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TAXONOMIC NOTES ON *PHYLLOMEDUSA* (ANURA: HYLIDAE) FROM THE UPPER AMAZON BASIN

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ABSTRACT: Five species of *Phyllomedusa* occur in the upper Amazon Basin: *P. bicolor* (Boddaert, 1772), *P. palliata* Peters, *P. tarsi* (Cope), *P. tomopterna* (Cope), *P. vaillanti* Boulenger. *Phyllomedusa palliata* is resurrected from the synonymy of *P. tomopterna*. *Phyllomedusa perlata* Boulenger, *P. feltoni* Shreve, and *P. blombergi* Funkhouser are junior synonyms of *P. vaillanti*. *Phyllomedusa nicefori* Barbour, *P. edentula* Andersson, and *P. orcesi* Funkhouser are junior synonyms of *P. tarsi* (Cope). The status of *P. coelestis* (Cope) is unsettled.

In the most recent review of the genus *Phyllomedusa* (Funkhouser, 1957), 11 species were recognized in the upper Amazon Basin (Colombia, Ecuador, Perú, and western Brazil). Funkhouser's taxonomic conclusions were based upon descriptions of type specimens and the examination of only 27 preserved specimens of the 11 taxa from the Amazon Basin. During the past 6 years I have had the fortune of making 10 trips to the Amazon Basin, which provided an opportunity to study these spectacular tree frogs. Furthermore, I have examined material in major European and American museums, including the extant types. As a result of my study of 528 specimens, of which I have seen 201 in life, I recognize five species in the upper Amazon Basin. In this paper I present brief diagnoses of the species and justifications for the taxonomic changes. Only the external morphology of adults is discussed here, inasmuch as these characters are sufficient for the purposes of this paper. Discussions of tadpoles, mating calls, and osteology are deferred for a subsequent more comprehensive review of phyllomedusine hylids.

In the following accounts, which are arranged alphabetically, color descriptions are based on living material.

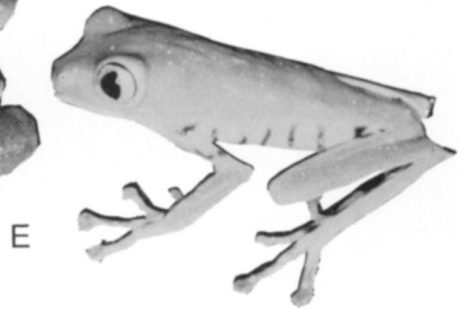
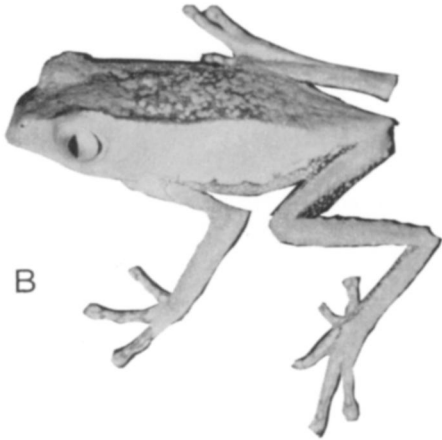
Phyllomedusa bicolor (Boddaert) (Fig. 1A)

Rana bicolor Boddaert, 1772:19 [holotype.—unknown, originally in collection of Johann Schlosser; type locality restricted to Surinam (Funkhouser, 1957: 38)].

Phyllomedusa bicolor—Wagler, 1830:201.

Phyllomedusa scleroderma Cope, 1868:112 [holotype.—ANSP 2173 from Surinam; Hering collector]. Synonymy *vide* Boulenger, 1882:427.

Diagnosis.—(1) Snout with slight anterior inclination in both sexes; (2) parotoid glands elevated, rounded, protruding dorso-laterally, extending ventrally posterior to tympanum and posteriorly to sacrum or groin; (3) dorsal skin rough, osteoderms present; (4) first finger shorter than and opposable to second; (5) first toe barely longer than and opposable to second; (6) discs on fingers large; (7) forearm much more robust than upper arm; (8) calcar absent (9) anal opening directed posteriorly at mid-level of thighs in both sexes; (10) dorsal surfaces and side of head green; (11) flanks having narrow reddish-brown zone with small creamy white spots bordered with black; (12) anterior and posterior surfaces of thighs colored like flanks;



(13) throat, chest, and ventral surfaces of forearms, feet, and proximal parts of thighs gray; rest of venter pale orange; (14) anal, ulnar, and tarsal stripes creamy yellow; (15) iris silvery-gray with bronze cast by day; (16) palpebrum clear above, marked with cream spots and lavender-gray reticulations below; (17) SVL ♂♂ 103.0–115.3 mm (\bar{x} = 109.8, N = 14).

Distribution.—Guyana, Surinam, Amazon Basin from mouth to southern Colombia and northeastern Perú.

Remarks.—The specimen (CAS-SU 11535) reported from Loreto, Ecuador by Funkhouser (1957:39) is *P. tarsius*. I have seen no *P. bicolor* from Ecuador. The holotype of *P. scleroderma* (ANSP 2173) is an adult male having a snout-vent length of 103.9 mm. Although the type is faded, and the skin has been cut middorsally and mid-ventrally for the length of the body, the specimen retains sufficient characters to assign it to *P. bicolor*.

Phyllomedusa palliata Peters
(Fig. 1C)

Phyllomedusa palliata Peters, 1872:773 [holotype.—ZMB 7181 from “Ucayali” (♀ = Río Ucayali), Departamento Loreto, Perú; R. Abendroth collector].

Phyllomedusa tomopterna (part)—Funkhouser, 1957:25.

Diagnosis.—(1) Snout rounded above, truncate below in males, barely inclined anteroventrally in females; (2) parotoid glands low, rounded, extending to scapula; (3) dorsal skin smooth; (4) first finger shorter than and opposable to second; (5) first toe much longer than and opposable to second; (6) discs small; (7) forearm slender; (8) calcar absent; (9) anal opening directed posteroventrally at mid-level of thighs in both sexes; (10) dorsal surfaces and side of head above nostrils

and middle of orbit dark green; (11) side of head below nostrils and middle of orbit, and flanks cream with brown flecks, in groin becoming orange with irregular brown marks; (12) anterior and posterior surfaces of thighs colored like groin; (13) ventral surfaces cream with brown flecks; (14) anal, ulnar, and tarsal stripes indistinct, creamy white; (15) iris bronze with fine black reticulations; (16) palpebrum clear; (17) SVL ♂♂ 37.7–43.8 mm (\bar{x} = 41.7, N = 12), ♀♀ 38.8–49.1 mm (\bar{x} = 43.6, N = 25).

Distribution.—Upper Amazon Basin in Ecuador and Perú.

Remarks.—Peters (1871:404) reported a specimen of *P. hypochondrialis* (Daudin) from “Ucayali,” Perú, but he (1872:773) noted that the specimen actually represented a new species, which he named *Phyllomedusa palliata*. Boulenger (1882:430) and Nieden (1923:343) included the species in their catalogues, but Funkhouser (1957:25) included the name without comment in the synonymy of *Phyllomedusa tomopterna*.

Comparison of the type specimen of *P. palliata* with specimens of *P. tomopterna* revealed many differences (see diagnoses of both species in this paper). The type is a female having a snout-vent length of 37.0 mm; it is soft and faded, but sufficient pigmentation remains so that the pale lower half of the face can be discerned.

Phyllomedusa palliata most closely resembles *P. hypochondrialis* and *P. rohdei* Mertens in size and structure (Table 1). The latter occurs only in the coastal regions of southeastern Brasil, whereas *P. hypochondrialis* inhabits forested and non-forested areas from eastern Colombia to the Guianas southward to northern Argentina, Paraguay, and eastern Bolivia.

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FIG. 1.—Amazonian species of *Phyllomedusa*: A. *P. bicolor*, KU 124901. B. *P. vaillanti*, KU 139252. C. *P. palliata*, KU 126661. D. *P. tarsius*, KU 123914. E. *P. tomopterna*, KU 139257. All approximately natural size.

TABLE 1.—Comparison of three species of *Phyllomedusa*.

Character	<i>P. palliata</i>	<i>P. hypochondrialis</i>	<i>P. rohdei</i>
Snout-vent length (♂♂)	37.7–43.8 (41.7)	35.0–40.0 (37.5)	37.0–42.3 (40.1)
Side of head	Pale below nostril and eye	Pale lip stripe	Pale posterior to eye
Flanks	Cream to orange, brown flecks	Orange to red, black bars	Orange, black bars
Posterior Thighs	Orange, irregular brown dashes	Orange, black bars	Dark brown, orange spots
Venter	Cream, brown flecks throughout	White, black flecks on chest	Cream, black flecks on chest

Phyllomedusa tarsius (Cope)
(Fig. 1D)

Pithecopus tarsius Cope, 1868:113 [holotype.—“Smithsonian Mus. 6652,” now lost, from Río Amazonas, below mouth of Río Napo, Departamento Loreto, Perú; James Orton collector].

Phyllomedusa tarsius—Boulenger, 1882:428.

Phyllomedusa nicefori Barbour, 1926:191 [holotype.—MCZ 11611 from Villavicencio, Departamento Meta, Colombia; Nicéforo María collector]. **New synonym.**

Phyllomedusa edentula Andersson, 1945:84 [holotype.—NHRM 1965 from Río Pastaza watershed, Provincia Pastaza, Ecuador; William Clarke-MacIntyre collector]. **New synonym.**

Phyllomedusa orcesi Funkhouser, 1957:48 [holotype.—CAS-SU 10316 from Chichirota, Río Bobonaza, Provincia Pastaza, Ecuador; Ramón Olalla collector]. **New synonym.**

Diagnosis.—(1) Snout inclined anteroventrally in both sexes, angular above in males and rounded above in females; (2) parotoid glands rounded, extending to mid-body or sacrum, diffuse in some individuals; (3) dorsal skin shagreened, hind limbs tubercular in large adults; (4) first finger shorter than and opposable to second; (5) first toe longer than and opposable to second; (6) discs on fingers large; (7) forearm much more robust than upper arm; (8) calcar absent; (9) anal opening directed posteroventrally at mid-level of thighs; (10) dorsal surfaces and side of

head green; (11) flanks marked by individual or confluent cream, pink, or pale orange spots; (12) anterior and posterior surfaces of thighs brown or dull green with cream, pale orange, or bluish-gray spots; (13) throat, chest, and ventral surfaces of limbs dark brown or grayish brown; belly gray or pale orange brown; pair of white spots on throat, median white spot on chest, and pair of white para-anal spots usually present; (14) anal, ulnar, and tarsal stripes and margin of lower lip dull cream; (15) iris bright-orange with bold black reticulations; (16) palpebrum clear; (17) SVL ♂♂ 81–90 mm (\bar{x} = 84.1, N = 20), ♀♀ 99.1–111.8 mm (\bar{x} = 104.0, N = 10).

Justification of Synonymy.—The study of a large series of specimens from Santa Cecilia, Ecuador, and examination of many specimens from Perú and southern Colombia revealed slight differences between the sexes in snout shape and considerable variation in the distinctness of the parotoid gland. In some specimens the gland is diffuse, but in most it is elevated into a rounded ridge extending posteriorly at least to the sacrum. These differences and manners of describing the coloration of the flanks are the distinguishing features of these frogs used by the describers, none of whom examined the types of the other taxa.

Apparently, the type of *P. tarsius* is no longer extant, so Cope's (1868) description must be the basis for description. The type of *P. nicefori* is a male, 77.9 mm in snout-vent length; the parotoid glands are diffuse and extend only to the scapular region. The

type of *P. edentula* is a female, 83.0 mm in snout-vent length; the parotoid glands are rounded and extend nearly to the sacrum. This specimen has low prevomerine denticular processes but lacks teeth. The type of *P. orcesi* is a male, 85.1 mm in snout-vent length. The parotoid glands are distinct but extend only to the scapular region.

Each of the extant type specimens could have been drawn from the sample from Santa Cecilia, Ecuador. Furthermore, examination of all available frogs from the Amazonas-Napo-Ucayali drainage system in Perú reveals the same kind of variation. Thus, I conclude that *P. nicefori* Barbour, 1926; *P. edentula* Andersson, 1945; and *P. orcesi* Funkhouser, 1957, are junior synonyms of *P. tarsi* Cope, 1868.

Distribution.—The upper Amazon Basin in southern Colombia, Ecuador, and Perú.

Remarks.—*Phyllomedusa tarsi* resembles two vicariant species—*P. trinitatus* Mertens from northeastern Venezuela and Trinidad, and *P. venusta* Duellman and Trueb from eastern Panamá. *Phyllomedusa boliviana* Boulenger has a more pointed snout in dorsal view, much more prominent parotoid glands, a dark iris, and a different pattern on the flanks. According to Cope (1874:121), *P. coelestis* Cope has vertical bars on the flanks and a green venter.

The *-us* ending is retained in the specific name which originally was used in combination with *Pithecopus*. I assume that Cope applied the name in reference to the genus *Tarsius* (Mammalia, Primates); thus, as a noun in apposition, the *-us* ending is correct.

Phyllomedusa tomopterna (Cope)
(Fig. 1E)

Pithecopus tomopternus Cope, 1868:112 [syntypes.—two "Smithsonian Mus. 6651," now lost, from Río Amazonas, below mouth of Río Napo, Departamento Loreto, Perú; James Orton collector].
430.

Phyllomedusa tomopterna—Boulenger, 1882:430.

Phyllomedusa tomopterna (part)—Funkhouser, 1957:25.

Diagnosis.—(1) Snout truncate in males, rounded in females; (2) parotoid glands diffuse, normally not evident; (3) dorsal skin smooth; (4) first finger shorter than and opposable to second; (5) first toe barely longer than and opposable to second; (6) discs large; (7) forearm slender; (8) calcar and inner triangular flap present; (9) anal opening directed posteroventrally at mid-level of thighs; anal region swollen in females; (10) dorsal surfaces and side of head green; (11) flanks orange with vertical dark purplish-brown bars; (12) anterior and posterior surfaces of thighs colored like flanks; (13) throat and chest white; belly pale orange; (14) anal, ulnar, and tarsal stripes white; (15) iris silvery-gray; (16) palpebrum clear above, green below; (17) SVL ♂♂ 40.6–45.6 mm (\bar{x} = 43.9, N = 20), ♀♀ 52.3–58.8 mm (\bar{x} = 55.5, N = 5).

Distribution.—Surinam, upper Amazon Basin in Ecuador, Perú, and extreme western Brasil.

Remarks.—Although the type specimen is no longer extant, there can be little doubt that the name is properly applied. Cope (1868:113) noted the calcars and vertical bars on the flanks and limbs; no other frog in the upper Amazon Basin is so colored.

Phyllomedusa vaillanti Boulenger
(Fig. 1B)

Phyllomedusa vaillanti Boulenger, 1882:427 [holotype.—BMNH 74.6.5.1 (RR 1947.2.22.34) from Santarém, Estado do Pará, Brasil; H. A. Wickhaus collector].

Phyllomedusa perlata Boulenger, 1883:638 [holotype.—BMNH 84.2.18.54 (RR 1947.2.25.82) from Yurimaguas, Río Huallaga, Departamento Loreto, Perú; Mr. Hahnel collector]. **New synonym.**

Phyllomedusa feltoni Shreve, 1935:214 [holotype.—MCZ 19941 from Sarayacu, Provincia Pastaza, Ecuador; O. C. Felton collector]. **New synonym.**

Phyllomedusa blombergi Funkhouser, 1957:41 [holotype.—CAS-SU 13241 from Santa

Rosa de Sucumbios, Río Rumiyacu, Comisaria Putumayo, Colombia; Rohlf Blomberg collector]. **New synonym.**

Diagnosis.—(1) Snout angular above and nearly truncate in males, rounded above and inclined anteroventrally in females; (2) parotoid glands slightly elevated, angular, extending to sacrum, with longitudinal row of white granules along angle of gland; (3) dorsal skin rough, tubercular on hind limbs of large adults; (4) first finger shorter than and opposable to second; (5) first toe longer than and opposable to second; (6) discs on fingers moderately large; (7) forearm slender; (8) calcar absent; transverse dermal fold present; (9) anal opening directed posteroventrally at mid-level of thighs, scalloped supra-anal dermal fold present; (10) dorsal surfaces and side of head green; (11) flanks green above, reddish brown below, separated by row of longitudinal elliptical cream to pale orange spots; (12) anterior and posterior surfaces of thighs reddish brown to lavender with small cream to pale orange spots; (13) venter pale grayish-orange with gray reticulations in smaller individuals, dull grayish brown in large adults, with pair of lavender bordered cream spots on throat and large pale green spot surrounded by cream on chest; margin of lower lip cream; (14) anal stripe distinct; ulnar and tarsal stripes indistinct, creamy white; (15) iris pale gray with greenish tint; (16) palpebrum clear; (17) SVL ♂♂ 50.2–57.5 mm (\bar{x} = 53.2, N = 18), ♀♀ 68.8–81.2 (\bar{x} = 76.7, N = 5).

Justification of Synonymy.—Two of the types are juveniles (*P. perlata*, 21.8 mm; *P. blombergi*, 34.6 mm) having rows of distinct dorsolateral white granules, which were mentioned in the type descriptions (Boulenger, 1883; Funkhouser, 1957). Neither Boulenger (1882) nor Shreve (1935) mentioned white granules in the types of *P. vaillanti* or *P. feltoni*. The granules are distinct in the types of *P. feltoni*, whereas in the type of *P. vaillanti* a few indistinct pale granules are present in the parietal region only. Examination of a large series

of these frogs from Santa Cecilia, Ecuador, revealed that white granules are distinct in all juveniles, but in some large adults the granules are pale green and thus not so evident as in smaller individuals. The color patterns of the four types are essentially identical, except for the ontogenetic differences in ventral coloration. In the absence of distinctive structural features among the type specimens and the fact that the slight differences in coloration are encompassed in one large sample from Santa Cecilia, Ecuador, I conclude that *P. perlata* Boulenger, 1883; *P. feltoni* Shreve, 1935; and *P. blombergi* Funkhouser, 1957, are junior synonyms of *P. vaillanti* Boulenger, 1882.

Distribution.—Guyana, Amazon Basin from mouth to southern Colombia, Ecuador, Perú, and northern Bolivia.

Status of *Phyllomedusa coelestis* (Cope)

Cope (1874:121) named *Pithecopus coelestis* from Moyobamba, Departamento San Martín, Perú. The type cannot be found. Cope noted that parotoid glands, rows of granules, and calcars were absent. He described the color, evidently of a preserved specimen, as follows: "Superior surfaces blue, sides yellow, with vertical purple bars. Concealed surfaces light maroon, with yellow spots, on the posterior surface of the femur in the two series. Belly and throat sea-green, unspotted. Lower lip yellow bordered; upper lip without markings. Upper eyelids yellow bordered." I have seen no specimens of *Phyllomedusa* that match this description.

Funkhouser (1957:47) suggested that *P. coelestis* and *P. boliviana* Boulenger might be conspecific. I have examined the syntypes of *P. boliviana* (BMNH 1901.8.2.49–50) from Chulumani, Bolivia, and several other Bolivian specimens assignable to this species. In these the parotoid glands are prominent, there are no vertical bars on the flanks, and the venter in males is dark.

Thus, at the present time we can only assume that the frog named *P. coelestis* by

Cope waits rediscovery in the Andean foothills of northern Perú.

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SPECIMENS EXAMINED

All specimens are referred to by catalogue number and the abbreviation of the collection given in the *Acknowledgments* (KU = University of Kansas Museum of Natural History). Only specimens of those accounted for in this paper are listed:

Phyllomedusa bicolor.—BRASIL: No specific locality, BMNH 58.11.25.51. *Amapa*: Serra do Navio, KU 92315. *Amazonas*: Forte Boa, Rio Solimões, BMNH 1928.2.11.1; Lago de Tachy, Rio Solimões, BMNH 1915.3.9.20-1; Paraná de Jacare, ZMB 30987; Rio Jutaki, ZMB 30984. *Pará*: IPEAN, 3 km E Belém, KU 128562-3, 128734, 130127. *State unknown*: Athen, NHMW 15900. COLOMBIA: *Amazonas*: Leticia, KU 124901-7, 124908 (skeleton). GUYANA: No specific locality, NHMW 6498. *West Demerara*: Demerara Falls, BMNH 72.10.16.10-11. PERÚ: *Loreto*: Centro Unión, Río Ucayali, TCWC 41339-40; Iquitos, AMNH 42209; Pepas, CAS-SU 6377; Sobral, AMNH 42396, 42406; upper Río Ucayali, AMNH 55164. SURINAM: no specific locality, ANSP 2173, NHMW 6500(2). *Suriname*: Paramaribo, ZMB 25962. *State unknown*: Goddo Drai, TCWC 23566.

Phyllomedusa palliata.—ECUADOR: *Napo*: Dureno, KU 105248; Limón Cocha, AUM 8668, KU 123215, LACM 72232, UIMNH 65531, 90081; Santa Cecilia, AUM 8645-66, KU 109561-7, 111979-82, 123202-14, 124146 (skeleton), 124214-7 (tadpoles), 125934 (tadpoles), 125963-6 (skeletons), 12661-6, 143240-2, 146523-6, 146527-8 (skeletons), 150531-46, MCZ 58785, UMMZ 129329-34. PERÚ: *Loreto*: Pampa Hermosa, Río Cushabatay, AMNH 42133; Río Curanja, Balta, LSU 25880-2; Río Ucayali, ZMB 7181.

Phyllomedusa tarsius.—COLOMBIA: *Amazonas*: Leticia, AMNH 60630, KU 124909-15. *Cundinamarca*: Villeta, BMNH 1909.5.15.25. *Meta*: Villavicencio, MCZ 11611, USNM 152261-2, 152750. *Santander*: Aratoka, UMMZ 54634. ECUADOR: *Napo*: Dureno, KU 105234-5; Limón Cocha, KU 98445-8, 99427-8, 144377, LACM 72224-7, 72412, UIMNH 59426-38, 59446-54. Santa Cecilia, AUM 8669, KU 104413 (skeleton), 105236-8, 109560, 111975, 123192-6, 124145 (skeleton), 126658-60, 143237-9, 146471-522, 146766 (skeleton), 146824-6 (tadpoles), 150500-30, 152318 (tadpoles), MCZ 56396-8, UMMZ 129327-8; 14 km ENE Umbaqui, Bermejo No. 4, KU 123197. *Pastaza*: Abitagua, CAS-SU 15589, UMMZ 92101, 112323; Loreto, CAS-SU 11535; Río Pastaza, NHRM 1965; Sarayacu, CAS-SU 10316. PERÚ: *Amazonas*: Comaima, Río Cenipa, AMNH 43052. *Huanuco*: Venenillo, 2 km from Tingo María, MJP 662. *Junín*: Chanchamayo, BMNH 1909.5.29.45. *Loreto*: Cashiboya, AMNH 43389; Contamana, Río Ucayali, AMNH 42644-5; Iquitos, NHMW 6525(3); Pampa Hermosa, Río Cushabatay, AMNH 42585, 43266, 43458; Pebas, BMNH 67.9.17.6-7, CAS-SU 15592, NHMW 6524, UMMZ 1285-6(4); USNM 35062; Pucallpa, MJP 91(2), 132, 250; Río Curanja, Balta, LSU 25875-7; upper Río Cushabatay, AMNH 42385; mouth Río Santiago, AMNH 42163, Roaboya, AMNH 43063, 43066.

Phyllomedusa tomopterna.—BRASIL: *Amazonas*: São João, Rio Solimões, BMNH 1915.3.9.22. ECUADOR: *Morona-Santiago*: Misión Bomboiza, Gualaquiza, KU 147174. *Napo*: Lago Agrio, KU 126667; Limón Cocha, LACM 72228-31, UIMNH 59425, 65532, 88581, 90796; 2 km W Puerto Napo, USNM-JAP 2655, 2695-6, 2771; Santa Cecilia, AUM 8670-1, KU 105246-7, 123201, 146531-61, 146767 (skeleton), 146827, 150582-603, 152320 (tadpoles), UMMZ 129301 (2); Santiago Borja, UMMZ 31747. *Province unknown*: eastern Andes, CAS-SU 13066. PERÚ: *Cuzco*: Pilcopata, KU 139257. *Loreto*: Pebas, BMNH 67.9.17.8, MCZ 4775; Río Curanja, Balta, LSU 25879. SURINAM: *Brokopondo*: Browns Berg Nature Park, nr. Mazaroni Top, AMNH 87698. *Saramacca*: Foengue Island Airstrip, Raleigh Cataracts, Coppename River, AMNH 87699.

Phyllomedusa vaillanti.—BOLIVIA. *Cochabamba*: 6:5 km N Chipiriri, KU 136314-5. BRASIL: *Amapá*: Serra do Navio, KU 92287. *Pará*: IPEAN, 3 km E Belém, KU 127980, 128584; Río Manjuru, AMNH 76179-80; Santarém, BMNH 1947.2.22.34. COLOMBIA: *Putumayo*: Santa Rosa de Sucumbios, Río Rumiayacu, CAS-SU 13241. ECUADOR: *Napo*: Dureno, KU 105239; Limón Cocha, AUM 8667, KU 99426, UIMNH 54148; Puerto Libre, KU 123200; Santa Cecilia, AUM 8672-5, KU 104414 (skeleton), 105240-6, 111976-8, 123198-9, 124213, 143243-4, 146529-30, 150547-81, 152319 (tadpoles). *Pastaza*: Chichirota, USNM-GOV 8755; Copataza, CAS-SU 10329, 13067-8; Mera, KU 121927-8; Montalvo, USNM-GOV 8759; Río Arajuno at Río Oglan, CAS-SU 13220; Río Bobonaza, USNM-GOV 8756-7; Sarayacu, MCZ 19941. GUYANA: *East Demerara*: Shudikarwan, AMNH 49253. *Mazaruni-Potaro*: Moraballi Creek, Essequibo River, BMNH 1930.10.10.54-55. PERÚ: *Cuzco*: Pilcopata, KU 139251-6. *Huanuco*: 35 km NE Tingo María, LSU 25500. *Loreto*: Orellana, Campo Santa Clara, USNM 127165-6; Río Curanja, Balta, LSU 25497-8, 25878; Río Pacaya, BMNH 1913.7.28.28; mouth Río Santiago, AMNH 42446-7; Yurimaguas, Río Huallaga, BMNH 1947.2.25.81.

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