

# BELTED KINGFISHER - MEGACERYLE ALCYON

**Taxonomy:** Kingdom: Animalia Phylum: Chordata Class: Aves Order: Coraciiformes Family: Alcedinidae Subfamily: Cerylinae Genus: Megaceryle Species: M. alcyon

## **Habitat:**

**Biomes:** Belted Kingfishers need access to bodies of water for feeding, and vertical earthen banks for nesting. They hunt in unclouded water that allows them to see prey below the surface, with perches nearby but minimal vegetation obstructing the water. Some of their most common habitats are streams, rivers, ponds, lakes, estuaries, and calm marine waters. During the breeding season Belted Kingfishers breed throughout most of North America at elevations up to 9,000 feet. They winter in similar habitats, as well as in mangroves, swamps, and brackish lagoons in the Central American parts of their wintering range. Back to top

## **Distribution:**

**In US:** This bird's breeding habitat is near inland bodies of waters or coasts across most of Canada, Alaska and the United States. They migrate from the northern parts of its range to the southern United States, Mexico, Central America, and the West Indies in winter. It is a rare visitor to the northern areas of Colombia, Venezuela, and the Guianas.

**In Other Countries:** During migration it may stray far from land; the species is recorded as an accidental visitor on several Pacific islands, such as Cocos Island, Malpelo Island, Hawaii, the Azores, Clarion Island, and has occurred as an extremely rare vagrant in Ecuador, Greenland, Ireland, Netherlands, Portugal, and the United Kingdom. The southernmost records of M. alcyon are from the Galapagos Archipelago, insular Ecuador, where it occurs as a migrant in small numbers but apparently not every year.

**Holistic Description:** With its top-heavy physique, energetic flight, and piercing rattle, the Belted Kingfisher seems to have an air of self-importance as it patrols up and down rivers and shorelines. It nests in burrows along earthen banks and feeds almost entirely on aquatic prey, diving to catch fish and crayfish with its heavy, straight bill. These ragged-crested birds are a powdery blue-gray; males have one blue band across the white breast, while females have a blue and a chestnut band.

**Species Richness:** 2 SUBSPECIES

**Population Dynamic:** CHECK THREATS

## **Evolution and Systematics:**

**Evolution:** Species identified from several late Pleistocene, Rancholabrean (North American Land Mammal Age, 0.6 million years before present [mybp]) localities. CHECK LAST EXTRA FACT.

**Systematics:** Western birds have a longer bill. Moreover, scientists reported that birds in the West have broader wings, by virtue of their longer secondaries. No reported variation in color.

**Number of Species:** 2 SUBSPECIES

**Number of Genera:** 2 SUBSPECIES

## **Physical Characteristics:**

**Size and Length:** Length: 11.0-13.8 in (28-35 cm) Weight: 4.9-6.0 oz (140-170 g)

**Wingspan:** 18.9-22.8 in (48-58 cm)

**Coloration:** These kingfishers are blue-gray above with fine, white spotting on the wings and tail. The underparts are white with a broad, blue breast band. Females also have a broad rusty band on their bellies. Juveniles show irregular rusty spotting in the breast band.

**General Body Features:** Belted Kingfishers are stocky, large-headed birds with a shaggy crest on the top and back of the head and a straight, thick, pointed bill. Their legs are short and their tails are medium length and square-tipped.

**Special Features of the Body:** Their dark brown eyes are able to see colors distinctly and are even capable of binocular vision. They are able to move their eyes within the eye sockets rather than having to rotate their entire heads to follow their prey.

**Special Features of the Head and Sensory Organs:** All Kingfishers are known for their stocky bodies, large heads and long, thick, sharply pointed bills, shaped like a dagger. In those species which dive for fish, the bill is generally longer and more compressed; in those which hunt for prey on land, it is shorter and broader. The bill seems disproportionate to the rest of the body, but it is designed for impaling and capturing its prey.

**Dentition:** BEAK/LAMELLAE/GIZZARD

**Special Features of the Limbs and Digits:** Their legs are short and their tails broad and stout. Their strong feet support them while perching on branches.

**Any Special Internal Anatomy:** An unusual adaptation they possess is the ability to compensate for the water's refraction and reflection as they search for prey underwater. This makes the fish look closer to the surface than it is. They have accurate

depth perception as well. Nature has provided the Kingfisher with a great deal of ocular protection. Their nictitating membranes protect their eyes when they hit the water.

**Sexual Dimorphisms:** This kingfisher shows sexual dimorphism, with the male more brightly coloured than the female. Both sexes have a slate blue head, large white collar, a large blue band on the breast, and white underparts. The back and wings are slate blue with black feather tips with little white dots. The female features a rufous band across the upper belly that extends down the flanks.

**Differences Between Juvenile Stage and Adult:** Juveniles of this species are similar to adults, but both sexes feature the rufous band on the upper belly. Juvenile males will have a rufous band that is somewhat mottled while the band on females will be much thinner than that on adult females.

#### **Behavior:**

**Diurnal, Nocturnal, or Crepuscular:** Diurnal

**Activity:** Belted Kingfishers spend most of the year alone until they pair up during the breeding season. Males (and occasionally females) establish territories, which usually conform to the shape of the stream or shoreline. Belted Kingfishers are monogamous within each breeding season but form new pairs every year. The male feeds the female while courting her. Both members of the pair vigorously defend their territory by chasing away intruders while giving loud rattle calls. Kingfishers sometimes nest among Bank Swallows, especially in human-made habitats. Rough-winged Swallows may try to nest in kingfisher burrow entrances, but the kingfishers go in and out so frequently that they drive the swallows away. Predators of kingfishers include hawks, mammals, and snakes. When a Belted Kingfisher suspects an intruder in its territory, it may land on a perch and heave its body up and down with its crest elevated, or fly back and forth along the water, rattling noisily until the intruder leaves. If threatened, it may scream, spread its wings, and raise the patch of white feathers next to each eye.

**Locomotion:** The short legs and fleshy feet with partially fused (syndactyl) outer digits, typical of the family, preclude efficient terrestrial movement except when excavating the burrow. Individuals shuffle into and out of nesting burrows. Strong and direct but not always sustained; wing-flapping rates 2-3/s with gliding after every two or three strokes. May dive from perch obliquely into water to seize prey or make a straight or spiral dive from hovering 20-40 ft above water. In deep water, a bird sometimes disappears momentarily below the surface, immersing the entire body; rarely submerges in shallow water.

**Communication and Perception:** Male and female Belted Kingfishers give strident, mechanical rattles in response to the slightest disturbance. When threatened they may give screams, which males sometimes combine with harsh calls.

**Home Range:** Male establishes and defends a breeding territory to which females are attracted. Once paired, both male and female aggressively defend the territory from conspecifics. The nest site is a proximal factor determining location of the territory along a stream, but territory size is determined either through competition for food or by the need to search for sufficient food. Territories generally conform to the shape of an associated water body, and are often quantified as length of stream or shoreline occupied and defended by a bird or a mated pair. Roughly around 1 kilometer long.

**Degree of Sociality:** Solitary except during the breeding season.

**Level of Aggression:** Aerial chases involving  $\geq 3$  birds may be the result of intrusions by unmated males being driven from the breeding territory by already mated females. Davis reported an instance of intense competition between females in which a younger bird was driven from her territory and her eggs dumped. Taxidermy mounts and playback calls have been used to elicit attacks from territorial (nesting) males and females. When threatened, kingfishers may scream, spread their wings, and raise their white eyespots.

**Migration:** Resident to long-distance migrant. In much of the breeding range open water is available even in the winter, so kingfishers may stay year-round. Kingfishers breed as far north as northern Alaska and Canada, and these birds migrate south for winter. Belted Kingfishers winter throughout Mexico and Central America to northern Venezuela and Colombia. Of the populations that do migrate, males seem to travel shorter distances than females.

#### **Predators:**

**Predators:** Hawks, Cooper's Hawk, Northern Harrier, Skunks, Mink, Raccoon, Snakes, Gray Rat Snake, Bullsnake.

**Anti-Predator Defenses:** When a kingfisher suspects an intruder or anything amiss within its territory, it often alights on a perch and heaves its body up and down while erecting the shaggy crest feathers. Shrill Rattles are often given when territorial boundaries are violated by humans. Birds will fly along the watercourse and Rattle incessantly until an intruder has left the area. This may discourage potential predators and is likely a response to fluctuating water levels. Adults elude raptors by abruptly diving into water when pursued. Kingfisher-raptor encounters are sometimes initiated by the kingfisher mobbing the predator.

#### **Diet and Nutrition:**

**Adult Diet:** Belted Kingfishers live mostly on a diet of fish including sticklebacks, mummichogs, trout, and stonerollers. They also eat crayfish and may eat other crustaceans, mollusks, insects, amphibians, reptiles, young birds, small mammals, and even berries.

**Juvenile Diet:** ^^^^^

**Special Adaptations for Getting Prey:** A kingfisher looks for prey from a perch that overhangs water, such as a bare branch, telephone wire, or pier piling. When it spots a fish or crayfish near the surface, it takes flight, dives with closed eyes, and grabs the prey in its bill with a pincer motion. Returning with its prize, it pounds the prey against the perch before swallowing it head first. It may also hover above the water instead of searching from a perch. As nestlings, Belted Kingfishers digest the bones and scales they consume, but by the time they leave the nest they begin disgorging pellets of fish skeletons and invertebrate shells.

### **Reproduction:**

**Mode of Reproduction:** Monogamous

**Mating System:** Seasonally monogamous.

**Mating Season:** February to June

**Courtship:** Males feed mates during courtship: after capturing a fish and returning to a perch, a female (potential mate) will often approach and land nearby. Both birds then slide along the perch while executing 180° turns until they are side by side. The male then offers the female the fish which she swallows immediately; copulation does not always follow.

**Territoriality:** HOME RANGE, NONE

**Mating:** A male flies to the female's perch, pauses briefly and then proceeds to mount, maintaining balance by fluttering his wings while treading on the female's back. Vent contact occurs after the female cocks her tail to the side. Copulations last from 7-12 s. Following copulation, the male, followed by the female, often performs an aerial display in which he soars and dips close to the surface of a lake. While the female returns to a perch, the male continues a spiral ascent followed by a momentary stall and a somersaulting descent. Pulling out of the dive into an ascending glide, he extends his wings fully, conspicuously flashing the white on the inner vanes of the remiges.

**Nesting:** Belted Kingfishers excavate burrows in earthen banks, usually avoiding ones with vegetation (especially trees, whose roots get in the way of digging). They generally choose a bank near water, but may use a ditch, road cut, landfill, sand pit, or gravel pit far from water. A pair may select a nest site during courtship, usually high in the bank where floodwaters are unlikely to reach. The male probes the bank with his bill, flying back and forth to the female, who calls continuously from a nearby perch. The male and the female take turns digging the burrow, with males spending about twice as much time digging as females. They usually take 3–7 days to finish it, but may sometimes take up to 3 weeks. The completed burrow extends 3–6 feet into the bank, sloping upward so that rainwater won't collect inside, and ends in an unlined chamber 8–12 inches in diameter and 6–7 inches high. Throughout the breeding season a layer of undigested fish bones, fish scales, and arthropod exoskeletons may accumulate and provide some insulation.

**Egg-Laying:** Clutch Size: 5-8 eggs Number of Broods: 1-2 broods Egg Length: 1.2-1.5 in (3-3.7 cm) Egg Width: 1.0-1.1 in (2.5-2.9 cm) Incubation Period: 22-24 days Nestling Period: 27-29 days Egg Description: Pure white, smooth, and glossy.

**Hatching and Incubation/Gestation:** Helpless, with bare pink skin, blackish bill, and closed eyes. **ALTRICIAL**

**Development:** Natal down absent; flesh bright pink. Eyes closed. Bill blackish. Lower mandible extends beyond upper mandible; egg tooth on both upper and lower mandibles. Mouth pink; no gape flanges. Nestlings chatter continuously and huddle together, forming a cluster of interlocking heads and wings.

**Parental Care:** Throughout incubation the female holds her wings folded over the back, but at hatching she lowers them to the ground and stands over hatching eggs and nestlings. For 3-4 d after hatching, adult returns to nest with no visible food in the bill, but esophagus is visibly swollen. An oily bolus of several partially digested fishes is regurgitated and apportioned among nestlings. FEEDING OCCURS MORNING AND EARLY EVENING.

**Lifespan:** Around 5 years.

### **Conservation:**

**Official Federal Status:** Least Concern

**Special Statuses in Individual States:** NONE

**Threats:** Belted Kingfishers are common and widespread, but from 1966–2014 their populations declined by an estimated 1.6% per year according to the North American Breeding Bird Survey, resulting in a cumulative decline of 53%. Partners in Flight estimates the global breeding population at 1.7 million, with 70% spending some of the year in the U.S., 49% in Canada, and 19% wintering in Mexico. They rate an 11 out of 20 on the Continental Concern Score and are not on the 2014 State of the Birds Watch List, although Partners in Flight lists them as a Common Bird in Steep Decline. People used to shoot and trap kingfishers, especially near fish hatcheries and along trout streams, to prevent them from killing fish. But

hunting apparently did no long-term harm to the population, and has since been outlawed through migratory bird laws. Compared to other fish-eating birds, Belted Kingfishers seem to be relatively unaffected by environmental contaminants, possibly because their small prey accumulates only low levels of toxins. Kingfisher populations are limited by the number of earthen banks available for nesting, and some populations have grown and spread thanks to human-made sand and gravel pits. They are sensitive to disturbance, and may abandon territories if people begin frequenting the area.

Conservation Efforts: ^^^^

**Extra Facts:**

1. The breeding distribution of the Belted Kingfisher is limited in some areas by the availability of suitable nesting sites. Human activity, such as road building and digging gravel pits, has created banks where kingfishers can nest and allowed the expansion of the breeding range.
2. The Belted Kingfisher is one of the few bird species in which the female is more brightly colored than the male. Among the nearly 100 species of kingfishers, the sexes often look alike. In some species the male is more colorful, and in others the female is.
3. During breeding season the Belted Kingfisher pair defends a territory against other kingfishers. A territory along a stream includes just the streambed and the vegetation along it, and averages 0.6 mile long. The nest burrow is usually in a dirt bank near water. The tunnel slopes upward from the entrance, perhaps to keep water from entering the nest. Tunnel length ranges from 1 to 8 feet.
4. As nestlings, Belted Kingfishers have acidic stomachs that help them digest bones, fish scales, and arthropod shells. But by the time they leave the nest, their stomach chemistry apparently changes, and they begin regurgitating pellets which accumulate on the ground around fishing and roosting perches. Scientists can dissect these pellets to learn about the kingfisher's diet without harming or even observing any wild birds.
5. Belted Kingfishers wander widely, sometimes showing up in the Galapagos Islands, Hawaii, the British Isles, the Azores, Iceland, Greenland, and the Netherlands.
6. Pleistocene fossils of Belted Kingfishers (to 600,000 years old) have been unearthed in Florida, Virginia, Tennessee, and Texas. The oldest known fossil in the kingfisher genus is 2 million years old, found in Alachua County, Florida.

**Notable Species:**

1. M. a. Alcyon - from e. North America
2. M. a. Caurina - from Alaska, w. Canada, the Pacific Coast, and the Intermountain West, including the Rocky Mts.