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A NEW SPECIES OF *ERIOCNEMIS* (TROCHILIDAE) FROM SOUTHWEST COLOMBIA

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Resumen. – Una nueva especie de *Eriocnemis* (Trochilidae) del suroeste de Colombia. – Una nueva especie de colibrí, el Zamarrito del Pinche (*Eriocnemis isabellae*, sp. nov.), es descrita de la Serranía del Pinche, un macizo aislado e inexplorado localizado en el Departamento del Cauca en el suroeste de Colombia (02°16'04.18"N, 77°21'26.41"W, 2800 m s.n.m.). Esta especie representa un nuevo miembro distincto del género *Eriocnemis* y habita los bosques templados y nublados de la Serranía. Aunque se puede identificar fácilmente como un miembro del género *Eriocnemis* por sus zamarros blancos, el azul violeta en las infracaudales de la cola y la cola azul negra bifurcada, se diferencia ampliamente de la mayoría de las especies de su género en tener la cara, corona y nuca de color negro con visos amarillosos verde oliva. Además, tiene una gorguera bicolor iridiscente distincta, azul violeta y verde. Este nuevo taxón comparte algunas características con otros de su género (i.e., *E. vestitus*, *E. nigrivestis*) y esta ecológicamente asociado a bosques enanos ocupando un pequeño rango en pendientes pronunciadas a lo largo de filos montañosos. La inaccesibilidad de su hábitat en combinación con medidas de conservación apoyadas por las autoridades, organizaciones y comunidades locales, dan esperanza para la futura protección de este colibrí en estado crítico de amenaza.

Abstract. – A new hummingbird species, the Gorgeted Puffleg (*Eriocnemis isabellae*, sp. nov.), is described from the Serranía del Pinche, an unexplored isolated mountain massif in the Department of Cauca, southwest Colombia (02°16'04.18"N, 77°21'26.41"W, 2800 m a.s.l.). This species represents a distinct new member of the genus *Eriocnemis* and inhabits the cloud and temperate forest zone of the Serranía. Although it can be easily diagnosed as a member of *Eriocnemis* by the conspicuous white tibial tufts, violet blue under-tail coverts, and a bifurcated blue black tail, it widely differs in plumage from most other species of the genus, having the facial area, crown, and nape blackish tinged yellow olive green, and a distinctively bicolored, enlarged, iridescent throat patch with a violet blue centre and green sides. Some plumage characteristics are shared with other members of the genus (i.e., *E. vestitus*, *E. nigrivestis*). The new taxon is

ecologically associated with elfin forest, occupying a very small range at steep slopes along mountain ridges. The relative inaccessibility of this habitat, in combination with conservation measures supported by local authorities, organizations, and inhabitants, raises hope for the future protection of this unique and critically endangered trochilid. *Accepted 11 April 2007*.

Key words: *Eriocnemis, Eriocnemis isabellae*, sp. nov., Trochilidae, Andes, Serranía del Pinche, Colombia.

INTRODUCTION

Members of the Andean trochilid genus *Eriocnemis* mainly inhabit open habitats, forest border and subpáramo in the subtropical and temperate zone at altitudes between c. 1000 to 5000 m (Fjeldså & Krabbe 1990, Schuchmann *et al.* 2001, Ridgely & Greenfield 2002). Currently, 11 species are recognized (Schuchmann *et al.* 2001). Three genus members, *E. nigrivestis* and *E. godini* from northern Ecuador (the latter, based on "Bogotá" skins, historically perhaps also in south Colombia), and *E. mirabilis* from western Colombia, are considered as critically endangered, and *E. godini* might even be extinct (Collar *et al.* 1992, BirdLife International 2000, Granizo *et al.* 2002). The distributional focus of *Eriocnemis* lies in the northern cordilleras, where Colombia with six species hosts the most diverse assemblage within the genus (Schuchmann *et al.* 2001).

By coincidental information on supposed páramo relics near Argelia, Depto. Cauca, in 2005, our attention was drawn to previously unexplored high-altitude habitats in the Serranía del Pinche. This mountain range forms the westernmost extension of the Cordillera Occidental, Colombia. During an ornithological survey conducted by A. Cortes-D. and L.A. Ortega, an unusually colored male hummingbird, apparently belonging to the genus *Eriocnemis*, was captured. This bird, as well as two females mist-netted at the same place, were preliminarily identified as *E. vestitus* and released after being described, morphometrically measured, photographed, and banded. Subsequent comparison with *Eriocnemis* specimens in the extensive hummingbird collection of the Instituto de Ciencias Naturales, Universidad Nacional de Bogotá (ICN) showed that these individuals, particularly the male, exhibit a unique mixture of plumage characters unknown from other genus members. During additional expeditions in April and November 2006, a total of six additional males, but unfortunately no more females, of the supposed unknown representative of *Eriocnemis* could be mist-netted, of which four were deposited in the ICN. Based on these skin specimens and field observations, the new taxon is described as *Eriocnemis isabellae*, sp. nov.

Eriocnemis isabellae, sp. nov.
English: Gorgeted Puffleg
Spanish: Zamarrito del Pinche
German: Pinche-Höschenkolibri

General diagnosis. Male differs from other genus members by exhibiting a bicolored blue-violet and green brilliant gorget, and a blackish-green basic plumage (shared only by *E. nigrivestis*) (Plate 1). Female plumage is similar to *E. vestitus* and *E. nigrivestis*, but underparts are more intensively fringed rufous (especially vs *nigrivestis*) with turquoise reflections on belly centre (vs *vestitus*). Generally, can be discriminated from other Colombian taxa by iridescent blue-green rump and blue-black tail (vs greenish rectrices in *E. mosquera*, *E. alinae*, *E. mirabilis*), bluish-violet under-tail (vs *E. derbyi*, *E. mosquera*, *E. alinae*, *E. mirabilis*), larger size and broader rectrices (vs *E. alinae*, *E. mirabilis*), white leg puffs (vs *E. derbyi*). Differs from *E. nigrivestis* by greener rump

and lighter, more bluish under-tail coverts, and lack of purplish tinge in inner rectrices.

*Holotype***.** Adult male, ICN no. 36.015, collected in elfin forest on 20 November 2006 at Serranía del Pinche, Depto. del Cauca, Colombia (02°16'04.18"N, 77°21'26.41"W, 2800 m a.s.l. – Datum: WGS84, Zone: 18 Northern Hemisphere, Coordinates System: Geographic (Lat./Long.), Source: HydroSHED 2006, Software: Globalmapper v7.1, GIS Office: THC-Ecohabitats) by A. Cortes.

Description of holotype. Color nomenclature is according to Smithe (1975, 1981). Bill medium-long, fairly straight, blackish; facial area, crown, and nape black tinged Yellowish Olive-Green (50); postocular spot inconspicuous, whitish; back Dark Green (262); lower back to rump dark green (Emerald Green, 163) mixed with turquoise reflections, changing to iridescent Cyanine Blue (74) in uppertail coverts; tail dark steel blue (~ 90, Blue Black); gorget and throat centrally with brilliant violet-blue patch (between 69, Spectrum Blue, and 72, Spectrum Violet), changing abruptly to brilliant green (62, Spectrum Green) on sides; upper breast blackish (89, Jet Black); lower breast and belly blackish (89) tinged dark green, especially on sides; under-tail coverts iridescent bluish-violet (between 69, Spectrum Blue and 71, Campanula); enlarged white tibial tufts; feet black. Exposed culmen 15.6 mm, total culmen 17.8 mm, bill width at base 5.7 mm, bill height at base 1.7 mm, wing chord 55.3 mm, tail length 37.2 mm, tarsus 5.5 mm; total length (including bill) 97 mm; body mass 3.9 g; left testis 1.5 mm; stomach empty.

Description of female. Differs generally from male by lighter basic plumage; upperparts and wing coverts shining greenish (similar to Emerald Green, 163) to blue-green; uppertail coverts and tail dark greenish mixed with blue-black; postocular spot slightly larger; malar stripe and fringes of chin, lateral, and lower gorget feathers light rufous (38, Tawny), encircling the throat patch; throat patch reduced, discs centrally iridescent Turquoise Green (64) with white subterminal bars, lower throat centrally iridescent turquoise mixed with golden green, laterally more shining light golden green; belly centrally with light golden green discs and light rufous to buffy fringes, flanks rather shining Turquoise Green (64); abdomen grayish to whitish; under-tail coverts and tail paler, more shining blue than violet.

Paratypes. Adult male (ICN 35.933) taken on 10 April 2006; exposed culmen 15.8 mm, total culmen 18 mm, bill width at base 5.06 mm, bill height at base 1.65 mm, wing chord 53.8 mm, full wing 62.3, tail length 35.6 mm, tarsus 5.5 mm; total length (including bill) 99 mm; body mass 3.9 g; left testis 1.5 mm; small insect wings in stomach. Adult male (ICN 36.014) taken on 16 November 2006; exposed culmen 16.1 mm, total culmen 17.6 mm, bill width at base 5.8 mm, bill height at base 1.8 mm, wing chord 56 mm, tail length 36.2 mm, tarsus 5.8 mm; body mass 4.5 g; left testis 1.5 mm; empty stomach. Adult male (ICN 36.029) taken on 20 November 2006; exposed culmen 15.6 mm, total culmen 17.9 mm, bill width at base 5.6 mm, bill height at base 1.7 mm, wing chord 58 mm, tail length 36.7 mm, tarsus 5.8 mm; body mass 4.0 g; left testis 1.5 mm; empty stomach.

Etymology. We take pleasure in naming this species for Isabella Cortes, daughter of Alexander Cortés-Diago. The scientific name also reflects the word "beautiful." The English vernacular name refers to the bird's distinctively colored gorget in comparison to all other congeners; the names in Spanish and German, respectively, indicate the mountain range in which the hummingbird is endemic.

TABLE 1. Comparison of biometric characters of selected *Eriocnemis* taxa occurring in southwestern Colombia and northern Ecuador, showing mean, SD, value range, and sample size (in brackets); data adapted from Schuchmann *et al.* 2001 (see this study for further taxa; culmen length not measured).

Taxon	Sex	Mensural characteristics (mm)			
		Culmen	Nostril	Rectrix 1	Rectrix 5
Eriocnemis isabellae, spec. nov.	M	17.92 ± 0.20	15.74 ± 0.22	56.37 ± 1.85	36.32 ± 1.32
(SW Colombia)		17.6-18.2 (6)	15.6-16.1 (5)	53.8-59.0 (5)	34.2-38.0 (6)
	F	16.1, 16.5 (2)	-	51.0, 55.0 (2)	35.5, 36.0 (2)
Eriocnemis vestitus smaragdinipectus	M	-	20.77 ± 0.79	59.00 ± 1.50	42.90 ± 1.21
(S Colombia to C Ecuador)		-	19.6-22.9 (28)	56.0-61.8 (27)	39.4-44.9 (25)
	F	-	21.25 ± 0.81	58.18 ± 0.94	41.00 ± 1.71
		-	20.0-22.2 (7)	56.8-59.5 (7)	38.7- 43.6 (7)
Eriocnemis nigrivestis (N Ecuador)	M	-	18.66 ± 0.51	58.98 ± 0.76	37.78 ± 1.47
		-	17.7-19.5 (27)	57.0-61.0 (24)	35.2-40.2 (24)
	F	-	19.28 ± 0.65	58.13 ± 0.81	37.71 ± 1.13
		-	18.0-20.2 (16)	56.2-59.1 (15)	36.3-40.1 (14)
Eriocnemis mirabilis (SW Colombia)	M	-	19.6, 20.2 (2)	51.0, 52.7 (2)	33.0, 36.4 (2)
	F	-	17.9, 19.6 (2)	52.0, 52.8 (2)	33.9, 35.0 (2)
Eriocnemis alinae alinae (C Colombia	M	-	18.48 ± 0.76	50.57 ± 1.78	32.23 ± 1.12
to N Ecuador)		-	17.3-19.4 (8)	47.1-52.5 (7)	30.5-33.7 (8)
	F	-	18.61 ± 0.87	47.57 ± 2.06	30.60 ± 1.17
		-	17.4-19.8 (6)	44.1-49.9 (7)	29.0-32.3 (7)
Eriocnemis mosquera mosquera	M	-	21.72 ± 0.89	71.62 ± 1.28	58.46 ± 2.06
(S Colombia to N Ecuador)		-	19.9-23.0 (23)	69.3-73.8 (23)	54.5-62.3 (22)
	F	-	22.58 ± 1.13	69.07 ± 1.20	54.21 ± 1.78
		-	20.0-24.3 (18)	66.9-70.6 (20)	51.9-58.1 (18)

Plumage characters. Clearly a member of the genus *Eriocnemis* because of the combination of conspicuous white leg puffs typically for most congeners (except *E. derbyi*: blackish-grey), bifurcated blue-black tail (greenish in *E. mosquera*, *E. alinae*, golden-green in *E. mirabilis*), and iridescent bluish-violet under-tail coverts (greenish in *mosquera*, *alinae,* copperish to golden in *mirabilis*). Most parallels in basic coloration exist to *E. nigrivestis* and *E. vestitus.* Males of both *nigrivestis* and *isabellae* sp. nov. share a blackish-green to blackish-blue basic plumage, while females are lighter blue-green above. However, the female pattern of the underparts is more similar to *E. vestitus*, which has with *E. isabellae* sp. nov. a reduced throat patch with lateral rufous fringes and less violet under-tail coverts in common. In contrast, the brilliant golden to golden green rump, uppertail coverts, and belly are striking apomorphies of *E. vestitus* not shared by any other genus member. Another similar female pattern is exhibited by the southernmost representative, *E. glaucopoides* (Schuchmann *et al.* 2001).

Morphometric characters. The biometric measurements of the new taxon compared to other members of *Eriocnemis* are summarized in Table 1. *Eriocnemis isabellae* sp. nov. is among the smaller representatives of the genus, with close affinities in mensural data, particularly to *E. nigrivestis* (i.e., wings, tail) and *E. vestitus* (tail). Although the sample size is small, the bill length in males is significantly shorter ($P > 0.001$, t-test) than in both taxa, and even

FIG. 1. Typical habitat in the Serranía del Pinche, Colombia, where *Eriocnemis isabellae*, sp. nov. was located.

exceeded by the smallest genus members, *E. mirabilis* and *E. alinae* (Table 1). As a tendency, the values for two females (no specimens available) suggest a similar pattern, with shorter wings and rectrices than in males.

Bioacoustics. Song and song pattern are unknown. Territorial calls noted and recorded are monosyllabic, sharp, frequently repeated, sounding like "*tuek tuek*..." They are lower-pitched than in other, similar-sized *Eriocnemis* species, e.g., when compared with the "*tzeet*" notes of *E. vestitus* and *E. nigrivestis* or the insect-like calls of *E. derbyi* ("*tee teee*") and *E. glaucopoides* ("*zee zee*;" Fjeldså & Krabbe 1990; Schuchmann pers. com.; Weller pers. observ.).

Range. The Serranía del Pinche is located in the municipality of Argelia in the southwest of the Cauca department and constitutes the basin of the San Juan del Micay river, the most important drainage system of the Pacific Cauca region. The basin is limited by the western slope of the western Andes and the isolated Serranía del Pinche with important mountain peaks (up to 3600 m) such as "cerros" Guapi, Plateado and El Pinche, forming a depression with particular climatic and ecologic characteristics (Becking 1994) and an approximate area of 230 km^2, of which 30,000 ha are a potential area for conservation.

Habitat. The habitat of *Eriocnemis isabellae* sp. nov. is characterized by a series of mountain ridges of gravitational flow origin, represented by erosionally branched mountains with a lon-

TABLE 2. Most representative plant species of each vegetation stratum found at the type locality.

Stratum	Species
Arboreal stratum: Approximate height 6 m, DHB approx. 0.3 m	*Clusia multiflora* (Guttiferae), *Podocarpus oleofolius* (Podocarpaceae), *Drymis granadensis* (Winteraceae), *Myrsine coriacea* (Myrcinaceae); *Nectandra globosa*, *Beilschmiedia* sp. (Lauraceae)
Medium stratum: Height 3 m; DHB approx. 0.1 m	*Weinmannia rolotti* (Cunoniaceae), *Cybianthus pastensis* (Myrsinaceae), *Hedyosmum bondplandianum* (Chloranthaceae)
Shrub stratum	*Chusquea scandens* (Poaceae), *Anthurium cuspidatum* (Araceae), *Bejaria resinosa* (Ericaceae), *Sphaeradenia laucheana* (Cyclanthaceae); *Cinchona pubescens*, *Faramea flavicans*, *Ladembergia macrocarpa*, *Palicourea vaginata* (all Rubiaceae); *Burmeistera ceratocarpa*, *Centropogon* sp. (all Campanulaceae)
Lower stratum	*Pitcairnia* sp. (Bromeliaceae), *Disterigma acuminata*, *Disterigma* sp. (Ericaceae)
Epiphytic stratum	*Asplenium serra* (Cyatheaceae); *Cavendishia* cf. *bracteata*, *Guzmania* cf. *coriostachya*, *G. gloriosa*, *Tillandsia complanata*, *Tillandsia* sp., *Columnea consanguinea*, *C.* cf. *nematoloba* (all Bromeliaceae)

gitudinal profile with angular tops and rocky outcrops, composed of metamorphic rocks and volcanic mass flows with pronounced to very steep slopes (Fig. 1). Governed by a very cold and humid climate, transitional Subandean and Andean forests are found here. Within this unit we find the "cerros" El Pinche, Plateado, Soledad, and California with a good coverage of primary and secondary forest.

The ecosystem inhabited by the new taxon is part of the transition between the upper sub Andean (2400–2700 m) and the lower Andean biomes (2750–2850 m) and includes mainly zones between 2600 and 2900 m, with average temperatures oscillating from 10º to 18ºC, and an annual precipitation of approximately 3000 mm. The habitat can be best described as very humid cloud forest or stunted elfin forest with frequent natural clearings that suggest a dynamic ecosystem due to strong winds during the months of July and August and unstable steep slopes. The elfin forest averages 6–8 m in height and includes species that, under optimal conditions, would grow up to 20–25 m. The aerial coverage is around 40% with predominant shrubs and herbs, especially bryophytes and epiphytes. The forest is distinguishable from Andean forests found below by the dominance of *Bejaria resinosa* (Ericaceae), *Freziera* sp. (Theaceae), *Weinmannia rolotti* (Cunoniaceae), *Clusia multiflora* (Guttiferae), and *Nectandra globosa* (Lauraceae) surrounded by oak forests (*Quercus humboldtii* (Fagaceae). The most representative species of each vegetation stratum are listed in Table 2.

Ecology. *E. isabellae* sp. nov. shares its habitat with other hummingbird species, outnumbered by *Heliangelus exortis* (Fig. 2). The sympatric occurrence of *E. mirabilis* is particularly noteworthy since this site represents just the second one known for this taxon at all, meaning a range extension of c. 30 km west of the type locality "El Planchón," PNN Munchique

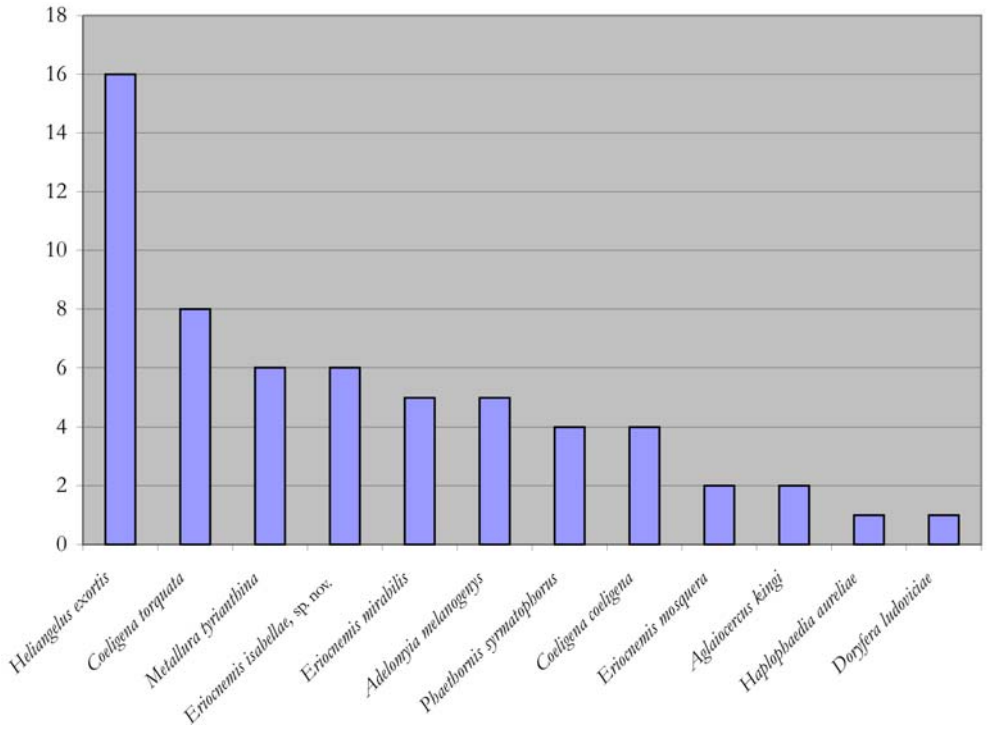

FIG. 2. Number of individuals of each hummingbird species of the Serranía del Pinche, Colombia, mist-netted at the type locality (2800 m) of *Eriocnemis isabellae*, sp. nov. during the course of two study expeditions.

(Mazariegos & Salaman 1999, Schuchmann *et al.* 2001). *E. isabellae* sp. nov. was observed foraging on *Bejaria resinosa*, *Cavendishia* cf. *bracteata*, *Cinchona pubescens*, and *Faramea flavicans* though, at the moment of the expedition, the floral offer was poor but many nectar-producing plant species with ornithophilous features were found at the type locality site (Table 3). Insects are also part of the diet of *E. isabellae* as was observed from the small diptera wings found in the stomach content.

Biogeography and systematics. Based on morphological similarities (e.g., in gorget, under-tail, female-type plumage, size) and bioacoustics, the North Andean species *E. vestitus* (Colombia to Peru) and *E. nigrivestis* (north Ecuador) are considered as sister taxa, and more loosely linked to the Central Andean *E. glaucopoides* (central Bolivia to northwest Argentina; Schuchmann *et al.* 2001). Apart from striking apomorphies, for example the bicolored glittering gorget in males, *Eriocnemis isabellae* sp. nov. shows a mosaic pattern of characters present either in *vestitus* (particularly female plumage) and *nigrivestis* (particularly male plumage). Unlike other *Eriocnemis* members with different morphological affinities occurring in sympatry with *isabellae* (Plate 1), *E. vestitus*, and *E. nigrivestis* are strongly allopatric to the new taxon, perhaps due in part to similar ecological requirements (e.g., as indicated by bill length; Table 1). Based on these biogeographical and morphological findings, we suggest that all three strictly allopatric taxa form a first-order superspecies (*sensu* Haffer 1986),

TABLE 3. Nectar-producing plant species with ornithophilous features that could attract hummingbirds found at the type locality.

Genera	Species
Ericaceae	*Bejaria resinosa, Cavendishia* cf. *bracteata*, *Disterigma acuminate*, *Disterigma* sp., *Gaultheria* cf. *insipida*; *Gaultheria* sp. *Macleania crassa*, *M. pubiflora*; *Pernettya postrata*; *Psamisia macrophylla*, *P.* cf. *sodiroi*; *Satiria* sp., *Themistoclesia mucronata*; *Vaccinium floribundum*
Guttiferae	*Chrysochlamys dependens*; *Clusia multiflora*
Bromeliaceae	*Guzmania* cf. *coriostachya*, *G. gloriosa*, *Pitcairnia* sp., *Tillandsia complanata*, *Tillandsia* sp.
Gesneriaceae	*Alloplectus* sp., *Besleria* sp., *Columnea consanguinea*, *C. dimidiata*, *C.* cf. *nematoloba*
Chloranthaceae	*Hedyosmum bondplandianum*
Onagraceae	*Fuchsia* sp.
Rubiaceae	*Cinchona pubescens*, *Faramea flavicans*, *Ladembergia macrocarpa*, *Palicourea vaginata*, *Palicourea* sp.
Campanulaceae	*Burmeistera ceratocarpa*, *Centropogon* sp.
Verbenaceae	*Aegiphyla* sp.

with *E. vestitus* distributed mainly along the eastern and central parts of the northern Andes from Venezuela to Peru, *E. isabellae,* sp. nov. in the western Andes of Colombia (Cauca), and *E. nigrivestis* in the northern part of the Ecuadorian Andes (mainly depto. Pichincha north of the same-named volcano).

*Conservation***.** Unfortunately, the Serranía del Pinche is not immune to the threats that affect most of the natural areas in Colombia. The main threat is the shift of the agriculture border towards the primary forests, especially of illegal crops, which causes the loss of vegetation cover, contamination of watersheds and soil degradation through the use of eradication methods. The lack of governmental presence and programs allows armed groups to promote the planting of coca fields with the consequential social impacts. Additionally, there are plans to complete a road from El Estrecho in the Patía Valley to Guapi on the Pacific coast, with serious implications for both the Serranía and PNN Munchique.

There is an ongoing conservation plan which involves various local authorities and participants: community leaders, majors, regional governors and inhabitants of El Naranjal and Santa Clara, the Corporación Regional del Cauca (CRC), the South Andean Administrative Unit of the Ministerio del Medio Ambiente, The Hummingbird Conservancy (THC) foundation, and Ecohabitats foundation. The main objectives to conserve this area are: 1) Protection of the páramo and paramillo ecosystems of the Serranía based on their biogeographical, biological and hydrological importance; 2) the protection of the most extense forests of *Quercus humboldtii* located in southwest Colombia from indiscriminate logging; 3) the contribution to the national environmental territorial order by creating a new protected area, increasing the percentage of conservation areas of Andean and Subandean forests of the National Park System and promoting a regional system of protected areas for the Cauca region; and 4) the promotion of local conservation and education initiatives through institutions directly cooperating with communities in the local area, directed to increase the knowledge, awareness and valuation of the natural

resources with a positive impact on the quality of life.

Status. Eriocnemis isabellae, sp. nov. presently faces the risk of extinction and is therefore recommended for the IUCN red list status as "critical, B2a and B2b (i, ii, iv)" because, based on our preliminary estimation of the extension of the preferred habitat from observations and study of satellite imagery to identify similar ecosystems in the Serranía, its presumed range is less than 10 km^2. Therefore, further studies to determine the distribution and population size of this trochilid are of high priority and would greatly assist the development of a specific management plan for the species. Research and conservation initiatives in the Serranía del Pinche should also focus on several other globally threatened or range-restricted birds that were observed in the course of this study, e.g., *Eriocnemis mirabilis*, *Oroaetus isidori*, *Penelope ortoni*, *P. perspicax*, *Thamnomanes* (*Dysithamnus*) *occidentalis*, *Oreothraupis arremonops*, *Chlorochrysa nitidissima*, *Cephalopterus penduliger*, *Leptosittaca branickii*, *Grallaria gigantea*, *Henicorhina negreti, Diglossa gloriosissima*, *Odontophorus hyperhythrus*, and *Chloropipo flavicapilla*. Further ornithological surveys of remaining montane forest tracts in the Serranía are needed in order to assess the actual distributions of these taxa and the threats to their habitats.

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