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DISTRIBUTION AND NATURAL HISTORY OF SOME BIRDS FROM THE DEPARTMENTS OF SAN MARTIN AND AMAZONAS, NORTHERN PERU[1]

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Abstract. Ornithological surveys were conducted during 1983 in northern Peru at three sites in Dpto. San Martín, and at one site in Dpto. Amazonas. New localities and natural history observations are reported for the following species: *Touit stictoptera, Otus guatemalae, Chaetura egregia, Phaethornis koepckeae, Urosticte benjamini, Heliangelis regalis, Phyllomyias burmeisteri, Hemitriccus rufigularis, Myiophobus phoenicomitra, Oxyruncus cristatus,* and *Henicorhina leucoptera. Campylopterus villaviscensio* is reported from Peru for the first time, and the first known nest of *Contopus nigrescens* is described. Two appendices report the relative abundance of all species recorded from the four sites.

Key words: Peru; Andes; distribution; locality lists; natural history.

INTRODUCTION

From August to September 1983, I conducted ornithological surveys of several semi-isolated mountainous areas at four camps in two departments of northern Peru. Surveys were made by observation, by collecting with a shotgun, and by running at every camp as many as forty mist-nets that were not closed at night. This paper reports the results of these surveys, with emphasis on species that are rare in collections and/or almost unknown in life. Because so few complete lists are available for Andean localities, I provide them in Appendices 1 and 2. All specimens are deposited in the Louisiana State University Museum of Zoology (hereafter LSUMZ).

STUDY SITES

Camps 1 to 3 were along an elevational gradient in the partially isolated mountain range east of Moyobamba in Dpto. San Martín.

Camp 1. (06°29′S, 76°18′W); 28 km by road NE of Tarapoto on the road to Yurimaguas, Dpto. San Martín, 750 m; 2–18 October 1983. This camp was located about 1 km north of the road. The terrain at this site was mostly level but was hilly at the base of the main ridge. I concentrated my effort just east of the campsite in a large tract of undisturbed forest, which had a canopy height estimated to average 30–35 m. Both the campsite and this tract of forest were almost completely surrounded by large *chacras* (cleared agricultural plots).

Camp 2. (06°30′S, 76°20′W); 20 km by road northeast of Tarapoto on the road to Yurimaguas, Dpto. San Martín, 1,050 m; 30 August–2 October 1983. This camp was located 1 km southwest of the tunnel at the summit of the road that crossed the main ridge separating the Tarapoto and Yurimaguas valleys. The hills in the area appeared to be block-faulted, because the east side was almost vertical and the west side was generally less steep. Extensive farming has reduced the undisturbed forest near the road to a few patches. The forest is disappearing rapidly on the west side, but on the east side the extraordinary topography seemed to protect it. On the drier west side, moss and epiphytes were moderately common; on the east side they were slightly more common. Work was concentrated along the top of the extremely narrow ridge directly above the tunnel, but some was done in patches of forest on the west slope. The forest on the ridge did not differ significantly in canopy height from the forest on either side, and the canopy height in the area, although irregular, averaged 20–25 m.

Camp 3. (06°03′S, 76°44′W); about 15 km by trail northeast of Jirillo on the trail to Balsapuerto, Dpto. San Martín, 1,350 m; 26 October–24 November 1983. This camp was located along an old mule trail that is no longer used, beyond a settlement called Jesús del Monte; the camp was located about 2 km past this settlement. Several habitats were present at this camp, mainly because the camp was situated near the elevational limit of the dry, savanna-like vegetation characteristic of the valley to the west. A semi-stunted forest that seemed to form a transition between the savanna-like vegetation and the tall forest averaged 12 m in height, whereas the tall forest in areas with good soil had a canopy height of 30 to 35 m. Additionally there was a more xeric, stunted habitat (av. canopy height ca. 4 m) located mostly on the ridges, which was created by the outcropping of sandy, poor-quality soils.

Camp 4. (05°47′S, 77°44′W); about 30 km

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by road east of Florida (de Pomacochas) on the road to Rioja, Dpto. Amazonas, 2,200 m; 26 November to 9 December 1983. This camp was located about 2 km west of Abra Patricia, the pass between Rioja and Florida along this road. This site was approximately 12 km by road southwest of an important LSUMZ collecting locality (10 km by road below [NE] Abra Patricia on road to Rioja). This camp was adjacent to an active lumber mill. Consequently no large trees remained near camp, although across the valley were expanses of undisturbed cloud forest. The canopy height was irregular because of the heavy logging but averaged approximately 20 m.

SPECIES ACCOUNTS

Touit stictoptera. Spot-winged Parrotlet. This small parrot has been recorded from only a few localities in the Andes of Colombia, eastern Ecuador (Forshaw 1973) and on the north side of the Marañón River in extreme northern Peru (Pomará, Dpto. Amazonas; Ridgely 1980a). The LSUMZ also contains an unpublished specimen collected by G. R. Graves in 1976 north of the Marañón River in Dpto. Cajamarca (above San José de Lourdes, see below for specimen data). I found this species to be fairly common from 1,350 to 1,450 m at Camp 3. Two specimens were obtained and extend the known range south of the arid Marañón River Valley, an important zoogeographic barrier for Andean birds (see Parker et al. 1985).

Although Ridgely (1980b) concluded that *T. stictoptera* is genuinely rare throughout its range, I found this parrot to be fairly common in San Martín. It is difficult to detect if one is not familiar with its calls, and in this respect I agree with Ridgely (1980b) in that the species must very often be overlooked. In San Martín, I saw noisy flocks of 5 to 25 individuals daily; they flew well above the forest canopy and less often through the canopy. The parrots seemed to prefer tall forest but apparently were not restricted to it, because I netted one individual in savanna-like habitat and A. Urbay T. collected another as its flock came to rest in the stunted forest of a ridge top. Flight calls consisted of two, occasionally three, high-pitched, raspy notes with the first being slightly lower-pitched. This call can be written as follows: "*raah-reh*" or "*raah-reh,reh.*"

Specimen data: San Martín: LSUMZ 116353 (skin), left testis 4½ × 3 mm, 82 g; light fat; 116354 (skeleton and partial skin), left testis 8 × 5 mm, 70.5 g, no fat; Cajamarca: LSUMZ 81809 (skin), testes 4 × 3 mm, 84 g; stomach contents—green seeds.

Otus guatemalae. Vermiculated Screech-Owl. Although this species is found from Mexico to Bolivia (Meyer de Schauensee 1966), the South American portion of its range is patchy and there are only four locality records for Peru. These records are from Dptos. Pasco (Cordillera Yanachaga; Schulenberg et al. 1984), Huánuco (Cerros del Sira; Weske and Terborgh 1981), Junín (Chanchamayo; Hekstra 1982) and Cuzco (Urubamba Valley; Kelso 1940). In addition to these published records, the species is also known from several unpublished specimens as follows: one from Dpto. Loreto (mouth of the Río Curaray; AMNH); one from Dpto. Huánuco (Cayumba Grande; FMNH); five from Dpto. Junín (Yurimagua Alto and Chanchamayo; all FMNH); and two more from Dpto. Cuzco (Consuelo; both FMNH). Although the lowland locality of the Loreto specimen seems unusual, several other species of birds more typical of the Andean foothills occur in the Amazon basin north of the Amazon River in this same portion of northeastern Peru (Cardiff 1983). This screech-owl was found to be fairly common in San Martín at 1,350 m at Camp 3, where I heard it almost nightly in the tall and semi-stunted forest. Although one individual was netted along the ridge at 1,050 m at Camp 2, no screech-owls were heard or otherwise seen there.

The only song described for this species from South America is from Venezuela and is said to consist of a pure trill of 3 to 6 seconds, higher than in the Mexican populations of *O. guatemalae* (Van der Weyden and Ginn 1973). Hardy (1980) has a recording of *O. guatemalae* from the Sira mountains in Dpto. Huánuco that sounds much like the birds I heard in San Martín. The song was heard regularly at Camp 3 and consisted of a rather rapid series of notes that seemed only slightly higher-pitched than the song of lowland *O. watsonii.* The notes were evenly spaced and much like the song described above for the Venezuelan birds, but in the San Martín birds the song dropped slightly in pitch at the end. Both normal and red phases have been desscribed for the species (Marshall 1967), and of the five specimens taken from both Camps 2 and 3, two were in the rufous phase, two were in the normal brown phase (although one was slightly grayer than the other), and one was a juvenile. Only a single adult female, with slightly enlarged gonads, appeared to be in breeding condition and was collected with its presumed offspring, a juvenile male, on 28 October by Manuel Sánchez S.

Specimen data: LSUMZ 116358 (Camp 2); 116359, 116360, 116441, 116442 (Camp 3); adults: 94–128 g (mean = 112.8 g); juvenile: 93 g; light fat to no fat; stomach contents—insect remains (some saved for LSUMZ Stomach Contents Collection).

Chaetura egregia. Pale-rumped Swift. This swift is known from southern South America in Bolivia and Brazil (Meyer de Schauensee 1966) and has been recorded at three localities in southern Peru. O'Neill (1969) reported the species from Balta in Dpto. Ucayali, Terborgh et al. (1984) from Manu National Park in Dpto. Madre de Dios, and T. A. Parker III (pers. comm.) from the Tambopata Reserve in Dpto. Madre de Dios. I netted one specimen along the ridge top at 1,050 m at Camp 2, where I found the species uncommon but regular. This swift was also seen at Camp 1 but only rarely. These records extend the range of the species northwest by almost 700 km.

In the vicinity of Camp 2, *C. egregia* was usually found in association with the commoner *Aeronautes montivagus* and the rarer *C. brachyura.* At Camp 1 the species was noted in mixed flocks of both *C. brachyura* and an unidentified *Chaetura* (possibly *cinereiventris*).

Specimen data: LSUMZ 116449, female, ovary not enlarged, 25.0 g, moderate fat, stomach contents—insect remains.

Phaethornis koepckeae. Koepcke's Hermit. This recently described hummingbird (Weske and Terborgh 1977), is known from six localities in eastern Peru. Aside from the three localities included in the type description (SW Chiriaco and km 381.4 on Corral Quemado–Nazareth Highway, both in Dpto. Amazonas, and the Cerros del Sira in Dpto. Huánuco), *P. koepckeae* was collected in 1978 in Dpto. Amazonas, 43 road km northeast of Chiriaco, 1,050 m (unpublished LSUMZ specimens, specimen data below), and in 1980 and 1983 at 2 localities in Dpto. Madre de Dios at Cerro de Pantiacolla and in the hills northwest of Atalaya (J. W. Fitzpatrick, pers. comm.). In San Martín, I found Koepcke's Hermit to be fairly common at 750 m (Camp 1) and slightly more common at 1,050 m (Camp 2). This hermit appears to be restricted to the low foothills of outlying ranges of the Andes (Weske and Terborgh 1977). The eight known localities extend its range from northern to southern Peru, coinciding closely with ridges isolated from the base of the main Andes.

In San Martín, I found Koepcke's Hermit regularly in the lower strata of tall, humid upper tropical zone forest

and only rarely in neighboring second-growth. Four of the 24 skins from San Martín appear to be juveniles and have undeveloped gonads. The plumage of these individuals differs from that of the adults in that the feathers of the upperparts of the juveniles are edged with dull Yellow Ocher (color 123C; capitalized color names from Smithe 1975) and the malar region is noticeably darker. No sexual dimorphism in plumage is apparent in the series, but males averaged heavier than females.

Specimen data: San Martín: LSUMZ 116492–116507 (Camp 2); 116508–116515 (Camp 1); 14 males, 4.7–5.8 g (mean = 5.4 g), none with enlarged gonads; 9 females, 4.5–4.9 g (mean = 4.7 g), 2 with slightly enlarged gonads; no fat; stomach contents—various insect remains including one individual with small spider; Amazonas: LSUMZ 87361–87363; 2 males, 5.2 to 5.5 g, neither with enlarged gonads; 1 female, 4.4 g, gonads slightly enlarged.

Campylopterus villaviscensio. Napo Sabrewing. This hummingbird has been recorded only from eastern Ecuador (Meyer de Schauensee 1966). On 28 October, I collected an adult male of this species as it was feeding at a low flowering bush at the edge of the stunted forest at 1,350 m at Camp 3. The species was later found to be quite common at that camp. A lone female specimen was netted along the ridge top at 1,050 m at Camp 2, but no others were seen there during our stay. These records represent the first for Peru and extend the species' range south of the Marañón River Valley and about 375 km south of the Ecuadorian border.

In San Martín, this hummingbird was recorded daily in the stunted transitional forest and less frequently in the tall forest and the savanna-like vegetation. The birds were most often seen feeding at clumps of long red flowers (corolla approx. 3 cm) in the middle to lower strata of dense forest; once I noted a female sallying for insects. This species appears to be quieter than *C. largipennis,* but the rather loud, dry "*chick*" notes of *C. villaviscensio* were similar to those of *C. largipennis* and were uttered occasionally during feeding. *C. largipennis* was also recorded from Camp 3, but it was rare there, being recorded only from the savanna-like vegetation and not from the continuous forest. Twenty-six specimens of *C. villaviscensio* (1 from Camp 2, and 25 from Camp 3) were obtained in San Martín including 9 males and 17 females. Nine females were in breeding condition, including one with a shelled egg in the oviduct and another with an unshelled egg in the oviduct. Three females seemed to be in subadult plumage; they differed from adults in having darker gray underparts and only varying amounts of glittering green on the crown. Only four males were in full adult plumage; the remaining five appear to be in subadult plumage and had less blue on their throats than the full adults, only flecks of glittering green on the crown, and pale grayish edges to the tips of the outer rectrices as opposed to uniformly steel blue tail feathers. These subadult males also lack the thickened rachis of the outer primary found in the adults.

Specimen data: LSUMZ 116553 (skin, Camp 2); 116554–116574 (skins, Camp 3); 118200–118201 (skeletons, Camp 3); 117924–117925 (alcoholics, Camp 3); 8 males (none with testes larger than 3 × 3 mm), 7.4 to 9.3 g (mean = 8.4 g); 16 females, 5.2 to 7.4 g (mean = 6.5 g); iris dark brown; tarsi and feet from dark gray to black; bill black; heavy fat to no fat; stomach contents—insect remains.

Urosticte benjamini. Whitetip. This species has been reported in Peru only from Dpto. Amazonas (Chirimoto and Ray-Urmaña; Taczanowski 1882). An unpublished record of this species in Peru is of two male specimens in the LSUMZ taken in Dpto. Cajamarca (east side of ridge above [ENE] San José de Lourdes, ca. 1,950 m and ca. 2,200 m) in 1976. On 29 October at Camp 3, I collected an adult male at 1,350 m while it was feeding at a flowering tree; another adult male was netted the following day and was prepared as a skeleton. These records, therefore, represent only the third report of the species in Peru.

The Whitetip was only occasionally encountered during the stay at Camp 3 and was usually seen feeding at the same tree where the first specimen was collected. The two specimens from Dpto. Cajamarca are in essentially adult plumage, although both show small patches of Cinnamon (color 39) below the corners of the throat. Neither of these birds shows any hint of violaceous tinge below the throat (a characteristic of both *U. b. benjamini* and *U. b. intermedia*), these areas being green as are the feathers of the throat. Thus, these specimens most closely fit *U. b. ruficrissa,* the subspecies known from eastern Ecuador not far to the north. The San Martín specimen, however, also shows no hint of violaceous below the throat and agrees closely with the Cajamarca specimens; it differs only in that it is more green, less flecked with white below, has smaller and more pointed white tips to the central rectrices, and lacks the Cinnamon (color 39) areas near the throat. This resemblance to *ruficrissa* is surprising because the type locality for *U. b. intermedia* (Chirimoto and Ray-Urmaña, Dpto. Amazonas; Taczanowski 1882) is extremely close (ca. 90 km) to the locality at which the San Martín specimens were taken. More collecting in San Martín, Amazonas, and in intervening areas is needed before the status of the subspecies of *Urosticte benjamini* in Peru can be fully understood.

Specimen data: San Martín: LSUMZ 116632 (skin), 118208 (skeleton); two males (neither in breeding condition), 4.0 to 4.1 g; Cajamarca: LSUMZ 81828–81829 (skins); two males (one with slightly enlarged gonads), 4.0 g (one not weighed); stomach contents—insect remains.

Heliangelus regalis. Royal Sunangel. This distinctive hummingbird, only recently described (Fitzpatrick et al. 1979), has heretofore been reported only from the type locality in Dpto. Cajamarca (above San José de Lourdes), north of the Marañón River in extreme northern Peru. On 28 October, Manuel Sánchez S. collected an adult male at 1,450 m near Camp 3. On 3 November, I saw a male in the same area, and I collected what was perhaps the same individual there on 15 November. These records represent, therefore, only the second known locality for the species and extend its range south of the arid Marañón River Valley.

In San Martín I recorded *H. regalis* in mossy, stunted forest (canopy height ca. 4 m) along the top of a short ridge that rose abruptly from the surrounding tall upper tropical forest. The habitat of the species at the locality in Cajamarca was apparently similar to that in San Martín (Fitzpatrick et al. 1979). One of the specimens taken in San Martín appears to be subadult because it is not solid blue, being flecked with gray and dull green throughout most of its plumage. Comparison with material from the type locality indicates that the species is monotypic.

Specimen data: LSUMZ 116681–116682; two males (neither in breeding condition), 3.5 g (adult), 4.5 g (subadult with moderate fat); stomach contents—insect remains.

Phyllomyias [*Acrochordopus*] *burmeisteri.* Rough-legged Tyrannulet. This unusual flycatcher is known in Peru only from the south in Dpto. Cuzco (Traylor 1979). At Camp 2, I observed this flycatcher occasionally and considered it uncommon. One specimen was netted on 24 September, referable to the race *leucogenys.* The San Martín records lie in the middle of a large gap (ca. 950 km) in the known range of the species between Dpto. Cuzco and Provs. Guayas and Zamora-Chinchipe, eastern Ecuador (Traylor 1979).

In San Martín, *P. burmeisteri* was recorded regularly at Camp 2 at 1,050 m from the upper and middle strata of tall, dense forest. It was very active, almost continually

moving while frequently making short sallies to nearby branches and leaves. This behavior is, for the most part, consistent with the foraging behavior described by Fitzpatrick (1980) for the genus *Phyllomyias.*

Specimen data: LSUMZ 117275; 1 female (gonads slightly enlarged); 9.8 g; iris reddish-brown; tarsi, feet and maxilla black; mandible pale pink; no fat; stomach contents—insect parts.

Hemitriccus rufigularis. Buff-throated Tody-Tyrant. The range of this rare flycatcher is reported to extend from Dpto. Huánuco, central Peru, south to Dpto. La Paz, northern Bolivia (Traylor 1979). On 28 October, Manuel Sánchez S. collected a pair of this species at 1,450 m at Camp 3; the species was later found to be uncommon at that camp. Thus, these records extend the known range northward by approximately 275 km.

H. rufigularis was found in San Martín to be uncommon from 1,350 to 1,450 m, usually as a member of small mixed-species flocks consisting of *Myrmotherula schisticolor, Herpsilochmus* n. sp. (Davis and O'Neill, in press), *Automolus ochrolaemus, Xenops rutilans,* and *Xiphorhynchus ocellatus.* The tody-tyrant usually remained fairly high up in the tall forest but always below the canopy; only once was it recorded in the stunted forest.

Specimen data: LSUMZ 117236–117237; 1 male (gonads not enlarged), 9 g; 1 female (gonads not enlarged), 9.5 g; iris grayish white; tarsi and feet medium gray; bill black, mandible with pink tip; both with moderate fat.

Contopus nigrescens. Blackish Pewee. This rare flycatcher is known in Peru from seven specimens all taken in Dpto. San Martín (Moyobamba Valley; Chapman 1926, Bond 1947); these specimens belong to the race *canescens,* which has, surprisingly, also been taken in southern Guyana (Acary Mountains; Blake 1950). In 1983, I collected a mated pair and their nest at Camp 2. In addition to these specimen records, T. A. Parker III (pers. comm.) has observed the species in Dpto. Huánuco at approximately 800 m and in Dpto. Amazonas above the Río Comaina at approximately 1,000 m.

I have not found any published information on the natural history of *C. nigrescens.* On 14 September, I observed the aforementioned mated pair constructing a nest at 1,050 m in tall forest (average canopy height 25 m) on a steep slope with heavy undergrowth. During a 20-min observation period (at approx. 1000–1020), the female worked almost constantly on nest construction; she collected nest material, all from a nearby tree, by hovering briefly over or to the side of a branch and then quickly dropping to the branch to pick up the material with her bill without alighting. The male remained in the immediate vicinity of the nest tree but did not participate in the nest construction. The nest was placed about 15 m up in a tall tree (estimated height 25 m) about 0.5 m from the end of one of the tree's lowest branches, cradled between a horizontal fork in the branch. I collected the nest when it was probably more than 50% complete. It was composed of plant fibers, thin branches of vines, moss, lichens, and spider webs formed into a shallow cup with no apparent lining (#901, LSUMZ Egg and Nest Collection). A lining could perhaps have been added later, had the nest not been collected.

Specimen data: LSUMZ 117184–117185; 1 male (complete skeleton and partial skin), testes slightly enlarged, 9.0 g; 1 female (skin), ovary enlarged, largest ovum 2 mm dia., oviduct 3 mm, 10.0 g; iris brown; tarsi, feet and maxilla black; mandible pale grayish-flesh; mouth-lining orange-yellow; no fat; stomach contents—various insect remains including Hymenoptera parts (saved for LSUMZ Stomach Contents Collection).

Measurements of nest: outside diameter—55.5 mm; inside diameter—28.6 mm; height—40.5 mm; depth—17.1 mm.

Myiophobus phoenicomitra. Orange-crested Flycatcher. This species has been reported in Peru from only one locality, which is in Dpto. San Martín (Afluente, 80 road km west of Rioja; Parker and Parker 1982). In 1983, two specimens were netted at Camp 3 across the valley from Afluente.

These two specimens of *M. phoenicomitra* were netted in dense, somewhat stunted forest at 1,350 m. The specimens closely resemble the series obtained at the other Peruvian locality and appear referable to the nominate race, known from eastern Ecuador (Traylor 1979).

Specimen data: LSUMZ 117184–117185; 2 males (one with slightly enlarged gonads), 10.5 to 11.0 g; light fat to no fat.

Oxyruncus cristatus. Sharpbill. The range of the Sharpbill is extremely patchy. This unusual species has been reported in Peru only from one specimen taken in Dpto. Junín (Traylor 1979). In 1983, I collected two specimens at Camp 3, where I found Sharpbills to be uncommon. T. A. Parker III (pers. comm.) has also observed this species in Dpto. Amazonas above the Río Comaina at approximately 1,000 m.

I noted this species almost daily in the canopy of both the tall forest and the stunted forest at 1,350 m at Camp 3. Most observations were of solitary birds that only rarely associated with mixed-species flocks. Pairs were twice noted chasing each other high in the canopy. Several times individuals were seen at large fruiting trees, where perched birds plucked small fruit. Their song was heard almost daily and consisted of a rather long, descending whistle with a nasal and raspy quality. This song is apparently almost identical to the song reported for the Costa Rican population by Stiles and Whitney (1983).

Specimen data: LSUMZ 117371–117372; 1 male (gonads not enlarged), 43.5 g, light fat; 1 female (gonads slightly enlarged), 46 g, no fat; iris pale orange to pale brownish-orange; tarsi and feet gray to bluish-gray; maxilla dark grayish-black; mandible bluish-gray to pinkish-gray; stomach contents—vegetable matter and caterpillar remains (saved for LSUMZ Stomach Contents Collection).

Henicorhina leucoptera. Bar-winged Wood-Wren. This recently discovered wren has been reported from Peru at only two localities: one north (above San José de Lourdes, Dpto. Cajamarca) and one south (below Abra Patricia, Dpto. San Martín) of the Marañón River Valley (Fitzpatrick et al. 1977). I found this wren to be common at Camp 3 and collected seven specimens there. The LSUMZ also contains 10 unpublished specimens of *H. leucoptera* collected by an LSUMZ expedition in 1979 from Dpto. La Libertad (above Utcubamba at 1,825 to 2,200 m; specimen data below). Thus, the species is now known from four localities on both sides of the Marañón River in Peru.

In San Martín, this wren was found to be common at Camp 3 from 1,350 to 1,450 m in the stunted forest on isolated ridges and in the stunted forest/savanna ecotone, rarely venturing into the tall forest. At this locality the species was syntopic with *H. leucophrys,* but the latter was extremely rare. At the La Libertad locality in 1979, *H. leucoptera* was found to be the commonest bird along an upper ridge crest, where 6+ pairs were detected, apparently with territories linearly spaced along the ridge. They occurred in tall ferns, dense bushes, and low trees. *H. leucophrys* was uncommon below the ridge in the taller forest (T. A. Parker III, pers. comm.). Despite the species' distribution both north and south of the Marañón River, *H. leucoptera* appears to be monotypic with material from all four of the known localities showing no consistent differences between the populations.

Specimen data: San Martín: LSUMZ 117391–117397; 4 males (one with slightly enlarged gonads), 14.5 to 16.5 g; 3 females (none with enlarged gonads), 12.5 to 13.5 g. La Libertad: LSUMZ 93012, 93014–93022; 6 males (none with enlarged gonads), 12 to 16 g; 4 females (none with

enlarged gonads), 12 to 14.5 g; stomach contents—various insect remains.

DISCUSSION

The central and eastern portions of the department of San Martín and adjoining areas of the department of Loreto are fairly well known and contain some important collecting localities (e.g., Moyobamba, Tarapoto, and Yurimaguas). Although the area has remained unstudied during the latter part of this century, at least one area close to this part of San Martín at similar elevations has been studied within the past decade (Afluente, 1,000 to 1,300 m, Dpto. San Martín; Parker and Parker 1982).

Nonetheless, I was surprised to find so many little known species in this small portion of San Martín. Not only did the present study produce one species previously unknown from Peru (*Campylopterus villaviscensio*), but it also produced the second known localities in Peru of at least four species (*Heliangelis regalis, Phyllomyias burmeisteri, Myiophobus phoenicomitra,* and *Oxyruncus cristatus*). This expedition also turned up a new species of antwren that will be described elsewhere (Davis and O'Neill, in press). The discovery of new populations of three species described only within the past decade was also surprising, yet not entirely unexpected: two of these species were suspected of being relict species that are now restricted to isolated mountain ridges (Fitzpatrick et al. 1977, Fitzpatrick et al. 1979), and their occurrence in this part of San Martín fits this pattern. The third species (*Phaethornis koepckeae*) had already been found to the northwest and to the south of the San Martín locality in similar areas (Weske and Terborgh 1977; LSUMZ specimens).

Fieldwork in general at elevations in the upper tropical zone (ca. 700 to 1,500 m) has been limited, and only a few localities in Peru within this zone have been thoroughly collected (e.g., Afluente, Dpto. San Martín [Parker and Parker 1982]; Cordillera Divisoria, Dptos. Huánuco and Ucayali [LSUMZ specimens]; Cerros del Sira, Dpto. Huánuco [Terborgh and Weske 1975]; Cordillera Yanachaga, Dpto. Pasco [Schulenberg et al. 1984]; and Cordillera Vilcabamba, Dpto. Cuzco [Terborgh and Weske 1975]). My studies in San Martín show that apparent gaps in the ranges of several upper tropical zone species (e.g., *Phyllomyias burmeisteri, Oxyruncus cristatus*) are probably the result of a lack of good collections at those elevations and do not represent true distributional discontinuities. More work needs to be done at these lower elevations before the zoogeographic history of the distinctive upper tropical zone avifauna can be unraveled.

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APPENDIX 1

SPECIES COMPOSITION AT THREE SITES IN DPTO. SAN MARTÍN, PERU

Explanation of Symbols: The following list consists of the species found at the three camps located along an elevational gradient in San Martín. The first symbol following the name of each species represents that species' relative abundance at Camp 1 (750 m), the second represents its abundance at Camp 2 (1,050 m), and the third represents its relative abundance at Camp 3 (1,350 to 1,450 m).

R = RARE; seen or heard on one out of six days or less often.

U = UNCOMMON; seen or heard on one out of three to five days.

F = FAIRLY COMMON; seen or heard daily in small numbers.

C = COMMON; seen or heard daily in moderate to large numbers (all symbols of relative abundance as in Parker et al. 1982).

V = VISITOR; a species not considered to be part of the resident community; includes those species suspected of being wanderers from adjacent elevations, or those species that probably reach their extreme elevational limit in the area, are therefore very irregular in the area, and hence are not "typical" of the community; usually recorded only once.

m = MIGRANT; species known in Peru only as a migrant.

* = recorded by sight record only, no specimen obtained; an asterisk directly after a species name implies that no specimens of that species were obtained at any of the three camps; where the asterisk follows directly after a symbol of relative abundance for a particular camp, it implies that no specimen of that species was obtained at that camp.

( ) = species names in parentheses indicates the identification is uncertain.

– = species not recorded at that camp.

Tinamus tao U,R*,U*. *Cathartes aura** U,F,R. *C. melambrotus** F,U,–. *Elanoides forficatus** U,U,U. *Ictinia plumbea** R,U,–. *Harpagus bidentatus* R,–,U*. *Accipiter superciliosus* –,–,R. *Buteo magnirostris* U*,F,U*. *Leucopternis albicollis* –,R,–. *Micrastur gilvicollis* U,–,–. *Daptrius ater** R,–,–. *D. americanus** U,U,R. *Ortalis guttata** U,–,–. *Penelope jacquacu* U,–,R. *Aburria aburri* –,F,U*. *Chaemapetes goudottii* –,–,F. *Crax* sp.* R,–,–. *Odontophorus* sp.* R,–,–. *O. speciosus** –,–,U. *Eurypyga helias** R,–,–. *Columba fasciata** –,–,R. *C. speciosa* –,–,F. *C. plumbea* F*,F*,U. *Claravis pretiosa* –,U,–. *Leptotila rufaxilla* F,–,–. *Geotrygon montana* R*,R,R*. *G. frenata** –,U,–. *Ara* sp.* R,–,–. *A. militaris** –,–,U. *Pyrrhura picta* U*,U,–. *P. melanura* (*berlepschi*) F*,U,U*. *Brotogeris cyanoptera* F*,F*,V. *Touit* (*huetii*)* R,–,–. *T. stictoptera* –,–,F. *Pionus* sp.* –,–,U. *P. menstruus* F,–,–. *Amazona* sp.* –,–,U. *Coccyzus erythropthalmus* mR,–,–. *Piaya cayana** F,F,U. *Crotophaga ani** U,U,U. *Otus guatemalae* –,R,F. *O. watsonii** F,–,–. *Lophostrix cristata** F,–,–. *Pulsatrix melanota* U*,F*,R. *Ciccaba huhula* U,–,–. *Nyctiphrynus ocellatus* –,–,R. *Caprimulgus nigrescens* –,–,U. *Streptoprocne zonaris** R,U,F. *Cypseloides rutilus** –,–,F. *Chaetura* (*cinereiventris*)* R,–,–. *C. egregia* R*,U,–. *C. brachyura** F,V,–. *Aeronautes montivagus* –,C,–. *Doryfera johannae* –,U,U. *D. ludoviciae* –,R,–. *Glaucis hirsuta* –,V,–. *Threnetes leucurus* U,U,–. *Phaethornis guy* –,–,C. *P. superciliosus* U,F,–. *P. koepckeae* F,C,–. *P. ruber* U,V*,–. *P. griseogularis* –,–,F. *Eutoxeres aquila* R,U,–. *E. condamini* –,U,R. *Campylopterus largipennis* U,F,R. *C. villaviscensio* –,V,F. *Florisuga mellivora* U,U,R. *Colibri delphinae* –,U,R. *C. thalassinus* –,–,U. *C. coruscans* –,–,C. *Klais guimeti* –,U,R*. *Thalurania furcata* F,U,U. *Chrysuronia oenone* R,U,F. *Taphrospilus hypostictus* –,R,–. *Urosticte benjamini* –,–,R. *Polyplancta aurescens* R,U,R. *Heliodoxa leadbeateri* –,–,C. *H. schreibersii* R,U,R. *H. gularis* –,R,–. *Coeligena coeligena* –,–,R. *Heliangelus regalis* –,–,R. *Ocreatus underwoodii* –,–,C. *Heliothryx aurita** U,V,–. *Pharomachrus antisianus* –,R*,U. *Trogon viridis* C,R*,F*. *T. collaris* U*,F,U. *Chloroceryle inda* R,–,–. *Galbula albirostris* R,–,–. *G. cyanescens* F,–,–. *Malacoptila fusca* R,–,–. *Micromonacha lanceolata* R,R,–. *Monasa morphoeus** C,R,–. *Chelidoptera tenebrosa** –,–,F. *Capito niger* F,C,U. *Eubucco richardsonii* R,–,–. *E. versicolor* –,U,–. *Aulacorhynchus derbianus* –,U,–. *Pteroglossus flavirostris* –,R,–. *P. beauharnaesii* U*,U,–. *Selenidera reinwardtii* C,U,U*. *Ramphastos culminatus** U,–,–. *R. cuvieri** C,V,–. *Piculus rubiginosus* –,U,–. *P. leucolaemus* –,U,R*. *Drycopus lineatus** R,–,–. *Melanerpes cruentatus** F,U,V. *Veniliornis affinis** R,R,–. *Phloeoceastes rubricollis** U,–,–. *Dendrocincla fuliginosa* U,R,R. *Deconychura longicauda* –,–,R. *D. stictolaema* R,–,–. *Sittasomus griseicapillus* –,–,R. *Glyphorhynchus spirurus* C,F,V. *Xiphorhynchus ocellatus* R,U,F. *Lepidocolaptes albolineatus* R,–,–. *Campylorhamphus trochilirostris* R,–,R. *Cranioleuca gutturata* F,–,–. *Phacellodomus ruffrons** –,–,R. *Premnoplex brunnescens* –,–,R. *Hyloctistes subulatus* –,R,–. *Ancistrops strigilatus** U,–,–. *Philydor erythrocercus* –,–,R. *P. rufus* –,U,–. *Automolus infuscatus** F,–,–. *A. rubiginosus* –,U,–. *A. ochrolaemus* U,U,F. *Thripadectes melanorhynchus* –,R,–. *Xenops rutilans* –,R,U*. *X. minutus* U,R,R. *Sclerurus albigularis* –,U,–. *S. mexicanus* R,R,–. *S. caudacutus* R,–,–. *Cymbilaimus lineatus** U,–,–. *Taraba major** R,–,–. *Thamnophilus doliatus** R,–,–. *T. aethiops* R,–,–. *T. schistaceus* C,–,–. *Thamnistes anabatinus* –,U,R. *Dysithamnus mentalis* R,C,F. *Thamnomanes ardesiacus* U,–,–. *Myr-*

*motherula brachyura** U,–,–. *M. haematonota* U,U,–. *M. erythrura* F,–,–. *M. axillaris* C,R,–. *M. schisticolor* –,–,F. *Herpsilochmus* sp.nov. –,–,C. *H. rufimarginatus* –,R,–. *Microrhopias quixensis* F,–,–. *Cercomacra cinerascens* C,–,–. *C. serva* F*,F,R*. *Myrmoborus leucophrys* –,–,R. *M. myotherinus** F,–,–. *Percnostola leucostigma* R,–,–. *Myrmeciza hyperythra** R,–,–. *Pithys albifrons* U,R,U. *Gymnopithys leucaspis* U,–,–. *Rhegmatorhina melanosticta* –,–,U. *Hylophylax naevia** F,–,R. *H. poecilonota* F,U,R*. *Chamaeza campanisona* –,F,–. *Formicarius analis** F,–,–. *Grallaria guatimalensis* –,R,–. *Conopophaga castaneiceps* –,–,U. *Scytalopus femoralis* –,–,U. *Pipreola frontalis* –,–,R. *P. chlorlepidota* –,R,–. *Ampelioides tschudii* –,R,–. *Iodopeura isabellae** R,–,–. *Lipaugus subalaris* –,–,R. *L. vociferans* C*,–,C. *Cotinga cayana** R,–,–. *Querula purpurata* U,–,–. *Cephalopterus ornatus* –,–,R. *Rupicola peruviana* U,U,U*. *Schiffornis turdinus* –,–,F. *Piprites chloris* F*,R,U. *Chloropipo holochlora* F,V,–. *Machaeropterus regulus* –,–,V. *M. pyrocephalus* –,U,R. *Masius chrysopterus* –,–,R. *Chiroxiphia pareola* U,–,–. *Pipra pipra* –,C (*P. p. coracina*),F (*P. p. occulta*). *P. coronata* C,U,–. *P. isidorei* –,–,F. *P. erythrocephala* C,F,F. *Phyllomyias burmeisteri* –,U,–. *Zimmerius viridiflavus* –,–,R. *Elaenia albiceps* –,F,–. *Mionectes striaticollis* –,R,C. *M. olivaceus* F,C,V. *Mionectes oleagineus* U,F,–. *Leptopogon superciliaris* –,U,F. *Phylloscartes orbitalis* R,–,–. *P. ventralis* –,–,U. *Corythopis torquata* R,–,–. *Lophotriccus vitiosus** F,–,–. *Poecilotriccus capitale* F,R,–. *Hemitriccus zosterops* –,–,F. *H. rufigularis* –,–,U. *Todirostrum cinereum* R*,U,–. *T. chrysocrotaphum** R,–,–. *Rhynchocyclus olivaceus* R,–,–. *Tolmomyias sulphurescens* –,U,–. *Platyrinchus mystaceus* –,–,U. *P. coronatus* R,–,–. *Myiotriccus ornatus* F*,C,U. *Myiophobus phoenicomitra* –,–,R. *M. roraimae* –,–,R. *Contopus virens* –,–,mF. *C. nigrescens* –,R,–. *Empidonax alnorum* –,–,mR. *E. euleri* –,U,R. *Sayornis nigricans** U,–,–. *Knipolegus poecilurus* –,U,F. *Attila spadiceus* –,R,–. *Rhytipterna simplex* –,–,U. *Laniocera hypopyrra** R,–,–. *Myiarchus tuberculifer** –,U,–. *M. cephalotes* –,–,R. *Pitangus lictor** U,–,–. *P. suphuratus** C,–,–. *Megarhynchus pitangua** C,–,–. *Myiozetetes similis** F,–,–. *M. luteiventris* –,U,–. *Myiodynastes chrysocephalus* –,U,–. *M. maculatus** U,U,–. *Tyrannus melancholicus* C*,C*,F. *Tityra semifasciata** –,R,–. *Oxyruncus cristatus* –,–,U. *Notiochelidon cyanoleuca* F*,F,F*. *Stelgidopteryx ruficollis** U,U,–. *Cyanocorax yncas* –,R*,F. *Troglodytes aedon** U,F,–. *Henicorhina leucosticta* C,F,–. *H. leucophrys* –,–,R. *H. leucoptera* –,–,C. *Microcerculus marginatus* C,U,–. *Cyphorhinus arada* U,–,–. *Myadestes ralloides* –,R,R*. *Catharus dryas* –,–,R. *C. ustulatus* –,–,mC. *Platycichla leucops* –,R*,C. *Turdus albicollis* F,U,–. *Microbates cinereiventris* R,–,–. *Vireolanius leucotis** –,F,–. *Vireo olivaceus** U,–,–. *V. gilvus** –,F,R. *Hylophilus thoracicus* U,–,–. *H. hypoxanthus* U,–,–. *H. ochraceiceps* F,–,–. *Psarocolius decumanus** U,–,–. *P. angustifrons** C,–,–. *Cacicus cela** C,F,–. *Icterus chrysocephalus* –,–,U. *Parula pitiayumi** –,F,F. *Dendroica fusca* –,–,mC. *Wilsonia canadensis* mF,–,mC. *Myioborus miniatus* –,C,U. *Basileuterus tristriatus* –,U,U. *B. rivularis* U,–,–. *Coereba flaveola* –,–,U. *Diglossa caerulescens* –,–,U. *D. baritula* –,–,R. *Cyanerpes caeruleus* U*,F,U*. *Chlorophanes spiza* F*,U,U. *Dacnis cayana* –,F,U. *D. lineata** F,F,R. *Tersina viridis* –,F*,C. *Chlorophonia cyanea* –,F,U. *Euphonia musica* –,–,U. *E. xanthogaster* F,C,F. *E. rufiventris** R,–,–. *E. mesochrysa* –,F,F. *Chlorochrysa calliparaea* –,–,U. *Tangara callophrys** U,–,–. *T. chilensis* C,–,C*. *T. schrankii* C,–,F. *T. punctata** –,–,U. *T. xanthogastra* U,F,–. *T. arthus* –,F,U. *T. cyanicollis* –,–,U. *T. nigrocincta* R*,R*,U. *T. mexicana* U,–,–. *T. gyrola* U*,C,U*. *Iridosornis analis* –,–,F. *Thraupis episcopus** F,F,–. *T. palmarum** F,C,–. *Ramphocelus carbo* F*,C,–. *R. melanogaster* –,–,R. *R. nigrogularis** F,–,–. *Piranga flava* –,F,–. *P. rubra* –,–,mU. *P. leucoptera* –,U,–. *Chlorothraupis carmioli* C,R,–. *Lanio fulvus* F,–,R. *Tachyphonus surinamus* U,–,–. *T. phoeniceus* –,–,F. *T. rufiventer* F,–,–. *Hemithraupis guira* U,–,–. *H. flavicollis** U,–,R. *Chlorospingus flavigularis* –,R,R*. *Cissopis leveriana** C,F,–. *Schistochlamys melanopis* –,–,F. *Saltator maximus* F,C,U. *Pitylus grossus* C,C,–. *Cyanocompsa cyanoides* R,R,–. *Sporophila obscura* U*,C,–. *Oryzoborus angolensis* U,U*,–. *Atlapetes brunneinucha* –,R,U. *Arremon aurantiirostris* R,R,–. *Ammodramus aurifrons* U*,C,–.

TOTAL NUMBER OF SPECIES: Camp 1—176; Camp 2—155; Camp 3—156.

TOTAL NUMBER OF SPECIES IN RESIDENT COMMUNITY (total number of species minus number of visitors and migrants): Camp 1—174; Camp 2—152; Camp 3—144.

APPENDIX 2

SPECIES COMPOSITION AT ONE SITE IN DPTO. AMAZONAS, PERU

The following list is of the species recorded at Camp 4 only. All symbols are as in Appendix 1.

*Cathartes aura** U; *Elanoides forficatus** F; *Falco sparverius** U; *Aburria aburri** R; *Chamaepetes goudottii** U; *Columba fasciata** F; *Geotrygon frenata** R; *Aratinga* sp.* F; *Pionus seniloides* F; *Amazona mercenaria** F; *Uropsalis segmentata* U; *Streptoprocne zonaris** U; *Cypseloides rutilus** U; *Aeronautes montivageus** R; *Phaethornis syrmatophorus* R; *Adelomyia melanogenys* U; *Coeligena torquata* F; *Ensifera ensifera* U; *Boissonneaua matthewsii* U; *Eriocnemis alinae* F; *Ocreatus underwoodii** R; *Aglaiocercus kingi** U; *Pharomachrus auriceps* U; *Trogon personatus* R; *Andigena hypoglauca* U; *Piculus rivolii** R; *Veniliornis fumigatus* R; *Dendrocincla tyrannina* R; *Xiphocolaptes promeropirhynchus** R; *Lepidocolaptes affinis** F; *Synallaxis azarae** C; *Margarornis squamiger* F; *Premnornis guttuligera* U; *Premnoplex brunnescens* U; *Pseudocolaptes boissonneautii** F; *Thripadectes holostictus* R; *Xenops rutilans** U; *Thamnophilus caerulescens* U; *Drymophila caudata* U; *Grallaria przewalskii* F; *G. rufula* R; *Grallaricula ferrugineipectus* R; *Scytalopus femoralis* U; *Pipreola riefferii* C; *Phyllomyias nigrocapillus** U; *Zimmerius viridiflavus** U; *Elaenia pallatangae* C; *Mecocerculus minor* F; *Mionectes striaticollis* F; *Pseudotriccus ruficeps* F; *Poecilotriccus* sp. nov. F; *Hemitriccus granadensis* U; *Pyrrhomyias cinnamomea* F; *Contopus fumigatus* U; *Ochthoeca pulchella* U; *Knipolegus signatus* R; *Pachyrhamphus versicolor* R; *Cyanolyca viridicyana* R; *Troglodytes aedon** U; *T. solstitialis** F; *Henicorhina leucophrys* C; *Entomodestes leucotis** R; *Catharus ustulatus** mU; *Turdus fuscater** C; *T. serranus** F; *Cyclarhis gujanensis* F; *Cacicus holosericeus* R; *Dendroica fusca* mC; *Myioborus melanocephalus* C; *Basileuterus luteoviridis* C; *B. coronatus* F; *Conirostrum albifrons* F; *Diglossa baritula** R; *D. albilatera* F; *D. cyanea* C; *Tangara xanthocephala* F; *T. parzudakii* C; *T. nigroviridis* F; *T. vassorii* C; *T. viridicollis* U; *Iridosornis reinhardtii* R; *Anisognathus lacrymosus* R; *Buthraupis montana* F; *Thraupis cyanocephala* F; *Piranga rubra* mR; *Sericossypha albocristata* U; *Chlorospingus ophthalmicus* F; *Cnemoscopus rubrirostris* U; *Hemispingus atropileus* F; *H. xanthophthalmus* F; *Chlorornis riefferii* F; *Catamblyrhynchus diadema* R; *Atlapetes rufinucha* C; *A. torquatus* U; *Zonotrichia capensis** C.

TOTAL NUMBER OF SPECIES—95.

TOTAL NUMBER OF SPECIES IN RESIDENT COMMUNITY—92.