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## A REVIEW OF THE GENUS *HYPERALONIA* RONDANI (BOMBYLIIDAE, DIPTERA) FROM SOUTH AMERICA<sup>1</sup>

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### ABSTRACT

A key and redescription of known species, often from types, is included for four species and one subspecies. *Hyperalonia ater* R. H. Painter, sp. n., is described as new from San Carlos, Salta, Argentina. Illustrations and distribution of species are included.

Conspicuous features of most collections of Bombyliidae from South America are the large bluish black specimens with reddish yellow heads that belong to the genus *Hyperalonia* which includes one of the first beefly species described from that continent. Types carrying four of the six names assigned to this genus have been studied.

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Specimens studied are from the collections of the senior author; American Museum of Natural History; California Academy of Sciences; Canadian National Collection; Cornell University; Departamento de Zoologia, Secretaria da Agricultura, São Paulo, Brazil; Jack Hall; Instituto Miguel Lillo, Universidad Nacional de Tucumán, Tucumán, Argentina; Instituto Oswaldo Cruz, Rio de Janeiro, Brazil; Michigan State University; Museo de la Universidad Nacional de La Plata, La Plata, Argentina; Naturhistoriska Riksmuseet, Stockholm, Sweden; Ohio State University; State Plant Board of Florida; U. S. National Museum; Universitets Zoologiske Museum, Copenhagen, Denmark; Naturhistorisches Museum, Vienna, Austria; University of California at Berkeley; University of California at Riverside; Snow Museum, University of Kansas; and Zoological Institute, University of Uppsala, Uppsala, Sweden.

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The map was made on copyrighted Goode Base Map series n.º 203, published by the University of Chicago.

### **Hyperalonia Rondani, 1864**

Dallas, 1866: 649; Williston, 1901: 273; Kertész, 1909: 1-5; Coquillett, 1910: 554; Painter, 1930: 274-275; Stuardo Ortiz, 1946: 96.

#### **DIAGNOSIS**

This genus is distinguished from other Exoprosopinae by the presence of four submarginal cells, a long conical third antennal segment without a style and most of the vestiture of body and head of sparse hairs.

Head. Somewhat broader than thorax. Occiput deeply bilobate above, somewhat inflated and extending behind eyes for a distance approximately equal to length of third antennal segment, sparsely clothed with recumbent hair, erect at margin. Hind margin of eye deeply indented, the bisecting line extending only a short distance into the compound eye. Front with a shallow depression between ocelli and antennae, densely occupied by short erect hairs; front broad; antennae wide apart at base. Eyes separated at apex in male by three times width of ocellus, in female by three and a half times width of ocellus. Face vertical, proboscis protruding about the length of antenna beyond mouth opening. Apex of face with small tuft of stiff hairs, clothed otherwise with sparse hairs except above base of antennae. Gena protruding for a distance equal to length of first antennal segment, containing a very deep furrow. Palpi slender, sparsely hairy, apparently one-segmented, about equal in length to labella. Third antennal segment two and a fourth times length of first, second segment somewhat shorter than its width, sparsely clothed with hair. First antennal segment more than twice as long as second, densely clothed with hair.

Thorax. Quadrate, somewhat narrower than head with prominent humeral calli, clothed with hair that is short on dorsum, longer as a ruff about neck and before and behind the wings. Two to four spines on post alar callus, several rows of weak spines or hairs around posterior margin of scutellum. Lower part of ptero- and hypopleura bare.

Legs. Rather short, femora clothed with narrow appressed scales, remainder of legs with short hairs, all femora and tibiae with short spines. First tarsi feeble, segments distinct, first segment nearly as long as remaining segments together, claws of first legs about half as long as those on other pairs. Claws without basal tooth, pulvilli present, very small, with a small lobe between each pair.

Abdomen. Broad, shining, sparsely clothed with short hair longer on sides and beneath. Seven visible segments. Male genitalia retracted, asymmetrical. Female ovipositor with a terminal circlet of eight somewhat curved spines. The male genitalia is of

the usual type found in Exoprosopinae. Only a few differences are found among species (figs. 9-14) and they are less distinctive than the differences in wing coloration. Hence they are illustrated but not separately described.

Type of genus, *Anthrax erythrocephala* Fabricius, 1805.

The type of *Hyperalonia*, which was not designated by Rondani, was designated in an abstract of Rondani's paper in the Zoological Record, thus: "*Hyperalonia*, g. n., Rondani, P. 57, see table supra. Type *H. erythrocephala* (auctt.); . . .;" (Dallas, 1866: 649). The later similar designation of Coquillett (1910) was not necessary. Williston (1901) called attention to the fact that *erythrocephala* differed from other species then included in *Hyperalonia*. Painter (1930) separated *Hyperalonia* from the other species then called *Velocia* Coquillett and characterized the genus.

The characteristics of head, body, and vesture of *Hyperalonia* resemble those of *Cyananthrax* Painter but the shape of the wing and venation are quite different in the two genera. In *Cyananthrax* the abdomen is slender, while in *Hyperalonia* that part of the body is robust.

So far as presently known, the genus *Hyperalonia* is confined to South America.

Since it is not always clear what taxa are referred to, the literature references in Kertész' catalog are not reproduced here.

KEY TO SPECIES AND SUBSPECIES OF HYPERALONIA

1. Entirely black pilose, no red pile anywhere .....  
 ..... *ater* R. H. Painter, sp. n.  
 Ruff of orange red pile about front of thorax and tuft of  
 white hair behind wings ..... 2
- 2(1). Line between hyaline and dark parts at tip of wing straight,  
 no black in outer submarginal cell; hyaline area in center  
 of wing large, a triangular hyaline spot in end of  
 second basal cell; first antennal segment black to brown  
 ..... *surinamensis* Rondani  
 Line between hyaline and dark parts at tip of wing some-  
 what curved, more or less following margin of wing;  
 spot in end of second basal cell round or oval ..... 3
- 3(2). Margin of dark area at tip of wing notched, hyaline spots  
 in second and fourth posterior cells, central hyaline band  
 of wing reaching hind margin broadly; first antennal  
 segment black to red ..... *chilensis* Rondani  
 Margin of dark area smoothly curved, central hyaline band  
 of wing rarely reaching hind margin of wing; first an-  
 tennal segment red ..... [*morio* (Fabricius)] .... 4
- 4(3). Spot at base of wing large and conspicuous, central hyaline  
 band wide, frequently of three spots, usually not reach-  
 ing margin of wing, often a clear spot in fourth pos-  
 terior cell ..... *morio morio* (Fabricius)

Spot at base of wing usually smaller, central hyaline band small, often of two spots, partly closed in wing margin, no clear spot in fourth posterior cell .....  
 ..... *morio erythrocephala* (Fabricius)

***Hyperalonia ater* R. H. Painter, sp. n.**

(Figs. 2-4, 15)

Largely black and entirely black haired, head mostly reddish brown, wings with more extensive hyaline markings than in remainder of species. Length, 19 mm.

Male. Ground color of body and legs black, head, including first antennal segments, reddish brown. Lower part of occiput and about mouth opening posteriorly, black. Ocellar tubercle and a large area at top of head between eyes black. The black spot on front is somewhat larger than usual and there is a black crescent about antennae above.

Head and first two segments of antenna with black hairs, occipital fringe whitish, a dense patch of hairs on black spot in front of antennae. Second antennal segment about as long as broad, first segment about three times as long as second, third somewhat longer than first but broken at tip. Proboscis exceeding mouth opening by about length of opening. Palpi blackish brown with black hairs.

Thorax entirely black haired, shorter on dorsum, spines of thorax black.

Abdomen entirely black haired, hairs along sides somewhat longer than elsewhere.

Legs with black hairs and spines, spines on front tibiae somewhat longer than usual, claws black.

Wing black with hyaline tip, margin almost straight with a slight notch in black area of second submarginal cell. Extreme apex of third submarginal and first posterior cells in hyaline area, a small spot at apex of first sumarginal cell and smaller area above it in marginal cell, hyaline. A broad hyaline band extending from vein R<sub>5</sub> across discal cell to wing margin including most of third posterior cell and part of fourth, connected with a wedge-shaped hyaline area in second posterior cell by a narrow margin at wing edge. A large hyaline round spot in apex of second basal cell. Base of costa with black hairs, alular fringe of black scales. Haltere including knob black.

Holotype male. San Carlos, Salta, Republic of Argentina, 21, 22.I.1950, Willink-Monrós col., in the museum of the Instituto Miguél Lillo, Universidad de Tucumám, Tucumám, Argentina.

***Hyperalonia chilensis* Rondani, 1864**

(Figs. 1, 12, 14, 15)

Kertész, 1909: 2; Ruiz, 1929: 57-60; 1930: 155-158; Edwards, 1930: 178; Paramonov, 1931: 65; Stuardo Ortiz, 1946: 96.

One male specimen in the Istituto di Zoologia, Università di Napoli Museum. bearing the labels "M<sup>o</sup> Zool<sup>o</sup> N.<sup>o</sup> 1118", "*Hypera-*

*lonia chilensis* Rond. Chile", is in good condition except for a small amount of fungus. The following description is drawn from a male compared with the type and numerous other specimens from Chile.

Body and legs brownish black with black hair, a ruff of orange red hair across front of thorax and down sides, black hair immediately above front coxae. Tufts of orange red hair in front of and behind wing and a tuft of white hair between haltere and wing base. Head mostly orange yellow with black hair. Wing black tip hyaline with a shallow notch in second submarginal cell in the curving edge of the black, central hyaline band reaching posterior border of wing broadly. Length 15 to 20 mm.

Male. Ground color bluish or brownish black on all of body and legs, head reddish yellow with ocellar tubercle and round spot in front black. Occiput, especially below, smoky. First two antennal segments reddish brown.

Head clothed with sparse short black hair, black spot in front of antennae and another area in front of that, about base of antennae and tip of mouth opening with denser hair. Occipital fringe yellow, proboscis exceeding mouth opening by length of labella. Second antennal segment about as wide as long, third antennal segment long, conical, five times as long as second, first segment about twice as long as second, first and second segments clothed with black hair. Palpi brown, clothed with brown hair.

Thorax clothed with black hairs, shorter on dorsum, orange red ruff extending across front of thorax and down sides except for above front coxae where hairs are black. Between humeral callus and wing base and behind wing base. clothed with orange red hairs, a tuft of white hairs between base of wing and haltere. Spines of post alar callus and scutellum black.

Abdomen clothed with black hair somewhat longer on sides. Genitalia with black hair.

Legs clothed with black hair and spines, spines on front tibiae rather abundant but small, claws black.

Wing black, tip hyaline including a shallow notch extending into black of second submarginal cell. Central hyaline band extending from  $R_5$  across discal cell to wing margin and usually joined to a V-shaped hyaline area in second posterior cell. A hyaline spot in front of that band extending from subcostal to vein R. A large spot in apex of second basal cell and in fourth posterior cell hyaline. First posterior cell narrowed in margin to half length of r-m crossvein. Contact of fourth posterior cell and discal cells about equal to base of fourth posterior cell. Wing base clothed with black hairs, alular fringe of black scales. Haltere brown, paler at tip.

Female. Essentially like male. Ovipositor surrounded by a circlet of about eight unhooked brown spines.

The notch in the black at the tip of the wing is variable in depth but usually is present. Sometimes there is a narrow hyaline margin connecting the tip of the wing with the hyaline crossband. The extent of the hyaline area is variable but always reaches the hind margin of the wing. The vein at the posterior side of the discal cell sometimes is bordered narrowly with black. The

hyaline spot in the second basal cell usually is smaller but occasionally is as large as in *morio morio*. The hyaline area in the second posterior cell sometimes is absent or nearly so.

Specimens have been studied from the following (fig. 15):

CHILE. *Aconcagua*: Piscicultura, Rio Blanco, 3.XII.1958, L. E. Peña col. (2 ♂); *Arauco*: Arauco, beach and dunes, 3.I.1952, P. C. Hutchison col. (19 ♂, 1 ♀); Cañate, 11.I.1955, I. Videla col. (1 ♂); *Cautin*: Nuevo Imperial, 30.I.1955, J. Molingue col. (1 ♀); 20 km E Temuco, 8.I.1951, Ross & Michelbacher col. (1 ♂, 1 ♀); *Coquimbo*: 15 mi. W La Junta, 7.XII.1950, Ross & Michelbacher col. (1 ♂); Llano de la Higuera, 14.X.1957, L. E. Peña col. (1 ♂); *Concepción*: Concep[cion], P. Herbst col. (1 ♂); *Curico*: El Coigo, 20.XII.1959, L. E. Peña col.; Rio Colorado, 9-13.II.1961, L. E. Peña col. (1 ♀); Rio Tono, 10.II.1965, L. E. Peña col. (1 ♀); *Malleco*: Angol, 10.XII.1924, 15.XII.1928, A. M. Bullock col. (9 ♂, 2 ♀); 3, 8.XII.1956, O. Fetiss, T. Garcia, C. Krueger, L. Ramiriz & Sac'z col.; Cerros de Nahuelbuta, 2.XII.1956, D. S. Bullock col. (2 ♂); *Maule*: Tregualemu, 7, 12.XII.1953, L. E. Peña col. (12 ♂, 2 ♀); *Nuble*: Monte Zorro, 18.XII.1953, L. E. Peña col. (3 ♂, 1 ♀); Nogueche, 15-17.XII.1953, L. E. Peña col. (11 ♂, 4 ♀); Recinto, I.1955, L. E. Peña col. (1 ♂); 40-50 km E San Carlos, 23, 26.XII.1950, Ross & Michelbacher col. (6 ♂, 3 ♀); *Santiago*: Barrancas, XII.1954, L. E. Peña col. (1 ♀); Caleu, XII.1951, L. E. Peña col. (3 ♂); El Canelo, XI.1952, L. E. Peña col. (4 ♀); Las Mercedes, II.1937, P. Flamino Ruiz col. (2 ♀); Maipu, F. V. Ibarro col. (1 ♂); *Valparaíso*: Reñaca, XI.1932, Dr. Reed col. (3 ♂); I.1955, A. Hettick col.; Queronque, 29.XII.1929, 7.XII.1939, E. P. Reed col. (2 ♂, 2 ♀); Valparaíso, A. Faz col. (2 ♂, 1 ♀).

PERU. *Lima*: Lima (1 ♂).

Edwards (1930) considered this taxon to be a separate species and recorded it from four localities in Chile: Concepcion, Los Andes, Valparaíso and Alhue. Paramonov (1931) recorded it as a form of *morio*. Ruiz (1929, 1930) gave brief notes on "*Exoprosopa erythrocephala*" which, to judge from the picture of the adult, is almost certainly this species, *chilensis*.

The male specimen, Lima [Peru?], E. P. Reed Collection, in the California Academy of Sciences collection, is a typical *chilensis* except that it lacks the hyaline spot in the second posterior cell. It could represent a hybrid with *surinamensis*.

In the University of California at Berkeley collection there are six males and one female that carry the labels "Itaquaquetuba, nr. São Paulo, Brazil, Coll. Townsend", that are typical *chilensis*. In view of the distance from all other known habitats of this species, this record requires confirmation.

### ***Hyperalonia morio morio* (Fabricius, 1775)**

(Figs. 8-10, 15)

Fabricius, 1775: 797; Kertész, 1909: 3; Edwards, 1930: 179; Paramonov, 1931: 64-65; Copello, 1932: 117-120; Stuardo Ortiz, 1946: 96.

*Hyperalonia morio* is the first taxon of this genus to be described and was reported either as *morio* or *erythrocephala* in many

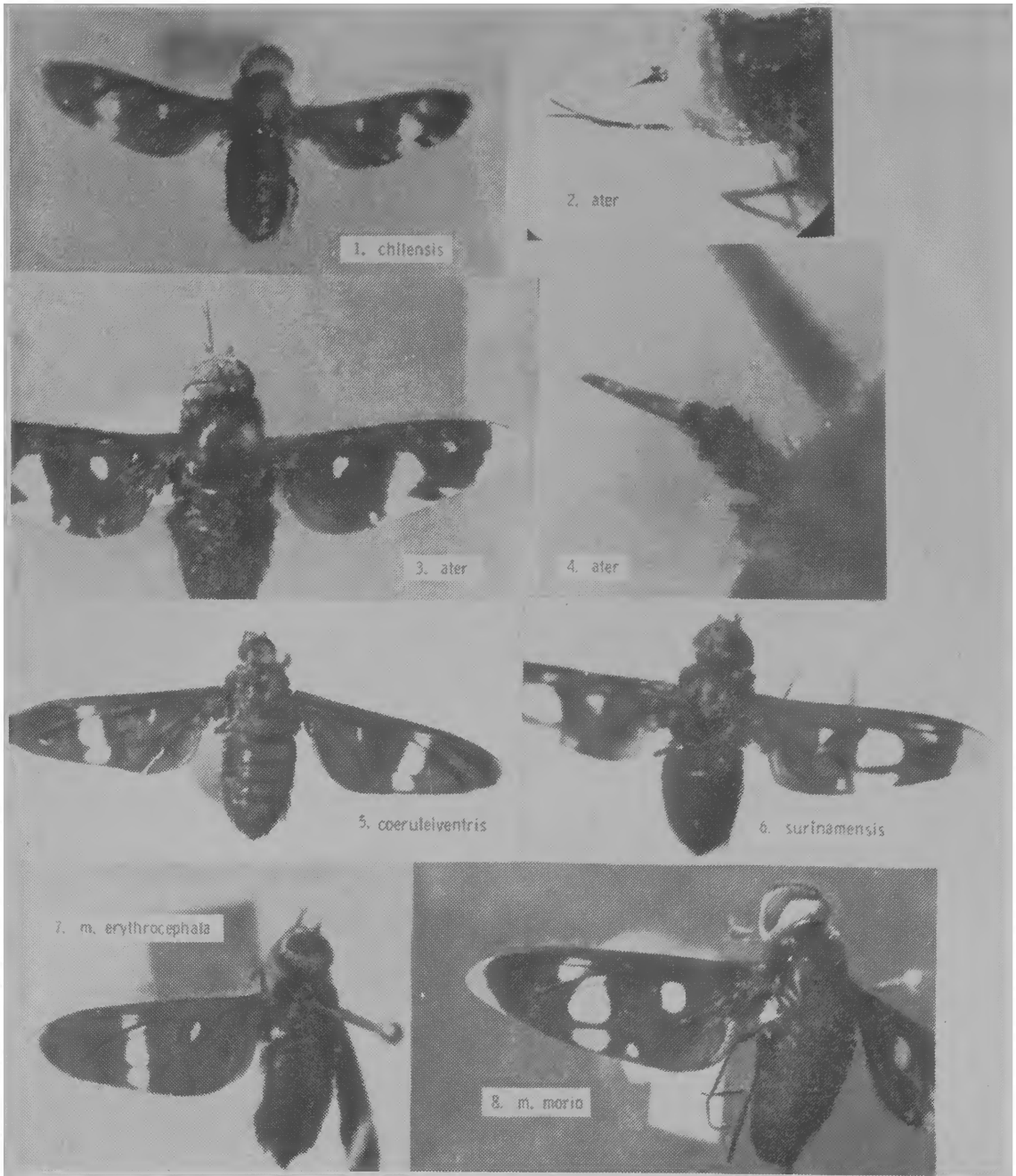


Plate 1: 1, *Hyperalonia chilensis* Rondani, type male; 2, *ater*, sp. n., type, head; 3, *ater*, sp. n., type male; 4, *ater*, sp. n., type, antennae (tip broken); 5, *coeruleiventris* (Macquart) type female, synonym of *m. erythrocephala* (Fabricius); 6, *surinamensis* Rondani, type male; 7, *morio erythrocephala* (Fabricius), type female; 8, *morio morio* (Fabricius), typical specimen.





early papers, all listed by Kertész (1909). Often it is difficult to determine to which of the taxa recognized in this paper the references refer, and in addition, locality records are often meaningless. Hence no attempt was made to trace the specimens concerned. Specimens that carry only the labels "South America" or the name of a country also have not been recorded when more exact localities from the country in question were available. Edwards (1930) evidently recognized *morio* as distinct from *erythrocephala* and *chilensis*, but Paramonov (1931) did not, but gave a key to five "forms" under *morio*. *H. morio morio* is form "A" or the "typical form" of Paramonov.

The division of the crossband into three distinct spots, the black along the vein separating the discal and third posterior cells, and the large round spot in the second basal cell are usually characteristic of this species.

A female carrying the labels "Chile, Dr. Reed, 34 19-." and "*Exoprosopa erythrocephala*, Coll. Dr. Reed, Valparaiso", is a typical *H. m. morio*. The label may refer to the collection of Dr. Reed, not to the locality. Edwards (1930) records one specimen of *H. morio* labelled "Araucania, Feb. 88" from Chile but evidently questions the record. Two recent male specimens from the collection of Jack Hall, however, definitely record this species as west of the Andes but apparently it is rare.

According to Fabricius original description the specimens he had come from Brazil and the types were in the Banks collection. In 1863 the Banks collection came to the British Museum (Natural History) by way of the Linnean Society of London. According to the accession records, the specimens were labeled 63-47 and 63-49. There are no specimens of *Hyperalonia* in the Banks collection, which is kept separate, nor were there any specimens of the *morio* group carrying these accession numbers in the British Museum collection. No evidence of specimens that would fit Fabricius' description are in the Copenhagen nor Kiel collections. The type is therefore considered to be lost.

The short description of Fabricius agrees best with the specimens common in the southern part of Brazil that are characterized by a median band of three hyaline spots in the wing as indicated in the original description. The following description is drawn from a pair that fit Fabricius' description. This pair came from Nova Teutônia, near Seara, Santa Catarina, Brazil.

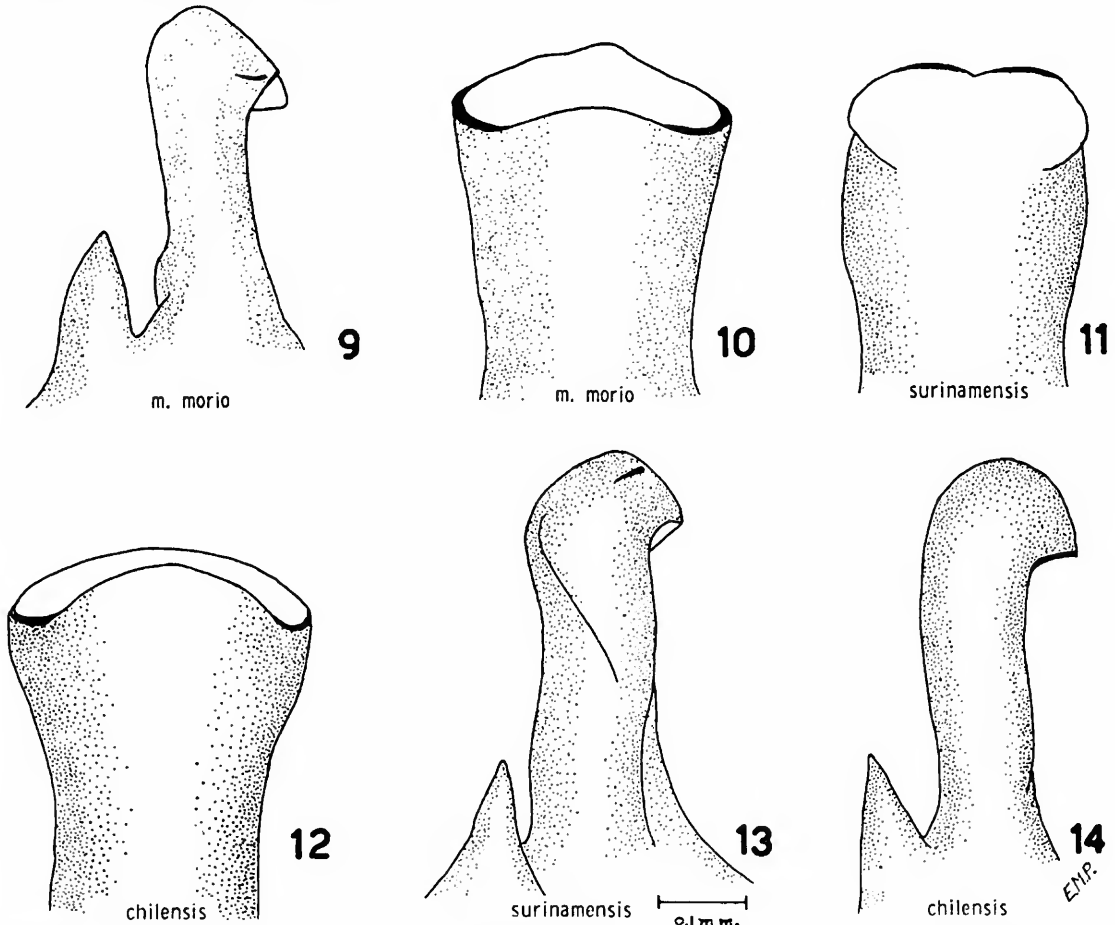
Body predominantly bluish black with black hairs but orange red ones between base of wing and on the humeral callus, the tuft between wing and haltere with white above, orange below. Head predominantly yellow. Wing black, tip, three central spots and one in second basal cell hyaline, usually a small clear spot in fourth posterior cell, the dark area at wing tip curved smoothly. Length 9 to 20 mm.

Male. Ground color black, thorax and legs dark brown, head yellow, area around ocelli and a spot in front brownish black, occiput behind mouthparts smoky.

Head with sparse black hairs on face and front, a dense patch of these in front of ocelli and a smaller one between the latter and base of antennae. Hairs of occiput and occipital fringe minute, yellow. Second antennal segment dark brown, about as long as wide, first segment three times length of second, third long, con-

cal, six times length of second; first and second with rather dense black hairs, base of antenna surrounded with longer black hairs. Proboscis exceeding mouth opening by length of labellae, palpi brownish with sparse brownish hairs.

Thorax with black hairs, much shorter on dorsum, long and black between humeral calli and on propleura; humeral callus with orange red hairs and some black ones posteriorly, the stripe of orange red hairs extending from humeral callus to base of wing; a small tuft of white hairs above and a large tuft of orange red hair below between base of wing and haltere. Spines of scutellum and post alar callus black.



Male genitalia of species of *Hyperalonia*. 9, lateral view of aedeagus of *m. morio*; 10, dorsal view of tip of aedeagus of *m. morio*; 11, dorsal view of tip of aedeagus of *surinamensis*; 12, dorsal view of tip of aedeagus of *chilensis*; 13, lateral view of aedeagus of *surinamensis*; 14, lateral view of aedeagus of *chilensis*.

Abdomen above and below with black hairs including those about genitalia.

Legs with short black hairs and black spines, spines on front tibiae rather small, small hairs below front tibiae and tarsi brownish, claws black, no visible pulvilli.

Wings black, tip hyaline, outline of black there smoothly curved; hyaline spots as follows: center of marginal and first submarginal cell, second spot occupying distal half of discal cell and base

of first posterior cell above, third spot in center of third posterior cell, not reaching wing margin, a large spot in apex of second basal cell and a small spot in center of fourth posterior cell. First posterior cell open about two thirds length of r-m crossvein. Contact of discal and fourth posterior cells four fifths as long as base of fourth posterior cell. Anal cell narrowly open. Base of costa with black hairs, alular fringe of black scales. Haltere black, tip and below somewhat smoky.

Female. Similar to male. Eight to ten brownish non hooked spines about ovipositor, some orange red pile on propleura.

Specimens from the following localities have been studied (fig. 15):

ARGENTINA. *Buenos Aires*: Buenos Aires (1 ♂, 1 ♀); Mar del Plata, 1.II.1951, 2.II.1957, 2.VI.1957, S. Bolle & Foerster col. (3 ♂, 4 ♀); B. Naval, P. Belgrano, 2.II.1938, Biraben-Scott col. (1 ♂); *Catamarca*: Hualfin, 12.II.1949, A. Area col. (1 ♀); El Suncho, 1850 m, 18.VIII.1911, Golbach col. (1 ♀); *Córdoba*: Córdoba, 18.XII.1948, Padre Lopez col. (1 ♂, 3 ♀); Capilla del Monte, 17.II.1942, A. H. Argemí col. (1 ♂, 1 ♀); *Corrientes*: Manantiales, Th. d. Apostol[es], XI.1945 (1 ♀); *Formosa*: Gran Guardia, 1.II.1953, Foerster col. (1 ♀); *Jujuy*: La Ciénaga, 21.I.1948, Willink-Monrós col. (1 ♀); Tilcara, 2100 m, 25.I.1948, Willink-Monrós col. (4 ♀); *Mendoza*: Potrerillos, 4000 ft., 11-20.III.1920, R. G. Harris col. (1 ♂); Uspallata, 14.I.1947, Hayward-Willink col. (3 ♀); *Misiones*: 16.XI.1909, 1.I.1910, 4.II.1910 (2 ♂, 2 ♀); *Neuquén*: Covunco Centro, 15.IV.1941, R. Maldonado Bruzzone col. (1 ♀); Zapala, 19-22.XII.1946, Hayward & Willink col. (1 ♂); *Salta*: Cafayate, 1.II.1951, Hayward col. (2 ♂, 1 ♀); *Rio Negro*: (2 ♀); Choele Choel, 5.III.1913 (1 ♀); *Santiago del Estero*: Beltrán, 4.VIII.1941, R. Maldonado col. (2 ♀); Jimenez, 26.X.1946, Andeld [?] col. (1 ♀); Turena, Dto. Robles, 22.XI.1939, R. Maldonado Bruzzone col. (1 ♂); *Tucumán*: Fronterita, 12.III.1948, Ares col. (1 ♂); Los Bulacios, 30.I.1948, Ares col. (1 ♀); Táfi del Valle, 9.XII.1945, Hayward col. (2 ♀); Dpto. Trancas, 2.X.1947, Ares col. (1 ♂); Tucumán, I.1949, H. P. Colalao col. (2 ♀)

BOLÍVIA. *Cochabamba*: Capinota, 5, 6, 9, 10.I., 5, 6, 9, 10, 11.II.1948, H. Merubia col. (2 ♂, 8 ♀).

BRAZIL. *Amazonas*: Rio Negro, S. Antônio, XII.1931, Hepper col.; *Ceará*: 21.XII.1937, D. D. Rocha col. (1 ♀); Limoeiro, VI.1940, Shannon & Alves col. (1 ♂); *Goiás*: Campinas, II.1938, R. Spitz col. (1 specimen); *Guanabara*: Rio de Janeiro (1 ♂); Serra da Carioca, J. C. Vasques col. (1 ♂); *Mato Grosso*: Maracaju, III.1937, Shannon & Lane col. (7 ♂, 2 ♀); III.1937, R. C. Shannon col.; *Minas Gerais*: Alpinópolis, IV.1961, C. Elias col. (1 ♀); Lavras, 15.IX.1964, W. E. & C. A. Triplehorn col. (3 ♀); *Paraná*: Jacarèzinho, 11, 13.II.1961, N. Marston col. (4 ♂, 1 ♀); *Rio de Janeiro*: Cabo Frio, 2.IV.1920, E. G. Holt col. (1 ♀); *Rio Grande do Sul*: Bagé, 27.II.1961, N. Marston col. (1 ♀); Guarani (now Guaramano), 18.III.1932, C. M. Biezanko col. (1 ♂); Pelotas, 5, 30.III.1957, C. M. Biezanko col. (1 ♂, 1 ♀); Pôrto Alegre, 24.II.1961, N. Marston col. (3 ♂, 2 ♀); São Leopoldo, J. W. Stahl col. (1 pr.); *Santa Catarina*: Nova Teutônia, 27°11'B. 52°23'L. 3, 4, 27.I.1939, F. Plaumann col. (2 ♂, 2 ♀); *São Paulo*: Avaré, III.1936, J. Lane col.; Batatais,

III.1943, A. Stefuzza col. (1 ♂, 1 ♀); XII.1943, Pe. Pereira col.; II.1946, Pe. F. S. Pereira col.; Campinas, III.1924, F. X. Williams col. (1 ♂); Monte Alegre, Faz. N. S. Encarnação, 29.III.1944, J. Lane col. (1 ♀); Osasco, 10.III.1952, M. A. V. A. col. (1 ♂, 1 specimen); XII.1955, A. Martinez & d'Andretta col.; T. & O. (= Itaquaquecetuba), Townsend col. (1 ♀); Villa Americana, II.1924, F. X. Williams col. (1 ♂).

CHILE. *Coquimbo*: El Manzano, Rapelsillo and Los Sapitos, Ovalle, XI.1961, 10.XII.1964, L. E. Peña col. (2 ♂).

PARAGUAY. Areguá, XI.1936 (1 ♀); Asunción, XI.1943 (1 ♀); Concepcion, 20.XII.1932, A. Schulze col. (1 ♀); Independencia, XII.1951, J. Foerster col. (1 ♀); Sapucay, III, W. T. Forster col. (1 ♀); Villarica, X, XI.1936, F. Schade col. (17 ♂, 1 ♀); Yegros, 23.II.1946 (1 ♂).

URUGUAY. Maldonado, 22.XII.1944 (2 ♀); Montevideo, J. Tremoleras col. (3 ♂, 2 ♀); Paysandú, Santa Rita, 15.I.1948, on beach and dunes, Uruguay R., C. S. Carbonell col. (30 ♂, 2 ♀); X, XI, XII.1936, F. Schade col.; San José, Alred. de la Ciudad (Dept. Capital de Uruguay), 4.II.1932 (1 ♂).

### ***Hyperalonia morio erythrocephala* (Fabricius, 1805)**

(Figs. 5, 7, 15)

= *Exoprosopa coeruleiventris* Macquart, 1846.

= *Anthrax (Exoprosopa) flaviceps* Guérin-Ménéville, 1844.

Fabricius, 1805: 118; Guérin-Ménéville, 1844: 539; Macquart, 1846: 1909; Kertész, 1909: 3; Edwards, 1930: 178; Paramonov, 1931: 64, 65; Copello, 1932: 117.

Two females in the Copenhagen Museum are both marked type and are in almost perfect condition. The larger also carries a label in Fabricius' handwriting, "*A. erythrocephala* ex Am. mer. Smidt"; the smaller one has a small clear spot in the fourth posterior cell not present in the larger specimen.

Two specimens in the Bigot collection in the British Museum (Natural History) are probably the types of *coeruleiventris* Macquart, 1846 (fig. 5). One is only a body fragment and a wing, the other a fairly well preserved female. Both are labeled "*Exoprosopa coeruleiventris* Macq. nov. sp." and "Brasil Minas Coll. Fairmaire". The two were compared with a specimen similar to the type of *erythrocephala* and belong to the same taxon. The type of *Exoprosopa flaviceps* Guérin-Ménéville, 1844, was not found but apparently from the description, it is also a synonym of *erythrocephala*. The year reference (1846) in Kertész (1909) is incorrect.

This subspecies differs from the nominate one in having orange hairs across the front of the thorax and on much of the propleura. The spot in the second basal cell is usually smaller and oblong, the median three hyaline spots are also usually smaller and coalesce into a narrow stripe. The clear spot in the fourth posterior cell, present in *morio*, is usually absent in *erythrocephala*.

Specimens that are apparently intermediate between the two subspecies are not uncommon.

It is perhaps questionable whether these two forms represent true subspecies but groups of specimens can be separated on the characters given and the two names are maintained pending further investigation of their relationship to each other. *H. m. erythrocephala* tends to be more northern and *H. m. morio* more southern. The two subspecies may have different insect hosts. Intermediate specimens were studied from these localities:

BRAZIL. *Guanabara*: Rio de Janeiro (Leblon), X.1932, L.T.F. col. (1 ♂); *Mato Grosso*: Utiariti, Rio Papagaio, 325 m, VII-VIII. 1961, K. Lenko col. (5 ♂, 1 ♀); *Pará*: Óbidos, IV.1952, VII.1953, José Brazilino col. (1 ♂, 3 ♀); *Rio de Janeiro*: Angra dos Reis, Faz. Japuhya, III.1951, E. Rabello col. (1 ♂); *São Paulo*: Bata-tais, XII.1943, Pe. Pereira col. (1 ♀).

VENEZUELA. *Trujillo*: R. Mombu (Mombuy), XII.1932 (1 ♂).

Specimens of *m. erythrocephala* from these localities were studied (fig. 15):

BRASIL. *Bahia*: Igrapiúna, 23-29.VI.1919 (1 ♀); Iguassu, 13. VII., Roman col. (1 ♂, 1 ♀); Santa Rita, IV.1958, E. Dente col. (2 ♀); *Ceará*: Cariús, IX.1939, D. C. Alves col. (1 specimen); *Maranhão*: São Luiz, X.1938, D. C. Alves col. (1 specimen); *Pará*: Belém, 13.I.1924, I.1945, G. N. Wolcott col. (2 ♂); Unt. Amaz. Taperinha b. Santarém, 1-10.VIII.1927, Zerny col. (2 ♂, 2 ♀); *Rio Grande do Norte*: Macahyba (Macaíba), IV.1939, D. C. Alves col. (1 ♂); Natal, VII.1955, Pe. Pereira col. (1 ♂).

FRENCH GUIANA. St. Jean, Maroni, Wm. Schaus col. (1 ♀).

GUYANA. Georgetown, W. H. B. Moore col. (1 ♀).

SURINAM. Kabelstation, 21-27.VIII.1938, Geyskes col. (1 ♂); *Pará* District (1 ♂); Zanderij I, Boven, 22.IV.1927 (1 ♂); Paramaribo, 28.IV.1927 (1 ♀).

VENEZUELA. *Federal District*: El Valle, nr. Caracas, 23.VI.1926, H. E. Box col. (1 ♂); Las Adjuntas, 959 m, VII.1926, H. E. Box col. (1 ♀); Caracas, 11.III.1935, Svenson (?) col. (1 ♂).

### *Hyperalonia surinamensis* Rondani, 1863

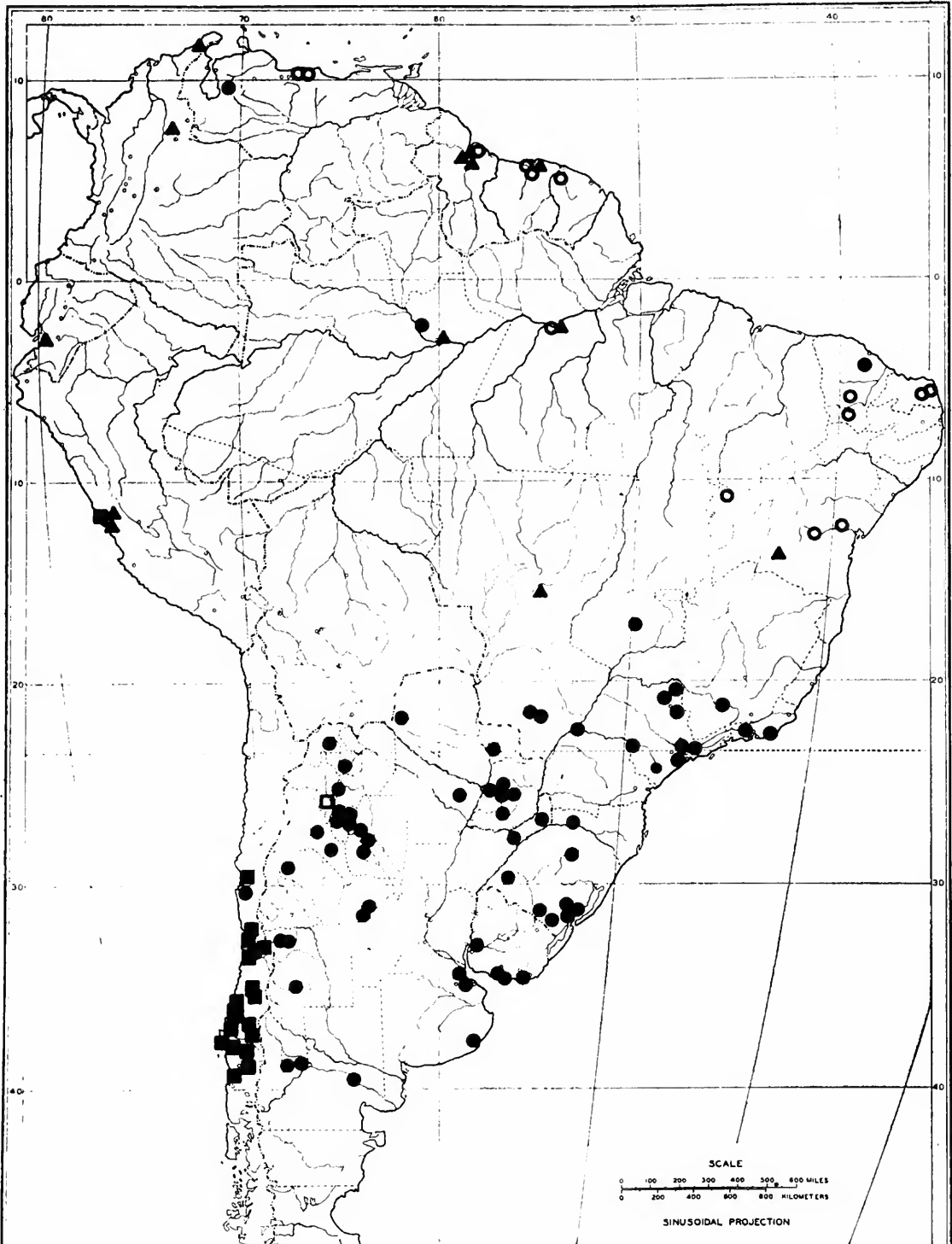
(Figs. 6, 11, 13, 15)

Rondani, 1863: 58; Kertész, 1909: 4; Paramonov, 1931: 65.

One male specimen in the Istituto di Zoologia, Università di Napoli Museum, bears the labels "M? Zool? N.º 42078", "*Hyperalonia surinamensis*", "Ron. Suriname", is in good condition except that it has some fungus, lacks the third segment of left antenna and most of one hind leg.

Similar to *Hyperalonia morio morio* (Fabricius); but with central clear areas in wing much more extensive, boundary of black at tip of wing a straight line, not curved. Area of white pile behind wing larger than in *morio*. Body somewhat more robust. Length 17 mm.

Male. Ground color black. Head except ocellar tubercle bright orange. First two antennal segments orange to brown, the second



15, Map of distribution of species of *Hyperalonia*: *ater* (open square); *chilensis* (black square); *morio erythrocephala* (open circle); *morio morio* (black circle); *surinamensis* (black triangle).

darker. Scutellum orange red. Post alar calli, humeral calli, and a spot in front of scutellum brown. Sides of abdominal segments, specially near apices brownish black. Genitalia mahogany brown. Legs brown.

Head with face prominent but retreating at oral margin. Proboscis exceeding mouth opening by distance somewhat longer than labellae. A few scattered short black hairs on gena and face, a line of them extending down from antenna to near eye margin. Front with scattered short black hairs and a denser patch a short distance below ocelli. A few black hairs on occiput, occipital fringe yellow.

Thoracic ruff yellow, a tuft of black hairs between front coxae and a few on propleura. An abundant patch of orange yellow hair in front of wing and another in front of haltere. A dense tuft of white hairs behind post alar callus, on sides of scutellum, and above tufts of yellow hairs in front of haltere. Remainder of sparse hair of thorax black, mostly short.

Abdominal pile all black, shorter on dorsum, longer on sides and venter. Genitalia mahogany brown, clothed with black hairs.

Legs with sparse black pile and black spines, no spines on front tibiae.

Wing black with hyaline areas distributed as in *H. morio* but more extensive. Tip of wing hyaline, the margin running from the tip of vein  $R_1$  straight across to tip of vein  $R_s$ . Hyaline spot in center of wing occupies base of first posterior cell and three fourths of discal cell and is separated from spot in third posterior cell by a band of black bordering the base of that cell. A hyaline triangular spot near tip of second basal cell, another near apex of fourth posterior cell and a fifth spot at tip of first submarginal cell and middle of marginal. Vein in this hyaline spot narrowly bordered with black. Portion of vein M in hyaline spot in discal cell yellow as are veins at tip of wing. Remaining veins dark brown. Pile on base of costa black, alular fringe of white scales. Haltere dark brown, knob yellow.

The larger clear area in the center of the wing with the black band along the posterior vein of the discal cell and the straight margin of the black at tip of the wing are characteristic of this species. The white pile behind the wing is generally more abundant than in other species. The hyaline areas in specimens from Peru are smaller than those from areas farther north and east.

Specimens from these localities were studied (fig. 15):

BRAZIL. *Amazonas*: Manaus, 28.X.1924, Melin col. (2 ♂, 1 ♀); *Bahia*: D. Davis col. (1 ♀); Iguassu, 28.VII., Roman col. (2 ♂); *Mato Grosso*: Chapada (dos Guimarães) (1 ♂); *Pará*: Santarém, IX.1920 (1 specimen); Unt. Amaz. Taperinha b. Santarém, 1-10.VII., 11-20.VII.1927, Zerny col. (15 ♂, 2 ♀); *São Paulo*: Pôrto Cabral, Rio Paraná, 6-14.X.1941, L. Travassos Filho col. (1 ♀).

COLOMBIA. *Guajira*: Pajaro, 13.VIII.1927 (1 ♂); *Magdalena*: G. Salt col. (1 ♂).

EQUADOR. 2 mi. N Santa Rosa, El Oro, 10 m, 24.I.1955, E. I. Schlinger & E. S. Ross col. (1 ♂).

GUYANA. Bartica, 26.V.1901 (1 ♂); Bartica Dist. (1 ♂); Georgetown, W. H. B. Moore col. (1 ♂); Wismar, 20.XI.-11.XII.1934, A. S. Pinkus col. (1 ♂).

PERU. North Central Coast, 1.IV.1951, Michelbacher col.; *Lima*: Chosica, 3200-3500 ft., 14.II., C. H. Townsend col. (3 ♂); 23.III.1964, "caught in a desert place", Peter Hocking col.; Lima, I.1949 (1 specimen); *Loreto*: Iquitos, III, IV.1931, R. C. Shannon col. (1 ♂).

SURINAM. Paramaribo, Bot. Gard., 25.VIII.1939, Geyskes col. (2 ♂); Cultuurtuin, 1.VIII.1938, Geyskes col. (1 ♂).

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