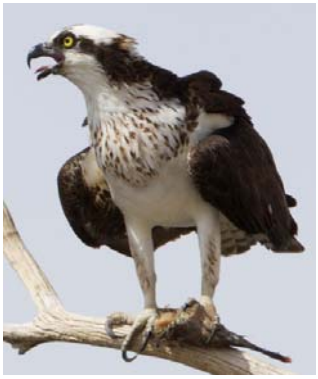
Liberty Wildlife
Rehabilitation Foundation

Liberty Wildlife

Education Program's Natural History



Osprey (Pandion haliaetus)

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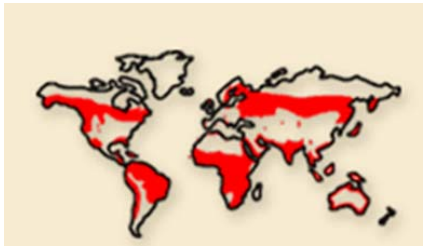
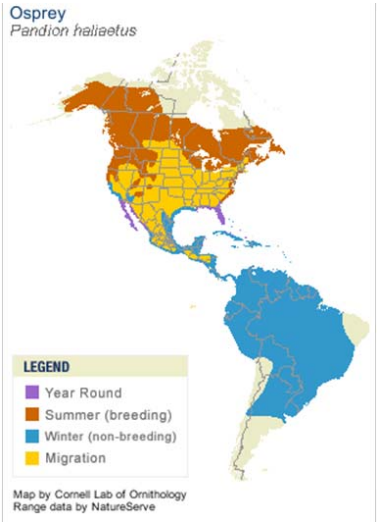
Description: Ospreys are very large, distinctively shaped hawks and despite their size, their bodies are slender. They have long, narrow wings and long legs. In appearance, they have a dark chocolate-brown back and upper wing coverts, mostly white breast (some speckling) and belly, white crown and forehead, and dark line through the eye. Overall they are whiter than most raptors. From below, the wings are mostly white with a prominent dark patch at the wrists. Females and some males have a speckled brown necklace on breast. Juveniles have white spots on the back and buffy shading on the breast and orange-red iris through the first year.

In size, they are smaller than a Bald Eagle but larger and longer-winged than a Red-tailed Hawk. Their weights range from 3 to 4½ pounds with wingspans measuring 5 to 6 feet. Adult females average 15 to 20% larger than males in weight and 5 to10% longer in wing, tail, claw, and bill. In addition, females tend to have a darker head and a fuller and darker breast-band, although each trait varies among populations.

The Osprey shows geographic variation in plumage and size, but only moderately so given its worldwide distribution. This pattern contrasts sharply with that in the less migratory Sea Eagles e.g. Bald Eagle, which have differentiated greatly, with eight distinct species over a range nearly identical to that of the Osprey.

Body size in the Osprey adheres to Bergmann's rule, with birds from tropical and subtropical climates being smaller than those at cooler, higher latitudes; e.g., the wings of Australasian individuals average 12 to 14% shorter than individuals in the Artic area, and breeders in the Caribbean average slightly smaller than breeders in the U.S. Plumage coloration tends to follow Gloger's rule, with breeders at warmer, drier subtropical latitudes—such as those in Baja California or around Caribbean Sea—being paler than breeders at cooler, wetter, and higher latitudes.





Range: Ospreys are one of the world's most widely distributed birds of prey. Similar to the Peregrine Falcon, Ospreys are found on every continent of the world except Antarctica. They live in both temperate and tropical climates. Their breeding areas exist throughout much of North America, Northern Europe and Asia and around the coast of Australia.

When the weather turns cold enough to freeze over rivers and lakes locking up the Osprey's food source, the populations living in the far north migrate long distances in the winter, traveling as far south as Central America, South America, and northern Africa. An Osprey may log more than 160,000 migration miles during its 15-to-20-year lifetime. Scientists track Ospreys by strapping lightweight satellite transmitters to the birds' backs. The devices pinpoint an Osprey's location to within a few hundred yards and last for

2-3 years. During 13 days in 2008, one Osprey flew 2,700 miles—from Martha's Vineyard, Massachusetts, to French Guiana, South America. Migrating Ospreys are sometimes seen far from water, even over the desert.
Typically the fall migration in North America begins with adult females leaving in August or September. Individuals return to breeding areas as early as January in southern Florida and as late as June in Labrador. Typically migrates alone, sometimes in flocks of 2-4 birds

Habitat: Ospreys have a wide distribution because they are able to live almost anywhere that has safe nest sites and shallow water with lots of fish. Ospreys have a broad range of habitats, ranging from mangrove islets of the Florida Keys to Alaskan lakes, and from New England salt marshes to the saline lagoons of Baja California. Whatever the location, Osprey nesting habitat must include an adequate supply of accessible fish within a maximum of about 12 miles of the nest; open, usually elevated nest sites free from predatory mammals such as raccoons, and a long enough ice-free season to allow the young to fledge.

Hunting/Prey: Ospreys are superb fishers and indeed eat little else—fish make up some 99 percent of their diet. Because they can dive only a meter or less deep, they are restricted to surface-schooling fish, or to those in shallow water. An individual can consume 2/3 pounds or more in a meal. They will discard the uneaten portion of a fish in warm weather, but may carry remnants of a fish around for a considerable time in cooler weather. Ospreys rarely scavenge dead or dying fish nor do they cache food. Ospreys do fish on migration.
Ospreys dive feet first to capture their prey, accessing only about the top meter of water, so they are restricted to foraging for surface-schooling fish and to those in shallow water—the latter generally are most abundant and available. Ospreys regularly hover when hunting. In certain areas and wind conditions, they may briefly kite.

Nesting/Breeding: Ospreys require nest sites in open surroundings for easy approach, with a wide, sturdy base and safety from ground predators (such as raccoons). Stick-and-sod nests are usually built on snags, treetops, or crotches between large branches and trunks; on cliffs or human-built platforms such as telephone poles, channel markers, and other such locations. Artificial nesting platforms are common in areas where preservationists are working to reestablish the birds. These nests on artificial platforms, especially in a pair's first season, are relatively small—less than 2.5 feet in diameter and 3 to 6 inches deep. After generations of adding to the nest year after year,

Ospreys can end up with nests 10 to13 feet deep and 3 to 6 feet in diameter—easily big enough for a human to sit in.

Sometimes larger birds that nest earlier will take over unoccupied Osprey nests. These species include the Great Blue Heron, Canada Goose, Bald Eagle, Red-tailed Hawk, Great Horned Owl Herring Gull, and Common Raven. This usually disrupts the Osprey breeding for the season.

Ospreys are able to breed when they are three years old. However, in areas where there are not enough nest sites, ospreys may not breed until they are five years old.

Ospreys are generally monogamous. The male courts the female by engaging in a "Sky Dance Display" in which he dangles his legs (often clasping a fish or nesting material) and proceeds in slow, undulating flight over the nest site, usually high overhead giving screaming calls repeatedly. Once they have begun breeding, ospreys breed once per year. They start breeding in April or May. The clutch size ranges from 1 to 4 eggs, with 3 eggs being the average.

Incubation is by both parents but mostly by the female. She remains with the young most of time at first, sheltering them from sun and rain while the male brings fish and the female feeds them to young. The young fledge in 51-54 days.

Lifespan: The Osprey is a fairly long-lived species. The oldest known North American individuals were a 25-year-old male and a 23-year-old female, both were still breeding. One female in Scotland bred until she was 27 years old, although very few individuals survive to this age.

Threats: Ospreys are a conservation success story. Osprey numbers crashed in the early 1950's to 1970's, when pesticides poisoned the birds and thinned their eggshells. Along the coast between New York City and Boston, for example, about 90 percent of breeding pairs disappeared. After the 1972 U.S. DDT ban, the populations rebounded. It is estimated the global breeding population stands at 500,000. A 2001 Osprey population count in contiguous continental U.S. estimated 16,000 to 19,000 pairs, representing an increase of roughly 25% over 1994 numbers.

Osprey studies provided key support for wider legal arguments against the use of persistent pesticides and the Osprey became a conservation success symbol. But Ospreys are still listed as endangered or threatened in some states—especially inland, where pesticides decimated or extirpated many populations. As natural nest sites have succumbed to tree removal and shoreline development, specially constructed nest platforms and other structures such as channel markers and utility poles have become vital to the Osprey's recovery.

A growing cause of death for Ospreys is entanglement at the nest: the adults incorporate baling twine and other discarded lines into their nests; these can end up wrapped around a chick's feet and injure it or keep it from leaving the nest.

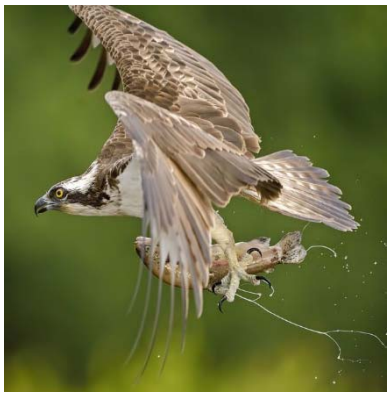
Predators on adults include Great Horned Owls, and probably caiman; predators on nestlings include Bald Eagles and raccoons. Raccoons appear to be a powerful selective force on nest placement in North American Ospreys Nile crocodiles are known to kill Ospreys in Senegal, western Africa; caiman may be important predators of Ospreys on overwintering grounds in South America. Ospreys are vulnerable when bathing and roosting at the water's edge.

Adults, and especially fledglings, at nests near highways are vulnerable to collisions with vehicles. Of flighted Ospreys admitted to rehabilitation centers from 2000 to 2015, the incidences of injuries caused by vehicular collisions ranged from 23.6% in Florida to 2.4% in Minnesota. (Audubon Center for Birds of Prey, Raptor Center/University of Minnesota, unpublished data).

While collisions with power lines do happen, more threatening are electrocutions, particularly when adults land or attempt to nest on double-cross arm power poles with transformers, which often provide prominent perches or nest sites.
Collisions with aircraft are an increasing problem with this species.

Other Osprey Facts:

- Ospreys have special adaptations that make them exceptional at fishing. Most notable is the bird's outermost toe, which can reverse to oppose the other two (most birds grip with three toes in front, and one in back), this attribute is referred to as zygodactyl. They use this grip to keep fish from escaping and to carry fish head first to reduce wind resistance. They have long legs for reaching into the water and dense, oily plumage that keeps them from getting waterlogged. They also have special valves that keep water out of their nostrils when they dive for fish. Osprey feet are specially adapted for holding on to slippery fish. They have spiny footpads called spicules, long, sharp claws, and a toe that can be turned backward.
- When diving after fish, Ospreys can completely submerge themselves underwater and still be able to fly away with their prey.
- When they dive into the water, Osprey close their third eyelid – called a nictitating membrane – which is semi-transparent. It acts like goggles and helps them see clearly beneath the water.
- When Osprey carry their prey, they always reposition the fish so that its head faces forward in a streamlined position for transporting through the air.



- Ospreys are excellent anglers. Over several studies, Ospreys caught fish on at least 1 in every 4 dives, with success rates sometimes as high as 70 percent. The average time they spent hunting before making a catch was about 12 minutes.
- A very distinctive fish-hawk, the Osprey was formerly classified with other hawks but now is placed in a separate family of its own.
- Ospreys are the only member of the family *Pandionidae.*
- They were once known as "fish hawks" because 99% of their diet is fish.
- Ospreys are unusual among raptors for being piscivores. Their diet consists almost entirely of fish.
- Ospreys have "M" shaped leading edges to their wings. Gliding birds create an "M"-shaped appearance when gliding.
- Ospreys add material to their nests each year, and sometimes build massive structures weighing up to 400 pounds.
- The Osprey readily builds its nest on manmade structures, such as telephone poles, channel markers, duck blinds, and nest platforms designed especially for it. Such platforms have become an important tool in reestablishing Ospreys in areas where they had disappeared. In some areas nests are placed almost exclusively on artificial structures.
- Osprey eggs do not hatch all at once. Rather, the first chick emerges up to five days before the last one. The older hatchling dominates its younger siblings, and can monopolize the food brought by the parents. If food is abundant, chicks share meals in relative harmony; in times of scarcity, younger ones may starve to death.

- The name "Osprey" made its first appearance around 1460, via the Medieval Latin phrase for "bird of prey" (*avis prede*). Some wordsmiths trace the name even further back, to the Latin for "bone-breaker"—*ossifragus*.
- The oldest known Osprey was at least 25 years, 2 months old, and lived in Virginia.
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- Ospreys are among North America's best-studied birds of prey.
- The Osprey is North America's only raptor that plunge-dives to catch live fish as its main prey source. Other fish-eating birds of prey only pluck fish from the surface of the water as they fly by.
- They fish by hovering for several seconds before plunging--talons first and wings tucked--into water.
- Most fish caught by Ospreys weigh about half a pound.
- Osprey are sometimes drowned by fish too large for them to carry.
- Powerful wing strokes are needed to take off after prey capture while partially submerged in water with a heavy load; prey typically represents about 10–30%, but may be over 50%, of the body mass of an Osprey.
- Canada supports one third of the world's Osprey population.
- Ospreys are somewhat awkward on ground and rarely walk, although individuals can move delicately around small young in the nest, toes and claws closed tight. They usually fly with a steady, rowing flight, as befits a species with narrow wings and relatively high wing-loading.
- Since osprey are at the top of the aquatic food chain, they are regarded as an indicator of the health and productivity of an ecosystem. If an area is polluted with certain chemicals, animals that are lower on the food chain may digest small amounts of that chemical. Animals such as the Osprey are at the top of the food chain and will accumulate more toxins in their bodies, a term known as bio-accumulation. Therefore, larger animals like Osprey, can effectively determine the condition of the natural environment they are living in.
- There are four subspecies of ospreys, which are separated by geographic region. *Pandion haliaetus carolinensis* breeds in North America and the Caribbean, and winters in South America. *P. h. haliaetus* breeds in the Palearctic region (Europe, north Africa and in Asia, north of the Himalayas) and winters in south Africa, India and the East Indies. *P. h. ridgwayi* is a non-migratory subspecies. It resides in the Caribbean, with a range that extends from the Bahamas and Cuba to southeast Mexico and Belize. The final subspecies, *P. h. leucocephalus* is also a non-migratory subspecies. Its range includes Australia and the southwest Pacific.
- Ospreys have high-pitched, whistling voices. Their calls can be given as a slow succession of chirps during flight or as an alarm call—or strung together into a series that rises in intensity and then falls away, similar to the sound of a whistling kettle taken rapidly off a stove. This second type of call is most often given as an unfamiliar Osprey approaches the nest. As the perceived threat increases, the call can build in intensity to a wavering squeal. Calls can be heard at https://www.allaboutbirds.org/guide/OSPREY/sounds
- Ospreys get their scientific name from Pandion, a mythical king of Athens and *haliaetus*, which is Greek for sea eagle.[1]

The scientific name 'Pandion', which was assigned in 1809 by the early biologist Savigny when he realized that the Osprey, while definitely an 'Accipiter', was significantly different in several respects from all other hawks and certainly deserved separate generic status. Unfortunately, however eminent though he may have been as a biologist, Savigny was less familiar with his Greek mythology. According to the story told by the 1st Century Roman poet Ovid in his 'Metamorphoses', Pandion was a legendary King of Athens, blessed with three daughters, all of whom came to tragic ends. The first, Procris, was 'accidentally' impaled by a magic spear hurled by her husband while she was hiding in a bush. The second, Procne, married King Tereus of Thrace, but he

Zorro

Zorro came to Liberty in October 2009 after being found on the ground as a juvenile. During the medical exam, he was found to have fractures to both his left and right wings. Surgery was not an option to repair the fractures. As a result he was determined to be non-releasable since he was unable to fly. He was reclassified to become part of the education team.

No photo available yet

Compiled by Max Bessler

Sources: Cornell Lab of Ornithology "Birds of North America On-Line," Cornell Lab of Ornithology "All About Birds,"

soon realized he had married the wrong sister, so he locked her up, cut out her tongue to keep her quiet, and told everyone she was dead. Then he married the third daughter, Philomel. Although the mutilated Procne couldn't speak, she was able to sew and weave, so she made a tapestry telling her tragic tale and smuggled it out to her sister, who thought she was dead. In revenge, the two sisters then captured their tormentor's little son, Itys, cooked him, and served him up to his father at a feast. Even the Gods on Mount Olympus objected to this, and intervened. Procne was turned into a Swallow, Philomel into a Nightingale (hence the old Latin name 'Philomela Luscinia') and the little boy Itys, though previously roasted, was revived and turned into a Goldfinch. The evil Tereus, who had brought about all this carnage, was transformed into a Hawk (species not defined), and his destiny was to chase the Swallow and the Nightingale eternally, but never catch them. Pandion was simply left to grieve. Why Savigny chose to name the Osprey after him remains a mystery.

Audubon “Guide to North American Birds,” The Peregrine Fund, Hawk Mountain, Biokids University of Michigan, Hawk Watch International, New Jersey Endangered and Threatened Species Field Guide,” National Geographic “Explore Raptors,” Friends of Osprey, Raptors of Western North America by Brian K. Wheeler. “