

The identity of *Myotis punensis* (Chiroptera: Vespertilionidae)

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ABSTRACT. Currently twelve species of *Myotis* Kaup, 1829 (Vespertilionidae: Myotinae) are recognized from South America, with several other named taxa regarded as synonyms, among them *Myotis punensis* J.A. Allen, 1914. This name was first regarded as a junior synonym of *Myotis albescens* (É. Geoffroy, 1806) and subsequently of *Myotis nigricans* (Schinz, 1821). To address the taxonomic status of the holotype of *M. punensis*, we compared it to all South American species in the genus. The fringe of hairs on the trailing edge of the uropatagium, the fur color, and external and skull dimensions all suggest *M. punensis* should be treated as a junior synonym of *M. albescens*.

KEY WORDS. Ecuador; Myotinae; *Myotis albescens*; *Myotis esmeraldae*; synonymy.

Myotis Kaup, 1829 (Vespertilionidae: Myotinae) comprises a diverse group of small to large-sized vespertilionid bats with a worldwide distribution, including more than one hundred species (SIMMONS 2005). Twelve South American species are recognized currently (WILSON 2008). Nevertheless, about 60 names have been proposed for South American *Myotis* since the description of the first species from that continent, *Myotis albescens* (É. Geoffroy, 1806), more than two centuries ago. Among them, *Myotis punensis* J.A. Allen, 1914 was described based on a single specimen from Isla Puna, Ecuador.

MILLER & ALLEN (1928) regarded the name *Myotis punensis* as a junior synonym of *Myotis albescens*. Later LAVAL (1973) identified the holotype of *M. punensis* as *M. nigricans* (Schinz, 1821). LAVAL (1973) applied the name *Myotis punensis* to populations of *M. nigricans* from lowland localities on the west side of the Andes in Colombia, Ecuador, and Peru, recognizing them at the subspecific level as *M. nigricans punensis* J.A. Allen, 1914. Subsequently, BOGAN (1978) refuted the distinctness of those populations and recommended that the name *Myotis nigricans punensis* should be relegated to the synonymy of *Myotis nigricans nigricans*, but without examining the holotype of *M. punensis*. BOGAN'S (1978) suggestion was followed by SIMMONS (2005) and WILSON (2008), who considered *Myotis punensis* a junior synonym of *Myotis nigricans*.

As part of an ongoing systematic and biogeographic review of South American species of *Myotis* and in order to further investigate the identity of *M. punensis*, we compared its holotype with the South American species of *Myotis* currently recognized.

MATERIAL AND METHODS

We evaluated the taxonomic status of *M. punensis* by comparing its holotype (AMNH 36263) to the currently recognized

South American species of *Myotis*, represented by their type specimens, original descriptions, redescrptions provided by LAVAL (1973) and comparative series from different localities. The type specimens used in comparisons were: *M. albescens* (AMNH 205195, neotype), *M. levis levis* (I. Geoffroy, 1824) (MNHN type no. 203, lectotype), *M. keaysi keaysi* J.A. Allen, 1914 (AMNH 15814, holotype), *M. nesopolus larensis* LaVal, 1973 (AMNH 130709, holotype), *M. riparius* Handley, 1960 (USNM 310255, holotype) and *M. ruber* (É. Geoffroy, 1806) (USNM 115097, neotype). The original descriptions used in comparisons were: *M. aelleni* Baud, 1979, *M. atacamensis* (Lataste, 1892), *M. chiloensis* (Waterhouse, 1840), *M. levis dinellii* (Thomas, 1902), *M. keaysi pilosatibialis* LaVal, 1973, *M. nigricans nigricans* (Schinz, 1821), *M. oxyotus* (Peters, 1867) and *M. simus* Thomas, 1901. A list of specimens examined and their localities is in the Appendix 1. A set of qualitative and quantitative characters reported as diagnostic by previous authors (THOMAS 1901, 1902, MILLER & ALLEN 1928, HANDLEY 1960, LAVAL 1973, BAUD & MENU 1993, LÓPEZ-GONZÁLEZ *et al.* 2001, LÓPEZ-GONZÁLEZ 2005, WILSON 2008) were used in comparisons. The qualitative characters selected were: plagiopatagium attachment (attached at ankles; at toes by a narrow band of membrane; or at toes by a broad band of membrane); occurrence of a fringe of hairs along the trailing edge of the uropatagium (absent or present); position of P3 (aligned with other premolars or displaced to the lingual side, and visible or not visible when observed in lateral view); occurrence and height of sagittal and occipital crests (absent or present; and height: very low, low, medium and high); shape of the braincase roof (parietal inclined forward or straight when observed in lateral view); shape of the supraoccipital region (supraoccipital and posteriormost part of parietals flattened when observed in lateral view, not projecting much beyond the limit of the occipital condyles, or supraoccipital and

posteriormost part of parietals rounded, projecting beyond the limit of the occipital condyles).

Nine cranial and four external dimensions were measured using a digital caliper accurate to 0.02 mm. The measurements, reported in millimeters (mm), and their abbreviations are defined as follows (lengths were measured from the anteriormost point of the first structure to the posteriormost point of the second structure mentioned below): *zygomatic breadth*, greatest breadth across the outer edges of the zygomatic arches; *interorbital breadth*, least breadth dorsally between the orbits; *postorbital breadth*, least breadth across frontals posterior to the postorbital bulges; *breadth across canines*, greatest breadth across outer edges of the crowns of upper canines including cingulae; *breadth across molars*, greatest breadth across outer edges of the crowns of upper molars; *maxillary tooththrow length*, from the upper canine crown including cingulum to the crown of M3; *molariform tooththrow length*, from the crown of M1 to the crown of M3; *mandibular length*, from the line of internal incisors, to the angular process; *mandibular tooththrow length*, from the lower canine to m3; *forearm length*, from the elbow to the distal end of the forearm including carpals; *third metacarpal length*, from the distal end of the forearm to the distal end of the third metacarpal; and *length of the dorsal and ventral hairs*, from the base to the tip of the hair, measured between scapulas. Other measurements that characterize the length of skull were not used due the condition of the skull, which lacks parts of the posterior region.

TAXONOMY

Redescription of the holotype of *Myotis punensis*

The holotype of *Myotis punensis* (AMNH 36263) was collected by W.B. Richardson on Isla Puna, Guayaquil, Guayas, Ecuador (2°12'S, 80°01'W [GARDNER 2008]), sea level, on 8 May, 1913. The specimen, currently deposited in the mammal collection at American Museum of Natural History, is a sub-adult male (sensu SIMMONS & VOSS 2009), skin and skull preserved, including the mandible. The left side of the skull is broken, lacking parts of the parietal, interparietal, supraoccipital, squamosal, occipital condyle, basioccipital, and ectotympanic.

The holotype is a small specimen (forearm length 31.6 mm) with small ears (less than 12 mm) and long, silky pelage (length of dorsal fur 7.3 mm; ventral fur 5.4 mm). The dorsal fur is distinctly bicolored with medium-brown bases (more than 2/3 of total length) and light-brown tips. The ventral fur is strongly bicolored with dark-brown bases (2/3 of total length) and yellow tips. There is more contrast between bases and tips in the ventral fur than in the dorsal fur. The membranes are medium brown and there is a weak fringe of hairs along the trailing edge of the uropatagium. The plagiopatagium appears to be attached at feet (Fig. 1). The skull is small (mandibular length 9.04 mm) and the braincase is long and flattened. The supraoccipital region is rounded and the sagittal crest is very low. There are no occipital crests and the third upper premolar

is in the tooththrow, not crowded to the lingual side (Fig. 2).

The measurements of the holotype are: zygomatic breadth: 8.18; interorbital breadth: 4.12; postorbital breadth: 3.56; breadth across canines: 3.18; breadth across molars: 4.90; maxillary tooththrow length: 4.62; molariform tooththrow length: 2.69; mandibular length: 9.04; mandibular tooththrow length: 5.11; forearm length: 31.6; third metacarpal length: 29.8; length of the dorsal hairs: 7.3; and length of the ventral hairs: 5.4.

Based on external and skull measurements reported by LAVAL (1973) and LÓPEZ-GONZÁLEZ *et al.* (2001) for South American *Myotis*, the holotype of *M. punensis* overlaps in size with specimens of *M. atacamensis*, *M. nigricans* and *M. albescens* among its South American congeners (LAVAL 1973). *Myotis punensis* can be distinguished from the species above, except *M. albescens*, based on the fringe of hairs along the trailing edge of the uropatagium, a character shared only by *M. albescens* and *M. levis* among South American *Myotis* (LAVAL 1973, WILSON 2008). Although some hairs may be present along the edge of the uropatagium in some specimens of *M. nigricans* and *M. oxyotus*, they do not form the fringe observed in *M. albescens* and *M. levis*. The holotype of *M. punensis* can be distinguished from *M. levis* primarily by its smaller overall size, smaller ears (ranging from 12–19 mm in *M. levis*) and lighter ventral fur coloration. In addition, *M. levis* is reported only from Bolivia, Argentina, Uruguay, and Brazil, occurring from 20°S toward southward (LAVAL 1973, SIMMONS 2005, WILSON 2008). On the other hand, some of the main diagnostic characters in *M. albescens* are the ear length (9–14 mm), long and silky pelage, tips of dorsal pelage with frosted appearance, and fringe of hairs along the trailing edge of uropatagium (LAVAL 1973, LÓPEZ-GONZÁLEZ *et al.* 2001, BRAUN 2009), all of which are present in the holotype of *M. punensis*. Additionally, *M. albescens* is widely distributed in South and Central America.

DISCUSSION

ALLEN (1914) described *M. punensis* as smaller but similar in coloration to *M. albescens*. Subsequently, MILLER & ALLEN (1928) considered *M. punensis* a junior synonym of *M. albescens*. On the other hand, LAVAL (1973) regarded *M. punensis* as a subspecies of *M. nigricans*. Subsequently, BOGAN (1978) regarded *M. punensis* as a junior synonym of *M. nigricans*, a decision followed by SIMMONS (2005) and WILSON (2008). In this study, based on overall external and skull size, tips of dorsal pelage with frosted appearance and presence of a fringe of hairs along the trailing edge of the uropatagium in the holotype of *M. punensis*, we suggest that the name *Myotis punensis* J.A. Allen, 1914 should be regarded as a junior synonym of *Myotis albescens* (É. Geoffroy, 1806), as formerly proposed by MILLER & ALLEN (1928).

We did not examine other specimens assigned to *M. n. punensis* by LAVAL (1973). BOGAN (1978), however, did analyze part of the Colombian and Ecuadorian samples assigned to *M. n. punensis* by LAVAL (1973). Based on a multivariate analysis of



Figure 1. Dorsal and ventral views of the skin of the holotype of *Myotis punensis* (AMNH 36263). Forearm length 31.6 mm. The electronic version of this article includes this figure in color.

cranial and external morphology, BOGAN (1978) refuted the distinctness of those samples in relation to other South American samples of *M. nigricans*. Based on BOGAN'S (1978) results other specimens assigned to *M. n. punensis* by LAVAL (1973) probably are *M. nigricans*. Despite the conclusions of LAVAL (1973) and BOGAN (1978), if those populations on the west side of the Andes ultimately should prove to be distinct from populations assigned to *M. nigricans nigricans* by LAVAL (1973), as well as from other currently recognized South American species, the name *Myotis punensis* J.A. Allen, 1914, is not available for them, as it is a junior synonym of *Myotis albescens* (É. Geoffroy, 1806). A possible name for those populations is *Myotis esmeraldae* J.A. Allen, 1914, a name currently in the synonymy of *Myotis nigricans*.

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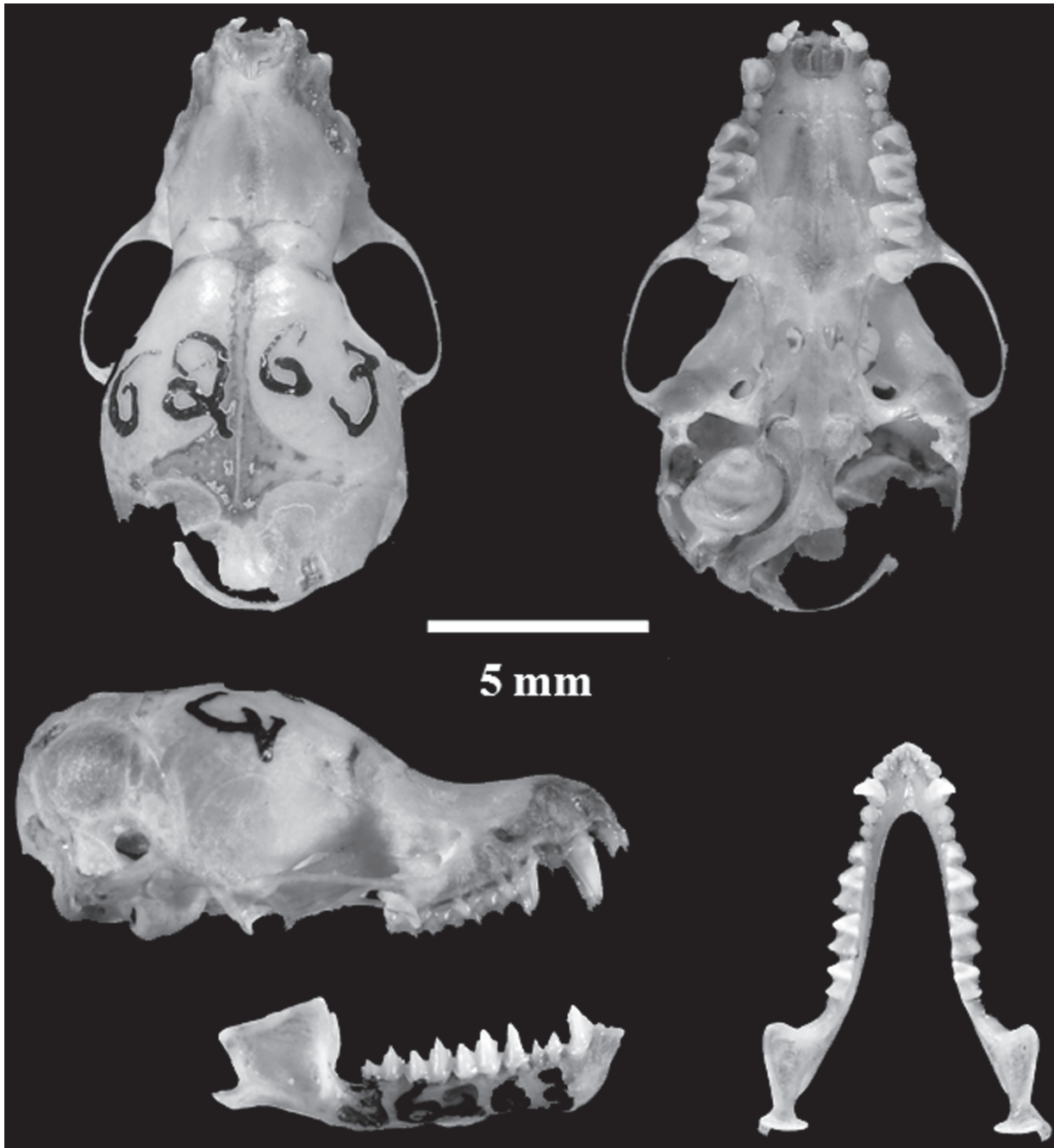


Figure 2. Dorsal, ventral and lateral views of the cranium and dorsal and lateral views of the mandible of the holotype of *Myotis punensis* (AMNH 36263). See text for measurements.

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Appendix 1. Specimens examined: Abbreviations of institutions are as follows: Museu Nacional, Rio de Janeiro, Brazil (MN); Universidade Federal Rural do Rio de Janeiro, Seropédica, Brazil (ALP); Museu de Zoologia, São Paulo, Brazil (MZUSP); Universidade do Estado de São Paulo, São José do Rio Preto, Brazil (DZSJRP); Museu de História Natural Capão da Imbuia, Curitiba, Brazil (MHNCI); Universidade Federal do Paraná, Curitiba, Brazil (CCMZ-DZUP); American Museum of Natural History, New York, USA (AMNH); National Museum of Natural History, Washington, DC, USA (USNM); and Museum National d'Histoire Naturelle, Paris, France (MNHN). The abbreviation JAO corresponds to field numbers of João Alves de Oliveira (Museu Nacional, Brazil), and those specimens will be deposited in mammal collection at Museu Nacional.

Myotis albescens: BOLIVIA, Beni: Mamore – AMNH 209765, 209767, 209769, 209770, 210964, 210965, 210966, 210967, 210968, 210969, 210970, 210971, 210972, 210973, 210975, 210976, 210977, 210978, 210979. Beni: Marban – AMNH 210963. Beni: Vaca Diez – 209768. Beni: Yacuma – AMNH 210980, 210981, 210982, 210983, 210984, 210985, 210986, 210987, 210988, 210989. Cochabamba: Chapare – AMNH 268648. Santa Cruz, Andres Ibanez – AMNH 264081. Santa Cruz: Sara – AMNH 246414. Rosario: unknown locality – USNM 238686. BRASIL, Amazonas: Airão – AMNH 79530, 79531, 79702, 79703, 79704, 79705, 79706, 79707, 79708, 79709, 79710, 79711, 79712, 79713, 79714, 79715, 79716, 79717, 79718, 79719, 79720. Amazonas: Borba – AMNH 91905, 91906, 91909, 91910, 92229. Amazonas: Humaitá – DZSJRP 14113, 14114, 14119, 14780. Amazonas: Manicoré – AMNH 92665, 92666, 92667, 92668, 92670, 92675, 92677, 92678, 92679, 92680, 92681. Amazonas: São Gabriel da Cachoeira – AMNH 77384, 77385, 77386, 77387, 77388, 77389, 77390, 77391, 77392, 77393, 77394, 77395, 77396, 77397, 77398, 77399, 77400, 77401, 77402, 77403, 77404, 77405, 78751, 78752, 78753, 78754, 78755, 78756, 78757, 78758, 78759, 78760, 78761, 78762, 78763, 78764, 78765, 78766, 78767, 78768, 78769, 78770, 78771, 78772, 78773, 78774, 78775, 78776, 78777, 78778, 78779, 78780. Pará: Altamira – MZUSP 22690, 22692, 22705, 22708, 22738, USNM 549511, 549512, 549513, 549514, 549515, 549516. Pará: Aveiro – AMNH 94448, 94449, 94450, 94451, 94454, 94455, 94456, 94457, 94458. Pará: Baião – AMNH 97087, 97088, 97089, 97090, 97091, 97092, 97093, 97094, 97095, 97096, 97097, 97098, 97099, 97123, 97124, 97125, 97126, 97127, 97273, 97274. Pará: Belém – USNM 361774, 361775, 361776, 361777, 361778, 361779, 393764, 460137, 460138. Pará: Faro – AMNH 93926, 93927, 93928, 93929, 93930, 93931, 93932, 93933, 93934, 93935, 93936, 93937, 93938. Pará: Porto de Móz – AMNH 96102, 96103, 96104, 96105, 96106, 96107, 96108, 96109, 96110, 96111, 96112, 96113, 96114, 96115, 96116, 96117, 96118, 96119, 96120. Pará: Santarém – AMNH 94444, 94445, 94446, 94447, 94453. Pará: Tapajós River – AMNH 94459, 94460, 94461, 94462, 94463,

- 94464, 94465, 94466, 94467, 94468, 94469, 94470, 94471, 94472. *Paraná*: Mangueirinha – MHNCI-CTX 3958. *Paraná*: Maringá – DZSJRP 10510. *Paraná*: Paiçandu – DZSJRP 10458, 10459, 10460, 10524, 10525, 10550, 10551, 10552, 10553, 10554, 10555, 10556, 10557, 10558, 10559, 10560, 10561, 10562, 10563, 10564, 10565, 10566, 10567, 10568, 10569, 10570, 10571, 10572, 10573, 10574, 10575, 10576. *Paraná*: Piraquara – MHNCI 1802. *Paraná*: Porto Rico – CCMZ-DZUP 226. *Paraná*: Quatro Barras – MHNCI-CTX 4923. *Rio de Janeiro*: Piraí – ALP 4659, 5165. *Rio Grande do Sul*: Taim – DZSJRP 14556, 14557. *Roraima*: Maracá – MZUSP 26849. *São Paulo*: Atibaia – DZSJRP 14432. *São Paulo*: Avanhandava – MZUSP 1292, 22691. *São Paulo*: Fernando Prestes – DZSJRP 13609, 13612, 13617. *São Paulo*: Itatiba – DZSJRP 12590. *São Paulo*: near Registro – DZSJRP 12554. COLOMBIA, *Valle del Cauca*: Zabaletas – USNM 483946. ECUADOR, *Guayas*: Isla Puna – AMNH 36263. GUIANA FRANCESA, unknown locality: MZUSP 7647. PARAGUAY, *Asuncion*: Asuncion – MZUSP 2024. *Boqueron*: Parque Nacional Teniente Enciso – USNM 555671. *Canindeyu*: Curuguaty – AMNH 234317, 234318, 234319, 234320, 234323, 234324, 234326, 234328, 234329, 234330, 234332, 234333, 234334, 234336. *Cordillera*: Tacuaral – USNM 105562, 105563, 105564, 105565, 105566, 105567, 105568, 105569, 105570, 105571, 105572, 105575, 105576, 105577, 105578, 105579, 105580, 105581, 105582, 105583, 105584, 105585, 105661, 105662, 105664. *Paraguari*: Yaguaron – AMNH 205195. PERU, *Loreto*: Maynas – AMNH 73235, 73237, 73239, 73242, 74018, 74019, 74021. *Loreto*: unknown locality – AMNH 71643. *Madre de Dios*: Paktiza – USNM 564391, 564392, 566560, 566561, 566562, 566563. *Pasco*: Oxapampa – AMNH 230746, 230747, 230748, 230750, 230751, 230752, 230753, 230754, 230755, 230756, 230757. *Pasco*: San Juan – USNM 364442, 364443, 364444, 364445, 364446, 364447, 364448, 364449, 364450, 364451, 364452, 364453, 364454, 364455, 364456, 364457, 364458, 364459, 364460, 364461, 364462, 364463, 364464, 364465, 364466, 364467, 364468, 364469, 364470, 364471, 364472, 364473, 364474, 364475, 364476, 364477, 364478, 364479, 364480. *Pasco*: unknown locality – AMNH 213428, 213430. URUGUAY, *Artigas*: Belén – AMNH 205454, 205456, 205458, 205459, 205460, 205462, 205463, 205465, 205466, 205468, 205469, 205470, 205473, 205474, 205475. VENEZUELA, *Amazonas*: Belén – USNM 405790, 405792, 405794, 405796. *Amazonas*: Capibara – USNM 409392, 409395, 416579. *Amazonas*: Cerro Neblina – USNM 560807, 560808. *Amazonas*: Porto Ayacucho – USNM 409416, 409420, 409422, 409425. *Amazonas*: Rio Mavaca – USNM 405798. *Amazonas*: San Juan – USNM 409403, 409404, 409406, 409407, 409408, 409410, 409411, 409412, 409413, 409414, 409415, 409454, 416580, 416581, 416582. *Apure*: Nulita – USNM 441714, 441715, 441716. *Apure*: Porto Paez – USNM 373909, 373913, 373914, 373915, 373916, 373917, 374008. *Bolívar*: Rio Supamo – USNM 387693. *Miranda*: Porto Tuy – USNM 387697, 387698, 387699, 87700, 387701, 387702, 387703. *Trujillo*: Valera – USNM 370933. *Zulia*: El Rosario – USNM 441718.
- Myotis chiloensis*: CHILE, *Coastal Town N of Valparaíso*: Zapallar – USNM 391785.
- Myotis keaysi keaysi*: BOLIVIA, *Santa Cruz*: Vallegrande – AMNH 260880, 262647. PERU, *Cuzco*: Cordillera Vilcabamba – AMNH 214371, 233850, 233851, 233853, 233854, 233857, 236134. *Huánuco*: Huánuco: AMNH 216117. *Puno*: Inca Mines – AMNH 15814. VENEZUELA, *Aragua*: 13 km NW of Maracay (Rancho Grande Biological Station) – USNM 370901. *Bolívar*: Gran Sabana – AMNH 130625, 130626.
- Myotis keaysi pilosatibialis*: VENEZUELA, *Aragua*: 13 km NW of Maracay (Rancho Grande Biological Station) – USNM 370929, 562920, 562921. *Carabobo*: Montalbán – USNM 441741, 441742. *Miranda*: Curupao – USNM 387714, 387715, 387716, 387718.
- Myotis levis dinellii*: ARGENTINA, *Córdoba*: USNM 142560, 142561, 142562. *Tucumán*: La Rocha – AMNH 256987. BOLIVIA, *Cochabamba*: AMNH 261119. *Chuquisaca*: Tomina – AMNH 263629. *Santa Cruz*: Caballero – AMNH 260253. *Potosí* – AMNH 39003.
- Myotis levis levis*: ARGENTINA, *Buenos Aires*: La Valle – USNM 236236, 236237. *Córdoba* – USNM 252766. *Tucumán*: Los Vásquez – MZUSP 2055. *Entre Ríos*: Puerto Constanza – USNM 582461. BRAZIL, *Minas Gerais*: Mariana – MZUSP 1748. *Minas Gerais*: Ouro Preto – MZUSP 15344, 15345. *Paraná*: Palmas – CCMZ-DZUP 380. *Paraná*: Porto Rico – CCMZ-DZUP 216, 217, 218, 369, 371, 372, 373, 376, 377, 381, 382, 384, 385, 386, 387, 388, 389, 391, 392, 393, 394, 395, 396. *Rio de Janeiro*: Nova Friburgo – MZUSP 2799. *Rio de Janeiro*: Teresópolis – ALP 6481, 6523. *Rio Grande do Sul*: Camapuã – AMNH 235863, 235864, 235865, 235866, 235867, 235868, 235869, 235870, 235871, 235872, 235873, 235874, 235875, 235876, 235877, 235878, 235879, 235880, 235881. *Rio Grande do Sul*: Harmonia – AMNH 235892. *Rio Grande do Sul*: São Leopoldo – DZSJRP 10393. *Rio Grande do Sul*: Taim – DZSJRP 14548, 14549, 14550, 14552, 14553, 14554, 14555. *Santa Catarina*: Passos Maia – CCMZ-DZUP 333, 334, 335, 336. *São Paulo*: Boracéia – MZUSP 15224, 15225, 15273, 15274, 15304, 15305, 15306, 15307, 15308, 15309, 15358, 27491. *São Paulo*: Cacequí – MZUSP 3167. *São Paulo*: Cananéia – MZUSP 27680, 27976. *São Paulo*: Casa Grande – MZUSP 16473, 16474, 16475, 16476, 16477, 16478, 16479, 16480, 16481, 16482, 16483, 16484, 16485, 16486, 16487, 16488, 16489, 16490, 16491, 16492, 16493, 16494, 16495, 16496, 16497, 16498, 16499, 16500, 16501, 16502, 16503, 16504, 16505, 16506, 16507, 16508, 16509, 16510, 16477. *São Paulo*: Itapeva – DZSJRP 11364, 11365. Unknown locality – MNHN type 203. URUGUAY, *Lavalleja*: Piraraja – AMNH 205477, 205478, 205503, 205504, 205505, 205508, 205509, 205510, 205511, 205512, 205513, 205514, 205515. *Tacuarembó*: Yaguari – MZUSP 28979, 28981. *Colón* – USNM 252599. Unknown locality – MZUSP 10084, USNM 102588, 102589, 102590.
- Myotis nesopolus*: VENEZUELA, *Lara*: Rio Tucuyo – USNM 441710. *Falcón*: Capatárida – USNM 441711, 441728, 441735, 441736, 441737, 441740. *Zulia*: Cojoro – USNM 441721.

- Myotis nigricans nigricans*: BOLIVIA, Cochabamba: Chapare – AMNH 211214, 211215, 211216, 211217, 211218, 211219, 211220, 211221, 211222, 211223, 211226, 211227, 211228, 211229, 211243, 211244, 211245, 211246. Santa Cruz: El Refugio – USNM 584500, 584501. BRAZIL, Amazonas – MZUSP 6091. Mato Grosso do Sul: Rio Brilhante – DZSJRP 12220. Mato Grosso do Sul: Pantanal – CCMZ-DZUP 170, 172, 174, 176, 177. Minas Gerais: Caxambu – ALP 2182. Minas Gerais: Pains – USNM 391131. Minas Gerais: Sete Lagoas – USNM 391129. Minas Gerais: Viçosa – USNM 391132, 391133, 391135. Paraná: Balsa Nova – CCMZ-DZUP 196, 197, 198, 199, 200, 410, 419, 420, 421, 422. Paraná: Matinhos – CCMZ-DZUP 141, 142, 144, 148. Paraná: São José dos Pinhais – CCMZ-DZUP 428. Rio de Janeiro: Tinguá – ALP 2505, 2870, 6262, 6619, 6620, 6624, 6625, 6679, 6682. Rio de Janeiro: Itaguaí – ALP 2284, 2290. Rio de Janeiro: Piraí – ALP 4587, 4783. Rio de Janeiro: Rio de Janeiro – ALP 3047, 3048, 3049, 3050. Rio de Janeiro: Seropédica – ALP 585, 588, 589, 625, 626, 627, 628, 629, 630, 631, 636, 639, 640, 655, 658, 904, 1396, 1826, 2862, 3427, 3428, 3498, 3499, 3581, 3697, 3703, 3705, 3715, 3716, 3718, 3723, 3740, 3741, 3742, 3744, 4815, 4816, 4817, 4819, 4825, 4827, 4839, 4844, 4906, 4930, 4931, 4938, 4939, 4940, 4943, 4944, 4947, 4949, 4950, 5012, 5017, 5020, 5032, 5033, 5034, 5036, 5037, 5040, 5043, 5044, 5045, 5068, 5074, 5075, 5089, 5090, 5092, 5094, 5095, 5097, 5098, 5102, 5103, 5105, 5130, 5131, 5132, 5134, 5171, 5172, 5173, 5174, 5175, 5176, 5179, 5180, 5181, 5185, 5186, 5187, 5188, 5235, 5327, 5331, 5332, 5338, 5340, 5341, 5342, 5344, 5346, 5347, 5348, 5349, 5350, 5499, 5501, 5504, 5510, 5511, 5520, 5521, 5523, 5525, 5543, 5592, 5593, 5594. Rio de Janeiro: Teresópolis – ALP 6479, 6524. Rio Grande do Sul: Frederico Westphalen – CCMZ-DZUP 338. Santa Catarina: Passos Maia – CCMZ-DZUP 400. São Paulo: Botucatu – ALP 2270, 2271. São Paulo: Fernando Prestes – DZSJRP 13616, 13619. São Paulo: São José do Rio Preto – DZSJRP 14979. São Paulo: São Sebastião – USNM 141395, 141396, 141398, 141400, 141401, 141403, 141405, 141406, 141408, 141409, 141411, 141412, 141413, 141414. COLOMBIA, Magdalena: Bonda – AMNH 14587. La Nariño: Ricuarte – USNM 309020. La Nariño: Guayacona – USNM 309021, 309023. ECUADOR, Esmeraldas, AMNH 33239. Pichincha: Santo Domingo – USNM 528566. Zamora-Chinchipe: Cumbaratza – USNM 513488, 513489. Zamora-Chinchipe: Los Encuentros – USNM 513490. San Javier – USNM 113343. Pambilar – USNM 113345, 113346. Paramba – 113349. GUYANA, Upper Demerara-Bernice – USNM 582351, 582352. PANAMA, Canal Zone: Barro Colorado Island – USNM 296266, 296270, 296271, 296272, 296273. Darién: Boca de Cupe – USNM 306796. Darién: Jaque – USNM 306796, 363085, 363086, 363087, 363088. Unknown locality – AMNH 18736. PARAGUAY, Paraguairí – USNM 115078, 115080. Boquerón (Parque Nacional Teniente Enciso) – USNM 555673, 555674. Paraguairí: Sapucay – USNM 115073, 115089, 121477. Paraguairí (Ibicuy National Park) – USNM 531197. PERU, Amazonas: Cordillera Del Condor – USNM 581966, 581967. VENEZUELA, Amazonas: Boca Mavaca – USNM 405801. Amazonas: Ayacucho – USNM 409424, 409455. Apure: Nulita – USNM 441722. Bolívar: Maripa – USNM 17069. Carabobo: Urama – USNM 373921, 373922, 373923, 373924, 373926, 373929, 373932, 373933, 373935, 373936, 373942, 373943, 373946, 373948, 373950. Monagas: San Agustín – USNM 409391, 409429, 409430, 409431, 409433, 409435, 409437, 409438. Yaracuy: Urama – USNM 387708.
- Myotis oxyotus*: COLOMBIA, Nariño: El Guabo – USNM 309019. ECUADOR, Chimborazo: Pallatanga – USNM 513480. Pastaza: Mera – USNM 548337, 548339. Pastaza: Mirador – USNM 513491, 513492, 513493, 513494. PERU, Junín: Río Palca – USNM 507204. Cuzco: Iquente – USNM 195196. Cuzco: Santa Ana – USNM 194452, 194453, 195141, 195147, 195149. VENEZUELA, Amazonas: Cerro Neblina – USNM 560809, 560810, 560811. 85 Km SSE Bolívar: El Dorado – USNM 387712. Mérida: Tabay – USNM 373919.
- Myotis riparius*: BRAZIL, Mato Grosso: Cachoeira São Simão – MN 3757. Mato Grosso do Sul: Paranaíba – DZSJRP 12022. Pará: Altamira – USNM 549517, 549518. Pará: Belém – USNM 361786, 361788, 361789, 361790, 361791, 460139. Pará: Mocambo – ALP 1915, 2002, 2003, 2004, 2554, 2557, 2562, 2568, 2587, 2610, 2710. Rio de Janeiro: Tinguá – ALP 4356, 4357, 5421, 6622, 6680, 6681. Rio de Janeiro: Piraí – ALP 4573. São Paulo: Buri – MZUSP 32968, 32969, 32970. São Paulo: Juquitiba – MZUSP 32963, 32964, 32966. São Paulo: São Paulo – MZUSP 31466.
- Myotis ruber*: BRAZIL, Minas Gerais: Viçosa – USNM 391138, 391139, 391140. Rio de Janeiro: Tinguá – ALP 6621, 6623, 6683. Rio de Janeiro: Macaé de Cima – JAO 1751, 1756, 1773. Rio de Janeiro: Teresópolis – ALP 6452, 6457, 6458, 6497, 6499, 6506, 6512, MN 3400. Rio Grande do Sul: São Lourenço do Sul – MZUSP 1298, 1988. São Paulo: Boracéia – MZUSP 28359, 28367, 28368. São Paulo: Buri – MZUSP 32971, 32972, 32973, 32975. São Paulo: Cananéia – MZUSP 27595. São Paulo: São Paulo – MZUSP 15254, 31470, 31471, 31472, 31473, 31971. Unknown locality – DZSJRP 17014.
- Myotis simus*: BOLIVIA, Beni: Cercado – AMNH 211155, 211156, 211167, 211168, 211169, 211170, 211171, 211172, 211173, 211174, 211178, 211179, 211180, 211181, 211182, 211183, 211190, 211192, 211193, 211194, 211195, 211196, 211197, 211198. Santa Cruz: El Refugio – USNM 584502. BRAZIL, Amazonas: Borba – AMNH 91886, 91887, 91888, 91889, 91890, 91891, 91892, 94224, 94225, 94227, 94230, 94231, 94232, 94233, 94234. Amazonas: Itacoatiara – MZUSP 3472. Amazonas: Manaus – AMNH 79534, 91472, 91473, 91474, 91475, 91476, 91477, 91478, 91500. Amazonas: Parintins – 92983, 93489, 93490, 93491, 93492, 93493, 93494, 93495, 93496, 93497, 93922, 93923, 93924, 93925. Amazonas: Rio Juruá – MZUSP 638, 1074. Mato Grosso: Taiamã – MZUSP 13815. PERU, Loreto: Maynas – AMNH 71483, 71485, 71486, 71487, 71488, 71490, 71491, 71492, 71493, 71494, 74105, 74109, 74110, 74378, 74379, 74380, 74381. Loreto: Ucayali – AMNH 76240, 76241, 76242, 76243, 76244, 76245, 76246, 76247, 76248, 76249, 76252, 76253. Pasco: San Juan – USNM 364481, 364482.