

RUBY-THROATED HUMMINGBIRD - ARCHILOCHUS COLUBRIS

Wing beats: 40-80 per second, Flight speed: 30 mph (48 kph) normal. Hummingbirds have adapted to survive in conditions with cold weather and limited food. They do this by reducing their metabolism and entering a state called torpor. Typically a hummingbird's body temperature is 105 degrees Fahrenheit. During torpor, body temperature drops to as low as 70 degrees, allowing the bird to survive until conditions improve. **Note how the gorget can look entirely blackish at certain angles. In side lighting it can also appear golden or even greenish.**

Taxonomy: Kingdom: Animalia Phylum: Chordata Class: Aves Family: Trochilidae Genus: Archilochus Species: A. colubris
Habitat:

Biomes: Ruby-throated Hummingbirds occur in deciduous woodlands of eastern North America as well as across the Canadian prairies. Commonly associated with old fields, forest edges, meadows, orchards, stream borders, and backyards. On their tropical wintering grounds, Ruby-throated Hummingbirds live in dry forests, citrus groves, hedgerows, and scrub.

Distribution:

In US: The breeding habitat is throughout most of the Eastern United States and south-central and southeastern Canada in deciduous and pine forests and forest edges, orchards, and gardens. The female builds a nest in a protected location in a shrub or a tree. Of all hummingbirds in the United States, this species has the largest breeding range.

In Other Countries: NONE

Holistic Description: A flash of green and red, the Ruby-throated Hummingbird is eastern North America's sole breeding hummingbird. These brilliant, tiny, precision-flying creatures glitter like jewels in the full sun, then vanish with a zip toward the next nectar source. Feeders and flower gardens are great ways to attract these birds, and some people turn their yards into buzzing clouds of hummingbirds each summer. Enjoy them while they're around; by early fall they're bound for Central America, with many crossing the Gulf of Mexico in a single flight.

Species Richness: NO SUBSPECIES

Population Dynamic: CHECK THREATS

Evolution and Systematics:

Evolution: NONE

Systematics: No geographic variation has been described for the Ruby-throated Hummingbird. No subspecies have been named. The Ruby-throated Hummingbird is most closely related to its sole congener, the Black-chinned Hummingbird.

Number of Species: NO SUBSPECIES

Number of Genera: NO SUBSPECIES

Physical Characteristics:

Size and Length: Length: 2.8-3.5 in (7-9 cm) Weight: 0.1-0.2 oz (2-6 g)

Wingspan: 3.1-4.3 in (8-11 cm)

Coloration: Ruby-throated Hummingbirds are bright emerald or golden-green on the back and crown, with gray-white underparts. Males have a brilliant iridescent red throat that looks dark when it's not in good light.

General Body Features: The Ruby-throated Hummingbird is a small hummingbird with a slender, slightly downcurved bill and fairly short wings that don't reach all the way to the tail when the bird is sitting.

Special Features of the Body: **Muscles make up 25–30% of their body weight, and they have long, blade-like wings that, unlike the wings of other birds, connect to the body only from the shoulder joint. This adaptation allows the wing to rotate almost 180°, enabling the bird to fly not only forward but backward, and to hover in mid-air, flight capabilities that are similar to insects and unique among birds.** The main wing bone, the humerus, is specifically adapted for hovering flight. Hummingbirds have a relatively short humerus with proportionally massive deltoid-pectoral muscles which permit pronounced wing supination during upstroke when hovering. **A hummingbird's ability to hover is due to its small mass, high wingbeat frequency and relatively large margin of mass-specific power available for flight. Several anatomical features contribute further, including proportionally massive major flight muscles (pectoralis major and supracoracoideus) and wing anatomy that enables the bird to leave its wings extended yet turned over (supine) during the upstroke. This generates lift that supports body weight and maneuvering.**

Special Features of the Head and Sensory Organs: Hummingbirds have a long, narrow beak that allows them to reach the nectar from brightly colored, tubular flowers. They also feed on insects and have a flexible lower beak that allows them to grab insects from the air during flight. The tongue, like the beak, is quite long, and the tip is covered in hairs to pull more nectar from flowers.

Dentition: BEAK/LAMELLAE/GIZZARD

Special Features of the Limbs and Digits: Hummingbirds achieve ability to support their weight and hover from wing beats creating lift on the downstroke of a wing flap and also on the upstroke in a ratio of 75%:25%, respectively, similarly to an insect. Hummingbirds and insects gain lift during hovering partially through inversion of their cambered wings during an upstroke. During hovering, hummingbird wings beat up to 80 times per second. **The main muscles hummingbirds use in flight are the pectoralis majors. These muscles are almost entirely made up of Type I, fast-twitch muscle fibers, allowing the wings to beat up to 200 times per second. Unlike other birds, hummingbirds can fly both forward and backward and change directions quickly. The shoulder joint allows the wing to rotate up to 180 degrees, allowing for the fast and precise movements.**

Any Special Internal Anatomy: Hummingbirds have an excellent memory and can recall any feeding source they have used in the past. A hummingbird's eyes are located on the sides of the head and are very large in comparison to the size of the bird. The location and size of the eyes allow the bird to see both in front and to both sides simultaneously. Hummingbirds see colors similar to the ones we see, and also have the ability to see ultraviolet wavelengths. The eyes are protected by at least 12 bones called ossicles. Heart rate in hummingbirds is extremely high during flight, reaching up to 1,250 beats per minute. Resting heart rate drops to approximately 250 beats per minute. This allows the blood to circulate quickly, delivering oxygen to the muscles during rapid muscle movements of flight. The lungs of a hummingbird serve to both deliver oxygen into the bloodstream and help cool the hummingbird. The respiration rate for these birds is approximately 250 breaths per minute—about four breaths each second.

Sexual Dimorphisms: Weight can range from 2 to 6 g (0.071 to 0.212 oz), with males averaging 3.4 g (0.12 oz) against the slightly larger female which averages 3.8 g (0.13 oz). The species is sexually dimorphic. The adult male has a gorget (throat patch) of iridescent ruby red bordered narrowly with velvety black on the upper margin and a forked black tail with a faint violet sheen. The red iridescence is highly directional and appears dull black from many angles. The female has a notched tail with outer feathers banded in green, black, and white and a white throat that may be plain or lightly marked with dusky streaks or stipples. Males are smaller than females and have slightly shorter bills.

Differences Between Juvenile Stage and Adult: Juvenile males resemble adult females, though usually with heavier throat markings. The plumage is molted once a year on the wintering grounds, beginning in early fall and ending by late winter. Juvenile female is similar to Juvenile male, but throat with very indistinct or (usually) no grayish or dusky spots; outer rectrices average broader white tips; primaries broader.

Behavior:

Diurnal, Nocturnal, or Crepuscular: Diurnal

Activity: Like all hummingbirds, ruby-throats are precision flyers with the ability to fly full out and stop in an instant, hang motionless in midair, and adjust their position up, down, sideways, and backwards with minute control. They dart between nectar sources with fast, straight flights or sit on a small twig keeping a lookout, bill waving back and forth as the bird looks around. Male Ruby-throated Hummingbirds aggressively defend flowers and feeders, leading to spectacular chases and dogfights, and occasional jabs with the beak. They typically yield to larger hummingbird species (in Mexico) and to the notoriously aggressive Rufous Hummingbird. Males give a courtship display to females that enter their territory, making a looping, U-shaped dive starting from as high as 50 feet above the female. If the female perches, the male shifts to making fast side-to-side flights while facing her.

Locomotion: Strictly limited to flight; small feet and very short tarsi preclude walking or hopping. Can shuffle along perch. Ruby-throated Hummingbird possesses considerable power reserves, likely adaptations for ascending flight, aerobic courtship maneuvers or carrying heavy migratory fat loads.

Communication and Perception: Males sing a constant series of monotonous chips just at daybreak. A common call is an even chee-dit exchanged between individuals or during chases. In both sexes the wings make a quiet humming sound, louder and higher-pitched in males.

Home Range: Highly territorial during the breeding season, somewhat less so at other times of the year. Male is intensely territorial during the breeding season, using courtship displays as well as agonistic displays. Male's territory is centered on food source when sufficient cover is available, with mating territory a secondary function. If a food source is inadequate to attract females, male may move during the breeding season and set up territory elsewhere, sometimes as far as 3 km away.

Degree of Sociality: Nonsocial; adults only in contact for mating, otherwise solitary.

Level of Aggression: Conspecific territorial intruders are commonly chased throughout the breeding season, especially by adult males. Similar intrusions occur during autumn migration where individuals attempt to defend resources. Intruders usually flee, but occasional physical confrontations occur. These fights include jabbing with bill and striking with feet if intruder is perched.

Migration: Medium to long-distance migrant. Most Ruby-throated Hummingbirds spend the winter in Central America, and most get there by flying across the Gulf of Mexico. Some birds stay in North America along the Gulf Coast, parts of the southern Atlantic coast, and at the tip of Florida; these are usually birds from farther north rather than birds that spent the summer there.

Predators:

Predators: Sharp-Shinned Hawk, Merlin, American Kestrel, Mississippi Kite, Large Passerines, Loggerhead Shrike, Baltimore Oriole, Eastern Kingbird, Praying Mantises, Dragonflies, Frogs, Wasps, Bees, Spiders, and Blue Jays.

Anti-Predator Defenses: When faced with attack from aerial predators, adults may flee into dense cover or even mob predators. For example, a lone Ruby-throated Hummingbird was observed mobbing an American Kestrel during autumn migration by making several passes at the face of the kestrel and jabbing its bill each time, which resulted in the kestrel changing its flight path. Conversely during mobbing of a Blue Jay by birds of several other species, a single female Ruby-throated Hummingbird approached and hovered nearby, but did not appear to vocalize or otherwise participate.

Diet and Nutrition:

Adult Diet: Ruby-throated Hummingbirds feed on the nectar of red or orange tubular flowers such as trumpet creeper, cardinal flower, honeysuckle, jewelweed, bee-balm, red buckeye and red morning glory, as well as at hummingbird feeders and, sometimes, tree sap. Hummingbirds also catch insects in midair or pull them out of spider webs. Main insect prey includes mosquitoes, gnats, fruit flies, and small bees; also eats spiders. Ruby-throated Hummingbirds sometimes take insects attracted to sap wells or picks small caterpillars and aphids from leaves.

Juvenile Diet: ^^^^^

Special Adaptations for Getting Prey: Floral nectar obtained by hovering flight. When structure of plant or feeder permits, bird perches to drink nectar, an especially common behavior during fall migration. Insects captured by hawking. Does not use long bill like forceps; mandible bones flex, allowing distal half of lower bill to hinge downward and flatten, creating wider gape surface to capture insects. Also gleans from leaves and bark, plucks spiders from their webs.

Reproduction:

Mode of Reproduction: Polygynous

Mating System: Presumed polygynous, but polygynandry (i.e., both males and females have multiple mates) is possible; studies lacking. In western Pennsylvania (Powdermill Nature Reserve): capture rates of females and males.

Mating Season: March and July

Courtship: When female enters a breeding male's territory, initial sequence is similar to that given for a conspecific male; male also flares gorget feathers. Male appears to harass female, and then begins Dive Display consisting of U-shaped looping dive starting from as high as 12–15 m above the female. Once the female perches, male display shifts to a series of extremely fast, very close, side-to-side horizontal arcs, with gorget extended, performed within 0.5 m of female. Male is usually silent except for intensified wing noise. During this display female may be hidden in dense cover. Female often responds with side-to-side head motion that matches the male's movements, sometimes with closed eyes.

Territoriality: HOME RANGE

Mating: After Shuttle Display, female, if receptive, gives mew call, cocks rectrices sharply to one side, droops wings, and may flutter wings briefly. Male mounts immediately and remains on female's back for 2–3 s. Matings usually occur within 1.5 m of ground. After copulation, female remains perched for several seconds alternately fluffing and flattening contour feathers. Male immediately moves to high perch giving jumble of daybreak song and scratchy, loud notes.

Nesting: Females build their nests on a slender, often descending branch, usually of deciduous trees like oak, hornbeam, birch, poplar, or hackberry; sometimes pine. Nests are usually 10–40 feet above the ground. Nests have also been found on loops of chain, wire, and extension cords. The nest is the size of large thimble, built directly on top of the branch rather than in a fork. It's made of thistle or dandelion down held together with strands of spider silk and sometimes pine resin. The female stamps on the base of the nest to stiffen it, but the walls remain pliable. She shapes the rim of the nest by pressing and smoothing it between her neck and chest. The exterior of the nest is decorated (probably camouflaged) with bits of lichen and moss. The nest takes 6–10 days to finish and measures about 2 inches across and 1 inch deep.

Egg-Laying: Clutch Size: 1–3 eggs Number of Broods: 1–2 broods Egg Length: 0.5–0.6 in (1.2–1.4 cm) Egg Width: 0.3–0.3 in (0.8–0.9 cm) Incubation Period: 12–14 days Nestling Period: 18–22 days Egg Description: Tiny, white, weighting about half a gram, or less than one-fiftieth of an ounce.

Hatching and Incubation/Gestation: Naked apart from two tracts of gray down along the back, eyes closed, clumsy.

Development: ALTRICIAL. Hatchlings are very small and nearly naked, with skin color slate blue. Uncoordinated, but able to erect head in response to female's mew call.

Parental Care: Female provides all direct parental care of young with no help from male. Chicks brooded almost constantly from hatching except during foraging recesses. s in other hummingbirds, chicks gape in response to air movement from female's wings, apparently also in response to her mew call. Feeding begins soon after hatching, but can be delayed as long as 11 h after hatching. Feed by regurgitation throughout nesting period; female inserts bill into that of young and pumps vigorously.

Lifespan: The oldest known ruby-throated hummingbird to be banded was 9 years and 1 month of age. Almost all hummingbirds of 7 years or more in age are females, with males rarely surviving past 5 years of age. Reasons for higher mortality in males may include loss of weight during the breeding season due to the high energetic demands of defending a territory followed by energetically costly migration.

Conservation:

Official Federal Status: Least Concern

Special Statuses in Individual States: NONE

Threats: Ruby-throated Hummingbird populations have steadily increased every year from 1966 to 2014, according to the North American Breeding Bird Survey. Partners in Flight estimates a global breeding population of 20 million with 84% spending some part of the year in the U.S., 51% in Mexico, and 16% breeding in Canada. The species rates an 8 out of 20 on the Continental Concern Score. Ruby-throated Hummingbird is not on the 2014 State of the Birds Watch List. Hummingbird feeders are generally safe for hummingbirds, but they can create a problem if they make the birds easy targets for cats or if the feeders are placed around nearby windows that the birds might fly into.

Conservation Efforts: ^^^^

Extra Facts:

1. The Ruby-throated Hummingbird beats its wings about 53 times a second.
2. The extremely short legs of the Ruby-throated Hummingbird prevent it from walking or hopping. The best it can do is shuffle along a perch. Nevertheless, it scratches its head and neck by raising its foot up and over its wing.
3. Scientists place hummingbirds and swifts in the same taxonomic order, the Apodiformes. The name means "without feet," which is certainly how these birds look most of the time.
4. Ruby-throated Hummingbirds prefer to feed on red or orange flowers (though it's not necessary to color the sugar water you put in a hummingbird feeder). Like many birds, hummingbirds have good color vision and can see into the ultraviolet spectrum, which humans can't see.
5. Ruby-throated Hummingbirds normally place their nest on a branch of a deciduous or coniferous tree; however, these birds are accustomed to human habitation and have been known to nest on loops of chain, wire, and extension cords.
6. Ruby-throated Hummingbirds are eastern North America's only breeding hummingbird. But in terms of area, this species occupies the largest breeding range of any North American hummingbird.
7. Male Ruby-throated Hummingbirds don't stick around long. Pairs are together long enough for courtship and mating – just a matter of days to weeks. Then he's off on his own, and may begin migration by early August.
8. The oldest known Ruby-throated Hummingbird was a female, and at least 9 years, 1 month old when she was recaptured and rereleased during banding operations in West Virginia.

Notable Species: NONE