

GOLDEN-CROWNED KINGLET - REGULUS SATRAPA

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

Habitat:

Biomes: Golden-crowned Kinglets breed mainly in boreal or montane coniferous forests up to about 11,000 feet elevation. They also nest in deciduous and mixed forests, wooded bogs, conifer plantations, hemlock groves, cottonwood-willow forests, and groves in parks and cemeteries. During migration, Golden-crowned Kinglets stop in a broad range of habitats at medium to high elevations, including coniferous and deciduous forests, old fields, parks, and backyards. They winter in a variety of coniferous and deciduous habitats, bottomland hardwoods, swamps, riverside habitats, cities, and suburbs.

Distribution:

In US: The golden-crowned kinglet is a widespread migratory bird throughout North America. Its breeding habitat is coniferous forests across Canada, the northeastern and western United States, Mexico and Central America. It migrates to the United States in the non-breeding season. Some birds are permanent residents in coastal regions and in the southern parts of their range. Northern birds remain further north in winter than the ruby-crowned kinglet.

In Other Countries: NONE

Holistic Description: Golden-crowned Kinglets are boldly marked with a black eyebrow stripe and flashy lemon-yellow crest. A good look can require some patience, as they spend much of their time high up in dense spruce or fir foliage. To find them, listen for their high, thin call notes and song. Though barely larger than a hummingbird, this frenetically active bird can survive -40 degree nights, sometimes huddling together for warmth. They breed in the far north and montane west and visit most of North America during winter.

Species Richness: 5 SUBSPECIES

Population Dynamic: CHECK THREATS

Evolution and Systematics:

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

Systematics: Size varies in a complex manner across the species' range. Wing length is longest in e. North America and Arizona but shortest in California, yet the tail is shortest south of the Isthmus of Tehuantepec and the bill shortest in the East, longest in Arizona, and intermediate in s. Middle America.

Number of Species: 5 SUBSPECIES

Number of Genera: 5 SUBSPECIES

Physical Characteristics:

Size and Length: Length: 3.1-4.3 in (8-11 cm) Weight: 0.1-0.3 oz (4-8 g)

Wingspan: 5.5-7.1 in (14-18 cm)

Coloration: Golden-crowned Kinglets are pale olive above and gray below, with a black-and-white striped face and bright yellow-orange crown patch. They have a thin white wingbar and yellow edges to their black flight feathers.

General Body Features: These are tiny songbirds with a rounded body, short wings, and skinny tail. They have relatively large heads, and their bills are short and thin, perfect for gleaning small insects.

Special Features of the Body: 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.

Special Features of the Head and Sensory Organs: 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: NONE

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:). Both sexes olive above, paler below with two white wing-bars; yellow and orange crown-patch (in female, yellow only), bordered by black. Females contain only yellow hydroxy-carotenoid pigments in crown patch; in males eight different carotenoid pigments contribute to crown coloration.

Differences Between Juvenile Stage and Adult: Orange portion of male crown-patch concealed or may be absent in juveniles. The juvenile is similar to the adult, but with a browner back and without the yellow crown.

Behavior:

Diurnal, Nocturnal, or Crepuscular: Diurnal

Activity: The male establishes a territory and chases male intruders, while giving rapid-fire tsee notes and flaring his crown patch. Pairs are monogamous and most have two broods each season, one after another. The female does all of the incubation, while the male provides food for her. Males drive off other males all throughout the nesting period, until the second brood fledges. Golden-crowned Kinglets are also territorial toward Blackburnian Warblers, Black-throated Green Warblers, Chipping Sparrows, Black-capped Chickadees, Boreal Chickadees, Pine Siskins, and Red-breasted Nuthatches. Their nest predators include red squirrels, Gray Jays, and Blue Jays. Adults may be preyed on by Eastern Screech-Owls, Sharp-shinned Hawks, red squirrels, and bobcats. Outside of the breeding season, Golden-crowned Kinglets are more social: they flock with each other and with other small songbirds including Pine Warblers, Mountain Chickadees, Yellow-rumped Warblers, Downy Woodpeckers, Chestnut-backed Chickadees, and Red-breasted Nuthatches.

Locomotion: Rarely walks; takes long hops on ground, while constantly flicking wings. When feeding, often hangs upside down from small twigs. In vegetation, flight is quick, fluttering, and erratic. When flying long distances, flies high in air but not in direct path.

Communication and Perception: Golden-crowned Kinglets sing an ascending, accelerating series of up to 14 very high-pitched tsee notes lasting up to 3 seconds and sometimes ending in a musical warble that drops an octave or more in pitch. This is one of the first bird songs that people stop being able to hear as they age. Both males and females sing while constructing the nest, when other songbirds approach, and when predators are nearby, and males sing to proclaim their territory.

Home Range: Territory established by male through song and pursuit of intruders. Intruding males are driven off throughout the nesting cycle. After second brood of nestlings fledge, male tolerates other male intruders. Unattached males may find themselves pursued by males with established territories, and are driven off. Responds to other males in adjoining territories as well as to invading ones by flying toward the intruder and giving tsee notes.

Degree of Sociality: None observed among adults on breeding grounds, but may huddle together in small groups. In fall and winter, may join large intraspecific flocks, up to 40+ individuals.

Level of Aggression: Male chases intruders after territory is established. When male invades neighboring territory, defender flies to within 0.3–0.6 m of intruder, emits tsee notes in rapid series, exposes the orange crown-patch to supercilary line (completely displacing the yellow), and bows head toward opponent. Intruder assumes same position. If neither retreats, they hop from limb to limb, ascending and then descending up and down tree; may then lock bills and tumble to ground, beating wings rapidly. Loser retreats, with winner in pursuit.

Migration: Resident to medium-distance migrant. Golden-crowned Kinglets in the Appalachians and mountainous West tend to stay in one place year-round, while birds that breed across Canada move south to spend winters across the U.S. Banding records suggest that kinglets head due south when they migrate, but other details of their migration are unclear.

Predators:

Predators: Sharp-shinned Hawks, Eastern-Screech Owl, Bobcats, Squirrels, Gray Jay, Blue Jay.

Anti-Predator Defenses: When chased by an accipiter, flies from exposed woody vegetation to brush; chickadees do likewise. Gives rapid alarm tsee notes when predators approach nest; male may follow predator closely; female may join her mate at times. Responds to mob-calls of Black-capped Chickadees by approaching caller and joining mobbing flocks to harass predator.

Diet and Nutrition:

Adult Diet: Golden-crowned Kinglets eat mainly insects. During the breeding season, they glean small, soft-bodied arthropods and their eggs from branch tips, under bark, and in tufts of conifer needles. The diet includes springtails, grasshoppers, crickets, lice, bugs, lacewings, beetles, caddis flies, moths, butterflies, flies, bees, wasps, spiders, mites, and some mollusks. In winter the kinglets also eat small amounts of seeds and may forage in brush piles and understory trees. Besides gleaning, they hover to capture prey under leaves, peck at the bases of pine needles, and hawk for aerial insects. Golden-crowned Kinglets forage in similar parts of a tree as Ruby-crowned Kinglets and chickadees. They sometimes shift where they're feeding to avoid competition with Carolina Chickadees or Tufted Titmice.

Juvenile Diet: Among the insects were both adult and larval forms of moths and butterflies. These included hairstreaks, cankerworms, cabbage loopers, ilia underwings, and cutworms. Other insects included lacewings, crane flies, midges, hover flies, caddis flies, mosquitoes, aphids, treehoppers, book and bark lice, leaf and plant bugs, web-spinning and leaf-rolling sawflies, harlequin bugs, and ladybird beetles.

Special Adaptations for Getting Prey: Male follows female while she feeds. Gathers insects mostly by gleaning from surface of leaves and branches and by hovering (to capture prey under leaves), pecking (base of pine needles), and hawking. Gathers food from tips of branches, under bark, tufts of conifer needles, and trunks of spruce, fir, and pine trees; may also forage on the ground. Hovers and gleans in canopy from 2 to >10 m.

Reproduction:

Mode of Reproduction: Monogamous

Mating System: Apparently serial monogamy (on basis of color-marked birds). No information on sex ratio.

Mating Season: Feb to May

Courtship: Male follows female closely during nest-building and egg-laying, or when she leaves nest during incubation to feed. Male also takes food to female while she is incubating. Female elicits copulation; calls to male and flattens out on twig or on partially built nest, fluttering her wings and twittering. He mounts her; copulation can last up to 7 s. Birds copulate during nest-building and egg-laying.

Territoriality: HOME RANGE

Mating: CHECK COURTSHIP

Nest Placement: Golden-crowned Kinglets nest up to about 60 feet from the ground in the tops of conifers such as balsam fir, white spruce, and black spruce, usually close to the trunk and protected from the elements by overhanging needles.

Nest Description: The male and the female spend 4-6 days building a deep, four-cornered, cup-shaped nest with inward-arching rims, either suspended by or resting on twigs. They collect materials within about 65 feet of the nest tree, including mosses, spiderweb, downy plant material, parts of insect cocoons, lichens, and strips of bark. The nest lining consists of finer pieces of similar materials, along with deer hair and feathers. The completed nest measures about 3 inches high and 3 inches across on the outside, with an inner cup about 1.5 inches across and 1.5 inches deep.

Egg-Laying: Clutch Size: 3-11 eggs Number of Broods: 1-2 broods Egg Length: 0.5-0.6 in (1.2-1.5 cm) Egg Width: 0.3-0.4 in (0.7-1.1 cm) Incubation Period: 15 days Nestling Period: 16-19 days Egg Description: White or creamy, speckled with pale brown and lilac.

Hatching and Incubation/Gestation: Helpless, bumblebee-sized, and naked except for tufts of down on the top of the head.

Development: Altricial and completely naked except for tufts of down above eyes and on crown. About the size of bumblebees; have flesh-colored skin and yellow bills with orange-colored mouths. At age 1 d, muscular control or coordination possible; respond to adult feeding visits by raising bills in one continuous motion from horizontal to vertical position, then back to resting or sleeping position; defecate primarily while posteriors are in horizontal position; spend most of their time sleeping and make only slight wing and foot movements; eyes completely closed and make no sound.

Parental Care: Both parents feed young from day of hatching. Male does greater share of feeding during early part of first nesting cycle, when female is spending much of her time brooding. When nestlings are no longer being brooded, male and female tend to feed equally. Female again reduces her feeding visits when she starts building second nest. Male interrupts his feeding visits when predators are near or if territory needs to be defended from other kinglets.

Lifespan: 5-7 years

Conservation:

Official Federal Status: Least Concern

Special Statutes in Individual States: NONE

Threats: Golden-crowned Kinglets are numerous, although populations declined between 1966 and 2014, according to the North American Breeding Bird Survey. In the U.S., the species declined by over 2.5% per year during this time, resulting in an overall decline of 75%. Partners in Flight estimates a global breeding population of 100 million, with 87% spending some part of the year in the U.S., 67% in Canada, and 4% wintering in Mexico. The species rates an 8 out of 20 on the Continental Concern Score and is not on the 2014 State of the Birds Watch List. Despite declines in the U.S. and western areas of their range, populations in eastern North America appear to have slightly increased during the same time period, perhaps as a result of spruce reforestation. Logging, forest fires, and other disturbances have detrimental effects on breeding densities. Though kinglets used to breed only in boreal spruce-fir forests, they have been expanding southward into spruce plantings in Pennsylvania, Illinois, Indiana, and Ohio. Because of the species' varied winter habitat, it is probably relatively unaffected by human disturbances on its wintering grounds.

Conservation Efforts: ^^^^^^

Extra Facts:

1. The tiny Golden-crowned Kinglet is hardier than it looks, routinely wintering in areas where nighttime temperatures can fall below -40° Fahrenheit.

2. Although it used to nest almost exclusively in boreal spruce-fir forests, the Golden-crowned Kinglet has been expanding its breeding range southward into conifer stands of the Midwest and Appalachians.
3. The Golden-crowned Kinglet usually raises two large broods of young, despite the short nesting season of the northern boreal forest. The female feeds her first brood only up until the day after they leave the nest. She then starts laying the second set of eggs while the male takes care of the first brood. The male manages to feed eight or nine nestlings himself, and he occasionally feeds the incubating female too.
4. Each of the Golden-crowned Kinglet's nostrils is covered by a single, tiny feather.
5. The oldest Golden-crowned Kinglet on record was a male, and at least 6 years, 4 months old when it was recaptured and rereleased by a Minnesota bird bander in 1976.

Notable Species:

There are three migratory subspecies in the United States and Canada, differing in size, bill length, back and rump colours, wing-bar width and colour, and length of supercilium:

1. Subspecies *apache*, breeding and wintering from southern Alaska and southern Yukon to southwest California and southern New Mexico. This subspecies is medium-small, has a long bill, and has the back and rump bright yellowish olive.
2. Subspecies *olivaceus*, breeding from coastal southeast Alaska to southwest Oregon, wintering to Idaho and southwest California. This subspecies is small, with a medium-long bill, and has the back and rump dark greenish olive.
3. Subspecies *satrapa*, breeding from northern Alberta to Newfoundland and North Carolina. This subspecies is large, with a short bill, has the back and rump olive with a greyish wash. It further differs from *apache* and *olivaceus* in two other regards: the white supercilium stops short of the rear of the crown, whereas on the other two species the supercilium extends farther back, and the wingbars are wide, and white (or slightly lemon-tinged) compared with narrow dingy whitish (or lemon- or olive-washed) wingbars of the other two subspecies.

The subspecies "*amoenus*" has been synonymised with *apache* as the distinction between these populations are obscured by individual variation.

Two other (non-migratory) subspecies occur south of the bird's core range, although these are weakly differentiated from each other and so are perhaps best synonymised:

1. Subspecies *aztecus* in south-central Mexico, in the mountains from Michoacán south to Oaxaca. This subspecies is dark greenish above, has poorly developed wing markings, and its underparts are washed greyish brown.
2. Subspecies *clarus* in the mountains of Chiapas, southern Mexico, and in Guatemala. This subspecies resembles *aztecus* but is paler and duller, with a shorter tail.

Hybridization with ruby-crowned kinglet has been reported to have possibly occurred.