ft) tall; the record is 3m (9.5ft) wide and 6m (20ft) high (in St. Petersburg, Florida). Near Vancouver, British Columbia, bald eagle pairs re-establish a nest and

associated territory between December and February.



From March to April in the Vancouver area (timing varies slightly by location), a female will typically lay 2, but sometimes 1 or 3, dull white eggs measuring 6 to 8cm X 5 to 6cm (2.4 to 3.1in X 2.0 to 2.4in). After 34-36 days, in April and May, baby eaglets with pink skin and light grey down start to hatch.

From May to July, the focus is on feeding and brooding the young, both duties shared by both parents. After about 12 weeks, eaglets are strong enough and have enough feathers to fledge the nest. Shortly after (August to

October), they become independent and move to an area with a stable food source, usually near a river. A pair cares for only one brood per season.

While the likelihood of an eaglet reaching adulthood is only 50%, those that do make it tend to have lifespans of about 30 years –the record is 28 years in the wild, 36 in captivity.

Habitat

Bald eagles are generally found in close proximity to water sources that support fish for them to eat. This includes lakes, rivers, marshes and coasts, and even artificial places such as fish processing plants, dumps, and downstream of dams where fish sometimes gather. These graceful fliers often live in forested spaces adjacent to these aquatic areas and use tall trees to perch and survey the surroundings. They choose to build eyries in a similar setting.

Bald eagles are one of two eagle species (along with the golden eagle) found in North America, and are the only one found exclusively in the continent. Within their range, which extends from Alaska southward to northern Mexico, they are most abundant in Alaska and Canada, particularly down the northwest coast. Within Canada, they are found in all provinces and territories.

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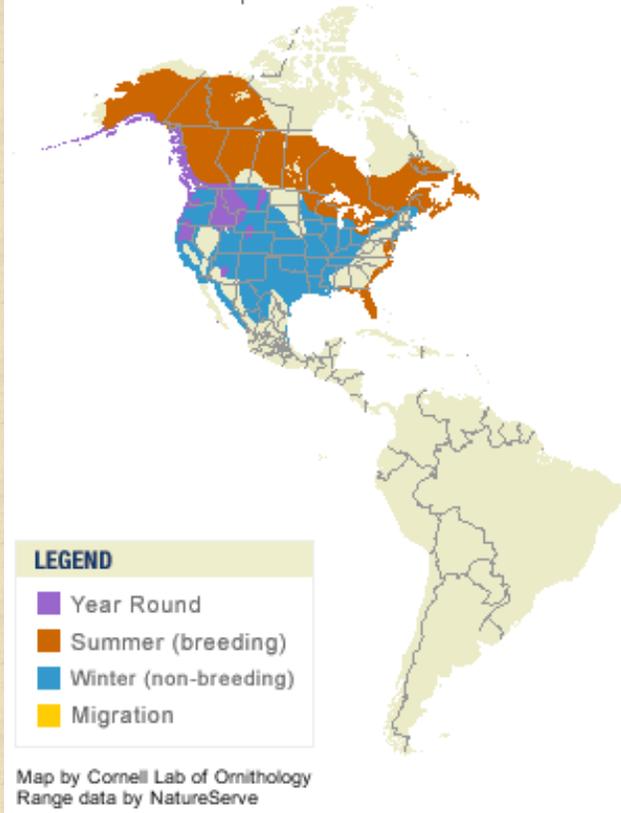
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H. leucocephalus may also be found as a vagrant in Belize, Bermuda, Ireland, Puerto Rico, and the Virgin Islands of the US.

Bald Eagle

Haliaeetus leucocephalus



Generally, they breed in the more northern portion of their range, in Alaska and much of Canada. Contrastingly, they generally spend their summers farther south, in much of the US and in northern Mexico. However, migration timing, distance, and route depend on several factors, including: age, environmental conditions and food availability, and geographic location. While most populations do migrate, in some areas, bald eagles are resident, meaning they stay in the same locale year round. This is true locally, along the coast of British Columbia.

While bald eagle populations in North America are currently stable or increasing, at various points in history, the species was not as healthy. Bald eagles first faced a decline in the late 1800's as European settlers moved westward across the continent, removing large portions of the bird's natural habitat, competing with it for food, and directly killing the birds – whether by accidental or intentional trapping or shooting (because they believed the birds were killing livestock). The decline was particularly bad in the U.S. because the degree of overlap between humans and natural bald eagle habitat was far greater than in Canada.

The introduction of the U.S. Bald Eagle Act in 1940, which prohibited the killing of bald eagles in the lower 48 states, was successful in allowing an initial rebound in population size, but unfortunately the species faced another threat. The problem first identified in the late 1940's, the pesticide DDT, being used to control marsh mosquito populations, was found to biomagnify up the food chain—that is, become more and more concentrated in the bodies of organisms higher in the food chain. The effect of DDT and its metabolites (products it breaks down into) was a reduced ability by the birds to absorb calcium, resulting in too thin of shelled eggs, ultimately reducing the population's reproductive success. Thankfully, regulations have restricted the use of this and many related pesticides in Canada and the U.S. and the bald eagle population has been able, once again, to recover. Their story is truly a conservation success story.

Part of this bird's success can likely be attributed to its feeding versatility. While this aerial carnivore, with its keen eyesight, sharp talons and hooked beak, is well equipped to hunt for its preferred food—fish (this commonly includes salmon, herring, shad, and catfish); it will also scavenge by eating carrion or stealing a recently killed meal from another predator (other eagles and osprey, even river and sea otters). Depending on availability, it will feed on a wide variety of other animals, including waterfowl, small mammals (rabbits, muskrats), reptiles, amphibians, and invertebrates; the eagle's carrying limit at 1.8kg (4lb). It is more typical for adult bald eagles to be the ones hunting their prey and for juveniles to be scavenging and stealing food. It has been documented that these animals occasionally hunt cooperatively, with one individual driving prey in the direction of a fellow hunter.

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Behaviour

These large raptors are powerful fliers, employing slow, steady wing beats to soar great distances high in the sky. They perch on trees or the ground, and during breeding season, defend their territories from intruders (from other raptors and ravens to coyotes and foxes).

These birds are often found solitary or in pairs (they do mate for life); however, it is also not uncommon in areas with plentiful food or at communal roosts to see bald eagles congregate in large numbers. When scavenging, these predators may push out other hungry creatures like black and turkey vultures. *H. leucocephalus* also receives its share of harassment from other species, including some other raptors, blackbirds, crows, and flycatchers. If persistent, these birds can force an eagle out of an area.

Vocalizations are used in various contexts for communication; including during mating rituals, to warn of and discourage predators, and by eaglets to beg for food. This powerful bird's voice carries a long distance, but it may be surprising the high-pitched sounds it emits; from shrill chatters or twittering, to peal calls and begging by eaglets. Some have described eagle calls as a broken series of notes that sounds like a gull's scream.

Walking, these birds are not the most gracious – rocking from side to side. Eagles have also been observed in the water, using their wings to row if it is sufficiently deep.

Threats

The bald eagle population is healthy, with numbers stable or increasing within its expansive range throughout North America. The International Union for the Conservation of Nature (IUCN) labels this species' conservation priority as Least Concern. Similarly, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) deems this species Not at Risk.

In nature, the bald eagle is a top predator. So while this means it does not face predation from other wildlife, other smaller birds will gang up to force it out of an area. Very infrequently, eaglets or eggs may be at risk from corvids (crows and relatives).

The bigger threat to worry about for bald eagles is the effect of humans. In the late 1800's, the westward expansion of European settlers across North America – and the associated habitat destruction, removal of valuable food sources such as bison, and shooting and trapping of bald eagles – contributed to the first population decline. In 1940, the U.S. introduced the Bald Eagle Act to prohibit the killing of bald eagles in the lower 48 states – this may have contributed to the following resurgence in numbers. However, in the late 1940's, the population declined yet again; this time, related to reproductive problems linked to the pesticide DDT that had been sprayed in the environment to manage salt marsh mosquitoes. DDT, a chemical that disrupts normal endocrine functioning, disturbed the birds' absorption of calcium, leading the birds to lay eggs with dangerously thin shells. DDT was banned from agricultural use in the U.S. in 1972. Still far from recovered, in 1978, *H. leucocephalus* was listed for protection under the Endangered Species Act in the U.S. By the late 1900's, bald eagles could again be seen in most of the continent. Finally, in June 2007, the species was removed from the U.S. federal list of threatened and endangered species.

Although *H. leucocephalus* was removed from the U.S. Endangered Species list in 2007, anthropogenic uses of the environment can still be threatening to the species. The Exxon Valdez oil spill in Alaska in 1989 claimed 274 individuals, taking 6 years for the local population to rebound. Other forms of pollution have been known to cause harm to these creatures, including lead and mercury poisoning. As top predators, bald eagles are at risk of facing increased concentrations of these and other toxins in their food. Collisions between the bird and both motor vehicles and stationary structures is a problem, as well as continued habitat destruction for human development.

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The bald eagle's recovery is indeed a conservation success story, but to ensure this beautiful creature is around for years to come, we must actively consider its needs when planning out our cities and industries.

What We Can Do To Help

We can help preserve this majestic creature by making efforts to protect its preferred shoreline habitats, including old growth trees as bald eagles often choose to perch on high vantage points from which they survey their surroundings. Nesting areas could be safeguarded by creating buffer zones of untouched area.

Decreasing pollution would further benefit this species. Some toxins in the environment have the potential to become more and more concentrated up the food chain and end up in the flesh of this top predator's food. Lead shots that have hit waterfowl or fallen to the bottom of water bodies can leach and become available for uptake by organisms. This type of poisoning could be eliminated with the banning of lead shots and other substances that have the potential to leach harmful material into the environment. Oil spills are another type of pollution that can be harmful to these birds, so eliminating the potential for oil spills would go a long way – for this and countless other wildlife species. To combat the collisions these eagles have with motor vehicles, keeping the roadways clear of litter would decrease the chance that their prey species would run alongside the dangerous roadways.

As we have seen throughout history, the bald eagle population has been able to rebound, but this requires the removal of certain pressures that are threatening to the species. Monitoring programs, such as those done by Bird Studies Canada will help with early detection should any other localized threats arise (like the DDT problem in the 1940's). Even though it is no longer listed as an endangered species, the preservation of the bald eagle must be made a conscious effort.

Other Interesting Facts

Benjamin Franklin was displeased by the selection of the bald eagle as a nation symbol for the U.S. In 1784, two years after its appointment, he described it as “a bird of bad moral character” due to the bird's tendency to steal food from other animals. Franklin was also mocking of its cowardice when attacked by small birds.

Bald eagles can spot prey circling more than 1.5 km in the sky!

Where & When to view the animal.

In Alaska and the majority of Canada, bald eagles are part-time residents, present in the summer (breeding) months; whereas in much of the United States and northern Mexico, they are present during the winter (non-breeding) months. However, if you are in coastal British Columbia, *H. leucocephalus* is resident year round, further joined by migrants from farther north from November to February (with peak concentrations in late December and January). During the appropriate time of year for each location, a good place to look for bald eagles is within close proximity to large bodies of water, where they may be looking for fish.

During nesting season (in Canada, Alaska, and some other parts of the U.S.), check for nests in dominant old growth and often bare-topped trees. In the City of Vancouver, Stanley Park Ecological Society (SPES) has mapped and monitors 20 bald eagle nests (as of June 2013). Check out their most recent “Vancouver Bald Eagle Nest Update”.

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The town of Brackendale, near Squamish and about an hour north of Vancouver, British Columbia, on the Sea to Sky Highway, proudly refers to itself as the world's bald eagle capital. The town performs an annual eagle count each January, with record numbers in 1994 at nearly 4000 individuals. Try also checking out the multi-day Fraser Valley Bald Eagle Festival, held in November each year.

Other good places to look for bald eagles in high numbers are at wildlife refuges or near more urban settings that concentrate food sources, such as at fish processing plants and dumpsters.

Wherever you end up seeing this species, remember to keep a respectable distance and avoid disturbing these majestic fliers. Be particularly respectful in areas where bald eagles are nesting as parents might abandon a disturbed nest.

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Web Resources:

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<http://www.brackendaleeagles.com/>

Hinterland's Who's Who. Bald Eagles – a very good and detailed overview of the bald eagle:
<http://www.hww.ca/en/species/birds/bald-eagle.html>

IUCN Red List of Threatened Species – lists the current conservation status for the species:

<http://www.iucnredlist.org/details/106003365/0>

JiWiz a Site. Bird Watching Supplement: Bald Eagle Nests in Metro Vancouver – this page provides fantastic documentation of the bald eagle nests in Metro Vancouver (including Burnaby, Delta, Ladner, Richmond, Vancouver, West Vancouver). Each site is accompanied by a picture and directions to locate the nest.
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<http://www.insidevancouver.ca/2012/11/13/bald-eagles-return-to-vancouver/>

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<http://www.bsc-eoc.org/research/speciesatrisk/index.jsp>

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“Bald eagle chicks peer out from their nest” - Photo courtesy of: Us Fish Wallpaper; download from:

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