

RUBY-THROATED HUMMINGBIRD

Archilochus colubris



Ruby-throated Hummingbirds (RTHUs) are the most widely distributed of the world's 338 species of hummingbirds, all of which occur ONLY in the Western Hemisphere.

Ruby-throated Hummingbirds are Neotropical migrant insect-

and nectar-eaters that breed from Florida to Maine; westward across the Great Plains to foothills of the Rockies; from south Texas north to southern Canada; and northwest into Alberta.

Little is known about autumn migrational routes. Some migrant RTHUs apparently fly from Florida to the Yucatan; however, many RTHUs gather in Louisiana or Texas in mid-September before flying across the Gulf, and some may take an overland route through Mexico. Even less is known about spring migrational paths.

There's good evidence that hummers do not fly very high during migration. Over land it is unlikely they get much above treetop height--the better for them to see potential food sources along the migratory route. Hot air balloonists have reported RTHUs at altitudes of up to 500 feet or so.

It is certain that hummingbirds would never be able to survive cold temperatures at high altitudes used by waterfowl and larger songbirds, which helps refute the ludicrous myth that hummers hitchhike on the backs of [Canada Geese](#). Over water, hummingbirds have been reported to migrate just above the wave tops; one observer even claimed some hummers get within the curl of a wave, thus allowing the wave itself to serve as a windbreak.

BREEDING (Summer) GROUNDS:

The Ruby-throated Hummingbird is often found in the ecotone--or edge--between woodland and meadow. In this habitat the bird is close to mature trees in which it typically nests, as well as near a profusion of flowering plants that supply nectar and support small insects--both of which make up its diet. It is a bird that has adapted well in many places to human development, but only if there are shelter, space, and food. Thus, it is frequently seen in suburban backyards with some mature trees and shrubs, in wooded parks, and around farmsteads and orchards. Although the RTHU may be found more frequently near hardwood forests, it also occurs in pine stands in parts of its breeding range. In Canada, its overall distribution stops at the southern edge of the dense boreal forest.

WINTERING GROUNDS:

Observations in Mexico and Central America indicate that Ruby-throated Hummingbirds select similar habitats to those they use on the breeding and nesting grounds: the edges of thickets and

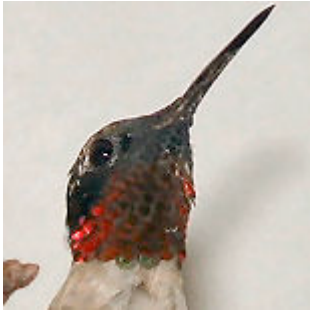
second-growth forests where the wood interface with clearings such as pasture. As in North America, these locations are likely to have viable populations of flowering plants. It should be noted that SOME vegetation disturbance may benefit RTHUs because it results in more "edges," but clear-cutting eliminates all plants they need for nesting, roosting, and/or feeding.

HUMMINGBIRD EXTERNAL APPEARANCE –

All hummingbirds are fully-grown and capable of flight when they leave the nest; there are no "baby hummingbirds" at feeders. In other words, baby hummingbirds can't fly. Any unusually tiny hummingbird that is hovering at a flower or feeder is undoubtedly a Hummingbird Moth.

PLUMAGE

ALL normal Ruby-throated Hummingbirds have metallic green backs, but some appear dingier or brighter. In general, adult males appear darker than females, and young males. Remember that hummingbird colors are structural in nature and vary with light intensity and angle. In poor light, a hummingbird can look almost black rather than green or



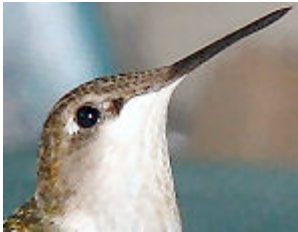
Adult Male: Throat metallic ruby-red (rarely has a golden or bronze cast); back metallic green or bronze-green; wings near-black; tail forked and all

dark (no white tips); breast and belly usually brownish-gray; flanks metallic bronze-green; crown metallic dark green.



White area below gorget may appear to create a light ring around the bird's neck. Because of the adult male's gray breast, dark tail, and

red gorget, he often looks much darker than a female or juvenile male. The adult male red throat may not be apparent if the bird is viewed from the side.



Female: They are generally 15%-25% larger than males. Throat white, or with occasional faint streaking (very, very rarely a

black or red throat feather may occur in old females); back metallic green or bronze-green; wings near-black; tail fan-shaped, with outer three feathers white-tipped; belly and vent white, flanks light brown; crown metallic dark green.



Young: Similar to female, except young males usually with more or less dark streaking on the throat; later in summer young males often show one or more red throat feathers. (Nearly all birds with noticeably streaked



throats are young males; see photos below.) Young birds of either sex may have brownish edges on otherwise green body feathers-

-especially on the crown and back. Because females AND young males can have white throats, the ONLY time you can positively age white-throated Ruby-throated Hummingbirds at a feeder is in SPRING before young birds of the year have left the nest.



The **eye** of the Ruby-throated Hummingbird appears all dark; viewed in the hand, the iris is actually a dark brown and the pupil is black. There is a small spot of white feathers behind each eye.

The **bill** of the RTHU is dull – to shiny black; it sometimes appears whitish or



yellowish because of pollen deposits. bill of young birds is lightly etched with lines called “corrugations that fill in and wear down to smooth appearance after about 6-8 months.

HUMMINGBIRD FLIGHT BEHAVIOR

Flight in Ruby-throated Hummingbird is typical of the Trochilidae. Hummingbird are incredibly aerobatic and able to hover and fly backwards--even upside-down--and attain respectable forward speeds 25mph or more during straight-line migration. Hummingbirds reach maximum velocity almost instantly after leaving a perch, and they do not push off with the legs as many birds do. Likewise, when returning to perch, they stop almost instantly, alighting gently on a thin twig wire. It has even been said that the female hummingbird returning to a nest puts down so quickly AND gently that she is already incubating before her wings are folded.

In hovering flight, the wings of the RTHU move forward and backward--not up and down--and trace a figure-8, with lift being

produced by both the forward AND backward strokes. Normal wing beat rate is about 80 times per second, up to 200 times per second in courtship flight.

Beyond hovering, the most remarkable aspect of hummingbird flight is endurance. When migrating RTHUs depart from Florida or the Texas Gulf Coast toward the Yucatan Peninsula, there's no turning back, and there aren't any fast-food stops along the way. At an average rate of 25mph, it takes a hummingbird about 20 hours to fly the over 500 miles across the Gulf of Mexico, an astounding feat for an organism that weighs--even after putting on fat--only about 5g.

HUMMINGBIRD REPRODUCTIVE BEHAVIOR

COURTSHIP & REPRODUCTION

As Ruby-throated Hummingbird (RTHU) females arrive, males attempt to attract their attention with spectacular courtship flights in which a male flies upward 50 feet or more and then dives down at top speed, pulling up at the last moment to complete a U-shaped pattern; the pattern is usually repeated several times before the male takes a break. The sound of the male's wings is particularly loud in courtship flight, which may be accompanied by vocal chittering. Eventually, the female selects a male--perhaps one with a particularly energetic display or the one defending a feeding

territory that appears especially rich--and mates with him.

After the male mates with the first female, he may mate again with several others. This promiscuous "harem system" works well for the species because there are fewer adult males than females in a typical local population of RTHU.

NEST-BUILDING & EGG-LAYING



As soon as mating is over, the female Ruby-throated Hummingbird has little to do with the male, or vice versa. She selects a suitable place for her nest--often atop a small downward-slanting branch overhanging an open area or stream but sometimes on a large horizontal limb--and then spends many hours collecting spider webs and plant parts that she weaves into a small cup about the size of a Campfire marshmallow. Adorned with bits of gray-green lichen that camouflage it perfectly, the nest is lined with soft plant down, and within a few days the female lays the first of two tiny pea-sized (8mm x 13mm) white eggs. Almost without exception, the female Ruby-throated Hummingbird lays two tiny white eggs in her nest. Only one egg would not maximize the female's reproductive potential, but three would produce too many chicks for her to care for successfully. The nest, constructed

from spider webs and plant parts, is adorned with bits of lichen that make the nest very difficult to find.

INCUBATION & BROODING

Incubation lasts about 14-16 days--perhaps as long as 21 days in cool weather--during which time the female Ruby-throated Hummingbird is on the nest for about 50-55 minutes out of each hour. When the chicks hatch, they are about 2cm long, altricial (naked), and with very short bills. For several days they are unable to generate their own body heat so the female must deal with the conflict of gathering food for them while not being off the nest for long stretches. It is suspected the male with whom she mates allows her passage into his feeding territory, so she does not have to search far for food and her time off the nest is minimal. In RTHU, the male is not known to care for nestlings in any way.

When the female RTHU does leave the nest to forage, she collects nectar, pollen, and tiny insects in her crop and returns to the nest, where she regurgitates the energy-rich slurry into the mouths of the nestlings. By the third day after hatch, the chicks have doubled their mass, which doubles again by day five and again by day eight--about the time when they start producing their first noticeable pinfeathers. Chicks are in the nest for almost three weeks--making the total elapsed time from egg laying to fledging about 5-6 weeks. When the nestlings

finally leave the nest, they are completely grown and innately able to begin foraging on their own. They make lots of mistakes at first as they explore their new world, probing at anything that looks like it might contain food. Eventually, those that are successful will have fine-tuned their interactions with the environment and live to produce yet another generation of Ruby-throated Hummingbirds.

HUMMINGBIRD FORAGING BEHAVIOR & FEEDING

Although many people think the Ruby-throated Hummingbird is exclusively a nectar-eater, since most nectar contains only sugars (carbohydrates) it would not comprise a well-balanced diet. As a warm-blooded vertebrate, hummingbirds also need to ingest proteins that can be converted into muscle, feathers, and other body parts. Fats are also necessary, particularly as hummers store energy in preparation for lengthy migratory flights.



Ruby-throated

Hummingbirds (RTHUs) also take advantage of "sapsucker wells," a series of small holes in tree trunks (left photo) drilled by various species of North American woodpeckers (e.g., Yellow-bellied Sapsucker). These holes ooze sap--a source of tree sugars--and also attract small insects. Especially in early spring before many plants have flowered, hummingbirds visit sapsucker wells to lap up the sap and catch the protein-rich flies and gnats that congregate there.

It has been reported that RTHUs apparently help pollinate at least 31 species of plants in their North American breeding range, at least 19 of which have co-evolved with hummingbirds as their primary pollinators. RTHUs are innately curious and constantly explore their feeding territories for nectar sources that change not only week to week but also even hour to hour. Even when a dependable, super-rich energy source such as a hummingbird feeder hangs within a feeding territory, the resident hummingbird still visits nearby flowers and captures insects. Hummingbirds are attracted to red flowers, probably not because they see red better but because so many hummingbird-pollinated flowers that hold heavy nectar loads are red. The red itself may have been selected for in plants because it is the visible color that contrasts most conspicuously against a background of green foliage.

There's no question that hummingbirds make use of plant nectar--or the sugar water from your feeders--as a source of quick energy. But while they're visiting

those flowers, they also are gobbling up tiny insects and spiders, and pollen--bc excellent sources of protein.

INTERESTING FACTS ABOUT SIZE

Adult female Ruby-throated Hummingbirds (RTHU) are 15-20% larger than adult males

MASS: About 3-4g (a nickel weighs about 5g); may nearly double mass prior to migration by putting on extra fat

LENGTH: About 8.5cm (3.5") from tip of bill to tip of tail

FLEDGLING SIZE: Hummingbirds are full-grown when they leave the nest; but hummingbirds cannot fly

FLIGHT

WING BEATS: About 60-80 times per second in normal flight, up to 200 times per second in courtship dives

SPEED: Normal flight about 25mph; up to 65kph (40mph) in a courtship dive

FLIGHT MUSCLES: Make up about 25% of RTHU's weight (compared to 5% pectoral muscle weight in human being)

MIGRATION & SITE FIDELITY

DISTANCE: About 845km (525mi) non-stop across the Gulf of Mexico, and then up to another 1,600km (1,000mi) into Central America; RTHUs that nest in Canada must also fly from there to the Gulf Coast, a distance of another 1,600 (1,000mi) or so.

ELAPSED TIME: Estimated 20 hours to fly across the Gulf of Mexico. (Some RTHUs may go overland through Mexico)

HEART & RESPIRATION

HEARTBEATS: About 250 times per minute while at rest, about 1,220 per minute while flying

HEART SIZE: About 2.5% of total body weight

BREATHING: About 250 breaths per minute while at rest

NEST, EGGS & NESTLINGS

NEST SIZE: Inner diameter of about 4cm (1.5"); the outside of the nest is about 6cm (2.25") tall.

NEST MAKEUP: Spun by the female from spider webs and plant material, camouflaged with bits of lichen, lined with plant down

NEST LOCATION: Eastern United States and southern Canada in mixed woodlands, orchards, suburban areas with shade trees, etc.; often on an "edge" between open area and woods

NEST SITE: 2-18m (6-50') above ground, usually attached to a small, downward-sloping twig and often near water; nest site--but not the nest--may be used from year to year

EGG SIZE: 8mm x 13mm (.25" x .5"), roughly the size of a small jellybean

EGG COLOR: White, non-glossy

NESTLINGS: Chicks are naked and about 2.5cm (1") long at hatching. Mass is doubled each day over the first several days.

NUMBER OF EGGS PER NEST: 2, sometimes 1, and almost never 3

INCUBATION: About 16-18 days (perhaps longer in cool weather), by female only

BROOD PERIOD: About 21 days (perhaps longer in cool weather), by female only

FEEDING OF YOUNG: Female collects nectar and tiny insects in her crop, then regurgitates the slurry into mouths of nestlings

LONGEVITY

AVERAGE AGE: Most hummingbirds die within their first year; those that don't probably live an average of 3 years or so

RECORD AGE: The oldest known RTHU is listed at about 9 years. There are several RTHU known to survive up to 12 years of age in well-maintained hummerariums and aviaries.

FEEDING & METABOLISM

RATE: Eats about its weight in nectar or sugar water each day.

FREQUENCY: About 5-10 times per hour for 30-60 seconds each time

BODY TEMPERATURE: 40.5 degrees C (105-108 degrees F)

TORPOR: On cold nights, a RTHU can lower its body temperature by about 30 degrees F (to around 74 degrees F), thus conserving energy that will be used to maintain its normal temperature. The next morning, the RTHU speeds up its metabolism and get its body temperature back up to normal (104-110 degrees F) within a few minutes.

ENERGY USE: On a typical day, a RTHU needs about 10 calories of food to survive. This can come in the form of carbohydrates (sugar water or flower nectar) or fats and proteins (primarily from tiny insects and spiders).

MISCELLANEOUS FACTS

BANDING: About 170,000 RTHU have been banded in North America in the last century; yet **none** has ever been reported as recovered or recaptured on the

wintering grounds in Mexico or Central America.

FEATHERS: A typical RTHU has 940 feathers.