

PHAETHORNIS KOEPCKEAE, A NEW SPECIES OF HUMMINGBIRD FROM PERÚ

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The genus *Phaethornis* comprises a group of more than 20 species of predominantly forest-dwelling hummingbirds, some of which have limited ranges and are not well-known. Only recently, three new species were named from Brazil (Grantsau 1968, Ruschi 1972, 1973). Here we report the discovery of yet another undescribed species (pictured in frontispiece) in a mountainous area of eastern Perú between Río Pachitea and Río Ucayali, and in the Marañón Valley of northern Perú.

Phaethornis koepckeae sp. nov.

KOEPCKE'S HERMIT

HOLOTYPE.—American Museum of Natural History No. 820872; adult female from the Cerros del Sira, 9°30'S, 74°47'W, elevation 860 m, Depto. Huánuco, Perú; 2 July 1969; collected by John S. Weske and John W. Terborgh; prepared by Weske; original No. 2015.

DIAGNOSIS.—A medium-sized *Phaethornis* of the straight-billed group at one time separated in the genus *Ametromis*. Nearest to *P. philippii* (Bourcier) of western Amazonia but slightly larger (see table 1), with chin and medial throat area white, moustachial streak whitish, and lateral throat area and sides of neck buffy gray (instead of entire throat, malar area, and sides of neck rich rufescent buff, shading to paler buff on chin). It is also somewhat similar to *P. superciliosus ucayalii*, with which it is sympatric, but *koepckeae* is smaller, with bill shorter and straighter, throat more broadly white, posterior underparts rich rufescent buff (instead of grayish buff), and lateral rectrices tipped with buffy rufous (instead of white).

DISTRIBUTION.—Recorded at elevations from 690 m to 1,130 m on the southwestern slopes of the Cerros del Sira, in the Provincia de Pachitea, Departamento de Huánuco, east-central Perú. This area lies in the watershed of the Río Llullapichis, a tributary of the Río Pachitea. Also found in the Río Marañón Valley at ca. 500 m elevation near Nazareth and Chiriaco, Provincia de Bagua, Departamento de Amazonas, northern Perú.

DESCRIPTION OF THE HOLOTYPE.—Crown blackish with a greenish gloss, the feather edges black and giving a scalloped effect; hind neck glossy greenish-bronze; back glossy bronze (2.5 Y 5/6) (notations refer to colors from Munsell Color Co., 1929–1942); rump is like back but slightly tinged with rufous; upper tail coverts rufous with two or three blackish subterminal bars. Lores and auriculars blackish; short postocular streak white with rufescent tinges; suborbital streak (from base of bill to below auriculars) buffy white; chin and throat white, bor-

dered on each side by a buffy gray malar stripe; sides of neck grayish tan; breast light rufescent buff centrally, darker and grayer laterally, and grading posteriorly into rich rufescent buff (near 7.5 YR 6/8) on abdomen, flanks, and under tail coverts. Remiges and upper primary coverts glossy blackish; upper secondary coverts glossy greenish-bronze. Central pair of rectrices elongate with slender, 3 mm wide tips that extend 27 mm beyond the tips of adjacent rectrices; central rectrices dark glossy green basally, grading through dark grayish subterminally to white at the tips; the four lateral pairs of rectrices graduated, dark glossy green basally and black subterminally with a broad, buffy rufous (7.5 YR 6/6) tip on each vane. Soft part colors (in life): bill black except orange-red for proximal two-thirds of mandible, iris dark brown, feet flesh-color (not blackish as in plate).

MEASUREMENTS OF THE HOLOTYPE (mm).—Chord of wing, 58.1; tail (from insertion of the two central rectrices to the tip of the longest rectrix), 60.0; exposed culmen, 32.6; weight, 5.0 g.

VARIATIONS AMONG PARATYPES.—No sexual dimorphism is apparent in coloration of the nine specimens at hand. Ventrally the birds are quite uniform, varying only slightly in the intensity of ochraceous color of the abdomen and crissum. Dorsally there is somewhat more variation, probably age-related. In the four birds thought to be adults, the bronzy dorsal area is tinged with rufous only on the rump. In the five birds considered immatures, fine rufescent tipping is present on the sides of the crown, on the hind neck, and on the lower back; and the rump feathers have broad rufous edges. The tertials of these specimens also have narrow buffy tips that contrast with the blackish color of the rest of the feather. Three of the five show the bill ridges indicative of immaturity in hummingbirds (Ortiz-Crespo 1972).

ETYMOLOGY.—We name this species in memory of our esteemed friend and colleague Dr. Maria Koepcke. Before her tragic death in an airplane crash in 1971, she had devoted nearly 20 years to studying the birdlife of Perú, making many notable contributions. Moreover, by participating in the first two Sira expeditions and by preparing four specimens of the type series, she was instrumental in the discovery of the new bird. Therefore, we feel it is especially fitting to name it in her honor.

REMARKS

Field parties from the Louisiana State University Museum of Zoology recently encountered *Phaethornis koepckeae* in the Marañón Valley in northern Perú. Through the kindness of John P. O'Neill, the two LSUMZ specimens were available to us as we prepared this description. Although they come from a local-



Koepcke's Hermit (*Phaethornis koepckee*), a new species of hummingbird from Perú. Painting by John P. O'Neill.

TABLE 1. Measurements in millimeters of two species of *Phaethornis*.

Measurement	<i>P. koepckeae</i>				<i>P. philippii</i>			
	N	Mean	SD	Range	N	Mean	SD	Range
Females								
Wing chord	6	58.3	1.2	57.0–60.1	17	56.4	1.5	53.7–59.9
Tail length	6	61.4	1.1	60.0–62.5	13	59.3	2.9	54.0–64.8
Exposed culmen	6	31.8	1.2	29.5–32.6	17	30.0	0.9	28.0–31.7
Males								
Wing chord	1	64.6	—	—	18	61.2	2.4	57.5–65.9
Tail length	1	64.3	—	—	10	62.7	2.8	58.5–68.6
Exposed culmen	2	34.0	—	33.5–34.4	18	32.1	1.6	28.1–34.4

Symbols: N = Sample size, SD = Standard deviation.

ity 600 km northwest of the Sira range, they are indistinguishable from Sira birds, and we have no hesitation in including them among the paratypes.

HABITAT AND ECOLOGY

The Cerros del Sira comprise a small, isolated range of mountains that rises abruptly from the Amazonian plain 60 km to the east of the main Andean Cordillera. The elevation of the highest peak is about 2,400 m. The area, which has been described in detail by Terborgh and Weske (1975), includes the sole known Peruvian locality for the Horned Curassow (*Pauxi unicornis*; see Weske and Terborgh 1971).

The habitat of *Phaethornis koepckeae* in the Sira is the understory of humid lower montane forest ("hill forest"). Although the species was found in small numbers in lowland-type forest at 690 m and once in mossy cloud forest at 1,130 m, it was most common in the zone just below the lower limit of cloud forest (fig. 1). At this elevation the forest understory is quite dense and contains large populations of Zingiberaceae (*Costus*, *Renealmia*), Marantaceae (*Calathea*), and Musaceae (*Heliconia*)—plants that are known to serve as food sources for hermits.

According to Theodore A. Parker III (pers. comm.), the habitat of *P. koepckeae* in northern Perú is "very moist upper tropical forest"—similar, apparently, to its habitat in the Sira. The collecting elevation on the label of one of the Marañón Valley specimens is 1,700 ft (520 m), not inconsistent with the Sira although a little lower, but for the other bird it was listed as 900 ft (270 m). However, Parker assures us that this locality (km 381.4), which he has visited, is actually considerably higher and that the two Marañón Valley specimens came from roughly the same elevation, about 1,700 ft.

Four species of *Phaethornis* hummingbirds

are known from the Sira area, and two more—*P. hispidus* and *P. philippii*—probably occur at its eastern base along the Río Ucayali, an area we did not visit. Consideration of the elevational ranges and relative abundance (fig. 1) of the *Phaethornis* we encountered allows conjecture about their competitive relationships. *Phaethornis superciliosus ucayalii* is abundant in lowland forest and ranges upward through hill forest approximately to the lower limit of cloud forest. In the lowlands it coexists with *P. longuemareus atrimentalis*, a species weighing only half as much. *Phaethornis longuemareus* is probably more common than figure 1 suggests, because its tiny size causes it to be ineffectively sampled by mist-nets. *Phaethornis superciliosus* and *P. koepckeae* occur together in the foothills. The latter weighs about 16% less than the former, and its straighter bill averages 13% shorter. These differences in size and morphology may be correlated with different feeding niches, but we have no behavioral information that confirms their segregation in this manner. David L. Pearson (in litt.) found that in Ecuador, the "Ametrornis" hummingbird *Phaethornis bourcierii* fed higher in the forest and more frequently on insects than did *P. superciliosus* and *P. longuemareus* at the same site.

Single individuals of *P. superciliosus* and *P. koepckeae* were captured at 1,130 m, a little above the lower limit of cloud forest in the Sira. At this camp the most frequent *Phaethornis* was *P. guy apicalis*, which weighs virtually the same as *P. koepckeae* but has a long curved bill like *P. superciliosus*. The data suggest that these three congeners, all quite similar in size, cannot coexist effectively. Competition from *P. superciliosus* and *P. koepckeae* may combine to exclude *P. guy* from hill forest elevations. In the Apurímac Valley of Perú, where *P. koepckeae* is absent, *P. guy* ranges from 1,700 m down to the lower

limit of hill forest at 685 m, overlapping broadly with *P. superciliosus* between 685 m and 930 m (Weske 1972). On Trinidad, where it is the only large *Phaethornis*, *P. guy* occurs commonly at sea level as well as higher (J.W. T., pers. observ.).

In the Sira, peak numbers of *P. koepckeae* occurred at or near 860 m, where among 70 bird species captured in mist-nets it ranked (with the hummingbird *Thalurania furcata*) as the fifth most common species. The four most abundant species in this sample, in descending order, were the manakin *Pipra pipra*, the flycatcher *Mionectes striaticollis*, the woodcreeper *Glyphorhynchus spirurus*, and the manakin *Pipra chloromeros*.

BREEDING AND MOLT

The Sira specimens of *P. koepckeae* were all taken in July, a dry season month, while the Marañón Valley ones are from October and December, the early part of the wet season. Gonadal examination revealed that none of these birds was in breeding condition. However, at least a fraction of the population breeds in July, for Jane Brockmann found and photographed a nest with two young on 23 July 1971 at 690 m in the Sira. It was a small conical structure located 1.2 m above the ground and attached to the underside of a cyclanth frond near the tip (illustrated in frontispiece). The December specimen is molting at least its flight feathers. The outer primaries are sheathed basally as are several rectrices. The long, central rectrices are about half-grown.

SYSTEMATIC RELATIONSHIPS

Besides *P. koepckeae*, the "*Ametronis*" group includes *P. bourcieri*, a smaller, gray and green species found in the lowlands of northern South America to northeastern Perú, and *P. philippii*. On morphological grounds alone, one might be inclined to consider *koepckeae* and *philippii* conspecific. They do not differ greatly in measurements (table 1), and they are remarkably similar in bill shape and in plumage pattern and coloration except for the prominent differences on the face and anterior underparts. However, *Phaethornis* is a quite uniform genus in which certain other recognized species show relatively little morphological differentiation from some congeners. Moreover, there are compelling zoogeographic and ecological grounds for considering the two forms to be distinct species. *Phaethornis philippii* is an uncommon but

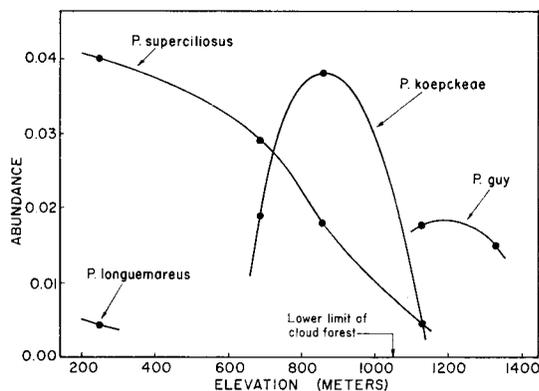


FIGURE 1. Relative abundance of *Phaethornis* hummingbirds at various elevations in the Cerros del Sira. The proportional occurrence of each species in mist-netted samples is plotted along the ordinate.

widespread species ranging through the western Amazonian lowlands (fig. 2). Over this vast range it shows no appreciable geographic variation and was considered monotypic by Zimmer (1950). Likewise, the two known populations of *P. koepckeae* are undifferentiated. David L. Pearson (in litt.), who has observed *philippii* near Pucallpa, on the Río Ucayali, Perú (elev. 140 m), reports that it is a bird of mature forest, as is *koepckeae*. But unlike the latter, which is an inhabitant of hill country, *philippii* is strictly a denizen of the lowlands, not recorded anywhere at elevations greater than about 200 m. Its presence near Pucallpa, 100 km north of the Sira, and at Lagarto, 150 km southeast of the Sira, implies continuous distribution along the Río Ucayali valley. Since *koepckeae* can be expected to live throughout the 600 to 1,100 m zone on the slopes of the Sira, the ranges of the two species probably approach one another within several kilometers where the Ucayali borders the Sira's eastern side. Sympatry would be most unlikely as neither would be expected at elevations between 200 and at least 500 m. As is true in numerous other genera of this region (Terborgh 1971, Terborgh and Weske 1975), *P. koepckeae* and *P. philippii* are two closely allied but distinct species which have evolved different elevational and habitat requirements.

SPECIMENS EXAMINED

Phaethornis koepckeae. PERU. Depto. Amazonas: 20 km SW Chiriaco, ca. 1,700 ft, 15 Dec. 1974, 1 ♂ im. (LSUMZ); km 381.4 on Corral Quemado-Nazareth Highway, ca. 900 ft, 8 Oct. 1973, 1 ♀ im. (LSUMZ). Depto. Huánuco: Cerros del Sira, 650 m [= 690 m, adjusted], 24–26 July 1971, 1 ♂ im., 3

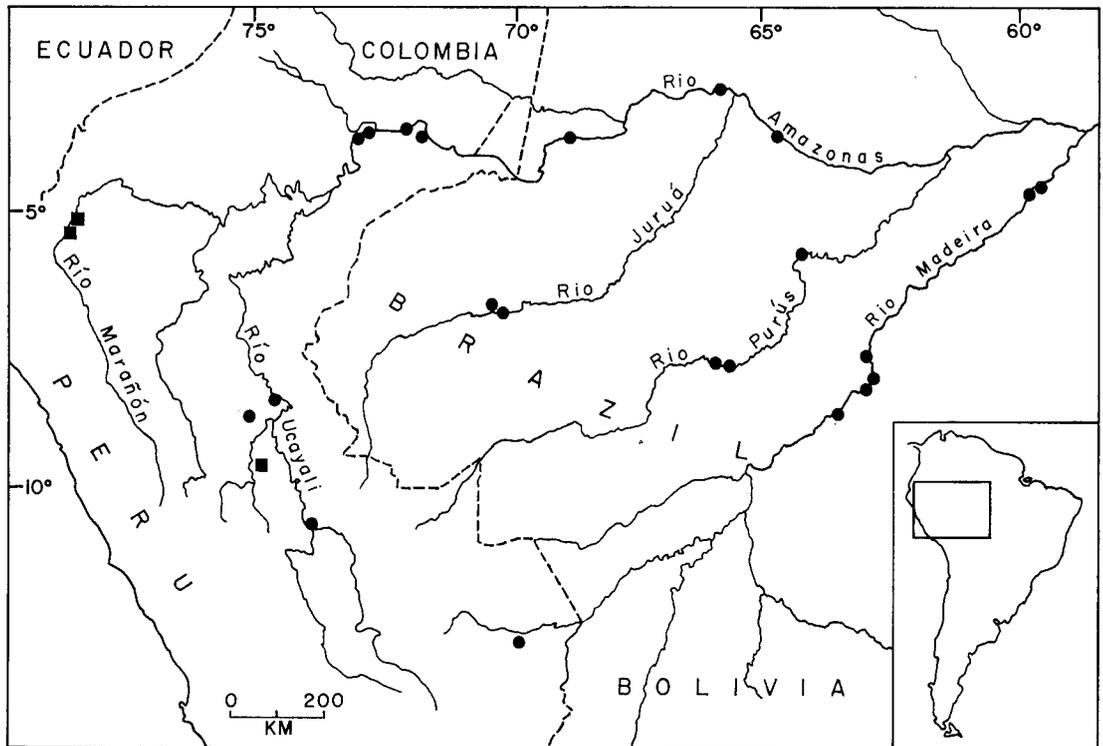


FIGURE 2. Distribution of *Phaethornis koepckeae* (squares) and *P. philippii* (circles). Localities are based on Gyldenstolpe (1945, 1951) as well as on specimens examined in this study.

♀ ad.; Cerros del Sira, 860 m, 2–4 July 1969, 1 ♀ ad., 1 ♀ im., 1 unsexed im. (AMNH).

Phaethornis philippii. PERU. Loreto: Santa Cecilia on Río Manítí, 3 ♂♂ (FM); 40 mi. E Iquitos, 3 ♂♂, 2 ♀♀ (FM); Río Pichana, 1 ♂, 2 ♀♀ (FM); Yarinacocha, 1 ♂ (LSUMZ), 1 ♀ (FM); 59 km W Pucallpa, 4 ♂♂, 4 ♀♀, 1 unsexed (AMNH). Depto. Madre de Dios: 105 km SW Puerto Maldonado, 1 unsexed (LSUMZ). BRAZIL. Est. Amazonas: Nova Olinda on Río Purús, 1 ♂ (ANSP). Also the AMNH series from Perú and Brazil listed by Zimmer (1950), including the type.

Phaethornis superciliosus ucayalii. The AMNH series listed sub nom. *P. malaris ucayali* by Zimmer (1950).

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