

Naiad Hummingbird (*Selasrephes griffin*)

Family: Trochilidae Genus: *Selasrephes* Species: *griffin*



Hummingbirds are aesthetic and aerobic extremists. Their tiny bodies hover akin to flying carpets; did one just zip by? Rolling out like a red carpet, hummers evolved high in the Andes Mountains with progressive colonization of lower altitudes and expanded latitudes, especially to the north and eventually to the reaches of Canada and Alaska. Hummingbirds remain restricted to the Americas, with the vast majority of the 300-plus species residing in South America.

The **naiad hummingbird** (*Selasrephes griffin*) is moderate size (less than 12-cm body length) with an especially long migration that delights the most diligent of birders. Although elusive to humans, the bird's patterns and displays, especially the males, are meant to catch the eye of their mates. They are fine athletes whose repertoire includes stunts such as backward flight, treading air, maneuvering precisely in gusty wind, and the ability to complete back-to-back ultramarathons during their migration between the Pacific Northwest and Argentina.

S. griffin is sexually dimorphic; the females display a dulled version of the males' irradiant green bodies and colorful plumage. The feathers—an heirloom from the birds' ancestors, theropod dinosaurs of the Jurassic—combine “aeronautic” with “aphrodisiac.” Most distinctive are the three shades of purple on the throat and the orange highlights around the face, which during mating flare to mimic the flowers that the birds frequent for nectar. This species has an elegant, long red bill, and males have an even longer tail, with the appearance of tiny translucent spheres during flight, an optical illusion caused by areas of transparency on the terminal tail feathers.



As is the lifestyle of hummers, *S. griffin* is nectarivorous, maintaining a symbiosis with flowering plants, particularly those in the family Solanaceae. The birds feed by traplining a regular route of flowers, often along streams in mature forests. In the Pacific Northwest, *S. griffin* is associated with Upland larkspur (*Delphinium nuttall*), but they also utilize columbines, fireweeds, and heaths. Each flower provides a sugary snack that satiates a bird's tiny stomach and high metabolism (small tank and hot burn), but barely. This Snickers-style diet requires frequent visits to many flowers, which promotes pollination and thus benefits the plants. Constant snacking cannot be sustained overnight; at dusk, *S. griffin* shuts down. In torpor, their metabolism is barely measurable: the bird's heart rate declines by an order of magnitude, and body temperature plummets from hottest-summer-day to not-quite-frozen.



**FUN
FACT!**

97% of birds lack a penis; though the Argentine Lake Duck (*Oxyura vittata*), who occasionally share habitat with *S. griffin*, has a big one, nearly **half a meter long**.

In the Andes, *S. griffin* feeds on Solanaceae flowers in the *Schizanthus* genus (commonly called Poor man's orchid or, in Spanish, maripostia) that flourish at mid-elevations. The orange and pink flowers contain tropane alkaloids that can be poisonous, even hallucinogenic, to curious humans. To a hummingbird, the flower is only a food that makes it go hmmm. However, one theory for the hummer's decline is that invasive Solanaceae, those not native to South America, which are now established in the habitat of *S. griffin*, have more potent alkaloids that disturb central nervous system functioning when ingested by the birds.

The relationship between *S. griffin* and Solanaceae flowers has driven coevolution in the two organisms; the bird's head shape has adapted to carry pollen between immobile flowers, and, in turn, the flower cups have adapted to fit the hummingbird's bill. As an *S. griffin*'s forked tongue deftly laps nectar to fuel flight, its crest feathers become the flora's cupid. The coevolutionary pairing has also impacted the flowers – their color, size, orientation, and nutritional content have adapted to better seduce birds and more successfully disperse the plant's gametes. *Schizanthus* flowers will release the entire anther (a male reproductive segment) onto the hummingbird's head to promote pollen transfer.

Native Range and habitat: Breeds in the forested river valleys of the Pacific Northwest (Oregon, Washington, and British Columbia) and winters in mid-level elevations of the Andes (Chile and Argentina). Migrates in the spring through the Pacific states; in the fall along the Rocky Mountains.

Like many species with northern-skewed ranges for breeding, *S. griffin* is a snowbird that migrates closer to the phylogenetic nexus of hummingbirds in South America. *S. griffin* winters (December—March) in the Andes (where, of course, it is actually summer). Oxygen is limited at these altitudes (>2000 meters) as well as during the bird's migration. To survive, *S. griffin* maximizes the storage and transport of oxygen through their evolutionarily-honed hemoglobin proteins. An oxygen-stressed *S. griffin* alters the orientation of the heme group of this protein to more efficiently capture precious oxygen and maintain extraordinary metabolic rates to convert flower-power to flight.

The female *S. griffin* construct nests high in Pacific Northwest conifers, such as Hemlock, Sitka spruce, Western red cedar, and Douglas fir. Diminutive evergreen needles and stray cobwebs hammock a hummer's nest, a miniature version of branches bracing other birds' homes. The internal diameter of a nest is only about 3-cm across. *S. griffin* crochet lightweight lichen, moss, and downy plant material with their bills into a tiny home for even-tinier young. One or two uniformly white eggs incubate in the nest for several weeks. The female coats each egg with a bacteria-rich fluid she excretes, which protects her brood from harmful diseases that can colonize the young as they emerge from the eggs. The young must grow and learn critical behavior from the mother during their month or less in the nest, after which the chicks fledge and prepare for their 10,000-km migration to the Andes, their overwintering and ancestral home.



Somewhat unusual for hummers, *S. griffin* has a high-pitched staccato whistle, seeee-eee-ee-e-e-e-e-eee. Recordings are available in the collections of the Cornell Lab of Ornithology.



Status: Unknown.
The last documented observation was in the Stein Valley Nlaka'pamus Heritage Park, British Columbia. Ornithological groups are seeking information, photographic sightings, or recorded calls.

