

RUBY-CROWNED KINGLET - REGULUS CALENDULA

The Ruby-crowned Kinglet is considered to be less specialized in its adaptations for feeding while the Golden-crowned Kinglet is adapted for hanging on to branch tips of conifers.

Taxonomy: Kingdom: Animalia Phylum: Chordata Class: Aves Order: Passeriformes Family: Regulidae Genus: *Regulus*
Species: *R. calendula*

Habitat:

Biomes: In summer, Ruby-Crowned Kinglets are common in spruce-fir forests in the northwestern United States and across Canada. They also live in mixed woods, isolated trees in meadows, coniferous and deciduous forests, mountain-shrub habitat, and floodplain forests of oak, pine, spruce or aspen. These birds nest high in trees, and so prefer older, taller, and denser stands to younger ones. During migration and winter they are common in woods and thickets across most of the continent.

Distribution:

In US: The kinglet is migratory, and its range extends from northwest Canada and Alaska south to Mexico. Its breeding habitat is spruce-fir forests in the northern and mountainous regions of the United States and Canada. Their breeding habitat is coniferous forests across Canada, Alaska, northern New England and the western United States.

In Other Countries: NONE

Holistic Description: A tiny bird seemingly overflowing with energy, the Ruby-crowned Kinglet forages almost frantically through lower branches of shrubs and trees. Its habit of constantly flicking its wings is a key identification clue. Smaller than a warbler or chickadee, this plain green-gray bird has a white eyering and a white bar on the wing. Alas, the male's brilliant ruby crown patch usually stays hidden—your best chance to see it is to find an excited male singing in spring or summer.

Species Richness: 3 SUBSPECIES

Population Dynamic: CHECK THREATS

Evolution and Systematics:

Evolution: A kinglet has been identified from the late Pleistocene (Rancholabrean North American Land Mammal Age, 400,000 years before present and younger) asphalt deposit at Carpinteria, CA.

Systematics: Apart from an extinct insular form and smaller, darker birds along the coast of s. Alaska and British Columbia, size is variable, but with broad overlap among populations across the continent, and color is "inconstant". Birds from mountains of the Southwest average slightly longer wings, "but the range of individual variation includes that of most other samples, including birds from eastern North America". Put most clearly, excepting the aforementioned birds in the Northwest, "specimens in fresh plumage are identical in dorsal and ventral coloration among continental populations" and "both large and small birds occur east and west of the Rocky Mountains"

Number of Species: 3 SUBSPECIES

Number of Genera: 3 SUBSPECIES

Physical Characteristics:

Size and Length: Length: 3.5-4.3 in (9-11 cm) Weight: 0.2-0.3 oz (5-10 g)

Wingspan: 6.3-7.1 in (16-18 cm)

Coloration: Ruby-crowned Kinglets are olive-green birds with a prominent white eyering and white wingbar. This wingbar contrasts with an adjacent blackish bar in the wing. The "ruby crown" of the male is only occasionally visible.

General Body Features: Kinglets are tiny songbirds with relatively large heads, almost no neck, and thin tails. They have very small, thin, straight bills.

Special Features of the Body: NONE

Special Features of the Head and Sensory Organs: The kinglets' main adaptations for keeping warm (and conserving energy) include those also found in most other birds. They fluff out their feathers to trap air, creating an ever-greater insulating air space around themselves. The main avenue of heat loss is then through the uninsulated bill, eyes, and the feet. During sleep, however, the first two avenues are greatly reduced as the birds tuck their heads deep into their back feathers.

Dentition: BEAK/LAMELLAE/GIZZARD

Special Features of the Limbs and Digits: Reductions of body heat loss through the feet is accomplished by countercurrent heat exchange and/or reduction in blood flow, to keep leg and foot temperatures as low as possible, probably just above the freezing point of water, near 0°C. Conversely, the kinglet's legs and feet can also be used to shunt heat from the body.

Any Special Internal Anatomy: And their insulation keeps them warm. Their feathers make up 8% of their body weight, equivalent to the weight of the clothing of an arctic explorer. When night falls, the flock heads for the thickest conifer foliage it can find and huddles together to conserve heat, another of their superb adaptations for survival.

Sexual Dimorphisms: Male has scarlet crown patch (rarely orange, yellow, or absent), generally concealed. Female identical to male but lacks crown patch.

Differences Between Juvenile Stage and Adult: Juvenile birds (Jun-Aug) with brownish cast to upperparts and buffy, rather than white, wing bars. Lack red in crown. Immature birds (Aug-Jul) similar to adults, but sometimes retain outer median and greater coverts, which are worn and browner than in adult birds and contrast with dusky-olive, white-tipped inner coverts.

Behavior:

Diurnal, Nocturnal, or Crepuscular: Diurnal

Activity: Breeding pairs of Ruby-Crowned Kinglets stay together for two months, until their chicks fledge. Ruby-Crowned Kinglets use their long, bubbly, and amazingly loud songs to establish territories; this is more energy efficient than chasing and less dangerous than fighting. They can be recognized by a constant flicking of their wings.

Locomotion: Moves amid foliage and along branches exclusively with short hops, often aided by a flick of wings. Prefers to move on horizontal or near-horizontal branches; does not climb up or down vertical branches or trunks. Short bursts of rapid wingbeats result in slight, jerky zig-zags from side to side. Flight is nevertheless quick and direct.

Communication and Perception: Male Ruby-crowned Kinglets sing a jumbled but distinctive song that builds to an incredibly loud ending when you consider how small these birds are. The song lasts about 5 seconds. It starts with soft, high notes that accelerate into a musical twittering, and then abruptly shifts into a loud series of 2- or 3-parted notes.

Home Range: Large, resource-holding territories; nests are located within territories, and all adult foraging and provisioning of nestlings and fledglings take place within territory. Territories mapped in Algonquin Prov. Park ranged in size from 1.1 ha to 6 ha.

Degree of Sociality: Territorial on breeding grounds; may be gregarious in early winter on wintering grounds but becomes territorial as winter progresses.

Level of Aggression: In winter, most intraspecific hostile interactions result in chases and fights, and the rest result in supplanting attacks. No detailed description of agonistic behaviors published. May be more aggressive to Golden-crowned Kinglets than to conspecifics, but no interactions with Golden-crowned Kinglets observed during the breeding season in old-growth boreal forests of central Saskatchewan. Prolonged chases occur during period of territory establishment but are uncommon. Rather, singing seems to be a mechanism for avoiding potentially dangerous fights and energetically costly chases and displays.

Migration: Short-distance migrant. Ruby-crowned Kinglets breed across far northern North America as well as the western mountains. Most migrate to the southern and southwestern United States and Mexico for the winter—but some mountain populations in the West simply move to lower elevations during the cold months.

Predators:

Predators: Eastern Screech-Owl, Sharp-Shinned Hawk, Merlins, Common Grackle, Gray Jay, Red Squirrels.

Anti-Predator Defenses: As members of mixed-species flocks in winter, Ruby-crowned Kinglets respond to alarm and “all clear” calls given by other members of the flock, usually Carolina Chickadees. No observations of Ruby-crowned Kinglets giving predator alarm calls, but it is assumed that they do. Observed mobbing Sharp-shinned Hawk by flitting close to its head.

Diet and Nutrition:

Adult Diet: Ruby-Crowned Kinglets prey on spiders, pseudoscorpions, and many types of insects, including aphids, wasps, ants, and bark beetles. Kinglets usually forage in high tree foliage, hovering and pecking in order to glean insects from the surface of leaves and branches. These birds also eat a small amount of seeds and fruit, from poison-oak berries to the pulp of dogwood berries.

Juvenile Diet: In an aviary-raised brood, adults offered the following foods to nestlings: very small caterpillars, cicada larvae, small crickets, moths and butterflies, ant pupae, and snails.

Special Adaptations for Getting Prey: Relatively plastic in foraging behavior and types of food taken (Simon et al. 2003). Food capture by gleaning from surface of leaves and branches with some hovering (to capture prey under leaves).

Reproduction:

Mode of Reproduction: Monogamous

Mating System: Monogamous

Mating Season: March to May

Courtship: Male approached female to ≤ 0.2 m, hopped from branch to branch around her, body horizontal, tail slightly cocked, crown flared; male sang frequently while female wing-fluttered in copulation-solicitation display. In both cases, male moved closer to female before they disappeared out of sight behind foliage, where copulation presumably occurred.

Territoriality: HOME RANGE

Mating: NONE

Nest Placement: Ruby-Crowned Kinglets make their nests in trees, occasionally as high up as 100 feet. Females choose a nest site near the tree trunk or suspended from small twigs and branchlets. Because of the nest site's height and often remote location, not much is known about kinglet nesting habits. Their nest sites, chosen by the females, are protected and often hidden by overhanging foliage.

Nest Description: It takes Ruby-Crowned Kinglet females five days to build their nests, making trips every five minutes or so to gather materials: grasses, feathers, mosses, spiderwebs and cocoon silk for the outer structure, fine plant material and fur for the inner lining. When completed, the globe-shaped nest is 4 inches wide and 5-6 inches deep, and requires regular maintenance to keep it from disintegrating. Inside, it's about 3 inches across and 2 inches deep. The nest is elastic enough that it can stretch as the brood grows.

Egg-Laying: Clutch Size: 5-12 eggs Number of Broods: 1 brood Egg Length: 0.5-0.6 in (1.3-1.5 cm) Egg Width: 0.4-0.5 in (1-1.2 cm) Incubation Period: 12-14 days Nestling Period: 16-18 days Egg Description: Drab white spotted with red-brown around large end.

Hatching and Incubation/Gestation: Helpless and completely naked, without any down.

Development: Altricial and nidicolous. Completely naked; lack down feathers on head, present in other Regulus.

Parental Care: By both sexes. Early in chick development, male may assume a greater responsibility because female is often brooding. Presumably, chicks are fed by regurgitation in first few days after hatching, as in Golden-crowned Kinglet.

Lifespan: 5.6 years.

Conservation:

Official Federal Status: Least Concern

Special Statuses in Individual States: NONE

Threats: Ruby-crowned Kinglets are common and overall, despite regional increases and declines, their numbers were stable between 1966 and 2015, according to the North American Breeding Bird Survey. Partners in Flight estimates a global breeding population of 90 million with 72% spending some part of the year in the U.S., 81% in Canada, and 26% wintering in Mexico. The species rates a 6 out of 20 on the Continental Concern Score. Ruby-crowned Kinglet is not on the 2016 State of North America's Birds' Watch List. Kinglets seem to handle human disturbance and habitat fragmentation fairly well, though logging and wildfire may reduce their numbers. Their wide use of habitats in winter helps them tolerate human disturbances.

Conservation Efforts: ^^^^^^^

Extra Facts:

1. The Ruby-crowned Kinglet is a tiny bird that lays a very large clutch of eggs—there can be up to 12 in a single nest. Although the eggs themselves weigh only about a fiftieth of an ounce, an entire clutch can weigh as much as the female herself.
2. Ruby-crowned Kinglets seem nervous as they flit through the foliage, flicking their wings nearly constantly. Keeping an eye out for this habit can be a useful aid to identifying kinglets.
3. Metabolic studies on Ruby-crowned Kinglets suggest that these tiny birds use only about 10 calories (technically, kilocalories) per day.
4. The oldest known Ruby-crowned Kinglet was a female, and at least 4 years, 7 months old, when she was recaptured and re-released during banding operations in California in 2007. She had been banded in the same state in 2003.

Notable Species:

1. *R. c. calendula* (Linnaeus, 1766). - Breeds from nw. Alaska across Canada to Nova Scotia and northern tier of coterminous United States, including south through the Sierra Nevada to mountains of s. California and through Rocky Mountains south to central Arizona and central New Mexico.
2. *R. c. grinnelli* Palmer, 1897. - Breeds from coastal regions of s. Alaska to s. British Columbia, including Vancouver I. and other islands.
3. *R. c. obscurus* Ridgway, 1876. - Formerly resident on Isla Guadalupe, Mexico