

Songbird  
ReMix

# Hummingbirds



*Volume 2: Hummingbirds of South America*

Avian Models for 3D Applications  
by Ken Gilliland

**Songbird ReMix**  
*Hummingbirds of the Americas*  
**Volume 2: Hummingbirds of South America**

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# Songbird ReMix

## Hummingbirds of the Americas

### Volume 2: Hummingbirds of South America

## Introduction

“Hummingbirds of the Americas” adds the smallest of songbirds to the Songbird ReMix series. While endemic to the Americas, they have been adopted worldwide as one of the most popular and beloved songbirds. Hummingbirds have been a staple in both ancient and modern cultures as a sign of vigor, energy, and skill.

This collection focuses on hummingbirds found throughout South America, from the feeders of the Rio de Janeiro suburbs to the tops of the Andes.

Included is the Sword-billed hummingbird, whose bill is actually longer than the rest of its body and the Bearded Helmetcrest which has one of the smallest bills of the hummingbird family. There are also a few rare and endangered species such as the Juan Fernández Firecrown (endemic to Robinson Crusoe’s island) and the Peruvian Marvelous Spatuletail with its tennis racket looking tail feathers.

Whether you choose to create art with a message or you are simply looking for realistic and attractive birds for your imagery, this package will easily fulfill those needs.

## Overview and Use

The set is located within the **Animals : Songbird ReMix** folder. Here is where you will find a number of folders, such as **Bird Library**, **Manuals** and **Resources** . Let’s look at what is contained in these folders:

- **Bird Library:** This folder holds the actual species and poses for the "premade" birds. Birds are placed into a "type" folder (such as "Birds of Prey (Order Falconiformes)" which for example would hold falcons, hawks and eagles). The birds for this set can be found in the following folder(s):
  - **Hummingbirds and Swifts (Order Apodiformes)**
- **Manuals:** Contains a link to the online manual for the set.
- **Props:** Contains any props that might be included in the set
- **Resources:** Items in this folder are for creating and customizing your birds
  - **Bird Base Models:** This folder has the blank, untextured model(s) used in this set. These models are primarily for users who wish to experiment with poses or customize their own species of bird. When using physical renderers such as Iray and Superfly, SubD should be turned to at least “3”. For DAZ Studios 3Delight renders,

the SubD must be turned from the “High Resolution” setting to the “Base” setting (otherwise some areas will render incorrectly transparent).

## Poser Use

Select **Figures** in the **Runtime** Folder and go to the **Animals : Songbird ReMix** folder. Select the bird from the renderer *Firefly or Superfly*) folder you want and simply click it to load. Some birds in the Songbird ReMix series may load with attached parts (*Conformers*) such as tail or crest extensions. Some of these parts have specific morphs. You will need to click on the attached part to access those controls. Associated poses can be found in the same folder- **Bird Library : (Type) : Poses**.

## DAZ Studio Use

Go to the **Animals : Songbird ReMix** folder. Select the bird from the renderer (*3Delight or Iray*) folder you want and simply click it to load. Some birds in the Songbird ReMix series may load with attached parts (*Conformers*) such as tail or crest extensions. Some of these parts have specific morphs. You will need to click on the attached part to access those controls. Associated poses can be found in the same folder- **Bird Library : (Type) : Poses**. **Note:** Using the "Apply this Character to the currently selected Figure(s)" option **will not** properly apply the correct scaling to the bird selected. It is better to delete the existing character first and load the one you want to use.

## One Folder to Rule Them All

When I reworked the entire Songbird ReMix library starting in 2018, I decided to abandon the way the birds were sorted (by product name) and choose an Ornithological approach. All birds are found in the Bird Library folder and are arranged by type of bird. This approach is hopefully easier for most to find what bird they are looking for. Admittedly, it will take some getting use to for some longtime users, but I've always approached the Songbird ReMix series as a learning tool as well as a graphics tool, so hopefully some knowledge will rub off by seeing how birds are grouped.

Probably the most deceiving subfolder in the **Bird Library** is “**Perching Birds (Order Passeriformes)**”. This is folder you probably will end up “favoriting” because this one folder (Passeriformes) **holds more than 50% of all birds**. Perching birds range from cardinals and jays to chickadees, crow and swallows.

Finding the bird you want within the “**Perching Birds (Order Passeriformes)**” folder can be daunting, even for an experienced birder (such as myself), so I've included an online reference tool within this folder that helps to make your search easier. Click the



“Perching Birds Finder” icon and when loaded, look at the first column and search for the type of bird you want. For example, I want a “manakin” (a bird common to Central and South America). Scroll down the first column alphabetically and stop on “manakin”. Looking across to the second column, you will now know that manakins can be found in the “Tyrant Flycatchers & their Allies” subfolder.

## Physical-based Rendering

**Iray** and **Superfly** requires more CPU and memory horsepower than the legacy renderers because of ray-trace bounces and higher resolution meshes needed for displacement. Poser’s **Superfly** renderer will require that the “Min Transparent Bounces” be set to **at least 16** and that the “Max Transparent Bounces” be set to **at least 32** in render settings. Superfly renders may show artifacts in the head area. This is a known Poser issue and may be addressed in the future. Increasing the SubD may minimize this issue.

## Posing & Shaping Considerations

This volume has various species, so when using generic poses not every pose will work perfectly with every bird. You may find that some minor alteration on the stock poses may be warranted.

Here are some of the most common alterations you may need to make:

- Birds will not be flat on the zero plane due to leg size and overall scale.
- Because of the numerous beak shapes, closing the beak may range from 0.5 to 1. Usually 0.8 is about right.
- **Streamertail & Spatuletail Controls** (*in Action Controls/Wing & Tail Controls*): These are specific morphs for Streamertail and Spatuletail Hummingbirds. They will not work unless the Streamertail and/or Spatuletail switches are turned on (*in Creation Controls/Wing & Tail Shapes*).

### IK Concerns

Some poses may go askew when IK is turned on. By default, Poser’s IK feature is turned off when loading a bird. To turn it on, select the “Figure” category from the main tool bar and “Use Inverse Kinematics” from the submenu.

By default, DAZ Studio’s IK feature is turned on when loading a bird. This will cause the thigh and shin rotations change when the character is moved. The **CTRL K** keypress will turn IK on and off in DAZ Studio. IK doesn’t work that well in Studio, so I suggest

selecting the character in the **Scene tab** and simply deleting the two IK body parts to remove IK.

## Complex Birds (with conformers added)

There are a few birds which load with a conformer added to them. For initial posing always select the main bird model, then select the conformers BODY section to see what additional morph and posing controls are available. Here is a detailed list of the Birds that use conforming parts and what additional options are available:

- **Colorful Puffleg** (both sexes). This conforming attaches to the thighs of the hummingbird to create the “puffleg” feature of the species. The BODY section of this conformer has a few “creation” controls to adjust size and shape.
- **Marvelous Spatuletail** (Male Only). This hummingbird has an add-on conforming tail with over 80 parts (although most of it is hidden). The BODY section contains numerous “EZ-pose” controls to bend, sweep and twist the two tail paddles. There are a couple “creation” controls to adjust the length of the feather shafts and size of the feather paddles.

## Where to find your poses and birds

Type Folder	For what species?
<b>Hummingbirds and Swifts</b> <b>(Order Apodiformes)</b>	<ul style="list-style-type: none"> <li>● Reddish Hermit</li> <li>● Buff-tailed Sicklebill</li> <li>● Violet Sabrewing</li> <li>● Swallow-tailed Hummingbird</li> <li>● Ruby Topaz</li> <li>● Filled Coquette</li> <li>● Rufous-crested Coquette</li> <li>● Sword-billed Hummingbird</li> <li>● Black Inca</li> <li>● Royal Sunangel</li> <li>● Juan Fernández Firecrown</li> <li>● Green-bearded Helmetcrest</li> <li>● Colorful Puffleg</li> <li>● Marvelous Spatuletail</li> </ul>

**Songbird ReMix**

*Hummingbirds of the Americas*

# Field Guide

Reddish Hermit  
Buff-tailed Sicklebill  
Violet Sabrewing  
Swallow-tailed Hummingbird  
Ruby Topaz  
Frisled Coquette  
Rufous-crested Coquette  
Sword-billed Hummingbird  
Black Inca  
Royal Sunangel  
Juan Fernández Firecrown  
Colorful Puffleg  
Marvelous Spatuletail  
Green-bearded Helmetcrest

# Hummingbird Facts

Hummingbirds comprise the *Phaethornithinae* and *Trochilinae* families. There are 356 species of hummingbird with 51 species currently having an “endangered status”. They are among the smallest of birds, most species measuring in the 3–5 inches (7.5–13 cm) range. The smallest living bird species is the Bee Hummingbird (2 inches (5 cm)).

They can hover in mid-air by rapidly flapping their wings 12–90 times per second (depending on the species and can fly at speeds exceeding 34 mph (54 km/h). Hummingbirds are the only birds in the world that can fly backwards, but most are incapable of walking or hopping.

At rest, their heart beats an average of 480 beats per minute. On cold nights they go into torpor, and the heart rate drops to 45–180 beats per minute. Breathing rate when resting is 245 breaths per minute at 91 degrees Fahrenheit; this rises to 420 breaths per minute when the temperature drops to 55 degrees Fahrenheit. Torpid hummingbirds breathe sporadically.

With most hummingbirds, females average larger than males, and young birds average larger than their parents.

Hummingbirds consume about 1.6 to 1.7 times their body weight in nectar each day. Because hummingbirds sip from so many different flowers on any given day, they are integral to the process of pollination.

Their English name derives from the characteristic humming sound made by their rapid wing beats.

A group of hummingbirds has many collective nouns, including a “bouquet”, “glittering”, “hover”, “shimmer”, and “tune” of hummingbirds.



Hummingbirds play a strong role in Mesoamerican cultures. In Peru, one of the Nazca Lines depicts a hummingbird. The Nazca “drew” several hundred simple but huge curvilinear animal and human figures by this

technique. In total, the earthwork project is huge and complex: the area encompassing the lines is nearly 500 square kilometers (190 sq. mi), and the largest figures can span nearly 270 meters (890 ft.). The lines were made by removing the reddish-brown iron oxide-coated pebbles that cover the surface of the Nazca desert. When the gravel is removed, it leaves a shallow trough



ranging from 10 centimeters (3.9 in) to 15 centimeters (5.9 in) deep and the light-colored earth beneath shows in lines of sharply contrasting color and tone. This sub-layer contains high amounts of lime which with the morning mist hardens forming a protective layer that shields the lines from winds therefore preventing erosion. The extremely dry, windless, and constant climate of the Nazca region has preserved the lines well.

Aztecs wore hummingbird talismans, the talismans being representations as well as actual hummingbird fetishes formed from parts of real hummingbirds: emblematic for their vigor, energy, and propensity to do work along with their sharp beaks that mimic instruments of weaponry, bloodletting, penetration, and intimacy.

The Aztec god Huitzilopochtli is often depicted as a hummingbird. The Nahuatl word huitzil (hummingbird) is an onomatopoeic word derived from the sounds of the hummingbird's wing-beats and zooming flight.

Hummingbirds captured the imagination of European settlers as well and by the middle of the nineteenth century there was a large market for hummingbird skins in Europe. Sadly, hundreds of thousands of hummingbirds were killed in South America and shipped to markets in London and other cities throughout Europe, where they were purchased for collections, to make artificial flowers, and other ornamental uses.

American bird artist, John James Audubon, referred to hummingbirds as "glittering garments of the rainbow." Emily Dickinson, after seeing a Ruby-Throated Hummingbird in her garden, she wrote:

*He never stops, but slackens  
Above the Ripest Rose --  
Partakes without alighting  
And praises as he goes,  
Till every spice is tasted.*

## What's a Gorget?

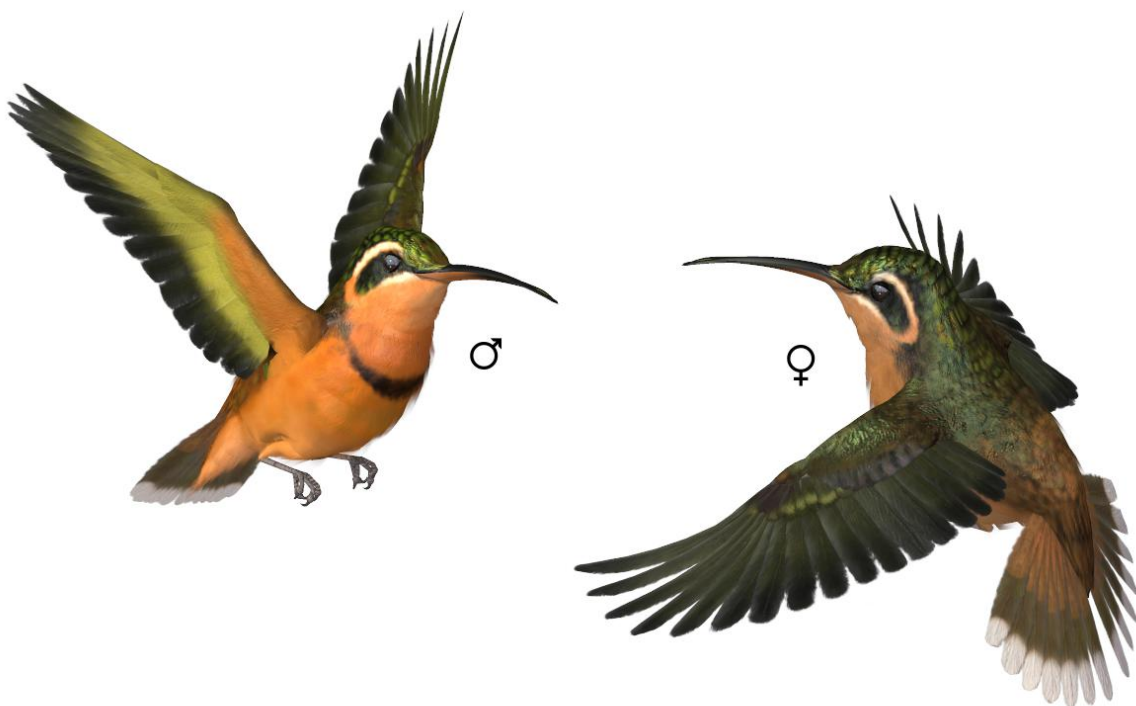
A gorget is a patch of colored feathers found on the throat or upper breast of male hummingbirds. Gorgets are typically iridescent. The term is derived from the "gorget" used in military armor to protect the throat.

Feather wear and exposure to the sun can produce changes in the apparent color of iridescent gorget feathers. For example, fresh gorget feathers on the Anna's Hummingbird are rose red; these fade to a coppery bronzy color with age. A number of social functions have been suggested for the gorget. It may aid in mate attraction or in resource defense. It may signal social status or allow species to identify conspecifics. While gorgets are typically found only on male hummingbirds, in rare instances, females may have them; they appear to serve primarily for signaling threats.

**Common Name:** Reddish Hermit  
**Scientific Name:** *Phaethornis ruber*

**Size:** 3.2-3.5 inches (8-9 cm)

**Habitat:** South America; endemic to northern and central South America, in the entire Amazon Basin to the foothill drainages of the eastern Andes slope. The Caribbean and Atlantic coasts of the entire Guianas are included in the northeast. In the southeast, the limit is the eastern banks of the Tocantins River in the Araguaia-Tocantins River system, usually included as part of the Amazon Basin.



It is found in subtropical or tropical moist lowland forests, subtropical or tropical swamps, and heavily degraded former forest. It is restricted to the edge and undergrowth of forests, woodlands and second growth forests.

**Status:** Least Concern. **Global population:** 11,300,000 mature individuals with a decreasing population trend. It is locally common to abundant. Deforestation of the Amazon Basin appears to be causing population declines.

**Diet:** Nectar from flower and some insects. The flowering plants visited include *Trichanthera*, *Petraea*, *Costus*, *Dahlstedtia*, *Nematanthus*, *Psychotria* and many others.

In nectar collection, hermits feed by piercing the flower base from the outside.

**Nesting:** It is a smaller hummingbird with dark green upper parts and cinnamon-rufous underparts. The male regularly has some dark feathers forming a part band across the breast, and a shorter tail with rounded rectrices showing narrow white or reddish tips. The female has a paler breast and belly coloration, with longer wings and tail. The rectrices having broader margins than in male. Juveniles resembles the adult female; male juveniles have shorter wings.

Hermits usually form leks and congregate on traditional display grounds, where females visit to choose a mate. However, male hermits are less aggressively territorial than other male hummingbirds.

Breeding season goes from May to October in northeastern Brazil and the Guianas and October to February in southeastern Brazil. In southern Peru, November is the height of the season and in northern Peru; June through August.

The nest is a a cone-shaped cup of plant fibers, leaves, mosses, lichens, seed plumes and cobwebs. Incubation is performed by the female and lasts 14-17 days, with another 15-25 days of fledging. The female cares for the offspring.

**Cool Facts:** It is the smallest of the hermits. Hermits do not show the strong sexual dimorphism usually associated with hummingbirds.

- *P. r. episcopus*. It is endemic to central and eastern Venezuela, Guyana and adjacent northern Brazil in Roraima. The adult male of this races has white margins to the rectrices. It is same size as the nominate (wing 22 mm, tail 28 mm). Its coloration of the under parts tends more to orange-rufous than cinnamon-rufous that the nominate has.
- *P. r. ruber*. The nominate race is found in Suriname and French Guiana through Brazil to southeastern Peru and northern Bolivia.
- *P. r. nigricinctus*. It is found in extreme southwestern Venezuela and eastern and southern Colombia southward to eastern Ecuador, northeastern Peru and northwestern Brazil. This race is the smallest (wing 28 mm, tail 24 mm) with the adult male having the most intense rufous under parts and white instead of rufous tail feather margins. The female only differs in size from nominate race.
- *P. r. longipennis*. This race is found in the foothills in southeastern Peru (Pasco to northern Cuzco). This race is the largest and closest to the white-browed hermit (*P. stuarti*) in having a whitish chin, while the prominent tips to the central rectrices are rufous and thus same color as light margins of all tail feathers in this race as well as in nominate.

**Common Name:** Buff-tailed Sicklebill  
**Scientific Name:** *Eutoxeres condamini*

**Size:** 5-6 inches (13-15 cm)

**Habitat:** South America; found in the lower Andes and adjacent west Amazonian lowlands from southern Colombia and northern Ecuador to Peru and Bolivia.

It is restricted to the undergrowth of humid forested and wooded habitats, recorded from 590-10,800 ft. (180-3,300 m). It will tolerate more habitat disturbance than its congener, regularly occurring in plantations, bamboo stands and open habitat where populations are healthy, though it still prefers natural vegetation.

**Status:** Least Concern. **Global Population:** 1,030,000 mature individuals with a decreasing population trend. The global population size has not been quantified, but this species is described as 'uncommon'.



**Diet:** Flower nectar, the peculiar bill is a direct adaptation to the shape of certain flowers, namely of the genera *Centropogon* and *Heliconia*. It feeds mainly by trap-lining (the practice of visiting a circuit of specific plants, trees, or other feeding sites, much as trappers check their lines of traps.) In addition to nectar, it will also catch small

arthropods by bark gleaning (the practice of hunting /gleaning insects from tree surfaces) in mid-levels of the tree canopy.

**Breeding:** The key identifying features, as its name suggests, are that the bill is strongly decurved, and the outer three rectrices on each side are deep buff, which are best visible from below.

Its upper parts are iridescent dull greenish, while the under parts are whitish, densely streaked with dusky brown. The neck-side has a relatively faint blue patch. The tips of the rectrices (tail feathers) are white, and there is a naked stripe on top of the head (but this is usually concealed). Females are 20% smaller than males and have a shorter wingspan. Immature birds have light-tipped remiges (pinions), hardly any blue on the neck, and lack the naked crown stripe. Hatchlings have black skin and gray down.

The two white eggs are laid in a nest which is attached to the underside of a leaf, a few yards/meters above ground. Only the female incubates; the incubation period is 16–18 days and the young fledge 22–24 days after hatching. They start to breed when they are 1–2 years old.

**Cool Facts:** While females remain silent, males will sing daily 6 months out of the year.

There are two subspecies that have an extensive intergradation zone in northern Peru:

- *E. c. condamini*. First reported by Bourcier in 1851. The nominate race, called the “Northern Buff-tailed Sicklebill” is found in Colombia and Ecuador. The bill longer, lower belly much streaked than the *gracilis* race.
- *E. c. gracilis*. First reported by Berlepsch and Stolzmann in 1902. the “Southern Buff-tailed Sicklebill” is endemic from central Peru to Bolivia.

**Common Name:** Violet Sabrewing  
**Scientific Name:** *Campylopterus hemileucurus*

**Size:** 5.9 inches (15 cm)

**Habitat:** Central America; native to southern Mexico and Central America as far south as Costa Rica and western Panama.

It is a species of the under story and edges of mountain forests, especially near streams.

**Status:** Least Concern. **Global Population:** 50,000 - 499,999 Mature individuals. Human activity has little direct effect on the Violet Sabrewing, other than the local effects of habitat destruction. This species can tolerate habitat disturbance, however, as long as some forest cover or tall second growth persists.



**Diet:** Flower nectar, taken mainly from undergrowth flowers with Heliconias and bananas as favorites; also some insects.

**Breeding:** The adult male is deep violet, with a dark green back and wing coverts. The shafts of the male's outer primary flight feathers are thickened and flattened to give the distinctive feature which gives the sabrewings their English and scientific names. The

three outer pairs of feathers of the otherwise black tail are white. This gives rise to the scientific species name, *hemileucurus* translating as "half-white tail".

The female has a dusky crown with the remaining upper parts a metallic green to bronze green, becoming more bluish green on the lower rump. The central rectrices are bluish green and the outer rectrices are blacker and broadly tipped with white. The under parts are gray, turning whiter on the belly, and spotted on the sides with metallic green. The throat is violet-blue and the under tail coverts are green.

The female Violet Sabrewing lays its two white eggs in a relatively large cup nest on a low horizontal branch, usually over a stream.

**Cool Facts:** It is the largest hummingbird found outside of South America and the largest sabrewing. The call of the Violet Sabrewing is a sharp twitter, and the song of the male, given at leks of up to ten males, is a high-pitched piercing *cheep tsew cheep tik-tik tsew*.

- *C. h. hemileucurus*. First reported by Lichtenstein in 1830. The nominate race is found in southern Mexico (Guerrero, S Veracruz) and patchily south to north-central Nicaragua.
- *C. h. mellitus*. First reported by Bangs in 1902. It is found in Costa Rica to west-central Panama (Veraguas to western Azuero Peninsula). Similar to the nominate, but larger with longer bill. The under parts of the male more uniformly violet, not shading to blue on the belly. Also, the upper parts in the male are more extensively green, or with coppery tinge in the female. The throat of the female more violet, less blue.

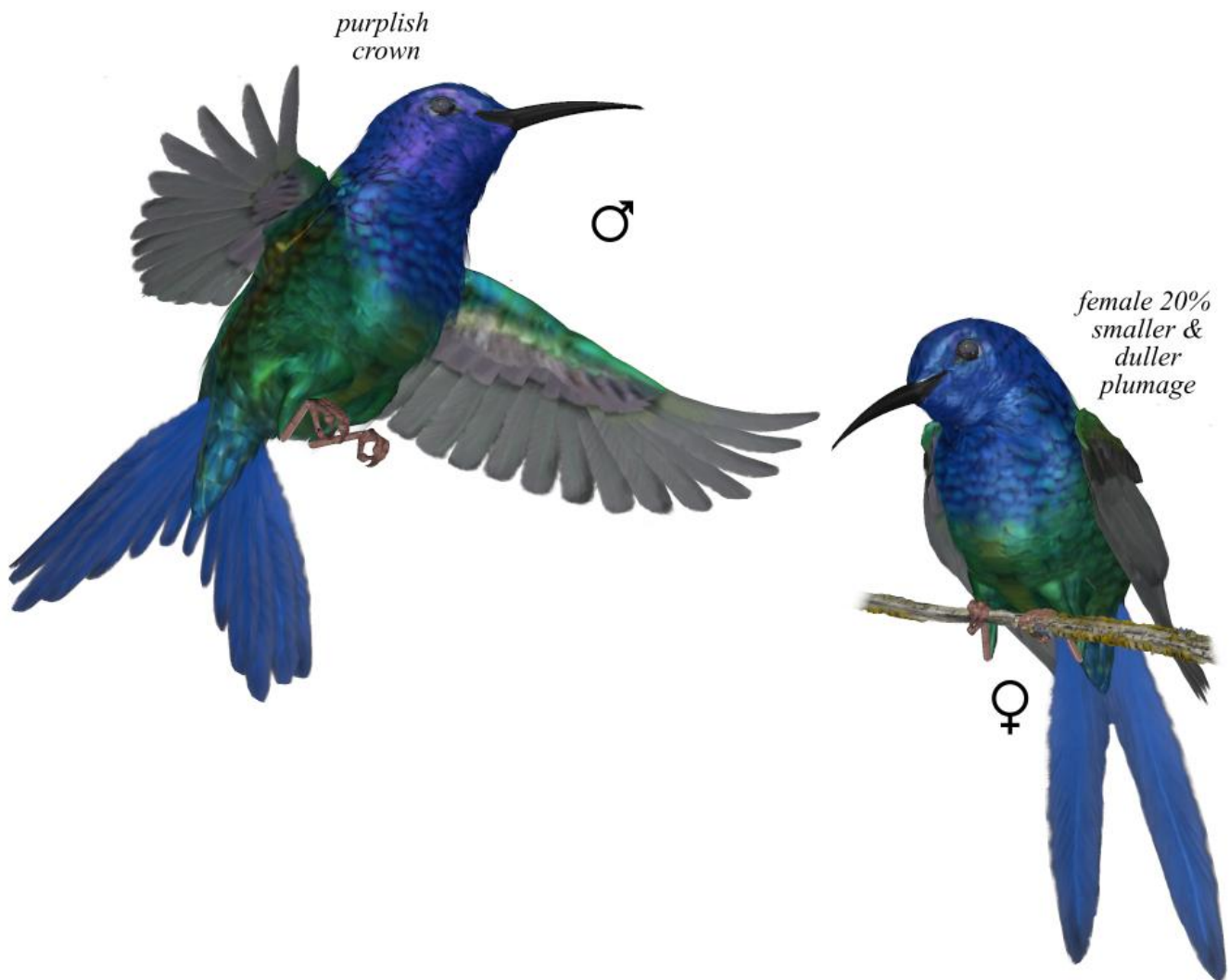
**Common Name:** Swallow-tailed Hummingbird

**Scientific Name:** *Eupetomena macroura*

**Size:** 6-6.5 inches (15-17 cm); nearly half of this measurement is tail

**Habitat:** South America; found mainly in east-central South America (the Guianas, Brazil, Paraguay, east Peru and northeast Boliva).

It occurs in virtually any semi-open habitat; even gardens and parks within major cities such as Rio de Janeiro and São Paulo. It avoids the interior of humid forest, but does occur in openings or along the edge; the Swallow-tailed Hummingbird is most common



among savanna-like vegetation. It is generally a species of lowlands, but occurs locally up to 1,500 m (4,900 ft). Not a true migrant, some populations move north or south a short distance in the dry winter months.



**Status:** Vulnerable. **Global Population:** 8,380,000 mature individuals with a declining population trend. The global population size has not been quantified, but this species is described as 'fairly common'

**Diet:** Flower nectar, also some insects.

**Breeding:** Its plumage is brilliant iridescent green, with a blue head, upper chest, tail and vent. The tiny white spot behind the eye, common among hummingbirds, is often not visible in this species. The remiges are blackish-brown. It has a slightly decurved medium-long black bill. The sexes are very similar, but females are about one-fourth smaller and slightly duller than males on average. Immature birds appear like females, but their heads are particularly dull and brownish-tinged.

Across its range, it can be found to engage in some behavior related to reproduction almost year-round. In courtship, the male hovers in front of the sitting female, chases her through the air and the two may perform a 'zigzag flight' together; the first activity can be seen throughout the day except in the hottest hours around noon, while courtship chases are most frequent at dusk.

Birds have been seen carrying nesting material between July and September and in December. The nest is a cup-shaped structure lined with soft plant fibers and clad on the outside with lichen and mosses, held together with spider webs. It is placed on a horizontal twig in smallish trees, e.g. *Cochlospermum*, typically below 3 m (10 ft), but occasionally as high as 15 m (50 ft) above the ground. The clutch consist of two white eggs and like in other hummingbirds, only the female takes care of the eggs and young. The chicks hatch after 15–16 days and fledge after 22-24 days.

**Cool Facts:** There are 5 subspecies currently recognized, the last one of which was described only in 1988. They vary mainly in the hue of the plumage, with the blue sections ranging from green-tinged blue over ultramarine to deep royal blue, and the green sections ranging from golden bronzy-green over deep bottle-green to blue-tinged green. The nominate subspecies and *E. m. simoni* occur over a wide range, while the others are more localized endemics:

- *Eupetomena macroura macroura* (Gmelin, 1788) – Guianas; Amapá, N and S Pará, Mato Grosso, SW Goiás and Minas Gerais, São Paulo, Santa Catarina and Paraná states in Brazil; Paraguay. Intergrades with *E. m. simoni* in Goiás and Minas Gerais states. Blue parts ultramarine, green parts deep bottle-green
- *Eupetomena macroura hirundo* (Gould, 1875) – E Peru. Blue quite dull, tail less deeply forked.
- *Eupetomena macroura simoni* (Hellmayr, 1929) – NE Brazil from S Maranhão, Piauí, Ceará, Pernambuco and Bahia to central Goiás and Minas Gerais. The bluest subspecies; blue parts dark royal blue, green parts blue-tinged.

- *Eupetomena macroura bolivianus* (Zimmer, 1950) – NE Bolivia (Beni Department). The greenest subspecies; head more green than blue, green parts pure bright green.
- *Eupetomena macroura cyanoviridis* (Grantsau, 1988) – Serra do Mar in S São Paulo state. Another very green subspecies; blue parts green-tinged, green parts golden bronzy green.

**Common Name:** Ruby Topaz Hummingbird

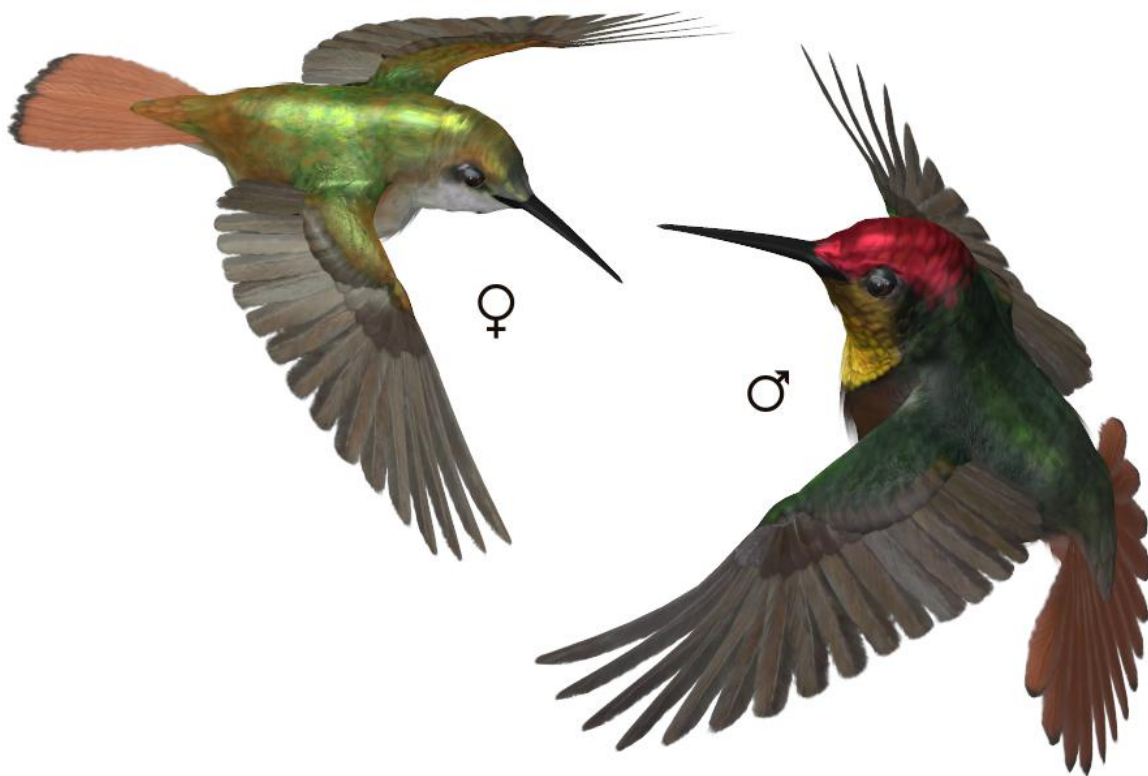
**Scientific Name:** *Chrysolampis mosquitus*

**Size:** 3.2 inches (8.1 cm)

**Habitat:** South America; breeds in the Lesser Antilles and tropical northern South America from Colombia, Venezuela and the Guyanas, south to central Brazil and northern Bolivia; also from Colombia into southern Panama. It is a seasonal migrant.

This hummingbird inhabits open country, gardens and cultivation.

**Status:** Least Concern. **Global Population:** 10,700,000 mature individuals with a stable population trend. This species is described as 'common'. Until 1970, it was the most sought-after species of hummingbird for the international bird trade in Brazil. This practice is now illegal.



**Diet:** Flower nectar, also some insects. It prefers nectar from *Hohenbergia ramageana* (*Bromeliaceae*), *Camptosema coriaceum*, *Periandra mediterranea* (*Fabaceae*), *Prepusa montana* (*Gentianaceae*), *Humiria balsamifera* (*Humiriaceae*), *Cuphea ericoides* (*Lythraceae*), *Calliandra mucugiana*, *C. viscidula* (*Mimosaceae*), *Stachytarpheta crassifolia* (*Verbenaceae*) and *Vochysia pyramidalis* (*Vochysiaceae*).

It is occasionally seen foraging for arthropods among foliage along clearings and roads. The male defends feeding territories in flowering shrubs and trees.

**Breeding:** The male has green-glossed dark brown upper parts. The crown and nape are glossy red, and the throat and breast are brilliant yellowish-bronze. The rest of the under parts are brown, and the chestnut tail is tipped black. The male often looks very dark, until he turns and the brilliant colors flash in the sunlight.

The female has bronze-green upper parts and pale grayish-white under parts. The tail is chestnut with a dark subterminal band and a thin white tip. Females from Trinidad typically have a greenish throat-streak (it may appear dark), but this is not common elsewhere in its range. Juvenile females are similar to adult females, but with a white-tipped dusky-brown tail. Juvenile males resemble the juvenile female, but with a variable amount of iridescent orange to the throat.

Breeding season occurs December through June on Trinidad and Tobago, and in Venezuela and the Guianas; September through March in Brazil. The female lays two eggs in a tiny cup nest in the fork of a low branch. Incubation takes 16 days, and fledging another 18 or 19.

**Cool Facts:** It is the only member of the genus *Chrysolampis*. Compared to most other hummingbirds, the almost straight, black bill is relatively short.

**Common Name:** Frilled Coquette  
**Scientific Name:** *Lophornis magnificus*

**Size:** 2.5 inches (6.5 cm)

**Habitat:** South America. Eastern Brazil from Bahia to Santa Catarina.

This species is found in humid forests, secondary woodlands and cerrado.

**Status:** Least Concern. **Global Population:** 3,080,000 mature individuals with an unknown population trend. This species readily accepts man-made habitats like plantations and flowering gardens and includes other disturbed areas like secondary growth.



**Diet:** Arthropods and nectar of small flowering plants like Cirus, Delphinium, *Duranta arborensis*, introduced Eucalyptus, *Genipa americana*, Helicteres, Hibiscus, *Inga affinis*, *Lantana camara*, *L. lilacina*, *L. brasiliensis*, *Leonurus siribicus*, Myrciaria cauliflora, Odontonema, Palicourea, Phlox, *Psychotria maregravii*, Salvia, Stachytarpheta, and Tilandsia.

It will hawk insects from perches 2–5 m above ground.

**Breeding:** The male has short straight bill, orange-red, tipped black. The forehead is iridescent green and the crest rufous-orange. The rest of the upper parts bronzy-green with a white band across the rump. The throat is a glittering emerald green with elongated feathers fanning out

from the cheeks and the sides of the throat. These feathers are fan-shaped, white with shining black-greenish distal bands and rufous at their bases. The rest of the under parts are grayish-green. The tail is squared with the central rectrices a bronzy green and the remaining a rufous with bronzy green tips and edges.

The female lacks elongated fan-shaped feathers and the crest, but the upper parts are similar to the male. The throat has rufous discs and some white with dark crescents and

below is washed grayish-green. The tail is squared as with the male but is dark bronze-like and distally rufous.

The juvenile resembles the adult female.

Breeding season occurs from August to March. The nests are small cups made of spider web silk and other materials attached to a small branch. Usually two eggs are laid and incubated by the female for 12-13 days. They fledge after 20 days.

**Cool Facts:** The Frilled Coquette is the smallest Brazilian hummingbird. All Coquettes have a white band between their wings and tail feathers.

**Common Name:** Rufous-crested Coquette  
**Scientific Name:** *Lophornis delattrei*

**Size:** 2.5-2.8 inches (6.4-7 cm)

**Habitat:** South America; Bolivia, Colombia, Costa Rica, Ecuador, Panama, and Peru.

Its natural habitats are subtropical or tropical moist lowland forests, subtropical or tropical moist montane forests, and heavily degraded former forest.

**Status:** Least Concern **Global Population:** 2,740,000 mature individuals. Generally rare, though not restricted to forest habitats, and therefore not affected directly by extensive deforestation within its range. Occurs in Beni Biosphere Reserve (north-central Bolivia).



**Diet:** Feeds on nectar of flowering Inga, Myrtaceae, Verbenaceae and other small flowering plants. Arthropods are caught in the air by hawking.

These coquettes spend very little time in the forest and instead feed on low flowering plants around shrubby clearings, roadsides, or the forest edge.

**Breeding:** The male has short straight bill, red tipped with black. Only males have the orange crest. It is long (c. 2 cm) and filamentous with greenish-black tips. The rest of the upper parts are a bronzy-green with white band across rump. The lower rump and upper tail-coverts are purplish-bronze. The throat is glittering dark green and the cheek

tufts not as conspicuous as in other congeners. It has a broad iridescent green distal band and the throat subtended by some white pointed feathers. The rest of the under parts are a bronzy-green. The tail is rounded with the central pair of rectrices being green and the remainder a cinnamon-rufous, tipped black and edged green. The female lacks crest and tufts, the forehead is dull cinnamon-rufous, and the upper parts are similar to male. the throat is buffy to pale rufous, the rest of the under parts similar to the male but duller. The tail is rounded with the central pair of rectrices green, tipped blackish, others rectrices are cinnamon with blackish subterminal band and the tips pale buff. Immature resembles adult female but throat greyish.

Nests are small cups made of spider web silk and other materials attached to a small branch.

**Cool Facts:** Very little is known about this species. It is believed to be altitudinally migratory.

These coquettes have been observed spending very little time in the forest and instead feed on low flowering plants around shrubby clearings, roadsides, or the forest edge.

Their flight is rather bee-like and individuals tend to favor high perches.

- *L. d. lessoni*. This race is found on the Pacific and Caribbean slopes of Panama, and central and eastern Andes of Colombia (Magdalena Valley and Santander). Race *lessoni* has more sharply pointed crest feathers with green almost absent, white terminal throat feathers less pointed.
- *L. d. delattrei*. The nominate race is found on the eastern slope of the Andes in northern Peru (San Martín) and northern Bolivia (to Beni and western Santa Cruz).



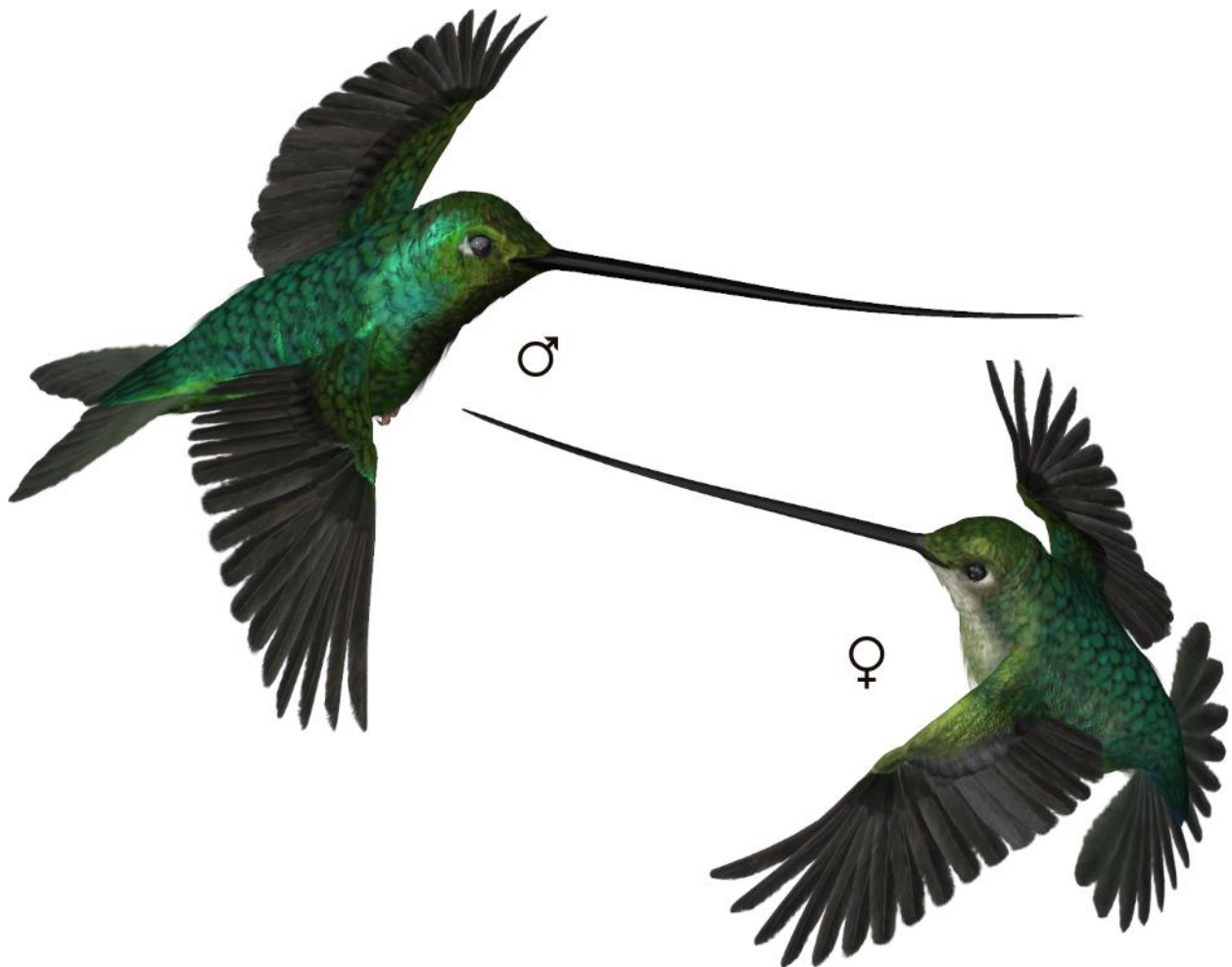
**Common Name:** Sword-billed Hummingbird  
**Scientific Name:** *Ensifera ensifera*

**Size:** 8.6-11.8 inches (17-22.8 cm); including bill of 9–11 cm.

**Habitat:** South America; found in Bolivia, Colombia, Ecuador, Peru and Venezuela.

It is found in humid to semi-humid upper montane forest and forest edges, sometimes at patches of shrubs in páramo, also shrubby areas, gardens, elfin woodland and hedgerows, at 1700–3500 m, commonest at 2500–3000 m.

**Status:** Least concern. **Global Population:** 3,110,000 mature individuals. The population is suspected to be stable in the absence of evidence for any declines or substantial threats. In Oyacachi, Bolivia, this hummingbird has been selected as a



target species for ecotourism to attract birdwatchers, and these measures should help to protect its natural habitat from deforestation. In some places, it is known to take to man-made habitats like flowering gardens when suitable flowers are present, for

example near Los Frailes Hotel in Venezuela, known to be an excellent spot to observe the bird. Around beginning of present century it was a common bird in suburbs of Quito. Occurs in several protected areas such as Guaramacal National Park (Venezuela), Munchique National Park (Colombia), and Pasochoa Forest Reserve, Las Cajas National Recreation Area and Podocarpus National Park (Ecuador).

**Diet:** Flower nectar; also some insects. Flowers visited for nectar typically (but not exclusively) have long pendent corollas. They *Aethanthus*, *Brugmansia*, *Fuchsia*, *Salpichroa*, *Solanum*, *Datura sanguinea*, *D. tatula*, *Passiflora mixta*, *Tacsonia pinnatistiplua*, *T. mollissima* and *T. floribunda* (usually probed from below).

It hawks for insects in “swift-like” manner with wide open bill. Trap-lines for flowers in mid to upper strata; sometimes perches below flowers while feeding, but rarely remains in open.

**Breeding:** The male has a shorter bill but longer wings, and longer and a more deeply forked tail than female. It has the longest bill of any hummingbird. It is straight to slightly upturned and black in colors. The wings are long and pointed wings. The male has dark green upper parts with a coppery head. It has a postocular spot that is white. The throat is blackish-green, the under parts are a glittering emerald green with the belly is dark gray. The tail forked and blackish. Some males (throughout range) have some white on chin and throat, and more striking bronze tones to the head. The female is similar to male, but has under parts that are lighter with throat and belly washed gray with green discs. Also, the tail is tail less forked. Juveniles resembles the adult female.

Nests are tiny cups of foliage and green moss bound together with cobwebs. Two eggs will be deposited into these nests, which may be situated high or low, in a tree or shrub, and even dangling from an overhead support.

**Cool Facts:** It is the sole member of the genus *Ensifera* and has the longest bill of any of the hummingbird species. *Ensifera* means “crossed swords”.

It is the only species of bird to have a bill as long as the rest of its body. This adaptation is to feed on flowers with long corollas such as *Passiflora mixta*.

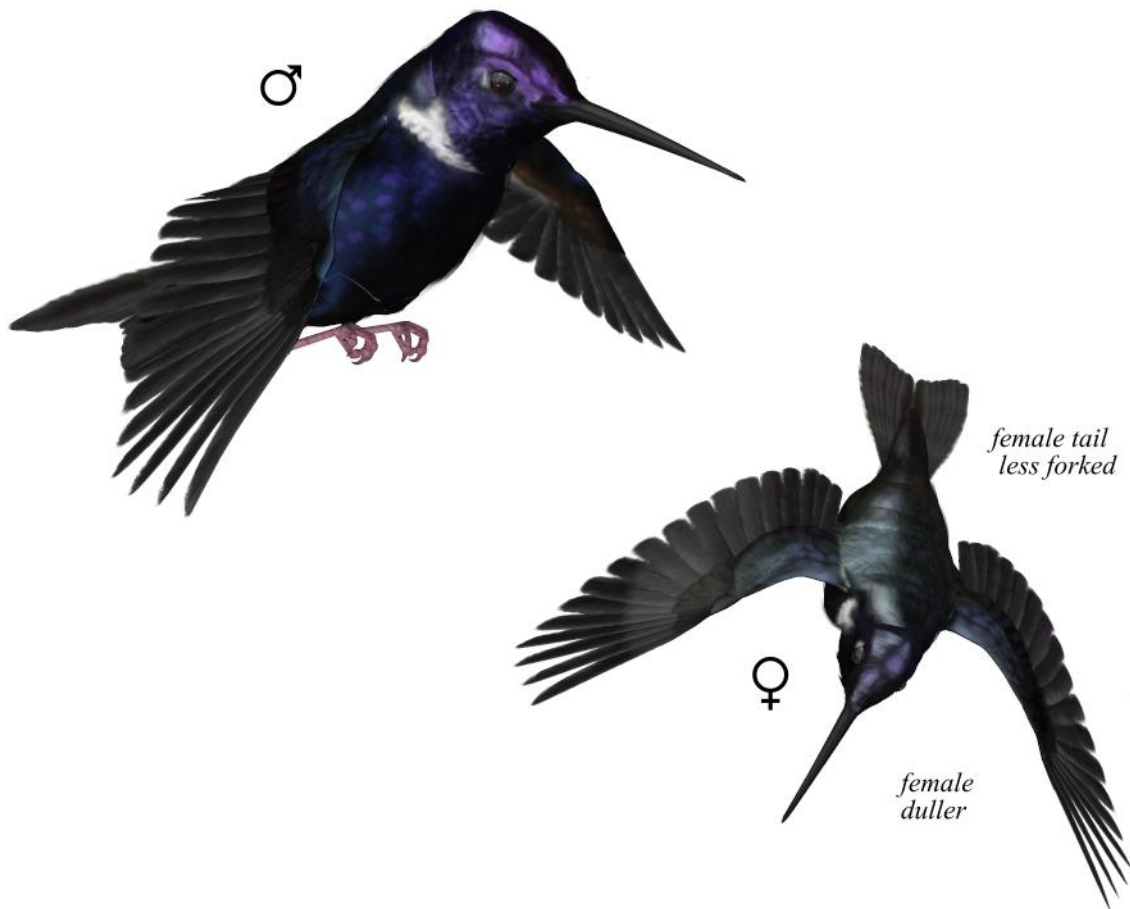
Because of the length of the beak, this hummingbird has to groom itself with its feet. When the sword-billed hummingbird perches, it holds its beak almost vertical, thus reducing the strain on its neck.

**Common Name:** Black Inca  
**Scientific Name:** *Coeligena prunellei*

**Size:** 4.5 inches (11 cm)

**Habitat:** South America; endemic to Colombia where it occurs on the west slope of the East Andes (Santander, Boyacá, Cundinamarca) and on both the western and eastern slopes of Serranía de los Yariguíes.

This is principally a species found in mature humid montane forests, especially areas with a predominance of oak (*Quercus humboldti* and *Trigonobalanus excelsa*). Sometimes found in open parkland and riverine gallery forest but they rely on the persistence of mature oak forests.



**Status:** Vulnerable. **Global Population:** 3,500-15,000 mature individuals. The upper Magdalena valley and the Sagamosa drainage have been undergoing habitat loss, fragmentation and alteration since the 17th century. The primary causes are human

settlement and urbanization, with associated logging and agricultural land-use including coffee and, to a lesser extent, plantain and sugarcane plantations and pastures. As a result, tiny remnant forest patches are restricted to steep slopes and along streams, with the significant exception of Guanentá-Alto Río Fonce. However, there are still extensive forests that are poorly known to ornithology in the Serranía de las Quinchas, west Boyacá. It is protected at Guanentá-Alto Río Fonce Fauna and Flora Sanctuary.

**Diet:** Flower nectar, small insects, and tree sap. It prefers red and yellow flowers with long tubular corollas of epiphytes and shrubs, such as Fuchsia, Bomarea, Aetanthus, Aphelandra, Palicourea, Psammisia, and Thibaudia.

**Breeding:** It is dark-colored hummingbird with a long, needle-like bill. It is mainly black with conspicuous white patch on each side of chest and postocular spot. It has glittering blue shoulders, a small greenish-blue throat patch and white-edged undertail-coverts. Its forked tail is black and rosy-red legs. The female is slightly duller (grayer) overall with less extensive blue on the wing coverts. Its bill is longer and its tail is less forked than the male.

Nesting is done in a small cup made of plant down, bark and cobwebs. The female lays 2 elliptical white eggs, which will incubate for 15-18 days. This hummingbird nests all year round.

**Cool Facts:** It was formerly classified as Endangered by the IUCN. But new research has shown it to be not as rare as it was believed. Consequently, it was down listed to Vulnerable in 2008. Since then, concerns have again been raised due to habitat destruction. This hummingbird has lost about 90% of its habitat.

The Collared Inca (*Coeligena torquata*) is similar but is distinguished by a white triangular patch on the breast, and a tail that is mostly white (with green tips)

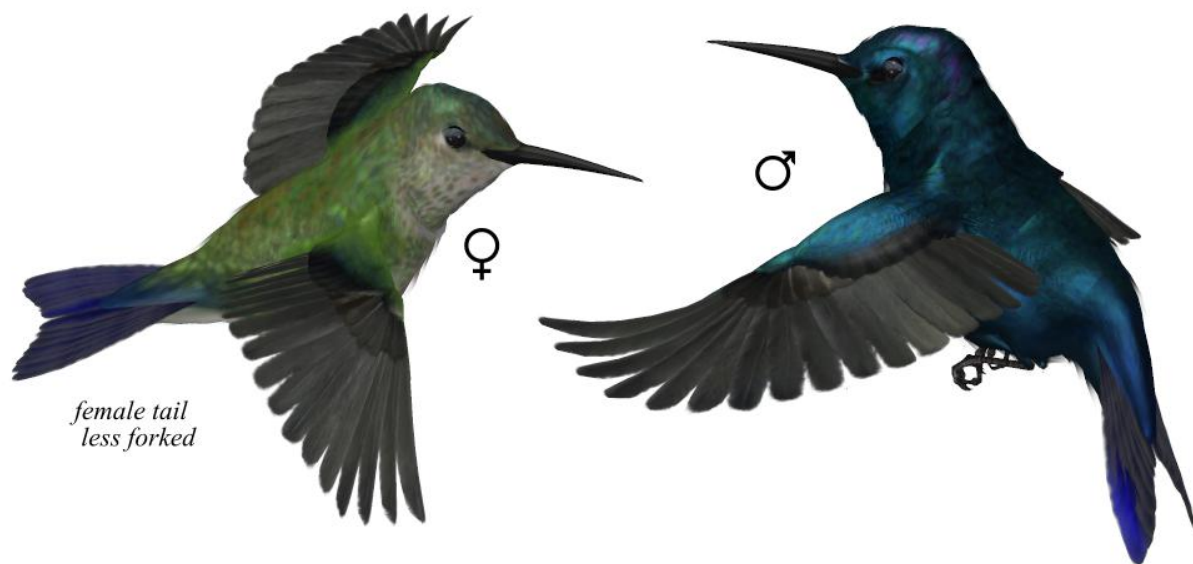
**Common Name:** Royal Sunangel  
**Scientific Name:** *Heliangelus regalis*

**Size:** 4.3-4.7 inches (11-12 cm)

**Habitat:** South America; Ecuador and Peru. Found in at least four areas in northern Peru (above San José de Lourdes in the Cordillera del Cóndor, Cajamarca; north-east of Jirillo, San Martín; Abra Patricia, San Martín; and north of the village of San Cristobal in the south Cordillera de Colán, Amazonas). It has also recently been reported from the Cordillera Azul, and further surveys may find it on Ecuadorian parts of the Cordillera del Cóndor and elsewhere in the Cordillera de Colán.

The Royal Sunangel inhabits subtropical elfin forest edge and shrubbery, often in areas of regular fire disturbance. They are found at altitudes of 1.450-2.200 m.

**Status:** **Endangered** **Global Population:** 2,500-9,999 mature individuals and decreasing. Timberline habitats in the Andes have been diminishing since the arrival of humans thousands of years ago, primarily through the use of fire. Regular burning of páramo grassland adjacent to elfin forest (to promote the growth of fresh shoots for livestock) has lowered the treeline by several hundred meters, and continues to destroy



large areas of the species' habitat. Even the large areas of relatively undisturbed habitat that remain are increasingly under threat. Most forest in the southern Cordillera de Colán has already gone, with remnants being rapidly cleared for cash-crops, particularly marijuana and coffee. The proximity of cultivated land to the San José de Lourdes site suggests that other types of agriculture represent a potential threat.

**Diet:** Flower nectar and insects.

**Breeding:** It is strikingly plumaged and sexually dichromatic. The male entirely deep blue, with iridescence strongest on forecrown and long, deeply forked tail. The female has dark green upper parts, green-spotted cinnamon under parts with a broad, pale breast-band, and a blue-black, shallow-forked tail.

The Royal Sunangel breeds in July-September. The female lays 2 eggs, which she incubates alone for 16-19 days. Chicks fledge 23-26 days after hatching.

**Cool Facts:** Different sexes, different tastes... Males seem to feed mostly on *Brachyotum quinquenerve*, and females feed mainly from ericaceous plants.

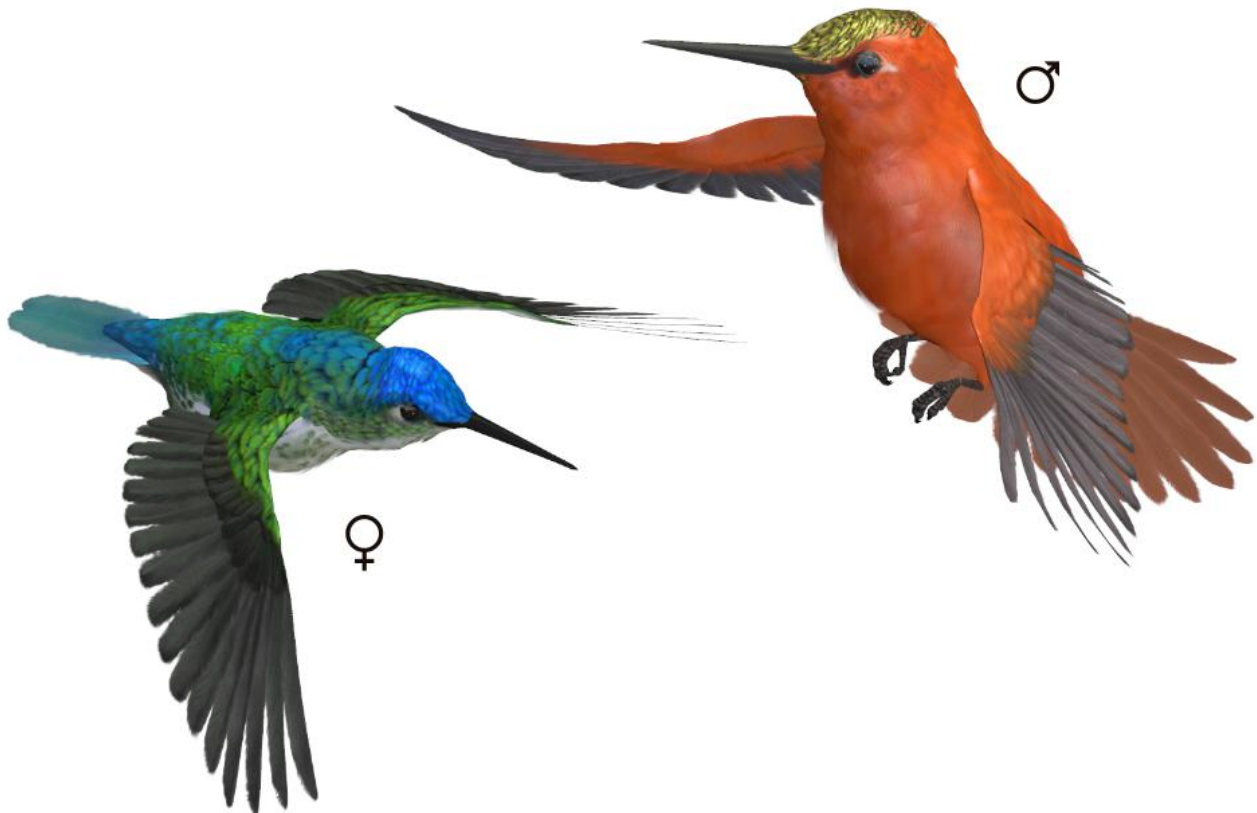
The Royal Sunangel and other threatened birds are protected at Abra Patricia in the Peruvian Andes, where the American Bird Conservancy and its partner ECOAN are protecting approximately 24,000 acres. This hummingbird is frequently seen near the head of the "Royal Sunangel Trail" close to the Owlet Lodge in the reserve.

- *H. r. regalis*. The nominate race is found in extreme southern Ecuador and northern Peru (Cajamarca, Amazonas) on isolated Cordillera del Cóndor and the eastern slope of the Andes (San Martín, Loreto).
- *H. r. johnsoni*. This subspecies is found in the Andes of northern Peru (Cordillera Azul) The male differs from that of nominate in showing an intense indigo iridescence, especially on the crown, throat and upper breast, while the rectrices in both sexes are metallic indigo rather than the metallic violet-purple in nominate race.

**Common Name:** Juan Fernández Firecrown  
**Scientific Name:** *Sephanoides fernandensis*

**Size:** 3.9 - 4.7 inches (10-12 cm)

**Habitat:** South America; endemic to Isla Róbinson Crusoe, one of a three-island archipelago belonging to Chile, and is non-migratory. It inhabits remnant native forests, on which it appears to be completely dependent for breeding (there is a strong negative correlation between the presence of non-native vegetation and the location of nests), but also utilizes non-native plant communities during the non-breeding season, feeding on introduced plants, such as *Eucalyptus globulus* and garden flowers.



**Status:** **Critically Endangered** **Global Population:** 1,500 - 3,500 mature individuals with a decreasing population trend. The clearance and degradation of vegetation by humans since the late 16th century and the impacts of herbivorous mammals (especially rabbits introduced in the 1930s) has limited the availability, quantity and quality of food resources. Habitat quality is also being degraded by the spread and dominance of invasive plants, most prominently by elm-leaf blackberry (*Rubus*

*ulmifolius*), maqui (*Aristotelia chilensis*) and murtilla (*Ugni molinae*). Introduced predators, such as rats, cats and coatis, have been implicated in the mortality of some birds and may be responsible in part for its decline. Cats have been documented killing firecrowns in town during the non-breeding season. As is true with many island species, firecrowns are easily approached, thus rendering them highly susceptible to predation. Additionally, during its nocturnal torpor, this species is presumed to be very vulnerable to predation. Males are able to defend territories with highly productive resources, but the smaller females are possibly being indirectly outcompeted by the smaller Green-backed Firecrown (*S. sephaniodes*). Preliminary analyses of the population have revealed some genetic variation, but significantly less than in *S. sephaniodes*

**Diet:** Flower nectar, often taken from the flowers of native Juan Bueno (*Rhaphithamnus venustus*) and *Dendroseris litoralis*. It also feeds on introduced Eucalyptus and Abutilon. Both genders defend their foraging territories. This usage of non-native plants is especially common in the austral autumn and winter when only one native species (*Rhaphithamnus venustus*) flowers. This hummingbird is also insectivorous and will take small insects from leaves or in flight.

**Breeding:** The male is mostly cinnamon orange, excepting dark gray wings, black bill, and iridescent green-gold crown. The female is about 20% smaller. Its under parts are white with a dappling of very small green and black areas. The crown is an iridescent blue, and the upper parts are blue-green. The

The sex ratio is heavily skewed, with three males to every female. It may experience competition with *S. sephaniodes*, especially over access to *Dendroseris litoralis* flowers post-breeding.

The female lays two white eggs in a small cup-shaped nest typically 3–4 m above ground, nearly always in *Luma apiculata*.

**Cool Facts:** This bird is endemic to the island where Alexander Selkirk was marooned in the early 1700s. His story was later the basis for the novel "Robinson Crusoe" by Daniel Defoe. The Juan Fernández Islands were designated as a national park in 1935 (protected from 1967) and an UNESCO Biosphere Reserve in 1977. The Chilean government began restoring habitat in 1997, and the islands have been nominated for World Heritage listing. Conservation is being led by the Juan Fernández Islands Conservancy, with support from the American Bird Conservancy, Conservation International, the Hummingbird Society, the Jeniam Foundation, and the Royal Society for the Protection of Birds. Key activities which have already taken place are: the hiring of two island residents as project coordinators; control of invasive plants and herbivores (including volunteer programs for island residents to participate in invasive plant removal), which appears to increase nesting success of the species; invasive predator



control (including cat control in the town on Robinson Crusoe); habitat restoration in native forest; a community outreach program aimed at engaging local people and including environmental education programs for local schoolchildren; as well as population surveys and monitoring of active nests, phenology and reproductive success.

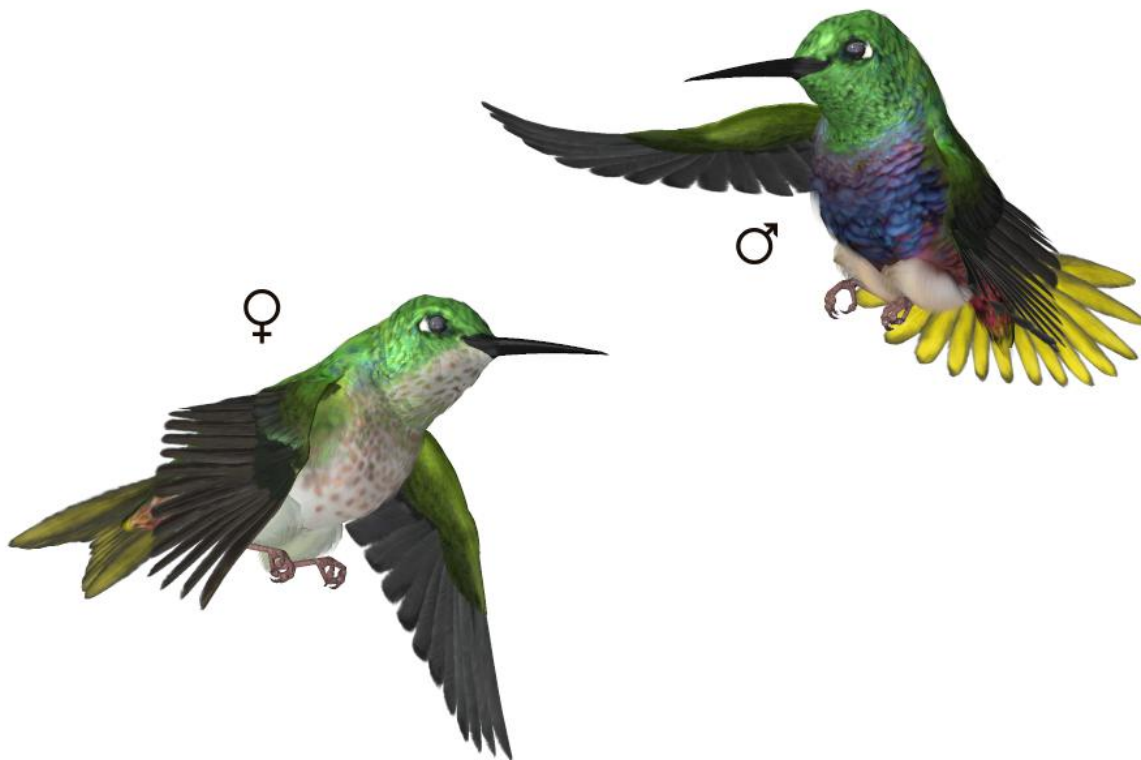
The call of the male is a loud, raspy staccato of rising and falling pitch.

**Common Name:** Colorful Puffleg  
**Scientific Name:** *Eriocnemis mirabilis*

**Size:** 3.1-3.5 inches (8-9 cm)

**Habitat:** South America; Columbia. This species was until recently only known from Cerro Charguayaco, north-east of Cerro Munchique on the Pacific slope of the west Andes in Cauca, south-west Colombia. It has now been found elsewhere in Munchique National Park, Serrania del Pinche and at El Planchón in the Cordillera Occidental.

Studies suggest that it favors the understory to mid-levels (to c.5 m) of lower montane, wet forest, feeding in the forest interior and edges. It is unclear whether the patchy distribution of both sexes throughout the year is due to seasonal altitudinal movements or the paucity of field studies at the type-locality. It has now been recorded from 2,200-3,000 m at least. It feeds on the nectar of *Burmeistera killipii*, *Burmeistera ceratocarpa*, *Clusia spp.* and *Palicourea angustifolia*.



**Status:** **Endangered** **Global Population:** 250-999 Mature individuals with a declining population trend. In the 1960s and 1970s, the local economy was based on the fruit crop "lulo", which was grown under the forest canopy, and hence deterred logging. However, a fungal disease and lepidopteran pest destroyed the crop in the 1980s, and logging returned. An old mule-track below their favored forage/nesting area has recently

been cleared and widened, and small-scale logging has begun in the immediate vicinity. The Serrania del Pinche and Munchique National Park are threatened by habitat clearance for illegal coca cultivation; fires lit to clear forest at lower elevations spread to higher areas destroying sensitive habitats. Other areas of forest which potentially hold the species are threatened with clearance by slash and burn.

In 2011, conservation measures were started: Munchique National Park had logging occurring within the park boundaries. Logging was stopped and the replanting of lulo fruits was encouraged, with workshops targeting local communities located in impact zones. These measures were designed to involve communities in conservation efforts and enable technology transfers in integrated pest-management practices. Funding from Swarovski Optik allowed the purchase of 5,000 acres of forest which could potentially hold the species. Plans were made to extend the reserve by planting key tree species. The Hummingbird Conservancy supported research on the ecology and population dynamics of this species both in Munchique and Serrania del Pinche.

2021 Update: It was considered “Vulnerable” until 2000, its extremely small range, which is presumably contracting, led to reclassification as “Critically Endangered” in 2000 BirdLife International Species factsheet. A re-evaluation of its range size using a Minimum Convex Polygon in 2017 triggered downlisting to “Endangered”. Likewise, it was formerly considered “Critically Endangered in Colombia” it is now assessed as nationally “Endangered”. Its known distribution lies within the Munchique National Park (440 km<sup>2</sup>) and the private Aves Mirabilis Swarovski Nature Reserve (1900 ha) and close to Los Tambitos Nature Reserve, where it might also occur. It appears the conservation measures have worked for now.

**Diet:** Flower nectar; it feeds on the nectar of many Epiphytes (such as bromeliads). Preferred flowers include those from *Burmeistera killipii*, *Burmeistera ceratocarpa*, *Clusia spp.* and *Palicourea angustifolia*.

**Breeding:** A spectacular, multi-colored hummingbird that is fairly short with a black bill and pink feet. The male has glittering green crown and gorget, otherwise dark shining green. It has a glittering blue belly and glittering red and coppery-gold under tail-coverts. There are enormous white leg-puffs fringed in cinnamon. It has a dark, bronzy, forked upper tail, and a coppery-gold under tail. The female is very different with dark shining green above and on the sides. It has a white median throat and under parts, spotted green with indistinct glittering reddish, golden, and bluish spots on the belly, flanks and under tail. It has a bronze-green tail that is tipped blackish. It has smaller (than the male) white leg-puffs.

Because of the rarity of this bird, no studies have been conducted on breeding habits.

**Cool Facts:** The Colorful Puffleg was once thought extinct, until it was rediscovered in November 1997, when a female Colorful Puffleg was discovered feeding on *Clusia ssp.* It wasn't until July 1998 that a male was seen feeding on several *Cavendishia sp.*

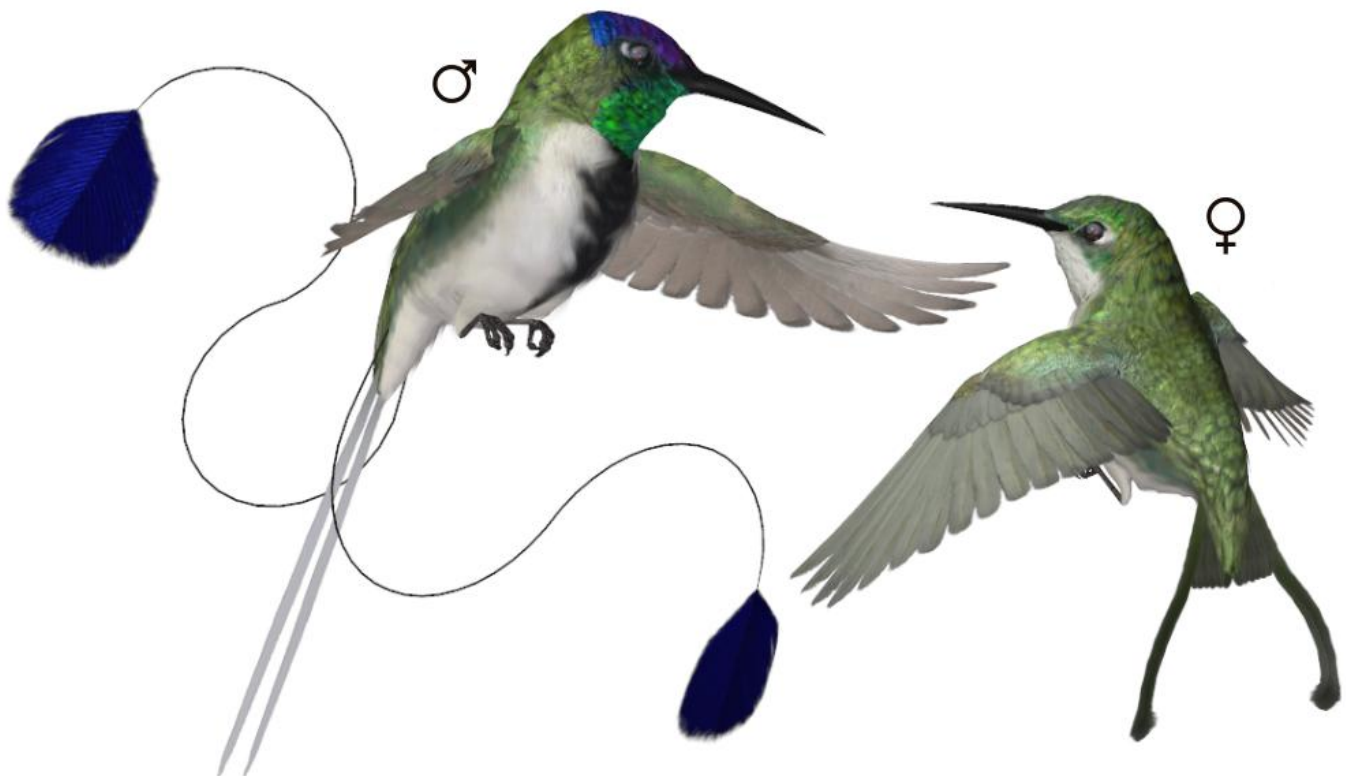
**Common Name:** Marvelous Spatuletail

**Scientific Name:** *Loddigesia mirabilis*

**Size:** Male: 5.9-6.7 inches (15-17 cm) (plus additional 11-13 cm for tail); female: 3.5-4 inches (9-10 cm)

**Habitat:** South America; Peru. This species is uncommon and restricted to the eastern slopes of the río Utcubamba valley (an affluent on the right bank of the río Marañón) in the Cordillera del Colán, Amazonas, and one locality further east in San Martín, north Peru.

It occurs in forest edge, second growth, montane scrub and, in particular, thorny, impenetrable *Rubus* thickets admixed with *Alnus* trees, at 2,100-2,900 m (occasionally 1,700-3,700 m).



**Status:** **Endangered** **Global Population:** 250-999 mature individuals with a declining population trend. Deforestation is widespread on the mountain slopes of the Cordillera del Colán, with much habitat cleared since 1978, and remaining forest under threat of

conversion to cash-crops such as marijuana and coffee. However, the species' apparent preference for forest edge and isolated woodlots on steep slopes may reduce its vulnerability to habitat alteration. Interviews with local inhabitants and enquiries in a nearby market town have revealed that dried hearts of the males of this species are believed to have aphrodisiac properties. Hunting with slingshots for this reason may even explain the skewed sexual ratio

**Diet:** Flower nectar; its preferred food-plant is the red-flowered lily *Alstroemeria (Bomarea) formosissima*, but it has been observed feeding on at least five species of flowering plant.

**Breeding:** The adult male has slightly decurved black bill. Its crest is blue, the hindneck brownish, a white postocular spot and the rest of the upper parts green. It has a blue gorget, glossed blue-green and its under parts are white with a central black line extending to the belly. It has two elongated under tail-coverts support the tail. The tail very long, modified, with the outer feathers reduced to shafts, curved, crossing each other, and terminating in two purplish-black racquets. The remaining rectrices are rudimentary. The female lacks the blue crest and gorget. Its under parts are whitish. The tail is elongated, but lacks the racquet feathers. The juvenile resembles the adult female. Young males have a partly developed gorget, the black midline on belly, and blackish racquets.

The breeding season is thought to run from late October to early May. Adult males (which are greatly outnumbered by females and immature males) gather at leks where they display to attract females.

**Cool Facts:** It was first reported in 1835 by the bird collector Andrew Matthews for George Loddiges. The Marvellous Spatuletail is unique among birds, for it has just four feathers in its tail. Its most remarkable feature is the male's two long racquet-shaped outer tail feathers that cross each other and end in large violet-blue discs or "spatules". He can move them independently. In a mating display, he positions each spatula to the sides of his wings, flashing iridescence blue to attract females.

A protected area was set up under a conservation easement in 2006. Several organizations are currently working in partnership to conduct an education program, survey additional sites and raise funds for land acquisition in the La Florida region. American Bird Conservancy and its Peruvian partner group ECOAN created a community nature reserve, planting thousands of native hummingbird flowers, and developing a sustainable eco-tourism program. Over 30,000 saplings of native trees and bushes have since been planted there.

This conservation easement is the first of its kind in Peru.

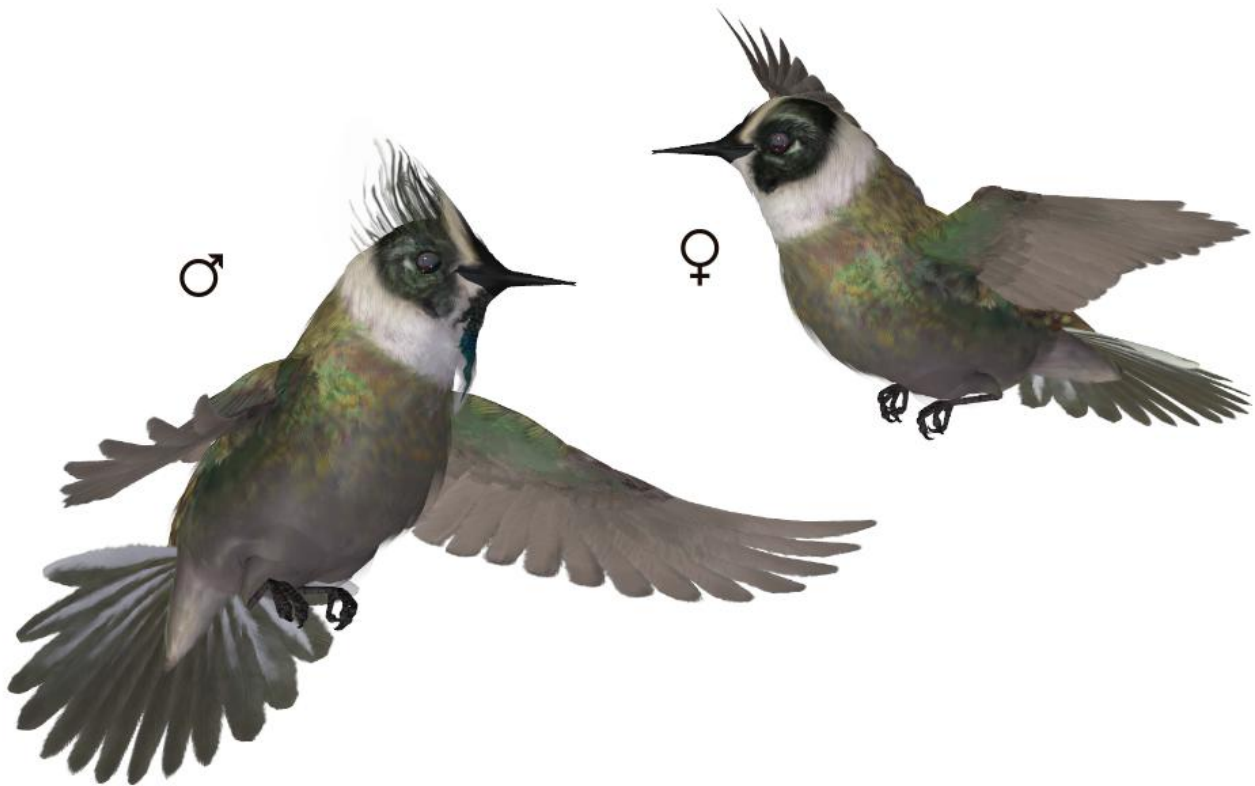
**Common Name:** Green-bearded Helmetcrest  
**Scientific Name:** *Oxypogon guerinii*

**Size:** 4.4-5 inches (11.2-12.7 cm)

**Habitat:** South America; the east Andes of Colombia (south to Cundinamarca).

Its natural habitat is humid open páramo with Espeletia vegetation, sometimes at edge of Polylepis forests. Females are often found in gorges while males seem to be more restricted to open hillsides. It occurs at 3000 m to 5200 m.

**Status:** Least Concern. **Global Population:** 38,100 mature individuals with a declining population trend. It is locally common and known from several protected areas, among them Chingaza, Sumapaz and El Cocuy National Parks.



**Diet:** Flower nectar (specifically *Espeletia*, *Echeveria*, *Siphocampylus*, *Castilleja* and *Draba*), small insects, and tree sap.

It often perches on boulders and flits between low-flowering shrubs.

**Breeding:** The adult male has a distinctive pointed black crest and a shaggy white beard. The face and cheeks are blackish, rendering a triangular shape with the white

fronted crest and white beard. The under parts are a dull green-gray. The female lacks the beard and crest.

The species breeds during the rainy season May through September which is closely related to the flowering season of *Espeletia*. It often nests in daisy (*Espeletia*) plants or builds a nest made of material from *Espeletia* in a cliff or bank.

**Cool Facts:** First described by French ornithologist Auguste Boissonneau in 1840, it is the only member of the genus *Oxygogon*. However, a study of mitochondrial DNA of hummingbirds shows it to be most closely related to the Bearded Mountaineer (*Oreonympha nobilis*) and the Rufous-capped Thornbill (*Chalcostigma ruficeps*). Which suggests the genus may be reclassified in the future.

The helmetcrest is usually seen alone at low flowering bushes or herbs. It often perches on large boulders, and sometimes walks on the ground where it makes bounding leaps between ground level flowers. They regularly cling to flowers when feeding and jump (like a little goat-hence the Spanish name) from one clump of flowers to another.

# Special Thanks to my Beta Testing Teams...

- Original 2011 release: FlintHawk, Linda, Jan, Kelvin and Sandra
- 2021 update: FlintHawk and Alisa

## Species Accuracy and Reference Materials

Many birds of the same species do vary considerably in color. This package tries to emulate the colors and markings in the most commonly found variants.

The author-artist has tried to make these species as accurate to their real life counterparts as possible. With the use of one generic model to create dozens of unique bird species, some give and take is bound to occur. The texture maps were created in Painter with as much accuracy as possible. Photographic references from photographs from various Internet searches and several field guides were used.

## Sources for this Field Guide & Set

### Books, Magazines and Papers

- **Birds of Venezuela (2<sup>nd</sup> Edition)** by Steven L. Hilty
- **Ecology and Behavior of the Buff-Tailed Sicklebill** (Paradisaeidae: Epimachus Albertisi) by Bruce M. Beehler, published in *"The Auk"*
- **"The Sibley Guide to Birds"** by David Allen Sibley.
- **"A Guide to the Birds of Mexico and Northern Central America"** by Steve N. G. Howell and Sophie Webb
- **"Birds of Peru"** by Thomas S. Schulenberg, Douglas F. Stotz, Antonio Brack Egg, Daniel F. Lane, John P O'Neill, Theodore A. Parker, III
- **"Birds of the West Indies"** by Herbert Raffaele, James Wiley, Orlando H. Garrido, Allan Keith, and Janis I. Raffaele (Princeton University Press)

### Websites

- Wikipedia (<http://www.wikipedia.com> )
- Birds of North America online (<http://bna.birds.cornell.edu>)
- All About Birds ([www.allaboutbirds.org/](http://www.allaboutbirds.org/) )
- Cornell Lab of Ornithology Neotropical Birds (<http://neotropical.birds.cornell.edu> )
- PBS Nature (<http://www.pbs.org/> )
- What Bird? (<http://www.whatbird.com>)
- Hummingbirds.net ([www.hummingbirds.net](http://www.hummingbirds.net))
- Boston University (<http://www.bu.edu/> )
- Bahamas National Trust (<http://www.bnt.bs/> )
- Juan Fernández Island Conservancy (<http://www.oikonos.org/projects/firecrown.htm> )



# Rendering & Posing Tips

## Motion Blurring for Hummingbird Wings

As we all know, it's rare when a bird sits still. In photography, we can capture birds in flight and provided the exposure and f-stop are set correctly, even freeze them in time. We accept this moment captured in time because it is a photograph, and photographs don't lie.

As for non-photographic art, traditional or digital, the bird frozen in time just doesn't look quite right, so the viewer assumes the artist has made a mistake-- because we all know, artists do, in fact, lie...

So, here are the secrets to making a bird in flight believable.

There are two approaches for creating the wing blur hummingbirds make. The first way, and most obvious, is to blur them with post work using smudge tools or motion blur filters. The second way and much easier is to let your 3D application do it using animation (even on a still image). The tutorial included in this manual will provide a step-by-step procedure to do both.

### Post work Motion Blur

1. Load the picture into your favorite 2D art program. *(For the tutorial, we're using Corel Painter, but Photoshop or Paintshop Pro will work )*
2. Using the freeform SELECT tool, outline the wing area, Copy and Paste it directly over the existing wings and a new layer.

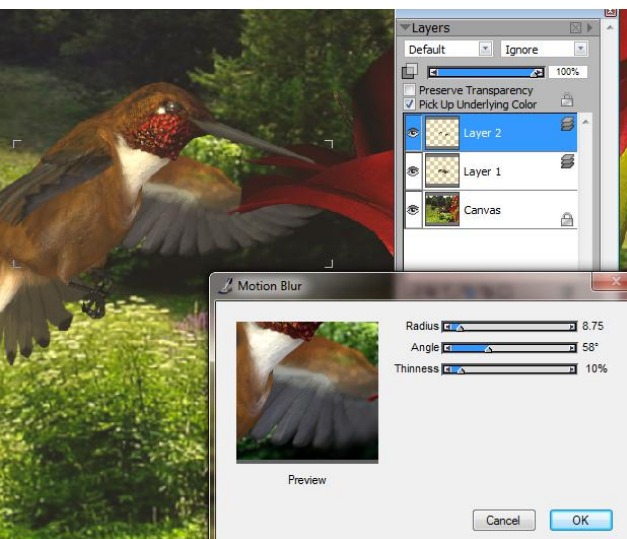


3. Select Motion Blur. It's found under Focus in Painter (or Blur in Paintshop Pro or Filters->Blur->MotionBlur in Photoshop).



4. Set the amount of blur, the angle and thinness (in Painter). Since we've outlined the whole wing, we're barely going to blur it with a setting of 1.58. I've also adjusted the angle to be more in-line with the feather movement.

5. Now freeform SELECT the wing again on the wing layer, but this time only select the outer extremities of the wing. Now Motion Blur it again-- that's why we went easy the first time!



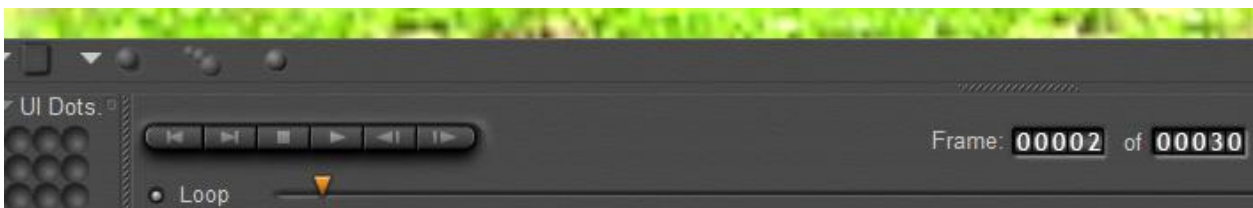
6. You could depending on the result you want repeat the process again with just the wing tips...



## Using Motion Blur in Poser

This tutorial will work with any version of Poser or can be adapted to Vue. DAZ Studio does not currently have motion blur capabilities.

1. Load the Hummingbird Base Model and select a species MAT/MOR preset (for this tutorial I'm using the Rufous hummingbird, but any species will work).
2. Create your scene with the hummingbird in flight using a prebuilt pose or adjusting it manually. Go ahead and do everything you normally would do before the final render (tweaking poses, adjusting lights, etc)
3. Now that your scene is set, you will need to decide how much wing blur you want. First, the way we are going to create wing blur is by slightly animating the wings; the more movement you create, the more blur you will get.
4. I'll use a couple different settings and show how much blur you can expect from certain types of wing movements. To show maximum blurring effects, we'll first move the **Animation slider to Frame 2**.



5. Select the Left Wing, add or subtract about 30 from **UpDown** in the parameter dials. Do the same with the Right Wing. **Make sure you do not move any other dials or items in the scene or they will blur too.**
6. Go back to **Frame 1 on the Animation slider**. In Render settings, check the Motion Blur Box and render. As you can see from my example to the right or from your render, the wings are so blurred they almost don't exist. While most hummingbirds beat their wings 40-90 times a second, we don't need that type of movement to create a still image --- in fact, doing the 30 point movement up and down over the



normal 30 frames a second animation will give you a believable animated hummingbird (though it's only going 15 wingbeats a second).

7. For a still image, I'd suggest only making 2-3 point moves up or down. In Frame 1, Copy the Left Wings settings (CTRL+C). Select the Frame 2 and copy the settings (CTRL+V). Now add or subtract 2 or 3 from the **UpDown Dial** in the Parameter Dials. Do the same with the Right Wing. **Make sure you do not move any other dials or items in the scene or they will blur too.**
8. Go back to **Frame 1 on the Animation slider**. In Render settings, check the Motion Blur Box and render. Remember still image motion blur always looks to the next animation frame. If you render on frame 2, the render engine will compare frame 3 with frame 2 for blur information. Since we did nothing to frame 3, there won't be any blur and that's why we need to return to Frame 1 before rendering.



9. You can experiment with moving the tail or moving the entire bird. Just remember a little movement goes a long way in a still motion blur image. One thing I often do is just slightly move the wing parts (+/- 1) and then move the feather controller parts more significantly (+/- 8). This make the wing tips blur significantly but the actual wing much less.

## Scaling alters Bump & Displacement Settings

All the hummingbirds in this set are scaled to Poser/DAZ Studio Human figure scale. This makes them very, very small so often there's a desire to scale-up the hummingbird when a human figure isn't used in the scene. **Displacement and bump settings will not scale with the model.** In some cases, the displacement and sometimes bump settings may need to be increased or decrease with scaling. If you scale-up the hummingbird you, will need to tweak the bump and displacement settings in Plumage, RumpTopFeathers, Gorget and possibly other material settings.

## Working with Songbird Remix morphs

Because birds in the Songbird ReMix series use generic bird bases and morphs, adding morphs upon morphs more often than not will create undesirable results. Case in point is the Parrot base which defaults with the "Parrot" morph loaded (which is found in the HEAD section (*Creations morphs : Specific Bird morphs*)). Adding the other creation morphs on top of that will be a hit and miss experience. Press **CTRL + E** to clear all the morphs in that section.

The reason why I have chosen to leave non-parrot morphs on for instance the parrot base is for experimentation and creating unique and imaginary species. In some cases, such as with a parakeet, it's better to shape the parakeet head from the standard Songbird ReMix head than the default parrot morphs.

Another example is the BK-Close morph use. When BK-Height or BK-Length morphs are used often the BK-Close will require only a 0.7 or 0.8 setting to close the beak which normally takes a 1.0 setting. When applying a pose to a bird with a thicker or thinner than normal beak, you may need to adjust the BK-Close setting. The same is true with legs with shorten shins or thighs. One size does not fit all with a generic bird model.

Often when BK-Close morph is in use (partially opened) with the Frown morph active some overlapping polygons may show. To resolve this, dialing down the Frown will help (but also alter the "look" of the bird somewhat.)

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