

NEW DISTRIBUTION RECORDS OF PERUVIAN BATS

NUEVOS REGISTROS DISTRIBUCIONALES DE MURCIÉLAGOS PERUANOS

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ABSTRACT

Based on recent collections and specimen reviews, we update data on the geographical distribution of ten bat species from Peru, and include some notes on their morphology, systematic status and ecology. These records include two latitudinal extensions (*Lonchophylla robusta* and *Thyroptera lavalii*), and one altitudinal extension (*Anoura latidens*). Two species of *Cynomops*, *paranus* and *planirostris*, are both present in Peru and supported by our vouchers. Some misidentifications from previous papers are corrected and presented in their current taxonomic status. The diversities of bats from Jenaro Herrera and Cocha Cashu-Pakitza are corrected to 63 and 62 species, respectively.

Key words: Bats, distribution, ecology, taxonomy, Peru.

RESUMEN

Basados en colectas recientes y revisión de especímenes, actualizamos los datos de distribución geográfica para diez especies de murciélagos de Perú, e incluimos información sobre su morfología, estado sistemático y ecología. Los registros incluyen dos extensiones latitudinales (*Lonchophylla robusta* y *Thyroptera lavalii*), y una extensión altitudinal (*Anoura latidens*). Dos especies de *Cynomops*, *paranus* y *planirostris*, se presentan en Perú, y son documentadas por nuestros especímenes. Algunas identificaciones erróneas, reportadas en publicaciones previas, son corregidas y presentadas en su actual estado taxonómico. La diversidad de murciélagos de Jenaro Herrera y Cocha Cashu-Pakitza es corregida a 63 y 62 especies, respectivamente.

Palabras clave: Murciélagos, distribución, ecología, taxonomía, Perú.

INTRODUCTION

Species richness of bats in Peru is astonishing. Recently, Pacheco *et al.* (1995) reported 152 species, but recent collections in little explored areas and systematic reviews of some problematic genera are increasing this number significantly. The Peruvian bat fauna was the subject of two zoogeographic studies (Tuttle, 1970; Koopman, 1978) that summarized

the distributional data of most species. Since then, much has been learned and a new summary is urgent. Some localities with the highest Neotropical bat diversities are in Peru: Jenaro Herrera (CIJH), with 62 species (Ascorra *et al.*, 1993); Balta, 56 species (Simmons and Voss, 1998); and Pakitza, 55 species (Ascorra *et al.*, 1996). However, most of the country is still poorly explored. Here, we report new information on the distribution, ecology and taxonomy of ten bat species mainly based on recent field work in the departments of Pasco, Amazonas, Junín, and Ucayali.

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All the specimens here reported are deposited in the Mammal Collection of the Museo de Historia Natural (MUSM), Universidad Nacional Mayor de San Marcos, Lima, Peru; most of them are represented by skin and skulls, and a few are in fluids.

SPECIES ACCOUNTS

PHYLLOSTOMIDAE

Glyphonycteris daviesi (Hill, 1964)

Five specimens (MUSM 12763-12767) living in a single roost in a hollow tree (ca. 3 m above ground) were collected by us on August 1996, while participating in the Program for Rabies Control (of the Ministerio de Salud del Perú), at Soledad, an Aguaruna Community in Amazonas. The area is a mature forest with large trees, on a gently sloped mountain. To our knowledge, this is the largest colony ever found (see Pine *et al.*, 1996). It appeared to represent a family group which consisted of an adult male, two adult females (one of them, lactating), one sub-adult male, and one young female.

Another two specimens (MUSM 12523-12524) were netted at Pakitza, Manu National Park, Madre de Dios, in February of 1992; they were reported as *Phyllostomus stenops* in Ascorra *et al.* (1996). One specimen of *P. stenops* (MUSM 474) collected at 1988, however, confirms the record of this species at Pakitza. Although similar in their procumbent upper incisors and inflated anteorbital region, *G. daviesi* might be accurately identified based on the presence of a single pair of upper incisors, being the only Phyllostominae species with that character. They were collected only on the high terrace forests at Pakitza, during one of the wettest months in SE Peru. Fecal analyses (Ascorra *et al.*, 1996) reveal it as an insectivorous species. Guerrero (1996) reported *Strebla kohlsi* on these specimens, apparently the first record of a batfly for this species (Webb and Loomis, 1977).

The taxonomic history of *G. daviesi* is complex. Formerly described as the single (and type) species of the genus *Barticonycteris* Hill, 1964, it was later included in *Glyphonycteris* but as a subgenus of *Micronycteris* (Simmons, 1996). Recently, Simmons and Voss (1998) supported the use of *Glyphonycteris* as a full genus, and provided an emended diagnosis for it.

Specimens: MUSM 12763, 12764, 12765 (females); 12523, 12524, 12766, 12767 (males).

Lampronnycteris brachyotis (Dobson, 1879)

This species is an additional record for Jenaro Herrera, Loreto, which was overlooked by Ascorra *et al.* (1993). Our single specimen is a pregnant female collected in July 1990, while carrying out a survey of small mammals at that locality.

Hinchcliffe *et al.* (1989) were first to report the species in Peru, based on a collection from Cocha Juárez, Manu Biosphere Reserve. They used the relative size of calcar as the main character to differentiate it from sympatric *Micronycteris megalotis*. We think that *L. brachyotis* can not accurately be identified based only on calcar length (see Medellín *et al.*, 1985, for other characters). Besides, that report may be considered ambiguous since it was based on a single individual, which was caught and released. However, Patterson *et al.* (1996) accepted the record and included it in their analyses of the elevational gradient.

The first confirmed voucher is from Panguana Biological Station, Huánuco (Hutterer *et al.*, 1995), in central Peru. Our record from northeastern Peru is the second known voucher for the country. This suggests that the species has a wide distribution in lowland Amazonia, and may be expected also in southeastern localities as Pakitza or Cocha Cashu, at Manu National Park.

Formerly included as a subgenus of *Micronycteris* (Medellín *et al.*, 1985), *Lampronnycteris* is now considered a full genus (Simmons and Voss, 1998).

Specimen: MUSM 12989 (female).

***Lonchorhina aurita* Tomes, 1863**

This rare species, apparently widespread, was previously recorded only from Pasco and Huánuco (Koopman, 1978; Tuttle, 1970). Our single specimen was collected also in Pasco, at Hacienda Roca-Lux (Pacheco *et al.*, 1994), north and westward from Tuttle's records. Although commonly associated with mature forest (Lassieur and Wilson, 1989; Tuttle, 1970), it was netted on a small hill, close to the forest border, in an open area within a farm. An ectoparasite was identified as *Trichobius petersoni* (Streblidae; J. Chávez, com. pers.), a species not reported by Webb and Loomis (1977).

Specimen: MUSM 10246 (male).

***Anoura latidens* Handley, 1984**

This species was reported from Peru by Handley (1984) based on a single specimen (AMNH 230218) from 72 km NE of Tarma, Junín, at 884 m. above sea level (asl). Handley also pointed out that the elevation range for *A. latidens* is from 50-2240 m asl, but mostly below 1500 m asl. Here, we support the distribution of *A. latidens* from Peru, based on four specimens collected in San Alberto, Pasco, 2600 m asl; 360 m higher than previously recorded. Linares (1986) argued that *A. latidens* might represent individual variants of *A. geoffroyi*; all of our specimens agree with Handley's diagnosis, and none can be confused with sympatric *A. geoffroyi* or *A. caudifera*, as recorded at San Alberto.

Specimens: MUSM 10141, 10142, 10143, 10144 (females).

***Lichonycteris obscura* Thomas, 1895**

One specimen of this rare nectivorous bat was collected at Pakitza, in February 1992, and erroneously reported as *Choeroniscus minor* by Ascorra *et al.* (1996). When

compared to that genus, *Lichonycteris* is a smaller bat, with a shorter rostrum and tricolored dorsal fur rather than bicolored. It may have been misidentified because of the shared reduction of upper, and absence of lower incisors. Nevertheless, *Lichonycteris* has only two upper and lower molars, instead of three that characterize *Choeroniscus*. We also reidentified the only vouchers of *Choeroniscus* from Pakitza (MUSM 862 and 6828) as *Ch. intermedius* based on skull and toothrow length (Koopman, 1978).

The bat was netted in an open clearing near the Biological Station. Only two previous records of *L. obscura* are confirmed for Peru; Tuttle (1970) from San Juan, Pasco, and Gardner (1976) from Yarinacocha, Ucayali. It appears to be a rare bat, being absent from all localities summarized by Simmons and Voss (1998) south of the Amazonas river.

Specimen: MUSM 12413 (male).

***Lonchophylla handleyi* Hill, 1980**

We collected four specimens of this species at two localities in Pasco (Cerro Jonatán, and Hacienda Roca-Lux) in July 1992 (Pacheco *et al.*, 1994). An additional specimen (MUSM 12761) was netted just leaving its roost located in a farm building, at Yurinaqui, Junín, in October 1996. The southern latitudinal range in Peru was confirmed by Hill (1980), upon revision of specimens reported as *L. robusta* by Tuttle (1970), and Gardner (1976). Some external and skull differences between *L. handleyi* and *L. robusta* were pointed out by Hill (1980).

Specimens: MUSM 10236, 10237, 10240, 12761 (females); 10239 (male).

***Lonchophylla robusta* Miller, 1912**

Distribution restricted to Ecuador by Hill (1980), and then extended to northern Peru (Amazonas) by Graham and Barkley (1984). We collected one specimen (MUSM 12762) at Palmira valley, Pasco, in December 1996, and five specimens at Cerro Chontilla and Cerro Jonatán, Pasco (Pacheco *et al.*, 1994).

These represent the southernmost record for this species, approximately 590 km south from previously known localities. To our knowledge, this is the first record of sympatry with congeners *L. handleyi* and *L. thomasi*, at Cerro Jonatán. Koopman (1993) omitted Peru from the geographic range of this species.

Specimens: MUSM 10238, 10241, 10242, 10243, 10244 (females); 12762 (male).

THYROPTERIDAE

Thyroptera lavalii Pine, 1993

One single specimen (MUSM 8643) of this recently described species (Pine, 1993) was collected at Bosque Nacional Alexander von Humboldt, Ucayali, on September 1992. The bat was caught from a palm, more than 5 m high, where we suppose it was roosting (perhaps as *T. discifera* does, Wilson, 1978). The wrist suction disks are large (5x4 mm) and as pointed out by Pine (1993), oblong in shape. The individual was an adult female, carrying a small baby (FA: 18 mm).

This record is a southern latitudinal extension of almost 500 km of the range previously reported by Pine (1993) at Quebrada Esperanza, Loreto. Interestingly, fossil remains assigned to this species were reported from the Magdalena valley, Colombia (Czaplewski, 1996).

Specimen: MUSM 8643 (female).

MOLOSSIDAE

Cynomops Thomas, 1920

We follow Thomas (1920), who erected *Cynomops* to include most of the species previously included in *Molossops*, but with four lower incisors instead of just two, and M3 and m3 simplified, without third commissure. Distinctiveness of both groups is also supported by Gardner (1977), based on their karyotypes. However, *Cynomops* is sometimes considered a subgenus of *Molossops* (Williams and Genoways, 1980; Koopman, 1993). Whether *Cynomops* and *Molossops* are monophyletic or not is still unclear.

C. paranus (Thomas, 1901), and *C. planirostris* (Peters, 1865)

Recently, Simmons and Voss (1998) separated *planirostris* from *paranus*, and considered *Molossops milleri* Osgood, 1914 a junior synonym of the latter, based on comparisons of the types, and variation in large series of these taxa. Osgood (1914) compared *M. milleri* to *Molossus planirostris paranus* Thomas, 1901, but Koopman (1978) considered both as subspecies of *planirostris*. The material at hand confirms the observations of Simmons and Voss (1998), in regard to the distinctive value of ventral coloration to separate *paranus* from *planirostris*. Therefore, both species of *Cynomops* are present in Peru.

Cynomops paranus is represented by a lactating female (MUSM 8646), collected on August 1992, at Bosque Nacional Alexander von Humboldt, Ucayali. The specimen was netted over a small creek, a method that works well to catch species of Vespertilionids and Molossids (Ascorra *et al.*, 1996). Another specimen (MUSM 5705), a male from Tarapoto, San Martín, was recently identified as *C. planirostris*, but it has no further collecting data.

Cranially, our *C. planirostris* specimen has the palate anteriorly acute, with larger and more divergent upper incisors, filling the space between the canines. On the other hand, our *C. paranus* has a less acute palate, with smaller upper incisors leaving a gap between canines and incisors. The specimen of *C. planirostris* seems an old male because of complete development of the lambdoidal crest and general flattening of the skull. The female of *C. paranus* is a younger individual, with a smooth and globular braincase.

The current distribution of *C. paranus* is then extended in Peru, from Yurimaguas, Loreto (Osgood, 1914) to von Humboldt, Ucayali, almost 300 km to the south. For *C.*

planirostris, our record agrees with previous ones (e.g. Graham and Barkley, 1984 [for Tingo María]), although Graham (1983) reported specimens between Huánuco and Puno Departments (about 8° to 17° S) without major references. Based on these records, Patterson et al. (1996) suggested the presence of *C. planirostris* in Manu. Our records do not deny this, rather confirm that either *paranus* or *planirostris*, or both, could be present at Manu.

Specimens: MUSM 8646 (female); 5705 (male).

DISCUSSION

The estimates of bat assemblages in Neotropical lowland forests are still rather incomplete, and the few well-known localities lack a standard methodology to allow meaningful comparisons (Simmons and Voss, 1998). The best sampled localities in Peru, Cocha Cashu-Pakitza, and Jenaro Herrera, have been updated recently (Ascorra *et al.*,

1993, 1996; Simmons and Voss, 1998). Nonetheless, those inventory lists are also far from complete. Here, we add one species (*Lamproncycteris brachyotis*) to the list of Jenaro Herrera, and two more species (*Glyphonycteris daviesi* and *Lichonycteris obscura*) to the list of Cocha Cashu-Pakitza; their current species richness are therefore 63 for Jenaro Herrera, and 62 for Cocha Cashu-Pakitza. It is worthy of note that Patterson *et al.* (1996; Table II) suggested the likely additions of *L. obscura* and *G. daviesi* to the Manu bat fauna, and for the elevation range corresponding to Pakitza, which are here confirmed.

The geographic range of several bat species is still to be assessed exactly, as shown by latitudinal extensions of the species *Lonchophylla robusta* and *Thyroptera lavalii*. This knowledge, added to strict systematic studies of selected taxa, should give us a real picture of bat diversity and distribution in Peru.

Table 1.- Means of external and cranial measurements of the species reported. n: number of specimens, W: weight (in grams), FA: forearm, GSL: greater skull length, MTR: maxillary toothrow, IOC: interorbital constriction, PAL: palatal length, ZYG: zygomatic breadth (all these in mm).

species (n)	W	FA	GSL	MTR	IOC	PAL	ZYG
<i>Glyphonycteris daviesi</i> (5)	21,6	56,4	24,9	10,5	6,2	11,6	13,2
<i>Lamproncycteris brachyotis</i> (1)	10,0	40,8	20,5	8,4	5,1	9,4	10,8
<i>Lonchorhina aurita</i> (1)	17,0	51,0	20,8	7,2	5,0	5,5	11,3
<i>Anoura latidens</i> (4)	15,6	43,0	24,4	9,5	5,1	10,9	10,7
<i>Lichonycteris obscura</i> (1)	7,0	33,0	18,1	5,8	4,1	9,8	
<i>Lonchophylla handleyi</i> (2)	17,0	44,5	26,7	10,4	5,5	15,4	11,2
<i>Lonchophylla robusta</i> (2)	13,0	44,0	26,1	9,7	5,0	14,1	10,9
<i>Thyroptera lavalii</i> (1)	7,0	38,0	15,1	6,1	2,9	7,5	8,1
<i>Cynomops paranus</i> (1)	13,0	31,0	15,7	6,0	4,3	6,2	10,6
<i>Cynomops planirostris</i> (1)	-	34,0	15,6	6,5	4,2	6,7	-

GAZETTEER OF SAMPLING LOCALITIES

AMAZONAS: Condorcanqui Province

- 1) *Soledad*: Aguaruna Native Community; on left (east) bank of Santiago river. 3°30' S, 77°44' W. 280 m.

LORETO: Requena Province

- 2) *Jenaro Herrera*: 2,5 km E Ucayali river and, 140 km SSW Iquitos. 4°55' S, 73°45' W. 130 m.

SAN MARTIN: San Martín Province

- 3) *Tarapoto*: on left (northwestern) side of Huallaga river. 6°30' S, 76°25' W. 356 m.

UCAYALI: Padre Abad Province

- 4) *Bosque Nacional Alexander von Humboldt*: 86 km W Pucallpa by road. 8°47' S, 75°08' W. 250 m.

PASCO: Oxapampa Province

- 5) *Palmira*: approx. 5 km NE Pozuzo (10°04' S, 75°32' W). 900 m.
 6) *Cerro Chontilla*: approx. 5 km SW Shiringamazú (10°15' S, 75°11' W) on Palcazu valley. 930 m.
 7) *Cerro Jonatán*: approx. 12 km SW Shiringamazú (10°15' S, 75°11' W) on Palcazu valley. 750 m.
 8) *Hacienda Roca-Lux*: approx. 10 km SW Shiringamazú (10°15' S, 75°11' W) on Palcazu valley. 500 m.
 9) *San Alberto*: approx. 10 km NE Oxapampa (10°33' S, 75°24' W); on W limit of Yanachaga-Chemillén National Park. 2600 m.

JUNIN: Chanchamayo province

- 10) *Yurinaqui*: approx. 7 km E La Merced. 10°47' S, 75°15'. 350 m.

MADRE DE DIOS: Manu Province

- 11) *Pakitza*, Parque Nacional Manu; approx. 65 km upstream from the mouth, on the

left (north) bank of the Manu river. 11°56' S, 71°17' W. 356 m.

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