

## AMERICAN REDSTART - SETOPHAGA RUTICILLA

Orange and yellow coloration is due to the presence of carotenoids; males possess the red carotenoid canthaxanthin and the yellow carotenoids canary xanthophyll A and B, all of which mix together to produce an orange color, while the females possess only the yellow carotenoids.

**Taxonomy:** Kingdom: Animalia Phylum: Chordata Class: Aves Order: Passeriformes Family: Parulidae Genus: Setophaga Species: *S. ruticilla*

### **Habitat:**

**Biomes:** American Redstarts breed in moist, deciduous, second-growth woodlands with abundant shrubs, across much of the eastern and northern United States and southern Canada. Its habitat is often situated near water, and includes alder and willow thickets, thickets in treefall gaps within old-growth forest, fencerows, orchards, and mixed deciduous-coniferous woodlands. Redstarts favor interior woodland over edges, and prefer large tracts of habitat measuring at least 1,000 acres in area. In the western part of their range they use riverside woods, thickets, and coniferous forest. They spend the winter in low- to mid-elevation forest habitats in southern Florida and California, as well as in southern and western Mexico, Central America, northern South America, and the Caribbean. Their wintering habitat includes mangroves, shade coffee plantations, citrus plantations, wet forest, scrub thickets, and even isolated trees in residential urban areas.

### **Distribution:**

**In US:** Their breeding is in North America, spanning southern Canada and the eastern United States. They are migratory, wintering in Central America, the West Indies, and northern South America, and are very rare vagrants to western Europe.

**In Other Countries:** NONE

**Holistic Description:** A lively warbler that hops among tree branches in search of insects, the male American Redstart is coal-black with vivid orange patches on the sides, wings, and tail. True to its Halloween-themed color scheme, the redstart seems to startle its prey out of the foliage by flashing its strikingly patterned tail and wing feathers. Females and immature males have more subdued yellow “flash patterns” on a gray background. These sweet-singing warblers nest in open woodlands across much of North America.

**Species Richness:** 2 SUBSPECIES

**Population Dynamic:** CHECK THREATS

### **Evolution and Systematics:**

**Evolution:** NONE

**Systematics:** Western populations average slightly smaller, but adult male plumage is essentially invariant geographically. Females and young males vary in dorsal coloration, with western and northern breeders having the back and crown brownish, eastern and southern breeders having the back greenish and crown grayish, and Newfoundland breeders having the back and crown grayish.

**Number of Species:** 2 SUBSPECIES

**Number of Genera:** 2 SUBSPECIES

### **Physical Characteristics:**

**Size and Length:** Length: 4.3-5.1 in (11-13 cm) Weight: 0.2-0.3 oz (6-9 g)

**Wingspan:** 6.3-7.5 in (16-19 cm)

**Coloration:** Adult male American Redstarts are mostly black with bright orange patches on the sides, wings, and tail. The belly is white. Females and immature males replace the orange with yellow or yellow-orange. They have gray head and underparts, with olive back and wings and dark-gray tail.

**General Body Features:** A medium-sized warbler with a relatively wide, flat bill and fairly long, expressive tail. In flight it has a deep chest, slim belly, and long, somewhat club-shaped tail.

**Special Features of the Body:** Highly distinctive parulid; elongated rectal bristles and broad-based bill are adaptations for flycatching behaviour.

**Special Features of the Head and Sensory Organs:** Flies, moths, and leafhoppers and planthoppers are almost always well represented in diet, probably because of redstart's unique morphological adaptations for aerial flycatching and pursuit.

**Dentition:** BEAK/LAMELLAE/GIZZARD

**Special Features of the Limbs and Digits:** NONE

**Any Special Internal Anatomy:** NONE

**Sexual Dimorphisms:** Older male ( $\geq 2$  yr, Definitive plumage) is glossy black with contrastingly bright salmon orange patches on base of outer rectrices and base of remiges, as well as on sides of breast; lower underparts (belly, vent, and undertail coverts) white. In fresh Basic plumage (early fall) the black feathers may be buff-tipped. Female generally light gray on head, gray to olive green on back, and whitish below with pale yellow (not salmon orange) patches on tail, wings, and sides.

**Differences Between Juvenile Stage and Adult:** Hatch-year and second-year male (through end of first breeding season) similar to female, but with yellow or sometimes orange yellow patches on tail, wings, and especially sides of breast. In addition, these yearling males often have small, irregular patches of black feathers on head, breast, or back, the extent of which increases gradually (in most individuals) as worn feathers are replaced facultatively from time of First Basic Plumage.

**Behavior:**

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

**Activity:** Males defend their territory boundaries with songs, posturing, and aerial displays, including one display in which they fly in circles near each other. Female sometimes defend the territory against other females. Two birds may strike at each other or even grapple with their bills and feet, though they rarely hurt each other. Both the male and the female bring food for the nestlings. Though normally monogamous, the male may start singing to attract another mate once his first mate has finished laying eggs. He spends more effort providing food for his first nest than for his second. Once the chicks leave the nest, the parents divide up the chicks for feeding duty: the female feeds certain chicks while the male feeds the others. Foraging adults may be preyed on by raptors such as Sharp-shinned Hawks, while eggs and nestlings are vulnerable to climbing mammals, snakes, and birds such as Blue Jays, Common Ravens, Gray Jays, Common Grackles, Northern Saw-whet Owls, Cooper's Hawks, and Red-bellied Woodpeckers.

**Locomotion:** NONE

**Communication and Perception:** During breeding season the male sings a series of 2–11 thin, high-pitched notes, sometimes ending with an accented phrase. The building energy of the song and the abrupt, accented ending lead some people to describe the song as sneeze-like.

**Home Range:** Individuals of both sexes use variety of vocalizations, aerial displays, postures, and combinations thereof to defend territorial boundaries in summer. Primarily involves male, which responds vigorously to intrusion by other male, as well as to simulated intrusion using song playback. Female occasionally defends territory using similar agonistic behavior, primarily against other females, sometimes even before nest is built. Both sexes feed and complete most reproductive activities within territory, except for nest-building female, who occasionally wanders into territories of adjacent males. Size of breeding territory is generally  $< 1.0$  ha.

**Degree of Sociality:** American Redstarts tend to occur as pairs during breeding season; males are highly territorial, females occasionally so. Yearling male that has not mated may follow and sing to female mated to another male, particularly if other male is busy feeding fledglings

**Level of Aggression:** Agonistic behavior consists of diverse vocal displays coupled with both aerial and non-aerial displays. The most distinctive aerial display is Circling, a ritualized contest at territorial boundaries. Circling begins when 1 bird flies, often with stiffened wings, in horizontal semicircular or circular flight just in front of a second bird, coming to within 30 cm of it before continuing the arc back to initial position. As first bird is thus "retreating," second bird often initiates identical flight toward first, sometimes well before first bird lands, and so on, alternately, for up to tens of minutes.

**Migration:** Long-distance migrant. Redstarts breeding in eastern North America travel to Florida, the Greater Antilles, and northern South America, while those breeding in central and western North America migrate to Mexico and Central America.

**Predators:**

**Predators:** Common terrestrial predators include red squirrels, fishers, eastern chipmunks, American black bears, flying squirrels, fox snakes, and domestic cats. Aerial predators take nestlings, eggs, or even adults in flight. Aerial predators include jaegers, blue jays, common ravens, northern saw-whet owls, common grackles, northern goshawks, sharp-shinned hawks, and Cooper's hawks.

**Anti-Predator Defenses:** Performs captivating Distraction Display in context of threats by potential predators to eggs, nestlings, or recent fledglings. Displaying bird, often a female leaving her nest at approach of intruder, typically flies to ground, crouches in horizontal posture, flutters wings rapidly and shallowly, spreads wings and tail so as to display conspicuously the plumage's contrasting colors, and twitters in high-pitched vocalization. When intruder turns away from displaying bird and back toward nest, parent often doubles back into position near intruder as if to entice it away from nest vicinity.

**Diet and Nutrition:**

**Adult Diet:** American Redstarts feed mostly on insects, including leafhoppers, planthoppers, flies, moths and their larvae, wasps, and beetles. In late summer they also eat some small berries and fruits, such as barberry, serviceberry, and magnolia. They forage between the ground and near the top of the canopy, taking most of their prey from twigs, branches, and leaves. They fan their tails and droop their wings, showcasing the orange-and-black or yellow-and-gray “flash patterns” of their plumage, presumably to startle prey and flush it from vegetation. American Redstarts take more flying prey than most other warbler species, and they compete with other flycatching species (such as Least Flycatcher) for the same prey. Individuals usually forage alone but may stay near their mates, and they sometimes join mixed-species flock in the nonbreeding season.

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

**Special Adaptations for Getting Prey:** Forages alone, although members of pair sometimes forage near one another and occasionally join mixed-species flocks in nonbreeding season.

### **Reproduction:**

**Mode of Reproduction:** Monogamous

**Mating System:** Predominantly monogamous, with 1 female per territory, but a New Hampshire population had 5–30% polygynous males, depending on year.

**Mating Season:** Mid-May to End-July

**Courtship:** Ficken recognized 3 stages of courtship: (1) pair formation, requiring only a few hours; (2) pre-nest-building stage of 12 h to several days needed to choose nest site; and (3) nest-building period of 3–10 d, leading up to copulation near time of nest completion. Various graded displays, with much flexibility of components, contribute to formation of pair bond and courtship, but these can be grouped roughly into those with Fluff Display versus those with Bow. In Fluff Display, erects feathers on breast and back, sometimes also scapulars, head, and rump. Bow consists of raising head vertically while tipping breast toward ground, usually spreading tail, and usually posturing wings either outward or upward, and/or waving them. Many of these courtship postures, including Bow, appear to have evolved as ritualized flight intention movements.

**Territoriality:** HOME RANGE

**Mating:** On basis of relatively few observations in wild, pair copulates only 1 to a few times per reproductive effort; copulation is short (a few seconds); male mounts female from rear and touches his cloaca to hers. Birds copulate on horizontal tree limb about 6 m above ground (this height may depend on habitat structure), usually about 6–10 m from nest.

**Nest Placement:** The male shows the female potential nest sites during the early stages of courtship. She tests out many sites by settling into them and moving around, and finally chooses one. The nest is usually supported by the main trunk of a tree or shrub and a few other vertical stems, and well camouflaged by foliage. Common nest trees include maple, birch, ash, hawthorn, alder, eastern white cedar, cherry, balsam poplar, and willow.

**Nest Description:** The female builds the nest by herself in about 3-7 days. The nest is a tightly woven cup of small fibers, such as birch bark strips, grasses, milkweed seed hairs, animal hairs, feathers, rootlets, leaves, lichens, twigs, mosses, pine needles, and wasp nest paper. The nest measures 2–3 inches across and 2–3 inches high on the outside, with an inner cup about 2 inches across and 1.5 inches deep.

**Egg-Laying:** Clutch Size: 1-5 eggs Incubation Period: 10-13 days Nestling Period: 7-13 days Egg Description: White or creamy with blotches of brownish or reddish; some are so speckled that they are nearly brown all over.

**Hatching and Incubation/Gestation:** Helpless, with closed eyes, and naked except for downy tufts of feathers on the head, neck, and back.

**Development:** Altricial and naked at hatching, except for downy tufts of feathers on head, neck, and dorsum; eyes are closed.

**Parental Care:** Powerful tendency to brood by female, illustrated by her tendency to brood empty nest when chicks are experimentally removed. Both sexes feed chicks on nest, each parent typically making 50% of food-provisioning trips. Yearling male contributes as much as older male to nestling-provisioning.

**Lifespan:** The oldest known banded redstart lived to over 10 years of age. Other adults have been known to reach around 5 years. However, few survive past the first stages of life, as the bird is vulnerable to both terrestrial and aerial predators

### **Conservation:**

**Official Federal Status:** Least Concern

**Special Statutes in Individual States:** NONE

**Threats:** American Redstarts are common but numbers indicate a small decline across their range (with up to a 47% decline in the U.S.) between 1966 and 2014, according to the North American Breeding Bird Survey. Partners in Flight estimates the global breeding population at 39 million individuals, with 81% breeding in Canada, 19% spending some part of the year in the U.S., and 13% wintering in Mexico. They rate a 10 out of 20 on the Continental Concern Score and are not on the 2014 State of the Birds Watch List. Like most nocturnal migrant songbirds, American Redstarts can be killed by colliding with structures such as skyscrapers, cell-phone towers, radio antennas, and wind turbines.

Conservation Efforts: ^^^^^

**Extra Facts:**

1. Like the Painted Redstart and other “redstarts” of the Neotropics, the American Redstart flashes the bright patches in its tail and wings. This seems to startle insect prey and give the birds an opportunity to catch them. Though these birds share a common name, they are not closely related to each other. In fact, there are other unrelated birds around the world—such as the fantails of Australia and southeastern Asia, and other redstarts of Europe—that share the same foraging tricks.
2. Young male American Redstarts have gray-and-yellow plumage, like females, until their second fall. Yearling males sing vigorously in the attempt to hold territories and attract mates. Some succeed, but most do not breed successfully until the following year when they develop black-and-orange breeding plumage.
3. The male American Redstart sometimes has two mates at the same time. While many other polygamous bird species involve two females nesting in the same territory, the redstart holds two separate territories that can be separated by a quarter-mile. The male begins attracting a second female after the first has completed her clutch and is incubating the eggs.
4. The oldest American Redstart was over 10 years old, when he was recaptured and rereleased during a banding operation in Ontario.

**Notable Species:**

1. *S. r. ruticilla* Linnaeus 1758. Includes *Motacilla flavicauda* Gmelin 1788, and *M. multicolor* Gmelin 1788. Breeds in the eastern U.S. through the Appalachians and through the Mississippi Valley [type locality = Virginia]. Dorsum of female and immature male paler gray, with the back brighter green.
2. *S. r. tricolora* Müller 1776. Breeds across Canada and into the northwestern U.S., south sporadically into northernmost California and into the northern Rocky Mountains, and in northern New England [type locality = Cayenne, French Guiana]. Dorsum of female and immature male darker gray, with the back duller green.