NEPIDAE OF THE WESTERN HEMISPHERE
(HEMIPTERA)

by

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INTRODUCTION

The members of the family Nepidae can readily be distinguished from other aquatic Hemiptera by the presence of a prominent respiratory tube at the posterior end of the abdomen. This tube is made up of two filaments, each having a groove on its mesal side, so that when these filaments are applied to each other, the grooves form an opening by means of which the insect conducts air to two spiracles located at the caudal end of the abdomen. The Nepidae cannot be confused with the family Belostomatidae as the filaments in this family are short, narrow, flattened and retractile.

The family is represented in the 10th Edition of "Systema Naturae" by Nepa cinerea which is now the logotype for the genus Nepa. In 1790, Fabricius established the genus Renatra and in 1802 Latreille established the family Nepidae. The genus Cercoctetes was proposed by Amyot and Serville in 1843, the genotype being asiaticus Am. Serv. Stàl described five genera the first being Telmatotrephes in 1854 using sculpticollis as the genotype; second was Curicta established in 1861 using scorpio as the genotype; the third and fourth genera were named in 1866 being Lacootrephes and Borborophilus with stàra for the former and afzelii for the latter as genotypes. The fifth genus established by Stàl in 1870, was named
Borborophyes using mayri as the genotype. The last genus to be established in this family was Amphischizops proposed by Montandon in 1898 using compressicolis (Montandon) as the logotype.

The family is represented in the Western Hemisphere by five genera. The genus Ranatra Fabr. is widely distributed, occurring from Canada to Argentina with the greatest number of species being found in the tropics. The genus Nepa Linn. is restricted to the northern half of the United States and is replaced by Curicta Stal which occurs from the south-western part of the United States to Argentina. Telmatotrophes Stal was described from Colombia and one new species is described from Peru. The genus Amphischizops Montandon contains a single species described from Venezuela.

In 1865, Douglas and Scott raised the genus Ranatra including Cercotmetus to family rank by establishing the family Ranatridae. Doctor De Carlo continues the use of this name in his paper and in addition places A. compressicolis (Montandon) here. The writer considers that the genus Ranatra Fabr. is too large for easy handling and that simplification is necessary. This problem is not eliminated through the establishment of the family Ranatridae and therefore he continues the use of the name Nepidae for all Ranatrides of S. Amer., Ann. Arg. Mus. Nat. Sci., XLII, pp. 1-38, 1946.
of the water scorpions.

Many workers have added to the knowledge of the group and perhaps due to this fact the writer has found considerable confusion in the literature. Another factor which undoubtedly assisted in this confusion was the failure to recognize the possible limits of variation within some of the species. The writer will attempt to fix the specific differences for the species. In some instances after a prolonged study of much material in the family Nepidae there continues some doubt as to the limit of these subtle specific differences. Also causing much confusion is the fact that many of the original descriptions are entirely inadequate and that subsequent authors frequently erred in their identification of specimens. One good example of this may be mentioned here. Doctor H. B. Hungerford, who has examined most of the types in European Museums and who has very generously loaned his notes for me to study, found three good species in the tray containing four specimens labeled Curista scorpio Stål. Numerous species have been described from females only; in some instances from a single specimen and in one instance from "a mutilated specimen". In several other instances the writer makes no mention as to the sex of the species described.

For these various reasons attempts to classify the species have been very difficult although the diagnostic characters are, for the most part, fairly well defined. The main difficulty was in gathering sufficient data on many of the early species to delimit the species.

The first comprehensive study of this family in the Western Hemisphere was made by Doctor Hungerford in his commendable paper "The Nepidae in North America North of Mexico"(1). Only one change will be made in this paper and that will be mentioned under the species concerned. Doctor Jose De Carlo added a useful paper to the study of this group with his "The Ranatridae of South America."(2) The writer has been aided immeasurably by the keys and illustrations in both of these works. He fully realizes that this paper will not terminate the problems in this difficult group but hopes that some progress has been achieved in this endeavor to fix the limits of the species. One phase of the problem which has been totally ignored and which without a doubt may change many aspects of the problem is the study of the old world species.

The five Western Hemisphere genera are discussed in phylogenetic order. The first genus to be examined is Talmatotrophes Stal as it is intermediate between

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the family Belostomatidae and the genus *Nepa* Linn. *Nepa* Linn is then considered as its position is intermediate between *Telmatotrephes* Stål and *Curicta* Stål. This is followed by a discussion of *Curicta* Stål which is intermediate between *Nepa* Linn. and *Amphischizops* Mont. *Amphischizops* Mont. is then studied as it is the connecting link between *Curicta* Stål and *Ranatra* Fabr. *Ranatra* Fabr. is the final genus treated because it is the farthest removed from the primitive Nepid. Numerous new species are described. Keys and illustrations are given to separate the species.
CHARACTERS USED IN CLASSIFICATION

The tyulus is the median raised portion of the head anterior to the eyes; the tyulus is margined by deep clefts that separate it from lateral lobes of the head known as jugae. The interoculer space refers to the area of the head between the eyes. The vertex is that portion of the head posterior to the tyulus. The antennae are pressed into shallow grooves on the ventral side of the head beneath the eyes; the lateral prolongation of the penultimate antennal segment is the long lateral projection on the second antennal segment. The lateral grooves are the fairly prominent transverse grooves which divide the prothorax into anterior and posterior portions; the anterior portion is usually visibly much longer than the posterior portion. The femoral tooth of the anterior femur is the prominent lobe or tooth on the mesal side of the femur usually located beyond the middle of the femur in Ranatra. In the genera Telmatotraphes and Nepa the femoral tooth is not well defined but the comparable structure would be basal, while in the genus Curicta the femoral tooth may be located either near the base of the femur or at the middle but never prominently beyond the middle of the femur. The subapical tooth refers to the small tooth-like structure located near the apex of the femur. The metaxyphus is the narrow
extension of the posterior edge of the metasternum which usually runs posteriorly between the metacoxae. The last apparent abdominal segment forms a chamber for the retracted genital segment. The ventral plate of the genital segment is called the operculum in both sexes; the lateral structures which border and enclose the operculum in the males are the connexiva. The male genital capsule is for all intents and purposes homologous with the structure which G. C. Crampton refers to as the "hypandrium" and the claspers correspond to his "styli" or "gonostyles".(1)

TECHNIQUE USED

Many specimens are often covered with debris that when removed aids in discerning some features. The antennae are usually very difficult to see but can easily be moved into view by means of a probe having the terminal portion bent at a right angle, after relaxing that portion of the specimen. When it is necessary to remove encrusted material from a specimen, moisten it with water before starting the cleaning procedure. The genital capsule or ninth abdominal segment of the male is retracted within the last apparent abdominal segment. To examine the genital segment the specimen is first relaxed by placing a small drop of relaxing fluid (1) on the tip of the abdomen using a camels hair brush. The time required to relax the tissues varies considerably depending on the rigidity of the specimen. When the structure becomes soft and pliable the genital capsule can be removed by using a fine dissecting needle which has the tip bent at a 45° to 90° angle. Insert the needle between the operculum and the capsule and slide this forward until the tissues holding the capsule are broken. This same action is performed on each side inserting the needle between the connexivum and genital capsule. Next by inserting the needle between the

(1) Alcohol (95%) 106 c.c., Water (dist.) 98 c.c., Benzol 14 c.c., and Ethyl Acetate 380 c.c. One can also use 5% Alcohol.
operculum and capsule and turning the needle so that
the hook will clasp the genital capsule the capsule
can be slowly withdrawn. The capsule is then mounted
on a small oval celluloid disc and the disc pinned on
the specimen similar to another label. In many
instances the capsule has been mounted on its side
but it is much easier to observe the structure when
it is mounted on either its ventral or dorsal surface
as it can be observed from the side without being re-
moved from the pin. After the capsule has been
removed, the operculum and connexiva can again be press-
ed into place.

The capsule can be removed without removing the
respiratory appendages. However, if they are dislodged
they can easily be glued to the specimen and the
fragile filaments will be given greater protection if
mounted along the dorsal side of the specimen when
replaced.
**FAMILY NEPIDAE LATREILLE**


Referring to this family also:

The members of this family can easily be distinguished from other aquatic Hemiptera by the presence of a prominent respiratory tube at the end of the abdomen. This tube consists of two filaments each with a groove on its mesal side. When these filaments are applied together the grooves form a tube which is used to conduct air to spiracles which are situated at the caudal end of the abdomen. The Nepidae all have three segmented antennae which are situated in depressions on the ventral side of the head beneath the eyes. The prothorax varies considerably in shape in the different genera but all have a transverse groove which separates the prothorax into anterior and posterior portions; the anterior portion being the longer. The anterior pair of legs are raptorial. The anterior femur is furnished with a groove into which the anterior tibia and tarsus fits when folded back on the femur. The mesothoracic and metathoracic legs are fashioned for walking rather than swimming. The tarsi are all one segmented and those of the meso- and metathoracic legs bear two prominent apical claws. The hemelytra are complete having a clavus, corium and membrane. The head is small, of triangular shape and usually extended somewhat before the prominent eyes. The beak is short, stout and three segmented. The operculum varies considerably in the different genera but in general it is flattened dorso-ventrally, having the posterior margin broadly rounded
in the male; in the female the posterior margin of the operculum is usually sharply pointed while in the genus *Ranatra* and the related genera the operculum is compressed laterally to form a sharp blade-like structure.
Key to Genera of the Western Hemisphere.

1. Body oval shaped, (except in Curicta) flattened dorso-ventrally, the greatest anterior width of prothorax distinctly greater than width of head through eyes, median longitudinal length of pronotum never obviously greater than posterior width of prothorax---------------2

Body elongate, not distinctly flattened dorso-ventrally, greatest anterior width of prothorax subequal to or less than width of head through the eyes, median longitudinal length of pronotum distinctly greater than posterior width of prothorax---------------4

2. (1) The claval suture of hemelytra obliterated except at the base, membrane small and rudimentary-------------------Telmatotrephes Stål.

The claval suture of hemelytra distinct for all of its length, membrane distinct-----------------3

3. (2) Body oval and flat, width of hemelytra at middle distinctly greater than at base-----------------Nepa Linn.

Body elongate oval, width of hemelytra at middle subequal to width at base-----------------Curicta Stål.

4. (1) Jugae separated from eyes by a deep fissure, prothorax somewhat longitudinally arched dorsally, and flattened ventrally as seen in side view------Amphischizops Mont.

Jugae not separated from eyes by a deep fissure, prothorax not longitudinally arched in lateral view------

---------------------------------------------Ranatra Fabr.
GENUS TELMATOTREPHES STÅL


Also referring to this species:


Translated from the original Latin description.

Genus related to Nepa. Thorax transverse, sub-rectangular, deeply emarginate anteriorly, subtruncate at the base. Scutellum broadly triangular. Hemelytra with the clavus not distinct from the corium, being very broad at the middle, no membranes or very little. No alae (flight wings). Body flat below. Metasternum somewhat broader than mesosternum, apically quite deeply sinuate, lateral lobes acutely produced. Respiratory appendages shorter than the abdomen by more than half. Distinguished from Nepa, by shorter thorax, subtruncate posteriorly, by the absence of alae, by the structure of the hemelytra and of the metasternum, so that even in shortness the respiratory appendage is different from that in Nepa.

1. T. sculpticollis. Terreus (earth/ly), the thorax longitudinally four ribbed, lateral ribs converging apically with each other obliquely; scutellum medially, longitudinally two-ribbed, apex humped.
Length 30 mm., width 15 mm.—Antioquia, Republic of Colombia, South America.


KEY TO SPECIES:

1. Length of body 30 mm., hemelytra having the posterior third convexly rounded ..............

............... T. sculpticollis Stål.

Length of body 26 mm., the margin of the posterior third of hemelytra concave..............

............... T. grandicollis ssp. n.

Telmatotrephe sculpticollis Stål


Translated from the original Latin description.

Head with interocular width more than double the length in front of the eyes with three longitudinal thickenings, longitudinally elevated posteriorly, terreus. Eyes globular, dark fuscous, ringed with ferruginous. Thorax variable, twice-raised in a disc, and there bicarinate, keels forked at apex, medially lightly keeled longitudinally, a keel on both sides, posteriorly abbreviated, angular in front of the middle and running obliquely to the eyes, both sides provided with a thickening anteriorly and posteriorly,
with marginal angles anteriorly, and terreus on both sides. Scutellum longitudinally two-ribbed in a disc, apex humped, terreus. Hemelytra elevated in a commissure in front of the middle, longitudinally obsolete, sparsely veined, terreus. Abdomen ferrugineous above. Feet and ventral side iron-like color.
Telmatotrephes grandicollis Sp. n.

Size: Male; length 26 mm., greatest transverse width 13 mm., length of respiratory tubes 4.5 mm.; female: length 26 mm., width 13.5 mm., length of respiratory tubes 4.5 mm.

Shape: A short, broad species with the length being two times the greatest transverse width. The width of the inter-ocular space almost two and one-half times the transverse diameter of one eye. The anterior margin of pronotum deeply emarginate, posterior width of pronotum two times the median longitudinal length. Posterior margin of pronotum without emargination. Width of scutellum at base distinctly greater than median longitudinal length; scutellum having a diamond shaped gibbosity posteriorly. Hemelytra widening gradually to posterior third where it cuts in abruptly and ends in a gentle curve giving the margin of the posterior third of the hemelytra a concave appearance.

Structural Characteristics: The transverse width of interocular space is subequal to half the median length of the head measured from the anterior margin of the jugae to the posterior margin of vertex. Jugae large and meeting dorsally for a portion of their length. A prominent median carina extending from middle of jugae slightly beyond anterior margin of eyes and continuing less prominently to posterior margin of vertex; two lateral oblique carinae between anterior
margin of eye and the tylus, these converging posteriorly with the median carina posterior to posterior margin of eyes. Another pair of lateral longitudinal carinae starting at middle of eye and joining the median carina just before posterior margin of vertex. Pronotum rectangular, anterior margin deeply emarginate, the emargination one third of the length of pronotum. Head is sunken in anterior emargination of pronotum beyond posterior margin of eyes. Posterior width of pronotum is two times its median length. Posterior margin of pronotum not emarginate. Two lateral carinae beginning at anterior margin of pronotum just posterior to center of eyes; these diverging laterally a short distance and then converging gradually and meeting on posterior fourth to form a median carina running to the posterior margin. The anterior lateral discs with prominent short carinae.

Width of anterior margin of scutellum one and one half times the median longitudinal length; two prominent lateral carinae starting at anterior margin and running almost half the length, scutellum ending in a prominent diamond-shaped gibbosity. Hemelytra with raised lateral margins on anterior half; median margins raised running to the very small membrane. Oblique carinae starting out prominently at anterior margin of hemelytra and gradually fading out after running about one fourth of the length. Lateral margin of hemelytra cutting in
abruptly to form a concave curve on posterior third. Membrane very small. Respiratory tubes compressed laterally and about one fourth the length of the hemelytra. Anterior femur two and one-half times the median length of pronotum, widest at base and narrowest at apex, wide deep trough running entire ventral length in which anterior tibia can be folded and lobes on ventral side at base where femur joins the coxa. Anterior tibia three fourths lengths of femur. Anterior coxa short and stout.

Antenna simple, basal segment globular, last segment longest.

Prosternum with large depressions in which anterior coxae are situated and these running posteriorly as sulci to posterior margin without joining medianly; prominent narrow median carina which widens into a disc and gradually fades out. Metasternum less than three-fourths the length of mesosternum, both about same width; metasternum widely and deeply emarginate posteriorly, posterior lateral lobes acutely produced.

Margin of abdomen embraced by a submarginal fold of the hemelytra. Median length of penultimate abdominal segment greater than the combined length of all others preceding it. Operculum slightly longer than last abdominal segment, spoon-shaped.

Metathoracic wings absent. Tibia of mesothoracic
leg perceptibly shorter than femur; tibia of metathoracic leg slightly shorter than femur. Metathoracic tarsus one-third longer than mesothoracic tarsus. The meso and metathoracic femora distinctly wider and stouter than their respective tibiae.

Distribution: Holotype, allotype and one female paratype. Holotype and allotype from Rio Santiago, Peru in the Bassler Collection of the American Museum of Natural History. Female paratype from Upper Rio Tapiche, Peru in the Francis Huntington Snow Entomological Collections.

Notes: This species is easily distinguished from T. sculpticollis Stal by the concave lateral margin of the posterior third of the hemelytra. Numerous little clusters of hairs are present over most of the body and legs. The genital clasper, antena and anterior femur are figured on Plate I, figure 5a, 5b, and 5c respectively.
Gifts Nepa Linnaeus 1758
Logotype cinerea Linn.

1764. Brunnich, M. T., Entomologia, p. 58.
1764. Muller, O. F., Fauna Friedrichsdelina 27.
1775. Fabricius, J. C., Syst. Ent., p. 691.
1797. Latreille, P. A., Precis, p. 87, 1797.
1803. Fabricius, J. C., Syst. Rhyn., p. 106 (no type indicated).
Body flat, wide, elongate oval, pointed behind, rather truncate in front. Head small, almost rhomboidal, its anterior margin appreciably elongated into a dull point, sunken up to the eyes in the anterior margin of the prothorax. Eyes small, but very projecting, globular. Ocelli absent. Antennae small, hidden under the eyes, three segmented, the first smallest, the second with or without a lateral projection, the third longest. Beak short, stout, of three segments; the first short, almost annuliform, constricted at its base, swollen at its extremity; the second rather large; the third decreasing in size.
Prothorax rather carinate, contracted a little in front, lateral sides lightly constricted; its anterior margin deeply emarginate for receiving the head, its anterior angles rounded, its posterior angles not projecting, the posterior margin rather deeply and roundly emarginate; surface of the prothorax uneven, with a deep transverse sulcus which divides it into two parts, the anterior longer than the posterior. Scutellum very large, a curvilinear triangle. Elytra as long and as wide as the abdomen; membrane shorter than the corium, with numerous cells, irregular; wings ample, almost as long as the elytra, of a form almost similar to that of the Naucoridae. Abdomen elongate, terminating in an oval point, flattened; terminal plates three in number, ending in a point, and each as long as the other, the intermediate entirely different in the two sexes; the abdominal swelling underneath much more constricted in the males than in the females, before the oval plate; two extraordinarily long filaments, strap-like, starting at the extremity of the abdomen and forming, when united, the siphon or respiratory tube; abdominal stigmata covered by a finely punctuated membrane. Legs long, rather stout; anterior coxa large, strong, a little less than half the length of the femur, inserted very near the eyes, very distant from the intermediate legs; anterior femur thick, with a deep groove extending from the base to the apex, for receiving the tibia; tibia
rather thin, arched; the dorsal side concave making a shallow groove on side which closes against the femur. Tarsus of a single segment, provided with a very small simple hook at its extremity; the four posterior legs having almost the same distance between them; femora thicker and stouter than their respective tibiae; tibiae fringed; tarsi consisting of a single segment, very long, fringed, provided with two very long and pointed apical claws.

In the Western Hemisphere the genus Nepa is represented by a single species: N. apiculata Uhler.
Nepa apiculata Uhler

1862. N. apiculata Uhler, E. R., in Harris, Treat. Ins. N. Y. Veg., edn. 3, p. 12, pl. 1, fig. 1.
1905. N. apiculata, Torre Bueno, J. R. de la, Jl, N. Y. Ent. Soc., xiii, p. 44.

Referring to this species also:


The nearest approach to a formal description of the species is given by Uhler in the Riverside Natural History, Vol. II, p. 253, 1884. The description is as follows:

Color dull fuscous grey, with the base of the abdomen above more or less tinged with reddish. It is of an elliptical form, blunt in front, with a ridged middle line on the vertex, and with three short raised lines on the prothorax, each side of a longer one on the middle. The surface and margins of the thorax and head are roughly granulated, while these, together with the scutellum and corium, are rough and closely covered with stiff, short pile. The anterior femora have no
teeth on the inner angle, but instead there is a prominent elbow, forming a wide expansion for the sides of the deep gutter. The wings are smoke brown, with darker veins. This species closely resembles the European one, and measures about two-thirds of an inch to the end of the abdomen; while the respiratory tubes are a little more than one-fourth of an inch in length.

This species was first made known to science through a picture of it which appeared in the third edition of Harris' "Insects Injurious to Vegetation" in 1862. In 1878 Doctor Uhler, in his "Notices of the Hemiptera Heteroptera in the Collection of the late T. W. Harris" (Proceedings of the Boston Society of Natural History, vol. xix, pt. iv.), adds the following descriptive note: "The principle differences between our species and the European one consist in the color of the tergum, which is red in the latter, fuscous in ours; and the length of the apical tubes, which in ours are stouter and shorter". Doctor Montandon (Bul. Soc. Sci. Bucharest, vol. viii, 1898) in his study of N. apiculata Uhler and of N. cinerea L. adds the following notes: "The American species is distinguished by its proportionately much wider form behind, by its pronotum a little more transverse, and by the appendages being a little shorter". Doctor Hungerford (Kans. Univ. Sci. Bull., xiv, No. 18, 1922) adds the following differences, "The penultimate segment of the antennae of the European form has a lateral prolongation which gives the antennae a branched appearance while Nepa apiculata lacks this entirely. The male genital capsules are also unlike".
Data on distribution: The published records include the following localities: Quebec, Ontario, Massachusetts, Rhode Island, New York, New Jersey, Pennsylvania, Maryland, District of Columbia, Georgia, Ohio, Michigan, Illinois. Specimens in the Francis Huntington Snow Entomological Collections from the following localities:

**Michigan:** South Haven, July 22, 1904, 2 males, 1 female; Cheboygan Co., Sept. 7, 1931; Burt Lake, Sept. 19, 1931, 3 males and 2 females reared from nymphs by Doctor H. B. Hungerford.

**Missouri:** Platte Co., April 27, 1935 (Chas. Amyx), 2 males, 4 females; Platte Co., April 27, 1936 (F. W. Forbes), 9 males, 7 females.

**Kansas:** Goldwater, April, 1925 (Beamer and Bare), 4 males, 2 females; Meade Co., Sept. 13, 1944 (R. H. Beamer), 2 females. Also 1 male and 1 female in the Frank Lutz Collection from Ramsey Co., Minn., Nov. 11, 1922 (A. T. Hertig).

**Notes:** The anterior femur, antenna and genital claspers are figured on Plate I, fig. 1a, 1b, and 1c respectively.
Genus *Curiota* Stal
Haplotype *scorpio* Stal


Referring to this genus also:


A translation of the original Latin description follows:

The genus *Curiota* Stal has the following morphological characteristics:

The width of head through the eyes is distinctly less than the width of the anterior portion of the pronotum. The posterior width of pronotum is less than two times its median longitudinal length. Length of body more than three times its greatest width. Lateral margins of body and hemelytra subparallel. The two lateral sulci on prosternum either joining before reaching the posterior margin or ending proximally at posterior margin. Mesocoxae more widely separated than metacoxae. Posterior margin of metasternum broad-
ly rounded with the posterio-lateral margins ending in prominent teeth. Two lateral carinae of abdominal sternites converging and joining medianly on sternite of penultimate abdominal segment in males. The anterior femur having a narrow sulcus on ventral side extending from apex to base of femoral tooth. Anterior femur having a prominent lobe or femoral tooth situated on both sides of the sulcus, at the base of the sulcus, with one exception. The femoral teeth are located on the basal portion of the femur or at the middle of the femur; never distinctly beyond middle. Intermediate and posterior femora much stouter than their respective tibiae. The intermediate tibiae slightly shorter and the posterior tibiae subequal to their respective femora.

Generic relationships:

This curious group of insects is very interesting in that it is intermediate between *Nepa* Linn. and *Amphischizops* Mont. Some of the species are closely related to *Nepa* Linn.; others having greater affinity for *Amphischizops* Mont. with many intermediate forms. The form of the body is more elongate oval than in *Nepa* Linn. The length of the body is always distinctly greater than three times the greatest transverse width while in *Nepa* Linn. The length of the body is always distinctly less than three times the greatest transverse width. In some species of *Curicta* Stål the length of
the body may be greater than five times the greatest transverse width approaching the elongate shape of *Amphischizops* Mont. In all *Curicta* the greatest transverse width of the anterior portion of the prothorax is greater than the width of head through eyes. In *Nepa* Linn. the posterior width of the pronotum is always greater than two times the median longitudinal length of pronotum while in *Curicta* Stal it is always less than two times the median length. In the species closely related to *Amphischizops* Mont. the posterior portion of the prothorax and the mesothorax are no longer flattened dorso-ventrally but are becoming cylindrical. One can also follow the transition of the longitudinal carinae, and sulci of the pronotum from being very prominent, characteristic of *Nepa* Linn., to becoming almost indistinct, characteristic of *Amphischizops* Mont. The scutellum makes the transition from being as wide at the base as the median length, characteristic of *Nepa* Linn., to being much longer than wide at the base, characteristic of *Amphischizops* Mont. In *Nepa* Linn. the anterior femur is deeply and broadly sulcated on ventral margin from the apex to base while in *Curicta* Stal the anterior femur has a narrow sulcus extending from the apex to a femoral tooth which is located near the base of the femur in the species closely related to *Nepa* Linn. and at the middle of the femur in the species closely related to *Amphischizops* Mont. The
anterior tibia makes this same transition from being three-fourths the length of the femur in the species close to *Nepa* Linn. to less than half the length of the femur in the species close to *Amphischizops* Mont. The metacoxae are widely separated in all of the species with the posterior margin of the metasternum being broadly emarginate and having the posterior lateral angles produced into prominent teeth, characteristic also of *Nepa* Linn. The female genital operculum is flat and rather sharply pointed posteriorly characteristic also of *Nepa* Linn.
KEY TO GENUS CURICTA - MALES

1a. Only one tooth on inside of fore femur ........2a
1b. Two teeth - one on either side of sulcus of fore femur .............................................3a
2a. (1a) Two very large longitudinal plates on dorsum of last abdominal segment, touch each other medially for half their length, developed into large plates......... C. bilobata Sp. n.
2b. No indication of longitudinal carinae on dorsum of last abdominal segment, fore femur much wider beyond median tooth than between tooth and base........... C. bonaerensis Berg
3a. (1b) Large femoral tooth proximal; not at middle of femur or distal .........................4a
3b. Large femoral tooth at middle or nearer distal end than base .........................7a
4a. (3a) Respiratory appendages visibly longer than length of abdomen, lateral length of pronotum \(\frac{1}{2}\) longer than its greatest width .............. ................. C. peruvienc Sp. n.
4b. Respiratory appendages shorter than or subequal to length of abdomen .....................5a
5a. (4b) Dorsum of last abdominal segment rather flattened with a pair of longitudinal carinae present .................................6a
5b. Dorsum of last abdominal segment rounded,
almost cylindrical with no indication of a pair of longitudinal plates. *C. hungerfordi* Sp.n.

6a. (5a) Longitudinal carinae on dorsum of last abdominal segment with median lobes on mesal side, very prominent longitudinal carinae on head and pronotum..............*C. scorpio* Stal.

6b. The pair of longitudinal carinae without median lobes and sometimes faint, pronotum longitudinally arched in lateral view, head and pronotum without longitudinal carinae...

.................................*C. pronotata* Sp. n.

7a. (3b) Two fairly prominent longitudinal carinae on mesosternum ..............*C. carinata* Sp. n.

7b. Mesosternum without longitudinal carinae.....8a

8a. (7b) Fore femur perceptibly longer (one-third) than lateral length of prothorax................

.................................*C. schoutedeni* Mont.

8b. Fore femur subequal in length to lateral length of prothorax .......................9a

9a. (8b) Breast very full; connexivum very wide, surpassing the posterior tip of operculum by one-sixth of its length, posterior margin widely rounded ..............*C. borelli* Mont.

9b. Breast not full; connexivum not wide, at least constricted in middle, posterior margin ends in tooth-like projections..........10a

10a. (9b) Prominent median longitudinal carina on
head, femoral sulcus forming a sinuosity or
tooth-like structure at tibio-femoral joint...

.............................. C. tibialis Martin

10b. Head may be convex but not with definite
longitudinal carina, no sinuosity at tibio-
femoral joint.................. lla

lla(10b) Not over 22 mm. in length, eyes stalked-
projecting anteriorly........ C. intermedia Martin

11b. Species more than 23 mm. in length, eyes
transverse....................... C. volxemi (Mont’d.)
Curileta bilobata Sp. n.

Size: Male: Length from tip of beak to tip of abdomen 19.5 mm., length of respiratory appendages 12.5 mm., width of head through eyes 1.8 mm., anterior width of pronotum 2.4 mm., posterior width of pronotum 3.3 mm., median length of pronotum 3.5 mm.

Color: A uniform light brown color.

Shape: Lateral sides of abdomen parallel for almost two-thirds of their length; sides of prothorax almost parallel on anterior half and diverging outwardly on posterior half.

Structural characteristics: The length of head from anterior margin of eyes slightly greater than length from posterior margin of eye to posterior margin of vertex. Width of one eye slightly less than one-half the width of the interocular space. Jugae closely appressed to tyulus and not distinct. The anterior margin of pronotum deeply and roundly emarginate with posterior margin not as deeply emarginate but emargination broadly rounded. The median longitudinal length of pronotum slightly greater than the posterior width; lateral length of pronotum two-fifths greater than greatest posterior width. Carinae on pronotum absent; a short median fossa on anterior pronotum and two broad shallow lateral sulci at middle of pronotum which converge posteriorly and end in the transverse grooves.
The scutellum plain with rounded lateral sides and ending in an acute angle; the median longitudinal length greater than width at base. The hemelytra plain and having a prominent membrane. The dorsum of last abdominal segment having two lateral, longitudinal, prominent plates which fold mesally and touch each other medially for half of their length.

The penultimate segment of antenna having a lateral prolongation a little more than half the length of the ultimate segment. The anterior coxa prismatic in shape and 3 mm. long. The anterior femur 5.9 mm. in length; femoral tooth indistinct and located at the middle of the femur. The width of femur beyond the femoral tooth greater than width of femur before the femoral tooth. The length of anterior tibia a little less than half the length of the femur; anterior tarsus short, indistinct and hardly reaching to middle of femoral tooth. Prosternum with anterior median portion raised between the coxal cavities; prominent wide sulci running posteriorly originating behind coxal cavities and curving in posteriorly to meet just in front of the posterior margin of prosternum. (These sulci may be filled with hairs). The meso- and metasternum not prominently swollen. The mesosternum having two faint longitudinal carinae. The posterior margin of metasternum broadly and roundly emarginate with the lateral margins ending in rather sharp teeth leaving a large portion
of the raised first abdominal segment exposed. The operculum a little longer than any one of the preceding four sternites. The connexiva widened and terminating posteriorly in prominent mesal projections which extend beyond posterior margin of operculum.

Data on Distribution:

This species is described from a single male specimen from Espirito-Santo, Brazil (Fruhstorfer).

The specimen was borrowed from the Wien Museum.

Notes: This species is close to C. scorpio Stal. It is easily distinguished by the shape of the anterior femur and by two large longitudinal plates on the dorsum of the last abdominal segment for which the species receives its name. The antenna and anterior femur are figured on Plate I, fig. 3b and 3a respectively.
**Curicta bonaerensis** (Berg)


Also referring to this species:


A translation of Doctor Berg's Latin description follows:

"Darkish gray, moderately downy, a small triangular spot on the upper side beyond the middle of the anterior femora; anterior tibiae, apex of the anterior trochanters, and the intermediate and posterior femora and tibiae a golden yellow in great part. Tarsi quite dark toward the apex. The respiratory appendages dark yellow; the dorsal side of abdomen a bluish gray; ventral side of abdomen dark, keel shaped almost to the apex. Prosternum rather downy gray. Length of body 14 mm.; length of respiratory appendages 8 mm.; transverse width 3 mm."

A redescription of a single female specimen follows:

Size: Female: Length 14 mm., maximum width 2.75 mm., length of respiratory appendages 8 mm.

Color: A clear light brown color with anterior tibiae intermediate and posterior legs a light yellow.

Shape: An elongate-oval shape.

Structural characteristics: Head attenuated in front of eyes, vertex convex. Width of head through
eyes 1.5 mm., width of one eye slightly greater than half the width of interocular space. Anterior width of pronotum 2.1 mm.; posterior width of pronotum 3 mm.; median longitudinal length of pronotum 2.2 mm. Anterior margin of pronotum widely and roundly emarginate; the head is set in this emargination almost to the posterior margin of the eyes. Posterior margin of pronotum widely and not deeply emarginate. Pronotum with a median and two lateral shallow longitudinal sulci. The sulci are margined by rather indistinct longitudinal carinae. Soutellum a curvilinear triangle having a convex surface without distinct carinae. Lateral margins of abdomen lightly curved, almost parallel. The anterior coxa rather stout, flattened on dorsal surface, length a little more than half the length of the anterior femur and a little less than the transverse width of anterior portion of pronotum. The anterior femur subequal to the lateral length of prothorax, a little flattened on basal portion, a single femoral tooth on mesal side slightly beyond middle of femur, the ventral margin is lowered on apical portion of femur so that the width of the apical portion is distinctly greater than the width of the basal portion. The anterior tibia is strongly arched and reaches to the femoral tooth when folded back on the femur. The tarsus short and pointed. The prosternum strongly raised on the anterior median portion and having two lateral sulci which originate
at the coxal cavities and converge medianly and meet at the posterior margin. Metasternite hexagonal with the posterior lateral angles elongated into prominent teeth. The intermediate tibia shorter than the corresponding femur; length of the posterior tibia subequal to the length of its corresponding femur. The connexiva widened so that it overlaps the operculum.

Data on Distribution:

The published records give the following localities:

Argentina, Brazil. We have studied the following:

Argentina: Taken by McKinley Warren's boy — one female (Francis Huntington Snow Entomological Collection).

Doctor Berg did not designate a type.

Notes: This species is easily identified by its small size and by the shape of the anterior femur. The anterior femur and the antenna are figured on Plate II, fig. 4a and 4b respectively.
Curieta borelli Montandon


A Translation of the Original French description follows:

Of the same size, color and general form as C. tibialis Martin and C. suspecta Montandon from which it is distinguished by the absence of apparent longitudinal carinæ on the head, this latter appearing less prominent in front of the eyes which are small, with the width of the interocular space more than two times wider than the diameter of the eye.

Anterior part of the pronotum without apparent carinæ, rather convex, with a rather superficial large median longitudinal sulcus.

Elytra of the same length as in C. suspecta Mont. covering the base of the last abdominal segment.

Respiratory appendages rather robust, covered with very dense long fine hairs. (Not any of the specimens which I have seen have the entire appendage so that it is impossible to determine the length of the hairs).

Anterior femur with a single double tooth, little accentuated on each side of the sulcus about the middle of the femur, very slightly nearer the base than the apex of the femur, at the place where the extremity of the tarsus reaches when the tibia is folded (against
the femur); the anterior dilation on each side of the sulcus is very obtusely rounded, without sinuosity at the extremity of the femur. Anterior tibia about one-half the length of the femur, pale yellow, with the base brown as in C. tibialis Martin and C. suspecta Mont.

Intermediate and posterior tibiae straight as in C. suspecta Mont, with the tarsus a little more than a third, but visibly less than half, of the length of their respective tibiae.

Length of body 28-30 mm.; width at the base of the pronotum 5.2 to 5.8 mm.

Locality: San Francisco, Argentine Republic. In the Museum of Turin and in my collection. Reported by M. le Dr. Borellii to whom I have the pleasure to dedicate this curious species.

Additional Structural Characteristics:

There are two male specimens in the collection which agree with Doctor Montandon's description of this species. Length of respiratory appendages 21.5 mm., width of head through eyes 2.4 mm., greatest width of anterior portion of pronotum 3.3 mm., greatest width of posterior portion of pronotum 5.1 mm., median longitudinal length of pronotum 4.8 mm. Scutellum a little longer than wide at the base, convex and without prominent carinae. The posterior portion of the prosternum
prominently inflated and swollen and with the anterior portion prominently elevated on the median line. The width between mesocoxae distinctly greater than between metacoxae. The metasternum having the posterior lateral angles prolonged into prominent sharp teeth. The anterior coxa is slightly greater than half the length of the femur; length of anterior femur is subequal to the lateral length of the prothorax. The connexiva are broadly widened and extend prominently beyond the end of the genital operculum.

Data on Distribution:

The type is located in the Budapest Museum. The published records give the following localities: Argentina. We have studied the following:

Argentina: Taken by L. B. Bateta - 1 male (Francis Huntington Snow Entomological Collections).

Paraguay: Taken by Louis Des Arte Jr. - 1 male (Hamburg Museum).

Notes: The antenna and anterior femur are figured on plate II, figure 5b and 5a respectively.
Curista carinata sp. n.

Size: Males. Length from tip of beak to tip of abdomen 19.5 mm. to 21 mm., length of respiratory appendages 11 mm., posterior width of pronotum 3.1 mm., median longitudinal length of pronotum 3.3 mm.; females: length 22 mm. to 23.5 mm., length of respiratory appendages 12 to 14 mm., posterior width of pronotum 3.5 mm., median longitudinal length of pronotum 3.8 mm.

Color: In general a light brownish color but varies to a brownish black.

Shape: Of elongate oval form and pronotum of trapezoidal shape with median longitudinal length slightly greater than posterior width. Prominent median carina on vertex and four less prominent lateral longitudinal carinae on pronotum anterior to transverse grooves.

Structural characteristics:

Anterior part of head triangular, the length of head from anterior margin of lora to anterior margin of eye slightly less than length of head from posterior margin of eye to posterior margin of vertex. The jugae closely appressed to tylus, slightly diverging and not reaching level of tylus. Posterior interocular portion of head with a prominent median longitudinal carina. Eyes small, transverse width of one eye not appreciably greater than one-half the width of interocular space. Width of head through eyes 1.9 mm.
Pronotum with anterior margin deeply and angularly emarginate. The head is set into the prothorax; the anterior lateral lobes of prothorax reach to posterior margin of eyes. Posterior margin of pronotum deeply and roundly emarginate. Anterior width of pronotum 2.6 mm., distinctly less than posterior width; median longitudinal length 3.6 mm., slightly greater than posterior width of pronotum. A prominent median longitudinal sulcus on anterior half and two prominent lateral longitudinal sulci which end in transverse grooves; two lateral carinae between median and lateral sulci which run out on posterior portion behind transverse grooves and two others which begin at anterior margin of pronotum directly posterior to middle of eye and run to transverse grooves. Lateral sides of pronotum subparallel at middle and widen anteriorly and more prominently posteriorly.

Scutellum a little longer than wide at base, triangular shape, with posterior lateral sides slightly concave so that scutellum ends in an acute angle; tricarinate, median longitudinal carina very prominent on posterior half, lateral carinae indistinct and divergent posteriorly.

Hemelytra with numerous tubercles, lateral sides of basal halves subparallel, claval suture three times length of scutellum, membrane long and rounded posteriorly. Respiratory appendages shorter than abdomen.
Antennae with lateral prolongation of penultimate segment slightly more than one-half the length of ultimate segment. Prosternum between anterior coxae prominently raised on median line and this elevation runs out near middle. The longitudinal sulci which originate posterior to coxal cavity run out at posterior margin of prosternum without joining. The mesosternum with two lateral, rather distinct and prominent, longitudinal carinae. The mesosternum swollen and inflated so that its ventral margin is not on a line with that of prosternum and metasternum. The posterior margin of the metasternum broadly emarginate with lateral margins forming sharp lobes at the posterior margin. The length of fifth abdominal sternite subequal to length of each of the preceding three sternites. Genital operculum relatively long and narrow ending in a rather acute angle. The connexivum broad ending in a mesal tooth-like lobe which extends beyond operculum.

Anterior femur 5.2 mm. in length which is slightly greater than the lateral length of prothorax. The femoral tooth situated at middle of femur, small and rounded, and is divided into two parts by femoral sulcus. The anterior tibia when folded against femur not reaching femoral tooth, less than half the length of femur. Anterior tarsus extends slightly beyond anterior margin of femoral tooth when tibia is folded against femur. Length of anterior coxa 2.7 mm., slightly greater than anterior width of pronotum.
Intermediate tibia a little shorter than intermediate femur. Posterior tibia, subequal to length of posterior femur. Length of posterior tarsus a little more than one and one-half times the length of intermediate tarsus.

Data on Distribution:

Holotype, allotype and 12 female and 12 male paratypes from Villarrica, Paraguay, S. A. (F. Schade). Also 12 males and 13 females from same locality and 15 males and 10 females from Coraveni, Paraguy, S. A. (F. Schade). All specimens in the Francis Huntington Snow Entomological Collections.

Notes: This new species is closely related to *G. intermedia* Martin. It is readily distinguished from it by the very prominent median carina on the posterior interocular space, the shape of pronotum and the prominent longitudinal carinae on the mesosternum. The anterior femur and the antenna are as in fig. 3a and 3b, Plate III.
Curicta hungerfordi Sp. n.

Size: Males: Length from tip of beak to tip of abdomen 16.5 mm.; length of respiratory appendages 8.2 mm.; females: Length 19.3 mm., respiratory appendages 8.2 mm.

Color: Of a dark brown color with appendages light brown.

Shape: A small species with rather broad elongate-oval form.

Structural characteristics: The length of head from anterior margin of lora to anterior margin of eyes a little less than length of head from posterior margin of eyes to posterior margin of vertex. The jugae not as prominent as the tylus; the tylus continued posteriorly as a longitudinal carina to a point just anterior to posterior margin of vertex. The width of head through eyes 1.9 mm.; the transverse diameter of eye one third less than width of interocular space. The anterior width of pronotum 2.6 mm.; posterior width 4 mm.; median longitudinal length 3 mm.; the posterior width one and one-half times greater than anterior width and one-third greater than median longitudinal length. The anterior margin of pronotum broadly and roundly emarginate with the head inserted in this emargination almost to posterior margin of eyes; the posterior margin broadly emarginate. Pronotum having two longitudinal carinae bordering the median longitudinal sulcus and two other
less prominent longitudinal carinae which begin immediately behind the middle of the eyes, diverge laterally a short distance and then run posteriorly to transverse grooves forming a sulcus between each of the lateral carinae. Scutellum triangular with lateral sides rounded; tricarinate with lateral carinae contracted at middle and with median carina running to posterior end of scutellum. The cleval suture distinct and the membrane prominent and large. The respiratory appendages shorter than length of abdomen and relatively thin and weak. The penultimate segment of antenna with a lateral prolongation which is more than half the length of the ultimate segment. The prosternum prominently inflated and swollen on posterior half. The length of anterior coxa subequal to width of head through eyes and having a flattened dorsal side and rounded ventral side. The anterior femur 4.4 mm. in length, slightly greater than the posterior width of pronotum; the femoral teeth situated one-third of the length of the femur from the base. Length of femur from base to middle of femoral tooth 1.5 mm.; length of apical portion of femur from middle of tooth to apex 2.9 mm. The anterior tibia when folded against the femur reaches slightly beyond middle of femur. The anterior tarsus reaches to femoral tooth. The mesosternum swollen, the metasternum with posterior margin widely rounded with lateral posterior margins ending in a pointed lobe leaving a large portion of
first abdominal segment exposed. The fifth abdominal sternite having two converging carinae which meet on median line at posterior third of sternite and again diverge for rest of segment. The intermediate tibia a little shorter than the intermediate femur. The posterior tibia a little longer than the posterior femur. The intermediate tarsus a little less than two-thirds the length of posterior tarsus. The male genital operculum broad, spoon-shaped with rounded posterior margin. The connexivum very little developed.

Data on Distribution:

Holotype male and allotype female from Real de Arriba, Tamascaltepec Dist., Mexico (H. E. Hinton); one female paratype from Morelos, Mexico (H. D. Thomas) and two female paratypes from Pachuca, Mexico (J. G. Shaw). Types in the Francis Huntington Snow Entomological Collections.

Notes: This species shorter and broader than C. scorpio Stal. The size of the species, the shape of the pronotum and the width of the eyes compared to the width of the interocular space are distinctive.

There is another series of 9 males and 13 females from Tlalpam D. F., Mexico, July 23, 1937 (H. D. Thomas) which have the same general facies but are relatively smaller. The length of the males from tip of beak to tip of abdomen is 12.4 to 14.3 mm., length of respiratory
appendages 7.1 to 8 mm.; females: Length 15.4 to 16 mm., length of respiratory appendages 7.1 to 8.4 mm. They are distinguished from G. hungerfordi Sp. n. by the absence of the median longitudinal carina on the vertex, the width of eyes being slightly less than half the width of the interocular space, by the absence of prominent longitudinal carinae on the vertex and by the shape of the pronotum which does not have the posterior width of pronotum one and one-half times the width of the anterior pronotum. There is slight variation in the genital claspers between these two forms and they are therefore not considered as a sub species.
Curicta peruviana sp. n.

Size: Male. Length from tip of beak to tip of abdomen 24.5 mm.; length of respiratory appendages 20 mm.; posterior width of pronotum 4.5 mm. Females: Length 26.5 mm.; length of respiratory appendages 21 mm.; posterior width of pronotum 4.9 mm.

Color: A greyish black color with the anterior tibiae yellowish brown with mottled reddish brown.

Shape: A rather sturdy species with elongate oval form and prothorax slightly longitudinally arched in lateral view.

Structural characteristics: The length of the head from anterior margin of lora to anterior margin of eyes subequal to length of head from posterior margin of eyes to posterior margin of vertex. The jugae are large and closely appressed to the tylus and are as prominent as tylus. The vertex is rounded. Width of head through eyes 2.3 mm.; the width of one eye slightly less than half the width of interocular space. The anterior margin of pronotum deeply and angularly emarginate; posterior margin broadly and roundly emarginate. Anterior width of pronotum 3.2 mm., posterior width 4.5 mm., median dorsal longitudinal length 4.5 mm. subequal to posterior width. A wide shallow median fossa on anterior half of pronotum which is bordered by indistinct carinae which fade out completely at middle. Two lateral
carinae, starting at anterior margin of pronotum directly behind eyes, which diverge laterally and then run posteriorly fading out just anterior to transverse grooves. A median carina starting posterior to median fossa which divides, and each branch diverges and runs out at transverse grooves. The scutellum a curvilinear triangle and ending posteriorly in an acute angle; median longitudinal length of scutellum slightly greater than width at base; anterior half plain and posterior half with median carina bordered with lateral depressions. Hemelytra of usual shape with prominent membrane. The dorsal plates comprising last abdominal segment, posterior to hemelytra bearing two lateral longitudinal indistinct carinae which appear to be made up of hairs matted together. The penultimate segment of antenna having a lateral prolongation over half the length of the ultimate segment. Length of anterior femur 7.1 mm.; the femoral teeth are situated one on either side of femoral groove and are distinctly closer to base than apex of the femur. The length of femur from base to middle of tooth 2.9 mm., of apical portion from middle of tooth to apex 4.2 mm. The femur increases in width anterior to femoral teeth so that the greatest width of femur is anterior to femoral teeth. The tibia when folded against the femur extends to middle of femur; the anterior tarsus pointed, distinct and extends beyond anterior margin of femoral
teeth. Post sternum typical of Curicta with posterior portion inflated; metasternum inflated. Posterior margin of metasternum broadly and roundly emarginate with lateral sides ending in blunt lobes leaving a large part of first abdominal segment exposed. The fifth abdominal sternite of males having two lateral, longitudinal carinae coming together on posterior third and then diverging to posterior margin. The genital operculum broad at base and ending in acute angle posteriorly and having the lateral margins raised dorsally; the convexivum prominently raised and extending perceptibly beyond end of operculum. The intermediate and posterior tibia each slightly longer than their respective femur. The posterior tarsus 2.9 mm. in length; almost two times as long as intermediate tarsus.

Data of Distribution:

Holotype male, allotype female and 19 male and 15 female paratypes all from Vin. Sani Beni, Peru, S. A., October 17 to 25, 1935 (F. Woytkowski) in the Francis Huntington Snow Entomological Collections.

Notes: This species is closely related to C. pronotata Sp. n. but differs in that the posterior width of pronotum is subequal to median longitudinal length, the median fossa is not as distinct, the presence of longitudinal carina and the type of emargination of posterior margin of pronotum; the shape of the scutellum;
the membrane of hemelytra much larger, and respiratory appendages distinctly longer. The anterior femur and antenna as in fig. 2a and 2b, Plate II.
Curicota howardii Montandon, 1910.


Also referring to this species:


The original description is in French.

Elongate oval in form, visibly attenuate in front and rear, lateral margins not subparallel, the greatest width toward the posterior third. Head quite enlarged, although a little narrower than the front part of the pronotum, as long as wide, including the eyes, longitudinally carinate throughout its length, the carina more obtuse on the posterior interocular portion. Interocular space more than three times as wide as the diameter of the eye. Eyes small, globular, anterior part of the head triangular, exceeding the anterior level of the eyes by a length equal to its width between the eyes in front.

Pronotum distinctly longer than its width behind, lateral edges subparallel on their anterior three-fifths, quite strongly widened on their posterior two-fifths; with four obtuse longitudinal carinae, little accentuated and subparallel, two each side of the anterior part, the posterior part with two oblique carinae.
arising from the anterior median carina and quite divergent behind. The anterior depression of the pronotum broadly semicircular, the anterior angles quite narrowed, subacute.

Scutellum with three longitudinal carinae, the median continuing quite plainly clear to the apex of the scutellum. The two laterals slightly diverging behind, vanishing on the middle of the sides of the scutellum, which are slightly sinuate before the tip or end.

Coria insensibly and gradually widened behind on their basal halves, attaining their greatest width behind the middle and narrowing thereafter; membrane well developed, regularly subrounded at the extremity. Commissure of the clavus almost twice as long as the scutellum.

Appendages short, quite robust toward the base, attenuated thereafter, about half the length of the abdomen.

Anterior femora quite robust, as long as the pronotum on its lateral edges, with a single median tooth easily visible on the inner edge of the groove where the folded-up tibia is lodged, this tooth distinctly closer to the base than to the apex of the femur; the external side of the groove also appears denticulate, as if notched on the basal third of the femur. Neither teeth nor sinuosities toward the apex of the femur.
Anterior coxae half the length of their femora. Anterior tibiae quite long, blackish, with a pale annulation toward the base, and the apical third likewise pale; the extremity of the tarses come to the basal third of the femora when the tibia is folded back against the latter.

Intermediate and posterior legs short, the ends of the posterior femora, which are a little shorter than their tibiae, do not reach the suture of the last abdominal segment. Intermediate and posterior tarsi with their claws less than half as long as their tibiae.

Median longitudinal part of the prosternum slightly saddle-shaped, projecting in all its width, more elevated than the lateral pieces, a little flattened and traversed its whole length by a fine median groove; very obtusely tuberculate in its anterior part. A greater space between the intermediate coxae than between the anterior or posterior coxae.

Length, 19 mm.; maximum width a little behind the middle of the corium, 4.5 mm.; at base of pronotum, 3.8 mm.; length of appendages, 7.7 mm., Victoria, Texas. A single specimen, United States National Museum, Washington.

To the above description Doctor Montandon adds the following helpful comparative notes:

This species is intermediate in size between C. volxemi Mont'd. and C. scorpio Stal (=montandoni
Martin). It differs from *C. volxemi* Mont'd. by the pronotum being sensibly narrowed in front, while in the latter it is almost as wide in front as behind. In this character it approaches more closely to *C. scorpio* Stal, which also has the pronotum quite narrowed in front, with the same right-angled anterior angles almost sharp, but its anterior tibiae are, however, slightly more elongated than in this latter species; that is to say, much more than in *C. volxemi* Mont'd. In the character of the median tooth of the anterior femur being situated closer to the base than the extremity, however, the species approaches *C. scorpio* Stal, but it is plainly separated from the latter by its head being longitudinally carinate throughout its entire length, while the head is simply convex between the eyes in *C. scorpio* Stal and almost plain in *C. volxemi* Mont'd.

Furthermore, in *C. scorpio* the scutellum is not carinate; the longitudinal grooves of the pronotum are also much less emphasized and the anterior tibiae are more largely pale, darker only toward the base.

This is the first species of the genus found in the United States. It is to be presumed, however, that others may occur in the Southern states neighboring Mexico, where are found the two species to which I have just compared it.

I take pleasure in dedicating this to Mr. L.O. Howard,
as an indeed feeble expression of my sincere gratitude.

Additional Notes:

One female specimen "compared with type" by Doctor R. I. Sailer of the United States National Museum, in the Francis Huntington Snow Entomological Collections. This bears a paratype G. drakei, Det. Hungerford, label. This specimen from Colorado County, Texas, July 22, 1922 (Mrs. Grace Wiley). Seven other female specimens bearing the same labels and 1 female and 1 male from Rock Island County, Texas, July 30, 1922 (Mrs. Grace Wiley); one male specimen from Colorado County, Texas, July 22, 1922 (Mrs. Grace Wiley). Both of the male specimens have G. drakei Hungerford paratype labels. Doctor Hungerford redescribed G. howardi Montandon due to an error of identification of his specimens of G. howardi which had been compared with the type by Doctor Drake in 1918. He should have described G. pronotata Sp. n.

Doctor Montandon's statement, "Interocular space more than three times as wide as the diameter of the eye" is an error. Doctor R. I. Sailer of the United States National Museum states that the width of the interocular space is .98 mm. while the width of an eye is .56 mm.
Curiota intermedia (Martin)


The original is in French. A translation follows:

Curiota intermedia (Nepoidea) Martin: Length 20mm.; width 4 mm. Appendages wanting. Of a uniform chocolate brown color. Head attenuated in front of the eyes, without carina but slightly convex in the postocular space. Pronotum having the form and dimensions related to those of C. tibialis Martin, anterior emargination an obtuse angle; its surface with a feeble median carina, short, and two others on each side, rounded, separated by feeble sulci. Scutellum flat, finely granular, not tumified, with the sides arched in front. Anterior coxa stout, prismatic, half of the length of the femur; a tooth at the middle of the latter, at the base of each one the raised edge forms a sulcus. Anterior tibia yellowish brown at the base, a little less than one-half the length of the femur. Intermediate and posterior tarsi stout, a little less than one-third the length of their corresponding tibiae, pale, brown at the apex. The hairs rather abundant, fine, erect on the tibiae and tarsi. Prosternum with two longitudinal sulci extending from the coxal cavities and reuniting on the median line at the base. Mesosternum with a very light median longitudinal depression. Sternite
of metasternum as in *C. tibialis* Martin.

Columbia, Parzudake 1840. One specimen in the Museum of Paris. This species is very closely related to *N. volxemi* Montandon. It differs principally by the shape of the anterior emargination of the pronotum (rounded in *volxemi*), by the presence of the small median carina on pronotum, by its scutellum flat without tumefactions, by its stouter tarsi and being shorter.

Additional Notes:

We have studied two male specimens in the Francis Huntington Snow Entomological Collections from Bolivia, South America which agree with the original description. One of these bears a label number 2717. Doctor H. B. Hungerford who has studied the single male type in the Paris Museum has made comparative notes on the two specimens and states, "I believe my 2717 is this but the antennal branches of the type are shorter". The anterior femora of these specimens agree with Martin's figure and Doctor Hungerford's sketch of the femur of the type. This species is very closely related to *C. volxemi* (Mont.). The antenna and anterior femur are figured on plate I, fig. 4 a-b.
Curicta pronotata Sp. n.


Size: Length of male from tip of beak to tip of abdomen 21.5 mm., length of respiratory appendages 9 mm., anterior width of prothorax 3.4 mm., posterior width of prothorax 4.55 mm., width of head including eyes 2.4 mm.; greatest width of abdomen 4.9 mm.; dorsal median length of pronotum 4 mm. which is perceptibly less than its posterior width.

Color: A uniform reddish brown.

Shape: A relatively broad and sturdy species with sides of abdomen more elliptical in shape than in most Curicta.

Structural characteristics: The length of head from anterior margin of lora to anterior margin of eyes a little less than the length of head from posterior margin of eyes to posterior margin of vertex. The tylus not raised above level of jugae; the jugae swollen, almost parallel and running out posterior to point where tylus stops. The vertex rounded and slightly raised and having an indistinct median longitudinal carina. The eyes small, width of an eye equal to half the width of the interocular space. The prothorax somewhat longitudinally arched in lateral view. The anterior margin of pronotum widely and deeply emarginate, the emargination angular, being slightly greater than a right angle;
the posterior margin widely and broadly emarginate. The anterior width of pronotum less than, and the posterior width greater than, the dorsal median length. The median longitudinal portion of pronotum raised with a median longitudinal fossa confined to the anterior part. The lateral sulci on middle which broaden out into shallow grooves ending behind the eyes anteriorly and terminating in the transverse grooves posteriorly. The lateral margins of pronotum parallel on middle third and these widening to form a rounded lobe anteriorly and broadening out prominently on posterior third. The scutellum triangular with the anterior disc having two parallel longitudinal carinae, while the posterior half has a more prominent median longitudinal carina with declivities on the sides which extend to the lateral margins of the scutellum. The median longitudinal length of scutellum subequal to width at base. The membrane of hemelytra with prominent membrane. A longitudinal carina with very reduced median lobes on the terga covering the last abdominal segment posterior to the hemelytra. The antenna is reduced and the penultimate segment has a short lateral prolongation.

The anterior femur stout, long, one-fourth longer than the lateral length of pronotum. The femoral teeth are not at the middle, being located almost two-fifths of the length of the femur from the base. The anterior tibia when folded back against the femur extends to the
middle of the femur; the tarsus tapered and reaching to the middle of femoral teeth. The anterior coxa is prismatic and stout, two-thirds the median dorsal length of pronotum. Prosternum having two faint grooves originating behind anterior coxae running posteriorly and meeting mesally just anterior to posterior margin of prosternum. The meso- and metasternum produced, and the mesosternum slightly wider than metasternum. The posterior margin of metasternum broadly and roundly emarginate, lateral angles produced as teeth and leaving a large portion of the first abdominal segment exposed. The median length of sternite of fifth abdominal segment greater than that of any of the other abdominal segments and having two carinae separated at anterior margin which come together at middle and again diverge to posterior margin. The male genital operculum long and broad with rounded posterior margin. The intermediate femur about four-fifths the length of posterior femur and the tibiae slightly shorter than their respective femora.

Data on Distribution:

Holotype male and one male paratype from Huachuca Mts., Arizona 1899, in the collection of H. G. Barber.
Also one male paratype with same data in the Francis Huntington Snow Entomological Collections. The antenna and anterior femur as in fig 3a and 3b, Plate II.
Notes: This species is closely related to \textit{C. peruviana} \textit{Sp. n.} They can be readily distinguished from each other by the length of the respiratory appendages.

One specimen bears a label \textit{C. howardi} Mont., compared with type, Det. Drake, 1918. This is an error. Since these specimens did not fit Doctor Montandon's description of \textit{C. howardi} Mont. they were forwarded to the United States National Museum where Doctor R. I. confirmed this determination. Due to this error Doctor H. B. Hungerford redescribed \textit{C. howardi} Mont. for his new \textit{C. drakei} Hung. This latter synonymy is considered in more detail under \textit{C. howardi} Mont.
**Curioita tibiaitis (Martin)**


Also referring to the species:


The original description is in French. A translation follows:

Length 29 mm., without the appendages; maximum width at the base of the elytra 5.75 mm.; length of appendages 21 mm. Of a brown chocolate color, with the anterior margin and the sides of the pronotum clearer. Head triangular, pointed in front of the eyes, with a median longitudinal carina. Eyes small, globular. Pronotum with an anterior indentation forming an obtuse angle in which the head is engaged as far as the eyes; the free margin of indentation not reaching the anterior lateral angles of the pronotum which are broadly rounded; lateral margins subparallel enlarged at the posterior part; the base broadly emarginate; the posterior angles rounded. Surface of pronotum with 5 longitudinal carinae, one median and not much elevated and 2 others on each side strong, broadly rounded leaving between them a deep sulcus
which extends only on the parallel portion of the pronotum. Scutellum plain, finely granular with sides arched on the outside. Anterior coxae strong prismatic, of a length equal to half that of the pronotum, longer than half of the femur. The latter large, a little flattened, with almost parallel margins, with a deep sulcus on the distal half for receiving the tibia. Border of sulcus (edge) raised with a strong tooth at their origin, that is to say at the middle of the femur; a smaller tooth before the extremity, close to the tibio-femoral articulation, produced by the abrupt lowering of the border of the raised sulcus. Anterior tibia yellowish, brown at the base and a little shorter than half of the femur. Posterior tibiae strongly arched. Intermediate and posterior tarsi a little shorter than half of the corresponding tibia. Prosternum without tubercles, with two longitudinal furrows extending from the coxal cavities and reuniting at the base on the median line. Mesosternum convex without apparent sulci. Metasternal sternite hexagonal, the posterior angles elongated into pointed teeth touching the posterior coxae.

Rio-Grande. (One specimen in the G. Fallou collection—Museum of Paris.)

Notes: Doctor H. B. Hungerford who has studied the type in the Paris Museum states that the single type specimen is a female. There are five females and one male from Sao Paulo, Brazil, S. A. (Lauderwald) and one
male and two females from Vic. Joao Pessôa (São Phelipe) River Jurna, Brazil, S. A., Sept. 20, 1936 (A. M. Olalla) which I place under this species. The females are a little shorter being 27 mm. in length with the respiratory appendages 20 mm. The anterior femora agree with a drawing made from the type by Doctor Hungerford. The subapical notch of the anterior femur varies noticeably in the different specimens. The drawing of the anterior femur of C. tripalpis Martin on Plate III, fig. 8a, was made from the type specimen by Doctor Hungerford. Doctor Montandon placed C. suspecta Mont. in synonymy with this when he noted that Martin's character "posterior tibiae strongly arched" was an error.
Curleta schoutedeni Montandon


The original description is in French. A translation follows:

Length 27.5 to 28 mm., that is to say almost the same size as _C. tibialis_ Martin from which it is distinguished at first sight by its smaller size and more slender, and proportionally a little more contracted proportionally a little more contracted proportions; by the form of its pronotum, not trapezoidal but perceptibly contracted at the middle, widening a little in front and more strongly behind; the length of the pronotum on the median longitudinal line, that is between the two sinuosities, anteriorly and posteriorly, about two times its median width; with the same wide longitudinal sulcus on the anterior part of pronotum; the same longitudinal carinæ on head, and almost the same intermediate and posterior legs, except the posterior tibiae very perceptibly longer than their femora. In _C. tibialis_ Martin the length of the posterior tibiae is subequal to that of their femora.

The anterior legs longer and more slender and entirely different than that of _C. tibialis_ Martin; the anterior coxeæ are proportionally more elongated in _C. schoutedeni_ Mont.; about as long as the width of pronotum in behind, the femora less swollen and also more
elongated—in *C. tibialis* Martin they are about the same length as the lateral sides of the pronotum; while in *C. schoutedeni* Mont. they are very perceptibly longer than the lateral sides of the pronotum—with a single double femoral tooth but without a tooth-like sinuosity at the extremity. The rather strong femoral tooth is situated at the middle of the length of the femur and separated into two subequal parts, one on each side of median sulcus to which the extremity of the tarsus reaches when the tibia is folded against the femur. In *C. tibialis* Martin, this double median tooth is more visibly removed from the extremity than from the base of the femur and this latter is more dilated with a rather strong tooth-like sinuosity almost at the extremity.

The appendages are almost the same in the two species, about the length of the abdomen; the very dense erect hairs that cover the external face on the basal half appear much thicker and more hirsute (bristly-rough) than *C. tibialis* Martin.

Locality Sao Paola, Brazil; in the collections of M. Schoutedeni and mine.

This new form, which I take pleasure in dedicating to our colleague scientist has the same gray brownish color as the other species of the genus, with the anterior tibiae pale. Could not be confused with *C. intermedia* Martin of which the anterior femora are well
constructed, almost of the same appearance by this
latter is of much weaker stature and the head is con-
 vex, not longitudinally carinate between the eyes.

It is also separated very readily from G. borellii
Mont., which also has the posterior tibiae perceptibly
longer than their femora, but whose pronotum is propor-
tionately much shorter, of trapezoidal form and of
which the anterior femora are without tooth-like sinu-
sities at the extremity, they are however, wider and
more robust.

Additional Notes:

There is a single male specimen from Sao Paulo,
Brazil, August 7, 1927 (E. O. Townsend) in the Francis
Huntington Snow Entomological Collections which agrees
with the description except for the character "posterior
tibiae perceptibly longer than their femora". The
antenna and anterior femur which is perceptibly longer
than the lateral side of the prothorax is figured on
Plate II, fig. 6b and 6a respectively.
Garieta scorpio Stål


Also referring to this species:


Champion in his "Biologia Centrali Americana", places *Nepoida montandoni* Martin, as a synonym of *C. scorpio* Stål and figures the type on plate 21, figure 1. Stål's description is inadequate. Doctor Hungerford has studied Stål's female type in the Stockholm Museum and has made comparative notes which he has very generously loaned me for study. He compares the type with his specimens numbers 28513 and 28577 and makes the statement "much the same but smaller, for the present call them this species." Number 28513 is a male taken by Artemio Rene (Managua, Nicaragua); number 28577 is a male taken by L. Conradt (Colima Col. Mexico). Both 28513 and 28577 are males and would characteristically be smaller than the female type. A description of these two specimens follows with some references to a female specimen bearing the same data as number 28513.

Size: Male: Length 19 mm., respiratory appendages
missing; female: Length 20.5 mm., respiratory appendages missing.

Color: A dark brown color and mottled with a light brown ventrally.

Shape: Of an elongate-oval form and moderate size.

Structural characteristics: Jugae appressed closely to tylus but not reaching level of tylus. Vertex with a prominent longitudinal carina. Width of head through eyes 1.9 mm. The width of an eye subequall to half the width of interocular space. Anterior width of pronotum 2.5 mm., posterior width of pronotum 3.5 mm., median longitudinal length of pronotum 3.1 mm. The anterior margin of pronotum broadly and angularly emarginate with the head set in the emargination slightly beyond posterior margin of eyes. Posterior margin of pronotum broadly and roundly emarginate. A deep median sulcus which diverges laterally and ends at the transverse grooves. The median sulcus bordered by two very distinct longitudinal carinae which terminate at the transverse grooves. Two other less prominent sulci originating immediately behind the eyes and terminating at the transverse grooves. The median longitudinal length of scutellum subequal to width at base. Scutellum with median disc raised and having two prominent lateral carinae and a less prominent median longitudinal carina on the posterior two-thirds. The dorsum of last abdominal segment somewhat flattened and having two lateral, short longitudinal carinae which
have small medial lobes at middle. Prosternum prominently raised on median anterior half. Two prominent sulci originating behind coxal cavities and continuing posteriorly; these unite medially just before posterior margin of prosternum. The anterior femur 4.6 mm. in length with femoral tooth slightly anterior to posterior third of femur; length of femur slightly greater than lateral length of pronotum. The anterior tibia a yellowish brown color and half the length of the femur. The meso- and metasterni having a shallow median sulcus. The posterior margin of metasternum broadly but not deeply emarginate with the lateral margins forming a short blunt tooth. The intermediate tibia a little shorter than the intermediate femur; the posterior tibia subequal to length of posterior femur.

Data on Distribution: The published records list the following locality: Mexico, Guatemala. We have studied the following: One male and one female from Managua, Nicaragua (Artemia Rene); one male from Colima, Mexico (L. Conradt); two females from Iejupilco, Dist. Temascaltepec, Mexico, June-July, 1933 (H. E. Hinton); 4 males from El Sabino, Mich., Mexico, July 25, 1936 (H. D. Thomas); two males and one female from Puente de Ixtla Gro., July 7, 1937.

Notes: This species is very close to C. howardi Mont. The antenna and anterior femur are figured on Plate I, figures 2a-b.
Curiota volxemi (Montandon)


Free translation from French.

Of a uniform dull greyish color with the anterior tibiae pale yellowish. Head without longitudinal carinae, almost flat, attenuated in front of the eyes and constricting a little before the extremity; eyes small and globular.

Pronotum rather deeply emarginated behind the head which is sunken almost to the eyes in the indentation; very elongated, more than two times longer than wide at the middle, the sides arched laterally within; a little enlarged behind with the posterior side widely and rather deeply emarginate in front of the scutellum.

Surface of the pronotum with three wide, longitudinal, subparallel sulci not prolonged behind on the posterior part of the pronotum, the two external sulci abruptly and strongly diverging in behind where they obviously diminish in front of the posterior lateral angles.

Scutellum tumefied, lightly convex, finely granular, without apparent carinae. Elytra with parallel sides, very elongated, commissure of clavus more than two times
the length of the scutellum; membrane elongated but
not hardly surpassing the posterior angle of the corium,
rounded abruptly at the extremity, not covering the
genital segment.

Anterior coxae cylindrical, strong, elongated and
more than half of the length of pronotum, surpassing
the extremity of the head by more than half of this
length, a little longer than half the length of the
anterior femur; the latter sometimes a little swollen,
having on their middle a tooth split in two for receiving
the extremity of the yellowish anterior tersus which
is lodged with the tibia folded against the sulcated
femur from the tooth up to the extremity.

Intermediate tibiae one-third shorter than their
femora and a half shorter than the posterior tibiae which are
equal in length with their femora.

Tarsi one jointed, almost half the length of their
respective tibiae.

Prosternum without tubercles, lightly sulcated on
the middle of its length; mesosternum lightly convex
without apparent median longitudinal sulcus. Inter-
mediate coxae more than two times shorter than the pos-
terior coxae; anterior coxae very distant, situated
entirely under the anterior lobes of the pronotum.

Length 24.5 mm. without appendages; maximum width
at the base of the elytra 3.8 mm.

Sta Cruz, Mexico (Van Volxem), a single specimen in
the collection of the Royal Musée of Natural History of Belgium.

Additional notes: We have studied a single specimen from Mexico, collected by Haglund without any other data which fits the description very closely except for the character "intermediate coxae more than two times shorter than the posterior coxae". Doctor Montandon does not mention the sex of the type. A request has been forwarded to the Belgium Museum for this information but a reply has not been received to date.

Drawing of antenna and anterior femur made from type specimen by Doctor E. B. Hungerford as in figure 1 a-b, Plate III.
Genus *Amphischizops* Montandon


This curious genus is interesting because it is intermediate between the genera *Curiota* and *Ranatra*. With just a single female specimen for study the writer does not attempt to establish a generic concept at this time but will attempt to point out the structural relationships with each genus. The morphological characteristics in common with the genus *Curiota* are:

1. The prothorax longitudinally arched in lateral view shows affinity with *C. borelli* Mont. and *C. pronata* Sp. n.
2. The distinct lateral longitudinal sulci on the pronotum.
3. The flattened anterior portion of prosternum.

The morphological characteristics in common with the genus *Ranatra* are:

1. The anterior femora, tibiae and tarsi.
2. The hemelytra.
3. The metasternum with its posterior margin being prolonged into a metaxyphus between the metacoxae.
4. The proximity of the metacoxae.
5. The two longitudinal sulci on the prosternum.
6. The female genital operculum.

7. The elongate form of body.

The size and shape of the eyes show relationship to \textit{Ranatra} but are distinct because of the sinuate anterior mesal margin. The deep fissure between the anterior inner margin of the eye and jugae is also unique.
Amphischizops compressicollis (Montandon)


The original description is in French. A translation follows:

Head dark brown, transverse, scarcely a little wider, eyes included, than the anterior part of the pronotum; eyes rather strong, large, not any wider than long, as wide as the interocellar space; the anterior third on the internal side of the eye free, not united to the cheek which is advanced forward, however, a little sinuate beyond the level of the anterior angle of the eye, leaving between them and the anterior part of the eye a deep fissure quite remarkable and very visible facing upon the insect; the jugae a little swollen, lightly convoluted on each side of the median part from which they are separated by a rather deep sulcus, ornamented by some sparse rather long hairs; the median part a little raised, rather convex, besides projecting so that the anterior margin of the head is faintly trilobed.

Pronotum not contracted at the anterior angles situated on the same lateral level as the anterior dilation from which they are prolonged in front of a feeble lateral sinuosity.
Behind this dilation, almost two times wider than long, the anterior part of the pronotum is imperceptibly contracted in a rather long neck, a little arched and rather convex above the flattened underneath. The posterior part of the pronotum separated from the anterior part by a very visible transverse sulcus and the dilation of the anterior part, very visibly broadened on the anterior two-thirds with the lateral sides subparallel, on the posterior third with the result that at the humeral angles it is almost one and a half times wider than the front of the pronotum; its length on the median line from the deep emargination in front of the scutellum up to the transverse sulcus is equal and a little more than one-half of the length of the anterior part. All of the anterior part of the pronotum dark brownish as far as the transverse sulcus; the posterior part much clearer, almost flavous.

Scutellum blackish brown on a little more than the basal half with the posterior part almost flavous.

Elytra not covering the last abdominal segment; with the corium of a reddish brown and a little less dark on the base; membrane with black veins in the form of a rather dense and very irregular network.

The body blackish underneath with the posterior part of the lateral sides of the prosternum, two longitudinal spots on the mesosternum in front of the intermediate coxae, and the connexivum underneath flavous,
mesosternum rather strongly convex; metasternum a little raised longitudinally at the middle on the posterior part directed in the form of a rounded carina between the posterior coxae, leaving uncovered a very small portion of the first abdominal segment. Genital volvule prolonged in a long sharp point, a little arched at the extremity, surpassing the last abdominal segment by nearly one-third of its length. Appendages short and rather thin, nearly three-fourths of the length of the abdomen.

Legs brownish with the segments flavous, anterior tibiae unidentate, posterior femora surpassing the extremity of the fourth abdominal segment a little, subequal in length to the intermediate femora.

Length 43 mm. to the extremity of the genital volvule, 64 mm. with the appendages.

Width of the head including the eyes 3.6 mm.; of the posterior portion of pronotum 4.8 mm.; of the abdomen at the middle 5 mm.

Locality: Venezuela. In the museum of Stockholm and my collection.

Through the fissures of the anterior part of the head and also by the form of the anterior part of the pronotum a little arched, very flattened underneath, this curious species differs entirely from related forms and could also make a separate genus for which I propose the name *Amphischoizops*. 
Notes: Figures head and thorax, dorsal and side view, female abdomen side and ventral view, dorsal view of entire insect and venter of thorax.

Additional Notes: We have studied a single female specimen from Sera Province, Bolivia (Steinback) which was borrowed from the Museum of Comparative Zoology, Cambridge, Mass. This specimen agrees very closely with Doctor Montandon’s description. The anterior femur and antenna are figured on Plate IV, figure 7a and 7b respectively.
Genus Ranatra Fabr.
Logotype *linearis* (Linn.)

       Nat. Selakabet, i, p. 227.
1794. *Fabricius, J. C., Ent. Syst., iv, p. 64.*
       p. 252 (names *linearis* as example).
       (*linearis* only species).
       p. 280 (gives *linearis* as example).
       (*linearis* only species).
       (names *linearis* type, valid).
       *linearis*).
       p. 515.
       p. 17. (cites *linearis* as type).
       edition, viii,* p. 713 (for *linearis*).
       pp. 38, 63.
       p. 90.
       Synop., p. 119 (cites *linearis* as type).
1848. *Herrick-Scheffer, G. A. W., Wenz. Ins., viii,*
       p. 21.
1852. *Herrick-Scheffer, G. A. W., Wenz. Ins., ix,*
       pp. 20 and 30.
1853. *Herrick-Scheffer, G. A. W., Wenz. Ins., ix,*
       p. 30.
1857. *Sagra, D. R. de la, Historia Natural La Isla*
       De Cuba, vii, p. 176.
1873. Walker, F. M., Cat., vii, p. 189.
Genus Panotra Fabricius

Body cylindrical, very elongate, linear. Head small, triangular in shape anteriorly. Eyes projecting, usually wider than interocular space; sometimes subequal to width of interocular space. Beak composed of three segments. Antenna three segmented; the penultimate segment usually having a lateral prolongation, sometimes without, the ultimate segment longest and attached at the internal angle of the penultimate segment to form a sort of pincers. Prothorax cylindrical, usually the median dorsal longitudinal length is greater than two times the posterior width. Anterior width of prothorax distinctly less, sometimes subequal to width of head through eyes; posterior width usually greater than anterior width. Two transverse lateral grooves which divide the prothorax into two parts; the anterior portion the longest. Anterior margin of pronotum emarginate, the head inserted in this emarginate, the head inserted in this emargination up to the posterior margin of the eyes. Posterior margin roundly emarginate. Scutellum longer than wide at base and having two more or less prominent lateral declivities on posterior third. Elytra long and narrow, usually covering the anterior margin of the last abdominal segment; membrane much shorter than the coriaceous part. Posterior half of abdomen narrowing so that it terminates in a rather sharp point. The respiratory
appendages usually thin and elongate; with an occasional exception they are distinctly more than half the length of the abdomen. Anterior coxae elongate, over half the length of the femur, inserted under the eye, very distant from the intermediate coxae. Anterior femora usually having a constriction at femoral tooth; femoral tooth usually located distinctly beyond middle, sometimes slightly beyond middle; never basal. The anterior tibiae less than half the length of the anterior femora; usually arched. Anterior tarsus of a single segment. The posterior legs narrow and elongate. The posterior margin of the metasternum usually produced into a long metaxyphus which extends posteriorly between metaconae covering most of the first abdominal segment. The male operculum is flattened dorso-ventrally with lateral edges curving dorsally; the female operculum flattened laterally and ending in a sharp point.
Key to Species of Ramatra--Males

1. Connexivum of males embracing the posterior end of the operculum of genital segment........2
   Connexivum of males not widened at posterior end nor enveloping the operculum ..............5

2.(1) Connexivum of males embracing the operculum of the genital segment for nearly half its length as measured on the lateral sides ......

                    R. texana Helsing'd. p.29
Connexivum not embracing the operculum of the genital segment for nearly half its length......3

3.(2) Embracing lobe of connexivum small, widens abruptly on the posterior fifth, as long as wide..........................R. complanis Mont'd.
Embracing lobe of connexivum rather large and the connexivum begins to widen gradually before the posterior fourth.........................4

4.(3) Metaxyphus highly arched, comparatively long and wide and gradually thinning out posteriorly, base of metaxyphus as broad as intermediate femur..........................R. annulipes Stål

"Metaxyphus highly arched but very narrow except at the base, base of keel of metaxyphus narrower than intermediate femur..........

                    R. lehrierryi Mont'd.

5.(1) Antennae simple, distal end of penultimate segment without lateral prolongation.........6
Antennae with distal end of penultimate segment with a lateral projection and ultimate segment thickened ........................................ 9

6.(5) Anterior femur constricted in region of femoral tooth prominent and nearer the apex than the base ............................................. 7
Anterior femur not constricted in region of femoral tooth, heavy and stout, femoral tooth near middle ............................................. 8

7.(6) Breast very poorly developed, fore femur 9 mm. or less in length, width of one eye greater than width of interocular space. R. Wagneri Hungf.'d. Breast normal, fore femur over 9 mm. in length, width of one eye subequal to interocular space ....................... R. nigra H. S.

8. (6) Anterior femur without apical tooth or marked sinuosity ........................................ R. Kirkaldy Bueno Anterior femur with apical tooth or a marked sinuosity. R. Kirkaldy sub. sp. Hoffmanni Hungf.'d.

9.(5) The lateral prolongation of the penultimate segment of antenna not greater than one-half of length of the ultimate segment; anterior femur rather weak and slender ......................... 10
The lateral prolongation of the penultimate segment of antenna greater than one-half the length of the ultimate segment; anterior femur either long and thin or heavy and stout ........14

Prosternum without the deep trough but possessing two longitudinal depressed lines characteristic of most species of Ranatra....11

11. (10) Transverse width of one eye greater than width of interocular space...R. wagneri Hungf'd.

Transverse width of one eye subequal to or less than width of interocular space ....... 12

12. (11) Respiratory appendages conspicuously greater than half the length of abdomen ............. 13

Respiratory appendages not perceptibly greater than half the length of the abdomen....

.............................. R. brevicauda Mont'd.  

13. (12) Length of anterior femur distinctly greater than lateral length of prothorax...R. nigra H. S.

Length of anterior femur subequal to lateral length of prothorax.......... R. segrega Mont'd.  

14. (9) Anterior femur with constriction at femoral tooth; at least as narrow at femoral tooth as at apex ...................... 15

Anterior femur without constriction at femoral tooth; much narrower at apex than at femoral tooth ...... R. dolichodontata Sp. n.

15. (14) Pronotum broad and short with anterior enlargement subequal in width to entire head.

Femoral tooth of fore femur about half way
between trochanter and tibial joint........ 16
Anterior portion of pronotum longer; femoral
tooth of anterior femur nearer distal then
proximal end. .................................. 17

16.(15) Fore femur without definite antepapical
notch or tooth ........ R. brevicollis Mont’d.
Fore femur with a definite antepapical notch
or tooth............... R. brevicollis Mont’d.
Mexicana sub. sp. n.

17.(14) Prosternum with a single wide, deep,
longitudinal depression ....R. buenoi Bungf’d.
Prosternum without the deep trough but
possessing two longitudinal depressed lines
characteristic of most species of Ranatra....18

18.(17) Metasternite diamond shaped with median,
longitudinal flattened area in shape of
a spatula; hemelytra not reaching to anterior
margin of last abdominal segment............
................................. R. spatulata sp. n.
Metasternite with posterior margin prolonged
posteriorly into a metaxyphus extending
between metacoxae............................... 19

19.(18) Eyes distinctly wider than interocular
space........................................... 20

E  Eyes less or subequal in width to that of
the interocular space ................................ 39

20.(19) Respiratory filaments under 25 mm. in
length .......................................... 21
Respiratory filaments over 25 mm. in length.. 27
21. (20) Vertex conoidal in shape, anterior femur with two rows of very small tubercles on the basal portion ... R. tuberculifrons Mont'd. Vertex may be convex but not conoidal in shape, anterior femur without tubercles ...... 22

22. (21) Anterior femur shorter than or subequal to median length of pronotum, distinctly less than longitudinal lateral length of prothorax .................. R. curtafemorata sp. n. Anterior femur longer than median longitudinal length of pronotum, subequal to or greater than lateral length of prothorax ............. 23

23. (22) Mesocoxae approximate, meso and metasterni not swollen or inflated, on same level as prosternum, width of head through eyes slightly greater than posterior width of prothorax .................. R. wagneri H ung. Mesocoxae widely separated, meso and metasterni swollen and inflated, at least inflated so that they are not on same level as prosternum, width of head through eyes subequal to or greater than posterior width of prothorax ................... 24

24. (23) The apical portion of anterior femur beyond the femoral tooth, at its widest point, only half or slightly more than half the width of the basal portion at its widest point, forms under 30 mm. in length ........ R. rabida B. White.
The apical portion of anterior femur beyond femoral tooth, at its widest point, subequal to the width of the basal portion at its widest point, forms over 30 mm. in length

25. (24) Posterior femora extending to middle of last abdominal segment...... R. maculosa sp. n. Posterior femora not extending to or just reaching anterior margin of last abdominal segment.............................. 26

26. (25) Forms under 35 mm. in length, clasper with indication of subapical tooth. R. obscure Mont. Forms over 35 mm. in length, no indication of subapical tooth on clasper. R. moderata sp. n.

27. (20) Eyes almost twice as wide as interocular space; at least, distinctly more than one and a half times as wide..................... 28

Eyes only one and one-half times or less, then width of the interocular space ........ 29

28(27) Forms 40 to 44 mm. in length; anterior femur rather thin, one and one-third times as long as anterior coxa ......R. macroptalmus Mayr H.S. Forms 45 to 46 mm. in length; anterior femur rather robust and one and one-half times the length of coxa.............. R. robusta Mont'd

29. (27) Anterior femur over 10.5 mm. in length......... 30

Anterior femur under 10 mm. in length......... 35
30. (29) Length of pronotum 3 times, or less than three times, as long as wide posteriorly measured on median dorsal line; anterior femur without any indication of an antepapical sinuosity

31. Pronotum measured on median dorsal line more than 3 times as long as wide posteriorly; anterior femur with an antepapical sinuosity

31. (30) Forms always over 45 mm. in length, pronotum over 12 mm. in length, hind femora reach middle of genital segment..... R. magna sp. n.

32. (31) Respiratory appendages 30 mm. or less in length............... R. braziliensis DeCarlo
Respiratory appendages over 31 mm. in length...33

33. (32) Median longitudinal length of anterior portion of pronotum over two times the median length of posterior portion..... R. attenuata sp. n.
Median longitudinal length of anterior portion of pronotum not over two times the median length of posterior portion

................................. R. hungerfordi sp. n.

34. (29) Forms under 40 mm. in length, pronotum measured on median dorsal line less than 12 mm. long................. R. drakei Hunsf'd.
Posterior femur just reaching to anterior margin of last abdominal segment. Forms distinctly over 40 mm. in length, pronotum
always 12 mm. or more in length measured on median dorsal line, posterior femur reaches to or beyond middle of last abdominal segment. Anterior femur longer than prothorax................ R. hewdeni Mont'd.

35.(29) Anterior femur having portion beyond femoral tooth slightly more than half as wide at its widest point as the basal portion at its widest point................................. 36

Anterior femur not of this type, heavy, portion beyond femoral tooth subequal in width to the basal portion, femur somewhat constricted at medial tooth ............... 38

36.(35) Anterior femur with definite antepical sinuosity. R. rabida B. White contracts sub. sp. n.

Anterior femur without any indication of antepical sinuosity................................. 37

37.(36) Clasper without an antepical tooth or a very short one, does not extend half the length of the apical tooth .......... R. rabida B. White

Clasper with an antepical tooth which extends half the length of the apical tooth...

............... R. rabida B. White contracts sub. sp. n.

38.(35) Clasper with rather long neck, widened on basal half almost entirely, small antepical tooth. Head short, extends short distant beyond eye............. R. williamsi sp. n.
Casper without antecipical tooth end widened in middle area about equally from both ends ..................R. obscura Mont'd.

39. (19) Anterior femur without preapical tooth but may have a sinuosity ...................... 40
Anterior femur with a preapical tooth, or notch................................................... 52

40. (39) Prothorax over 9 mm. in length measured on median dorsal line ...................... 41
Prothorax under 9 mm. in length .................... 46

41. (40) Prothorax 3 times as long as the width of the posterior portion ..................... 42
Prothorax not 3 times as long as the width of the posterior portion ..................... 43

42. (41) Respiratory appendages much longer than the length of the abdomen........R. insulata Barber.
Respiratory appendages shorter than length of abdomen ......................R. unidentata Stal

43. (41) Jugae more prominent than tylus, posterior femora extending beyond middle of last abdominal segment ...... R. australis Hungf'd.
Tylus more prominent than jugae, posterior femora extending only slightly beyond anterior margin of last abdominal segment...... 44

44. (43) Width of one eye slightly less than width of interocular space...R. fusca sub. sp. edantula Mont.

Width of one eye subequal to width of interocular space............. R. neivai De Carlo
45. (40) Metaxyphus very slightly produced posteriorly between the metacoxae; very short ............... 46
Metaxyphus of usual type, produced posteriorly between metacoxae ........................................ 47

46. (45) Weak and slender forms; anterior femur under 9 mm. in length .................. R. parvula Sp. n.
More sturdy form; anterior femur over 9 mm. in length .................. R. signoretii Mont.

47. (45) Respiratory appendages not longer than the lateral length of abdomen or not distinctly so ................................................. 48
Respiratory appendages distinctly longer than abdomen ................................................. 49

48. (47) Mesocoxae proximal, as near together as metacoxae, prosternum having median longitudinal carina on anterior half..........
........................................................................ R. unidentata Stal
Mesocoxae widely separated, distinctly more than the metacoxae, prosternum without median longitudinal carina on anterior half..........
........................................................................ R. operculata Sp. n.

49. (47) Anterior femur very sturdy and heavy, the femoral tooth slightly beyond middle ........ 50
Anterior femur well built but not sturdy and heavy ................................................. 51

50. (49) Jugae of head more prominent than tylius, anterior femora very sturdy and heavy ....
........................................................................ R. australis Hungf'd.
Tylus more prominent than jugae ............... R. fusca Sub. Sp. edentula Mont.

51. (49) Median length of anterior portion of pronotum slightly greater than two times the median length of posterior portion, metaxyphus arched and covers almost all of abdominal segment .............. R. insulata Barber
Median length of anterior portion of pronotum slightly less than two times the median length of posterior portion, metaxyphus shorter and not arched.................. R. sjostedti Mont.

52. (39) Anterior femur with very prominent preapical tooth and notch; metaxyphus very strongly arched............... R. quadridentata Stål
guameri Sub. Sp. n.
Anterior femur with or without prominent pre-apical tooth; metaxyphus may be raised but never strongly arched .................... 53

53. (52) Eyes prominent, plainly transverse, as large as interocular space; metaxyphus not arched nor elevated as high as metacoxae and usually short ...................... R. fusca P. B. (=R. americana Mont'd.)
Eyes not so prominent, neither transverse nor as large as interocular space. Metaxyphus truncate sometimes slightly arched and elevated higher than the metacoxae when hind legs are extended posteriorly parallel with abdomen; femoral tooth nearer distal end of femur ...... R. quadridentata Stål
Key to Species of Renatra - Females

1a. Antenna simple, penultimate segment without lateral prolongation; or, penultimate segment with reduced lateral prolongation ............... 2a

1b. Antenna with penultimate segment having a prominent lateral projection; at least one-half the length of ultimate segment ............ 9a

2a.(1a) Prosternum having a single wide deep longitudinal trough ............... R. buenoi Hungf'd.

2b. Prosternum having two longitudinal sulci characteristics of Renatra ................. 3a

3a.(2b) Metaxyphus with very short apex ............... 4a

3b. Metaxyphus with apex produced in a long narrow structure ....................... 5a

4a.(3a) Width of one eye less than width of interocular space; anterior femur heavy and stout, slightly greater than lateral length of prothorax ............... R. kirkaldyi Bueno p161

4b. Width of one eye subequal to width of interocular space, anterior femur narrow, weak and thin, anterior femur perceptibly longer than the lateral length of prothorax...R. nigra H. S.

5a.(3b) Width of eye perceptibly greater than the width of interocular space...R. wagneri Hungf'd.

5b. Width of eye less than or subequal to the width of interocular space................. 6a
6a. (5b) Respiratory appendages very short, about
one-half the length of abdomen and operculum long, about one-third of its length extend-
ing beyond extremity of abdomen. ..................
........................................ R. brevicauda Mont.
6b. Respiratory appendages longer; almost equal
to length of abdomen, operculum much shorter..7a
7a. (6b) Posterior portion of prothorax very dilated,
anterior femur over 12.5 mm. in length, oper-
culum long .................. R. montali De Carlo.
7b. Posterior portion of thorax not dilated, no
wider than width through eyes, operculum
shorter ........................................ 8a
8a. (7b) Operculum extending prominently beyond genital
segment, jugae straight, width of eye equal to
width of interoculare space........ R. segregata Mont.
8b. Operculum extending slightly beyond end of
genital segment, jugae divergent, width of eye
less than width of interoculare space........
........................................ R. texana Hungfeld.
9a. (1b) Metaxyphus prominently raised above level of
metacoxae, strongly arched ..................... 10a
9b. Metaxyphus not prominently raised above level
of metacoxae nor strongly arched ............ 12a
10a. (9a) Base of keel of metaxyphus wider than inter-
mediate femur .................. R. annulipes Stal
10b. Base of keel of metaxyphus narrower than
intermediate femur ..................... 11a
11a. (10b) Metaxyphus makes full 90 degree turn

R. composi Mont.

11b. Metaxyphus not making a full 90° turn

................................. R. lethierryi Mont.

12a. (9b) Width of one eye greater than width of interocular space

................................. 13a

12b. Width of one eye subequal to or less than width of interocular space

................................. 26a

13a. (12a) Genital operculum extending prominently beyond end of genital segment under base of respiratory appendages

................................. 19a

13b. Genital operculum not surpassing end of genital segment perceptibly

................................. 14a

14a. (13b) Anterior femur perceptibly shorter than lateral length of prothorax; subequal to median longitudinal length of pronotum

................................. R. curtsfernorrata Sp. n.

14b. Anterior femur subequal to or longer than lateral length of prothorax

................................. 15a

15a. (14b) Insects over 38 mm. in length, median length of anterior portion of pronotum almost two and one-half times median length of posterior portion, lateral sides of prothorax appear parallel

................................. 16a

15b. Insects under 38 mm. in length, median length of anterior portion of pronotum less than two and one-half times median length of posterior portion, prothorax contracted near middle,
lateral sides not parallel ................... 17a

16a. (15a) Anterior femur having a well marked distal tooth, posterior femora not reaching end of penultimate abdominal segment. R. drakei Hungf'd

16b. Anterior femur having prominent apical sinuosity but no indication of distal tooth, posterior femora reaching well beyond anterior margin of last abdominal segment ............

........................................ R. haydeni Mont.

17a. (15b) Posterior margin of metasternum not produced into a metaxyphus, ends in a short blunt apex .................................. R. parvula sp. n.

17b. Posterior margin of metasternum produced into a metaxyphus which extends posteriorly between metacoxae ...................................... 18a

18a. (17b) Posterior width of pronotum less than width of head through eyes ........ R. rabida B. White

18b. Posterior width of pronotum greater than width of head through eyes, tylus ends anteriorly in obtuse angle ...... R. mixta Mont.

19a. (13a) Respiratory appendages less than or subequal to length of abdomen ....................... 20a

19b. Respiratory appendages equal to length of body; some slightly less than length of body ...................................................... 23a

20a (19a) Anterior femur perceptibly shorter than lateral length of prothorax. R. curtafemorata sp.n.
20b. Anterior femur subequal to or longer than lateral length of prothorax .......... 21a

21a. (20b) Length of anterior portion of pronotum greater than two times length of posterior portion ............... \textit{R. maculosa} Sp. n.

21b. Length of anterior portion of pronotum less than or equal to two times the length of the posterior portion of pronotum .......... 22a

22a. (21b) Width of one eye one and one-half times width of interocular space .......... \textit{R. abscura} Mont.

22b. Width of one eye only one and one-third times the width of interocular space .............. ......................................................... \textit{R. moderate} Sp. n.

23a. (19b) Posterior femora extending beyond middle of last abdominal segment, median length of anterior portion of pronotum over two times the median length of posterior portion .......... \textit{R. magna} \textit{Sp. n.}

23b. Posterior femora not reaching to middle of last abdominal segment, median length of anterior portion of pronotum less than or only equal to twice the median length of posterior portion .............................................. 24a

24a. (23b) Mesosternum produced ventrally; metasternum perceptibly below level of mesosternum ....... 25a

24b. Mesosternum not produced ventrally; on same level as metasternum ....... \textit{R. attenuata} Sp. n.
25a. (24a) Vertex of head conoidal, appears to have a tubercle between eyes. R. macrophthalma H. S.


26a. (26b) Anterior femora having prominent subapical notch or teeth ........................................ 29a

26b. Anterior femora may have subapical sinuosity but never prominent teeth ..................... 27a

27a, (26b) Anterior portion of pronotum only one and one-half times median length of posterior portion, anterior width of pronotum almost equal to width of head through eyes ................


27b. Median length of anterior portion of pronotum perceptibly greater than one and one-half times median length of posterior portion, width of anterior portion of pronotum less than width of head through eyes............ 28a

28a, (27b) Metaxyphus raised above level of metacoxae, ends in fairly long and sharp apex ..........

................................. R. quadridentata Stål

28b. Metaxyphus not raised above level of metacoxae, ends in a rather short blunt apex...

................................. R. fusca P. B.

29a, (26a) Operculum extends beyond extremity of last abdominal segment ........................... 30a

29b. Operculum does not extend beyond extremity of last abdominal segment ....................... 34a
30a. (29a) Operculum extends beyond extremity of last abdominal segment for one-third of its length ........................................... 31a

30b. Operculum does not extend beyond last abdominal segment for one-third of its length ........................................... 32a

31a. (30a) Respiratory appendages subequal to lateral length of abdomen, length of anterior femur distinctly greater than lateral length of prothorax....................... R. neivai De Carlo

31b. Respiratory appendages perceptibly shorter than lateral length of abdomen, length of anterior femur shorter than or subequal to lateral length of prothorax. R. operculata sp. n.

32a. (30b) Mesocoxae proximal ....................................... 33a

32b. Mesocoxae widely separated, femoral tooth of anterior femur near middle, anterior portion of pronotum almost as wide as head through eyes........................................... R. brevicollis Mont.

33a. (32a) Posterior femora reaching spiracle of penultimate abdominal segment, respiratory appendages shorter than abdomen........ R. unidentata Stål

33b. Posterior femora reaching to anterior margin of last abdominal segment, respiratory appendages subequal to or longer than abdomen ...... .................................................... R. nigra H. S.

34a. (29b) Anterior femur heavy and stout, the jugae more prominent than the tylius........................................... 

..................................................... R. australis Hungf'd. 113
34b. Anterior femur not heavy and stout, tylius more prominent than the jugae. 35a

35a. (34b) Metaxyphus very short and rounded; not extending posteriorly between metacoxae, leaving a great portion of first abdominal segment exposed. 36a

35b. Metaxyphus with narrow apex extending posteriorly between metacoxae. 37a

36a. (35a) Median length of exterior portion of pronotum distinctly less than two times median length of posterior portion, anterior femur a little longer than lateral length of prothorax. 36b. Median length of exterior portion of pronotum subequal to or longer than two times median length of posterior portion, anterior femur subequal to lateral length of prothorax. 37a. (35b) Metaxyphus not covering most of 1st abdominal segment; straight, femoral tooth of anterior femur short and blunt. 37b. Metaxyphus almost covers 1st abdominal segment, has an arch; femoral tooth of anterior femur long and sharp.
Ranatra annulipes Stål


Also referring to this species:


The original description is wholly inadequate. In 1861, Stål redescribed this species in "Ofversigt of Kongl. Vetenshafs Academiens Forhandlingar, No. 4, p. 204". A translation of these Latin descriptions follows:

"Yellow-brick red color with reddish hemelytra; appendages faintly marked with dark rings; breathing holes dusky black. Abdomen dark blood-color on the back with sided gray-yellowish; stigmata black, fuzzy on the back. Wings very lightly darkened. Prosternum having two sulci. The anterior femur having a single tooth on mesal side, back of the middle; likewise on the outside,
unprotected near the apex. The posterior femora reaching to the middle of the last abdominal segment. Respiratory appendages equal to the length of the body. Length 30 mm. Brazil (Mus. Hohn).

Doctor Montandon who has examined the type states, "It is easily recognized by its metasternum strongly raised longitudinally in the middle. The top forming a long triangle open in front, very raised, advancing more and more narrowly between posterior coxae where the point lowers toward the posterior part of the coxae covering all the first abdominal segment. On looking at the insect from the side one sees very well this strongly centric portion, sub semicircular, more raised than the posterior coxae, lowering rather abruptly.

The eyes are strong, globular, very protruding, a little transverse, at least as wide as the interocular space. The two lateral lobes of the anterior part of head forming the jugae, shorter than the medial or labial lobe. Pronotum very elongate, more than 3 times longer at the middle in front of scutellum, and 4 times longer on the sides than the width in back. Extremity of the membrane covering slightly the base of the last dorsal segment. The anterior coxae long and thin reaching the posterior extremity of the prosternum, about two-thirds length of the femur. This last with a single tooth a little beyond middle and without teeth but with a very feeble, scarcely seen, sinuosity below,
near the end of the sulcate part in order to receive the tibia at rest. Posterior femora scarcely a little longer than the intermediate ones, not reaching the end of the penultimate abdominal segment. The intermediates equally a little longer than the anterior ones. The feet are brownish, with small yellow patches, clear, more evident on the external part of the anterior coxae. On the intermediate and posterior femur these patches more spaced, forming 3 clear rings more or less outstanding. The prosternum is absolutely or superficially sulcate in front behind the base of anterior coxae. The medial part more dark brown, scarcely limited on each side by a slight longitudinal furrow. These 2 lateral furrows joining each other in the back at the base of the prosternum. The mesosternum has 2 or 3 brown longitudinal bands more or less predominate; on each side sometimes scarcely visible in front of the intermediate coxae, reaching the anterior side, and a brown medial band which begins at the middle end continues at the back on the metasternum up to the end of the top of the carina raised between the posterior coxae. In the male, generally smaller, the lateral part of the last dorsal segment bends below the opening from which the appendages emerge and is prolonged on each side vertically in a rather strong sub-sharp tooth enveloping the end of genital operculum. In females this tooth is absent and the genital operculum a little more strongly crenate, does not surpass the end of the
abdomen more than in case of males. These characters are easily noticed by looking at insect from side. In the case of clean specimens the tegumen is smooth and shining on posterior pronotum with punctuation very superficial.

Length of body 26-34 mm.; appendages 30-40 mm. The last long and thin, almost glabrous at least on sides and above, even towards the base where one sees however, some long rare hairs, especially below, sometimes stuck together or single and scarcely visible.

Data on distribution: The published records give the following localities: Panama, Jamaica, Guadeloupe, Dutch Guiana, Brazil, Paraguay, Uruguay, Argentina. The single male type from Brazil is in the Stockholm Museum.

We have studied the following in the Francis Huntington Snow Entomological Collections:

Cuba: Taken by P. J. Bermudez 9 males, 22 females;
Jamaica, B. W. I.: Taken by L. G. Perkins 12 males, 17 females;
Panama Canal Zone: Taken by E. A. Schwarz 1 male;
Mexico: Yucatan, taken by E. P. Creaser 1 male; 4 females; Vera Cruz, taken by Creaser-Gordon, 1 male; Chiapas, taken by H. D. Thomas, 4 males, 5 females; Jalisco, taken by H. D. Thomas, 1 male; Alcapulco, taken by H. D. Thomas, 1 male; Campeche, taken by H. D. Thomas, 47 males and 36 females.
Ranatra attenuata sp. n.

Size: Length from tip of beak to tip of abdomen of male 40 mm.; length of respiratory appendages 35 mm. Length of body of female 47 mm.; length of respiratory appendages 41 mm.

Color: A very dark brown color over entire body.

Shape: A slender elongate species.

Structural characteristics: Body moderately stout, eyes transverse and globular with a slight indication of the anterior mesal margin being sinuate, transverse width of one eye about one and one-third times width of interocular space. Vertex convex; in lateral view the vertex is not raised above the level of the eyes. Jugae prominent, slightly divergent, separated from tylius by a prominent fissure. Antenna with lateral prolongation of penultimate segment cylindrical and nearly as long as ultimate segment.

Prothorax long and narrow; width of anterior portion distinctly less than width of head through eyes. Length of anterior portion of pronotum 6.6 mm.; length of posterior portion of pronotum 3 mm.; width of posterior portion of prothorax 3.3 mm. The median longitudinal length of pronotum is to the length of the rest of the body as 15 is to 40. The length of the respiratory appendages is distinctly greater than the length of the abdomen, but less than the length of the insect. The anterior femur is 12.6 mm. in length, slightly greater
than lateral length of prothorax; the femoral tooth is situated 7.5 mm. from the base of the femur; no indication of a subapical sinuosity on tooth. Anterior coxae 8.3 mm. in length. Posterior femur 16.6 mm. in length being slightly less than the posterior tibia which is 20 mm. in length. The end of the posterior femora not reaching to margin of last abdominal segment. Posterior and intermediate tarsi subequal in length. Metasternum having its posterior margin prolonged into a metaxyphus which extends posteriorly between the metacoxae; metaxyphus raised to level of metacoxae and slightly arched posteriorly.

Distribution and types: Holotype male, allotype female and five male and one female paratypes from Tena, Ecuador, February 28, 1923 (F. X. Williams). All of the types are in the Francis Huntington Snow Entomological Collections.

Notes: This species is closely related to E. hungerfordi Sp. n. The antenna, anterior femur and genital clasper are figured on Plate I, fig. 2. The large variation in size between the sexes of this species is unusual.
Ranatra australis Hungerford


The original description follows:

Size: Smallest specimen in our series measures 32 mm. from tip of beak to tip of abdomen with a respiratory tube 27 mm. long. The largest specimen is 37 mm. long with a tube 30 mm. long.

Shape: On the whole a slender species with a long prothorax and long hind femora.

Structural peculiarities: Eyes normal; width of eye slightly less than width of interocular space; jugae very prominent, more elevated than tylus, a characteristic that distinguishes this species; antennae with lateral prolongation of penultimate segment nearly as long as ultimate. Prothorax slender, sides fairly straight, the anterior portion measured on the median dorsal line two more or less times the posterior swollen part. Respiratory filaments quite long, a little less than length of insect. The clasper of the male genital capsule with the anteapical prolongation truncate and short and well separated from the apical. Front femora broad without apical tooth. Hind femora surpassing the middle of the penultimate segment of the
body and the hind tarsus reduced to one-sixth of its tibia. Total of twenty-nine specimens from Texas, Florida, Mississippi, and Louisiana. The last specimen, belonging to the U. S. National Museum, was labeled R. fusca by Doctor Montandon in 1909, and bears the following note: "Alligator flea, water dog, said to bite or sting severely. Swamp east of Lake Kissimme, Osceola county".

The holotype and allotype and two paratypes are in the University of Kansas collection; paratypes are also in the collection of Dr. C. J. Drake, Ames, Iowa; the United States National Museum, Washington, D.C.; J. R. de la Torre Bueno, and the collections of Mrs. Grace Wiley and of the author.

This species is smaller, slenderer and longer limbed than R. fusca (=R. americana Mont’d.). It differs also in the following particulars:

1. The jugae more prominent than tylus—not true in R. fusca P. B.
2. The eyes are smaller than in R. fusca P. B.
3. The pronotum is longer; the anterior part two more or less, times the posterior part, whereas in R. fusca P. B. it is 1½ to 1½ plus.
4. The sides of prothorax more nearly parallel and posterior swollen part not so swollen.
5. The hind margin of pronotum roundly and broadly emarginate, whereas in R. fusca P. B. (=R. americana Mont’d.) the emargination is
deeper and narrower.

6. The two depressions on the scutellum are deep and pitlike, while in R. fusca P. B. they are shallow and broad.

7. The hind femora longer, surpassing the middle of the penultimate body segment, often almost attaining its caudal margin. Femora not so developed in R. fusca.

8. Hind tarsus of R. australis one-sixth or less of the tibia; one-fifth or less in R. fusca P. B.

9. Metaxyphus usually longer.

10. The female operculum angulate on its ventral line, while it slopes gradually and is longer in R. fusca P. B.

11. The respiratory filaments are relatively longer in R. australis Hungerford, than in R. fusca P. B.

12. The front femora lack the apical tooth; R. fusca P. B. has one more or less marked.

Additional Data on Distribution: Since this species was described, specimens bearing the following data have been added to the holotype, allotype and 6 male and 5 female paratypes taken by Mrs. Grace Wiley that are in the Francis Huntington Snow Entomological Collections.

Texas: Taken by Mrs. Grace Wiley, 2 females; taken by
D. D. Milspaugh, 2 females; taken by L. D. Tuthill, 1 female;

Oklahoma: Taken by H. B. Hungerford, 2 males;

Kansas: Taken by R. H. Beam, 1 male, 4 females.

Alabama: Taken by P. W. Oman, 1 male.

Georgia: Taken by J. D. Beam, 6 males, 4 females; taken by R. H. Beam, 4 males, 6 females; taken by M. E. Griffith, 1 male; taken by P. A. McKinstry, 3 males; taken by E. C. Wegener, 2 females;

Florida: Taken by J. D. Beam, 4 males, 1 female; taken by R. H. Beam, 1 male, 2 females; taken by P. W. Oman, 4 males, 3 females.

We have also studied 7 males and 10 females of this species from the United States National Museum. These specimens are from the localities already mentioned except the following:

Louisiana: Taken by H. E. Hubert, 1 female;

Mississippi: Taken by K. L. Cockerham, 1 female;

Ranstra braziliensis De Carlo


The original description is in Spanish.

Specimens observed: Two of both sexes. Female:
Length of body 36.5 mm.; length of caudal appendages 28 mm.

Holotype: Male: Length of body 35 mm.; length of caudal appendages 28.5 mm.

Eyes large, the width one-fourth greater than the interocular space which is visibly narrower in all of its length.

Prothorax of medium length; being of greatest length along the lateral sides—10.2 mm.; a little less than the length of the anterior femora which are 11.8 mm. Posterior portion of the prothorax dilated; the maximum width measuring 3.5 mm.; just a little more than a third of the total length on the median line which measures 9 mm. The thinnest portion of the prothorax somewhat constricted at the beginning of the posterior third; length on the median line of posterior portion of the pronotum at the transverse wrinkle—3 mm.; equal to half of the length of the thin portion that measures 6 mm.

Scutellum in the anterior middle little convex with a smooth surface; depression and carina well
marked; pointed zone without transverse constrictions.

Female genital operculum with ventral edge very curved surpassing the extremity of the abdomen; more prominent then in *R. heydeni* but not as much as in *R. brevicauda, R. unidentata*, etc. which we will see further on.

Anterior femora large, unidentate, thin in the dorsal middle and visibly robust in the ventral part with the portions in contact with the tooth very constricted. Tooth situated before the distal third of the femur.

This species, I have the honor to dedicate to its country of origin. It has certain resemblances with *R. rabida* Whitefor the form of the anterior femora and size of the eyes but it is distinguished from it by the female genital operculum; the respiratory appendages which are shorter; the antennae and claspers.

**Locality**: Mana, Brazil, the holotype specimen; Brazil, without indication of the locality, the allotype.

**Holotype**: In the National Museum of Rio de Janeiro, Brazil, No. 191990; allotype in the Argentine Museum of Natural Science, No. 47537.

The specimens were loaned to me by the distinguished Brazilian Arachnidist Dr. Caudido F. de Mello-Leiteo, to whom I am very grateful.

**Additional Notes**: No specimens of this species have been studied.
The original description is in French.

Of elongate form, rather thin, eyes large, very protruding, slightly transverse, of same width as interocular space. Vertex convex without tuberole. Pronotum three times as long as wide in the back. The narrowest part situated in the middle of the length, the dilations appearing gradually from the middle and equal in front and in back. The transverse furrow very definite on the sides and interrupted in the middle and situated in front of the posterior third.

Scutellum elongate, one and one-half times as long as wide with a strong transverse furrow, slightly interrupted in middle and situated before the posterior third of scutellum.

Elytra rather long, the membrane covering the next to the last abdominal segment. Appendages narrow and short, scarcely more than half the length of abdomen. The end of posterior femurs reaching the middle of next to last abdominal segment. The anterior coxae narrow and long reaching the end of prosternum. Anterior femora narrow, subequal in length to head, pronotum and
scutellum combined, with a single tooth at the lower internal side a little beyond the middle and a slight very obtuse dilation scarcely visible on the lower external side situated near the middle of the femur. No sinuosity near the extremity of femur.

The female genital operculum prolonged into a very sharp point surpassing the end of abdomen under the base of the appendages about one-third of its length; in the male the operculum does not surpass the end of abdomen.

The prosternum widely but not deeply sulcated longitudinally on each side behind the anterior coxae. These furrows diminishing rather promptly and not surpassing behind the narrowest part of the middle of the prosternum.

Metasternum rather strongly raised on the longitudinal medial line, the raised part widened in front, pointed behind between the posterior coxae where it is prolonged covering almost all the first abdominal segment which is scarcely perceived except in the cavity formed by two sunken bands which border the raised medial part, one on each side and prolonged behind up to the posterior part of the coxae.

Length of body: 35-39 mm.; of appendages: 15.5-16 mm.

Distribution: Brazil Sao Leopoldo, Sao Catharina.

Notes: On first sight this species resembles a little R. parmata Meyr and especially R. stali Mont.
as to shape of pronotum but differs from both by absence of tubercle on head between the eyes. Its mesosternum although emarginated on the top as in the case of the two preceding species differs from them by the medial part being longitudinally raised. Very characteristic in the case of most American Ranatra.

Types: Stockholm Museum.

Comments: From a study of 1 male and 1 female specimen borrowed from the American Museum of Natural History and another female on loan from the Hamburg Museum, the writer feels that Doctor Montandon erred in this statement, "anterior femora subequal in length to head, pronotum and scutellum combined"; they are a little longer than the lateral length of the prothorax. The male specimen is from Corupa (Hansa Humbolt), S. Cath., Brazil, Sept., 1945; one female from Rio Vermelho, S. Cath., Brazil, Dec. 1943; the other from Bez. Humboldt, Sta. Cath., Brazil, Jan. 11, 1910 (W. Ehrhardt). The male specimen is 40.5 mm. in length with the respiratory appendages 18.5 mm.; the females are 39 mm. in length with respiratory appendages 14.5 mm. The anterior femur and the antenna are figured on Plate , fig. . The penultimate segment of the antenna is without a prominent lateral prolongation.
Renatra brevicollis Montandon

1922. R. brevicollis, Hungerford, H. B., Kans. Univ. Sci. Bull., XIV, No. 18, p. 448-449, pl. XLV, fig. 3; pl. XLVII, fig. 14; pl. XLVIII; fig. 2; plate L. fig. 3.

The original description is in French.

*Renatra brevicollis* nov. sp. It is with regret that I describe this new form on a unique poor specimen, rather little unlike, at first sight to *R. quadridentata* Stal, but its specific characteristics never permit it to be confused with the other species, *fusca* or *quadridentata*, from which it differs by its anterior femora very lightly sinuate toward their extremity. In addition it has only one tooth in front of the medien sinuosity of the femur. A little more circular, the form less elongated than *R. fusca* Pall. de B., which is closely associated to *R. quadridentata* Stal. It is separated rather easily from the latter by the much shorter form of pronotum. In fact the insect is 34 mm. in length, of which the head and the pronotum are only 10 mm. The appendages of 22 mm. are visibly shorter than the abdomen. The intermediate and posterior femora short, folded in front hardly surpassing the head.

The pronotum very robust, hardly one-third the length of the abdomen, rather strongly dilated in front
and very strongly enlarged behind, not permitting it to be confused with *R. kirkaldyi* T. B.

In addition it is marked by two longitudinal sulci a little oblique on the sides, behind the anterior dilation, not extending behind the transverse grooves which is the anterior border of the dilated posterior portion of the pronotum. This latter marked by a median longitudinal carina vanishing in behind, more accentuated in front where it crosses the transverse grooves which limits the posterior dilated part.

The legs not slender, a little shorter proportionally than those of *R. quadridentata* Stal; femurs reddish, marked by pale, wide, scarcely visible rings.

Metasternum in the form of a plate, terminated at the middle posteriorly by a narrow, contracted, prolongation between the posterior coxae, appearing more raised then in *R. fusca* P. de B. and *R. quadridentata* Stal, but less however than in *R. fabricii* Guer. *annulipes* Stal.

This species is also distinguished from the three other known forms of North America by the female genital operculum extending a little under the base of the appendages. The ventral segment which precedes the genital operculum almost straight on its longitudinal summit very little convex in front of the extremity.

The interocular space convex between the eyes, but without a trace of a tuberole, scarcely wider than the width of one eye. The eyes very lightly transverse.
San Diego, Calif. Coll. Coquillett. U. S. N. M.,

Washington.

Data on Distribution: The distribution of this species is restricted to the west coast of the United States. Specimens of this species in the Francis Huntington Snow Entomological Collections from the following localities: 4 males and 12 females from Walnut Creek, Calif., August 9, 1929 (R. L. Usinger); 7 males and 2 females from Nipomo, Calif., July 24, 1935 (J. D. Beamer); 1 male from San Diego Co., Calif., Sept. (Coquillett); 5 males and 3 females from Warner Springs, Calif., July 28, 1938, (D. W. Craik); 7 males and 5 females from Mirimar, Calif., July 28, 1938 (R. I. Sailer); 1 female from Ione, Calif., Aug. 19, 1938 (R. I. Sailer); 1 male, San Diego Co., Calif., July 7, 1929 (P. W. Oman); 1 male, Dulzura, California, August 9, 1935 (J. D. Beamer); 2 males, 1 female, San Diego County, California, July 4, 1929 (L. D. Anderson); 1 male and 1 female, Marin County, California, August 3, 1929 (L. D. Anderson). There is also a series of 4 males and 7 females from Texoco Sea, Mexico, D. F., October 21, 1923 (Alf. Dampf) which have the same facies as this but differ in that the anterior femora have a definite sub-apical notch in the males and prominent subapical teeth in the females. There is very little difference in the genital claspers between the two forms although the apical tooth is a little larger and longer in R. brevi-
collis. For the present these are considered as a subspecies of *R. brevicollis* Mont. for which I propose the name *R. brevicollis* Mont. *Mexicana* subspecies nov.
**Ranatra bueno** Hungerford


Also referring to this species:

1905. *R. fusca*, Torre Bueno, J. R. de la, Can. Ent. XXXVII, p. 188.


The original description follows:

Size: Length from tip of beak to tip of abdomen, 32 mm. to 38 mm.; caudal filaments, 22 mm. to 27 mm.

Color: From light to very dark fusaceous; top of abdomen orange and black; middle and hind legs of lighter forms banded.

Shape: Long and slender, prothorax long and slender; eyes very prominent and large; limbs all very slender and very long; the under side of prothorax with a single broad and deep sulcus, which distinguishes this species from any of our other forms.

Structural peculiarities: The eyes very prominent, transverse diameter greater than the interocular space; tylus longer than jugae and as prominent as these parts, which are of medium development; antenna with the lateral prolongation of penultimate segment not more than half the length of ultimate; prothorax slender, the anterior portion measured on the median dorsal line,
twice the length of the posterior swollen part (the well-marked long transverse lateral grooves used as dividing line); scutellum somewhat elevated and slender and the length of the abdomen is to pronotum as $2\frac{1}{3}$ is to $1$; respiratory filaments surpassing front margin of scutellum when brought forward; claspers of male genital bulb very distinct; subapical tooth of anterior femur greatly reduced, all the limbs strikingly long and slender, especially the anterior femora; no apical tooth on anterior femur, the femoral tooth much nearer the apex than the base, the basal part being at least $1\frac{1}{2}$ times as long as the part lying before the femoral tooth; the coxa two-thirds as long as the femur.

The middle and hind legs long, the distal ends of hind femora surpassing the last abdominal suture and often nearly attaining caudal end of genital margin of penultimate abdominal segment; while the intermediate femora frequently attain or surpass the caudal margin of penultimate abdominal segment; the distal ends of middle and hind legs almost attaining tip of respiratory filaments; the relative lengths of femora to tibiae are about as 16 is to 19 for the middle leg and as 16 is to 22 for hind leg. The tarsi are small relatively, a little less than one-sixth as long as their tibiae.

Data on distribution: Male holotype and female allotype, Colorado county, Texas, June 24, 1922; Mrs. Grace Wiley, collector, Paratypes from Raleigh, N. C., July 10, 1902; F. Sherman Jr.; Mound, La., November 6,
1918; Aberdeen, Mississippi, Dr. Carl Drake; Leland, Mississippi, September 16, 1921, Dr. Carl Drake; Creve Coeur Lake, Missouri, May 15, 1911, J. F. Abbott; Dime Box, Texas, July 20, 1911, C. T. Atkinson; and Gainesville, Florida, June, 1918, Dr. Carl Drake. Holotype and allotype in University of Kansas collection; paratypes in collection of Dr. Carl Drake, J. R. de la Torre Bueno, and Dr. Hungerford.

This species was named for Mr. J. R. de la Torre Bueno, who pointed out its structural characters in 1905. It has also been named by some workers R. fusca P. B., and by at least one R. nigra H. S. It is clearly impossible for it to be either. The error of considering it R. fusca P. B. has been due to the inadequate description of R. fusca P. B. and to the fact that the original text with illustration has not been accessible to many, if any, American students of this group. By taking Palisot de Beauvois' figure of his R. fusca and comparing it with the species above described, it will be seen at once and that the species are not the same. The long, slender limbs, the great eyes, the long thorax, the relative position of the tooth on the front femur, and the relation in length between femora and tibiae of the legs, preclude the possibility that Palisot's artist had R. bueno H. Hungerford before him. The front legs of R. fusca P. B. are stout, not exceedingly slender. The median tooth of femur is nearer the middle than in R. bueno H. Hungerford. The anterior part of prothorax is less
than twice the swollen part. The intermediate femora and tibiae are nearly the same length as they are in *R. americana* Mont'd, for instance, and not considerably different in length as in *R. bueno*. The hind femora are considerably shorter relative to the abdomen in *R. fusca* P. B. The tarsus of *R. fusca* P. B. is longer, being one-fifth as long as its tibia and not one-sixth as in *R. bueno* Hungerford. In other words its proportions fit another American species, but not *R. bueno*. This species is not *R. nigra* H. S., for *R. nigra* H. S. has uniformly short respiratory tube of three-fourths inch and measures over all from tip of beak to end of filaments 2 to 2 1/8 inches, while this species has a tube averaging a full inch and varies in size from 2 1/8 to 2 1/2 inches. The shape of the eyes as shown in Herrich-Scheaffer's figure, is very different, and the size which he says is "not larger than *R. linearis*", would at once eliminate it, for in *R. bueno* Hungerford they are very large, but not so large as in *R. elongate*, specimens which I have seen.

The following distributional notes are added from 70 male and 60 female specimens in the Francis Huntington Snow Entomological Collections in addition to that of the type specimens.

Seventy males and 60 females from the following localities:

**Florida:** Taken by R. H. Beamer, 3 males, 6 females;
taken by P. W. Oman, 15 males, 21 females; taken by H. B. Hungerford, 4 males, 2 females; taken by C. O. Bare, 1 male, 3 females.

Georgia: Taken by J. D. Beamer, 5 males, 1 female; taken by R. H. Beamer, 5 males, 11 females; taken by M. E. Griffith, 1 male; taken by P. B. Lawson, 1 female; taken by P. A. McKinstry; taken by E. G. Wegenek, 1 male; taken by Creaser and Becker, 1 male, 4 females.

Alabama: Taken by R. H. Beamer, 2 females; taken by P. W. Oman, 7 males, 11 females; taken by L. D. Tuthill, 3 males, 6 females.

Mississippi: Taken by R. H. Beamer, 1 male, 1 female; taken by C. J. Drake, 1 female; taken by P. W. Oman, 2 females; taken by L. D. Tuthill, 1 male.

Texas: Taken by J. G. Shaw, 1 male, 1 female; taken by L. D. Tuthill, 1 female.

Tennessee: Taken by L. C. Kuitert, 1 female.

Virginia: Taken by L. D. Anderson, 1 male; taken by M. E. Griffith, 1 female.
Renatra camposi Montandon


The original description translated from the French:

These are very small specimens from the equator, Guayaquil, Ratan, through Professor F. Campos to whom I dedicate this new form near R. annulipes Stal of which it has all the characteristics included there; those of the raised metasternum, concave, and covering all the first abdominal segment including the genital operculum of the male taken at its extremity between the teeth bent below the extremity of the connexivum, the female genital operculum not surpassing the extremity of the abdomen; the same pronotum proportionately, very elongate; the same brilliant color but very distinct by its figure and much thinner thorax. Length: 28-30 mm. without the appendages which are a little shorter than the body and by the length of the posterior tibia perceptibly more elongate reaching almost the end of the abdomen and surpassing the last suture in the case of females.

Distribution: Guayaquil, Ecuador, and West Indies.

Additional Notes: There are two male specimens representing this species in the Francis Huntington Snow
Entomological Collections. One of these from Guayaquil, September 5, 1901 (V. Buchwald) bears a label "Compared with type, H. B. Hungerford". The other specimen is from San Esteban, Venezuela, South America, November 22, 1939 (Pablo J. Anduze). The specimen which has been compared with the type is 27.5 mm. in length with the respiratory appendages 25.5. mm. The width of head through the eyes is 2.6 mm. and the posterior width of the pronotum is subequal to the width of head through eyes. The width of one eye is equal to the width of interocular space. The jugae are prominent, almost parallel, not closely appressed to the tylius and not raised to the level of the tylius. A second smaller longitudinal lobe which does not surpass the anterior level of the eye is located in the fissure between the anterior mesal margin of the eye and the jugae. The median longitudinal length of the pronotum is 7.1 mm. The median longitudinal length of the anterior portion of the pronotum is equal to two times the median length of posterior portion. The anterior femur is 8.5 mm in length which is a little greater than the lateral length of prothorax. The anterior coxae are 5.6 mm. in length. The metaxyphus is prominently elevated above the level of the metacoxae. The width of the keel of the metaxyphus slightly less than the width of the intermediate femur. Metaxyphus strongly arched making a right angle turn.
The lobe at the posterior end of the connexiva enveloping the male genital operculum as in fig. 42, plate III. The male genital clasper is figured in fig. 4b, plate III. This species is very close to *R. lethierryi* Mont. and *R. annulipes* Stål from which it is easily distinguished by the lobe of the connexiva enveloping the operculum.
Ranatra chagasi De Carlo


The original description is in Spanish; a translation follows:

Specimens observed: 3 males. Length of body 35 mm.; length of respiratory appendages 26.5 to 27 mm.

Holotype: Male. Length of body 35 mm., length of caudal appendages 27 mm.

Eyes of medium size; the width equal to half the width of interocular space.

Prothorax of medium length being greatest in length along the lateral sides 10.5 mm.; a little less than the length of the anterior femur which measures 11.8 mm.; posterior portion of prothorax moderately dilated, maximum width measuring 3.6 mm.; a little more than a third of the total length of the pronotum on the median line which is 9 mm. The thin portion of the prothorax a little constricted at the beginning of the posterior third; length on median line of the posterior portion of the prothorax to the transverse wrinkle 3.2 mm.; a little greater than half of the length of the thin portion which measures 5.8 mm.

Scutellum in the anterior middle a little convex and equals the carina that is in the same; pointed zone with transverse constrictions very little marked.
Anterior femur large, robust, unidentate with the dorsal portion that is in contact with the tooth very little constricted, tooth situated below the beginning of the distal third of the femur.

This species cannot be mistaken for \textit{R. lanei} which has a little wider interocular space, the antennae and claspers distinct, besides it has a light maroon color, the abdomen is pointed at posterior middle and the males are smaller.

Locality: Curitiba, Parana, Brazil: J. Moure, xii, 1933. The specimens were loaned by Dr. Oscar Monte.

Holotype: Catalogue #47167; one paratype #47168, both in the Argentine Museum of Natural Science; one paratype in the Biological Institute of San Pablo, Brazil.

Even though I do not have a female specimen I have placed them with the female species having a short genital operculum, the characteristic given to by the deceased Brazilian physician Carlos Chagas, celebrated for his important works in hygiene and pathology.

Notes: No specimens of this species have been observed.
**Banatra curta**

**Size:** Length from tip of beak to tip of abdomen of male 36 mm., respiratory appendages 21.5 mm.; length of female 39.5 mm., of respiratory appendages 23 mm. Transverse width of head through eyes 3.1 mm.; greatest width of prothorax 3.3 mm.

**Color:** Hemelytra brown, straw yellow basally. Prothorax brownish, sternum yellowish; legs dark brown with yellowish mottlings.

**Structural characteristics:** Body moderately stout.

Eyes large, transverse; transverse width about one-third greater than width of interocular space. Jugae prominent but not elevated as high as tylus; slightly divergent and rounded, not closely appressed to tylus, with a few bristles; tylus usually angles down sharply anteriorly making an obtuse angle. Vertex in many specimens is conoidal in shape. Antenna with lateral prolongation of penultimate segment as long as the ultimate segment. Prothorax moderately long and slender; the width of the anterior portion is distinctly less than transverse width of head through eyes. The length of the anterior portion is to the length of the rest of the body as 13:6 is to 36. Respiratory appendages always a little less than the length of the abdomen and rather stout.

Clasper as in figure 3b, plate III, without any
indication of a subapical tooth. Fore femur 8.3 mm. long, femoral tooth small and a little nearer apex than the base, the tibia when closed on the femur does not reach to the femoral tooth, femur without apical tooth or sinuosity, moderately stout. Anterior femur shorter than length of pronotum measured on median dorsal line which is 8.7 mm. Anterior coxa 5.7 mm. long. Posterior femur 15.3 mm. long, posterior tibia 19.5 mm. long. Posterior tarsus slightly longer than the intermediate tarsus. Breast poorly developed. Metaxyphus not arched as high as the metacoxae and reaches slightly beyond middle of them. The female genital operculum very slightly arched and extends slightly beyond the tip of the abdomen under the base of the appendages. The posterior femora reaching to or slightly beyond middle of penultimate abdominal segment.

Types and distribution: Holotype male, allotype female, and 20 male and 11 female paratypes in the Francis Huntington Snow Entomological Collections of the University of Kansas. Holotype and allotype from Rio Purus, Lago Berury Region, Brazil, S. A., Sept. 1, 1935, (A. M. Olalla). Also 14 male and 6 female paratypes with same label as types and 7 male and 5 female paratypes from Vic. Joao Pessoa (Sao Phelipe) River Jurna, Brazil, S. A., July 10 to Sept. 20, 1936 (A. M.
Olalla).

Notes: The length of the anterior femur, shape of the vertex and tylus, and the small subapical tooth on the mesal side of the clasper serve to distinguish this species. This species is the only known form having such a short anterior femur; it shows some relationships to R. tuberculifrons Mont. The anterior femur and the antenna are figured on plate III, fig. 3a and 3c respectively.
Rana doliochodontata Sp. n.

Size: Length from tip of beak to tip of abdomen of male 41.5 mm. to 44 mm.; respiratory appendages 21 mm. Width of head through eyes 3.5 mm.; greatest width of prothorax 4.1 mm.

Color: In general a light testateous with the prothorax and meso- and metasterna much darker, almost rufous.

Structural characteristics: Body moderately stout and long. Eyes not transverse; width of inter-ocular space slightly less than one and one-third times the transverse width of one eye. Jugae prominent and slightly divergent. Antenna with lateral prolongation of penultimate segment a little shorter than length of ultimate segment. Prothorax moderately heavy, the length of anterior portion measured on median dorsal line 6.5 mm.; length of posterior swollen part 2.9 mm., or median length of anterior part compared to length of posterior swollen part is as 10 is to 4.7. The length of pronotum is to the length of abdomen as \( \frac{14}{3} \) is to 41. Width of anterior portion of pronotum slightly less than width of head through eyes. The respiratory filaments short, subequal to or slightly longer than half the length of the entire body in some specimens. Anterior femur 12.3 mm. long,
anterior coxa 7.5 mm. long; anterior femur without preapical tooth or sinuosity, very heavy and wide basally and gradually narrowing down toward the apex where it is narrowest, femoral tooth very prominent and long, slender and sharp. Anterior femur a little longer than lateral length of pronotum. Posterior femur 17 mm. long, posterior tibia 20.6 mm. Intermediate tarsus 3.5 mm. long, posterior tarsus 3.3 mm., posterior femur not reaching anterior margin of the ultimate abdominal segment in one specimen but reaching to or beyond anterior margin of last abdominal segment in others.

Distribution: Holotype and three male paratypes from S. Paulo, Ypirango, S. A., Brazil (R. Spitz collector). All types in the Francis Huntington Snow Entomological Collections.

Notes: This species, described from four males specimens, is close to R. brevicauda Mont. but differs in that it has a unique anterior femur that is widest at the base and gradually narrows out to the apex without any median constriction near the femoral tooth. This species is named for its very prominent, long and sharp femoral tooth. The appendages about half the length of the entire body. The anterior tibia extends beyond the femoral tooth when folded back on the femur. The anterior femur, genital clasper and antenna as in figure
**Ranatra drakei** Hungerford


The original description follows:

**Size:** Length from tip of beak to tip of abdomen 35 mm. to 46 mm.; respiratory filaments are from 28 mm. to 44 mm. long.

**Color:** All the specimens in the series studied are yellowish brown with legs and tegmina overcast with an orange tinge.

**Shape:** A long, slender species with prominent eyes; long, slender prothorax; hind femora surpassing the middle of the last abdominal segment, and a very long respiratory tube.

**Structural peculiarities:** The eyes very prominent, transverse diameter greater than interocular space; jugae prominent and divergent; antennae with lateral prolongation of penultimate segment a little more than half the length of the ultimate segment; prothorax slender, the anterior portion measured on the median dorsal line $2\frac{1}{3}$ times length of the posterior swollen part. The length of abdomen is to length of pronotum as $2\frac{1}{3}$ is to 1; the respiratory filaments long, as long as entire body in many of the specimens, greatly surpassing the limbs. The limbs are long and slender; front femora slender, median tooth considerably nearer apex than base; distal tooth well marked.
and located at some distance away from the tibial joint, this distance being about one-fourth the length of that part of femur lying in front of the median tooth; middle and hind femora long; distal end of hind femora attaining, or nearly attaining, the caudal margin of the penultimate abdominal segment; the ratio between femora and tibia not quite but nearly as great as in R. buenoi Hungerford.

Notes: Described from eleven specimens, seven males and four females, taken at Gainesville, Fla., ten of them by Carl Drake, June, 1918, and one specimen taken March 18, 1915, collector unknown; holotype in collection of C. J. Drake, allotype in U. of Kans. collection, paratypes in the above collections and in that of Doctor Hungerford.

This species has the general appearance of R. buenoi Hungerford, due to the large eyes and elongate, slender body. It differs from that species, however, in the front femur possessing a well-defined apical tooth; in more prominent jugae; in differently formed antennae; in its longer thorax; in the respiratory filaments greatly surpassing the limbs when extended backwards, and in the differently formed claspers of the genital capsule of the male. It cannot be confused with any other of our species.

Notes: In the 54 specimens added to the Francis
Huntington Snow Entomological Collection since the original description of this species are many specimens having the respiratory appendages distinctly shorter than the body but longer than the abdomen. All of the specimens have the subapical tooth on the anterior femur, however it is not as prominent and distinct in some of the males as in the type. The distribution is as yet restricted to Georgia and Florida. The specimens in the collection were taken from the following localities:

**Florida:** Taken by C. O. Bare, 2 males, 3 females; taken by R. H. Beamer, 15 males, 3 females; taken by P. W. Oman, 19 males, 6 females; taken by L. D. Tuthill, 3 males, 3 females; taken by E. G. Wegenek, 1 male.

**Georgia:** Taken by R. H. Beamer, 1 male; taken by P. W. McKinstry, 1 female.
Ranatra fusca Palisot-Beauvois


Also referring to this species:


The original description is inadequate. The locality given in the original description is United States of America. Doctor Hungerford(1) very adequately fixes the specific limits of this species, along with its synonymy. He does not include a formal description of this species. A description follows:

Size: Length of males 35 to 41 mm., length of respiratory appendages 22 to 28 mm.; length of females, 39 to 43.5 mm., length of respiratory appendages 26 to 35 mm.

Shape: An elongate shape. Comparatively sturdy with the posterior portion of the prothorax and the mesothorax inflated and swollen.

Structural characteristics: Tylus more prominent than jugae. Jugae projecting prominently in front of eyes, slightly divergent. Vertex convex and elevated prominently above the eyes when seen in lateral view. Width of head through eyes 2.8 mm.; width of one eye slightly less than width of interocular space. Length of pronotum 3.7 mm.; length of portion anterior to transverse grooves 5.4 mm.; length of portion posterior to transverse grooves 3.3 mm., a little more than two

times the length of anterior portion. Anterior margin of pronotum broadly but not deeply emarginate; posterior margin roundly and deeply emarginate. Anterior width of pronotum broadly but not deeply emarginate; posterior margin roundly and deeply emarginate. Anterior width of pronotum 2.3 mm.; posterior width 3.7 mm. distinctly greater than anterior width. Scutellum convex, longer than wide at the base; two lateral declivities on posterior third. Lateral sides of abdomen parallel on anterior half; subparallel on posterior half. The respiratory appendages moderately sturdy; never as long as the body but varies from being distinctly greater than length of abdomen to being distinctly less than length of abdomen. The antenna small; the lateral prolongation of penultimate segment more than half the length of ultimate segment. Prosternum with lateral longitudinal sulci joining just before reaching posterior margin. Mesosternum swollen and inflated. Metasternum on line with prosternum. Metaxyphus almost straight, not elevated above level of metacoxae, apex usually blunt and short. Anterior coxa 6.5 mm. in length. Anterior femur 10.8 mm., about equal to the greatest lateral length of prothorax. Femoral tooth prominent, located beyond middle of femur, the distance from the base of femur to base of tooth being 5.9 mm. A prominent subapical
notch on anterior femur of males; this being developed into a prominent tooth in the females. The mesocoxae more widely separated than the metacoxae. The posterior femur slightly longer than the intermediate femur, posterior tibia longer than intermediate tibia. Posterior and intermediate tibiae a little longer than their respective femora. The posterior femora never distinctly reaching beyond the false spiracle of the penultimate abdominal segment. The posterior tarsus a little longer than the intermediate tarsus. The male operculum sometimes extending very slightly beyond the end of last abdominal segment. The anterior femur, genital clasper and antenna of a male are figured on

Data on distribution: The published record lists the following localities: Massachusetts, New York, New Jersey, N. Carolina, Florida, Texas, Kansas, Minnesota, Indiana and Michigan. We have studied material in the Francis Huntington Snow Entomological Collections from the following localities:

Maine: Taken by W. C. Kendall, 1 male.
New York: Taken by H. B. Hungerford, 1 male, 2 females.
Michigan: Taken by H. B. Hungerford, 2 males, 2 females; taken by Leonard, 2 females.
Wisconsin: Taken by E. P. Breakey, 6 males, 7 females.
Minnesota: Taken by H. B. Hungerford, 2 males, 4
females; taken by R. H. Beamer, 1 male; taken by H. T. Peters, 1 male.

North Dakota: Taken by R. H. Beamer, 1 female; taken by H. T. Peters, 1 male.

Manitoba: Taken by R. H. Beamer, 1 male, 1 female; taken by C. L. Johnson, 1 female; taken by H. T. Peters, 1 female.

Washington: Taken by L. D. Anderson, 2 males; taken by C. H. Martin, 2 males, 6 females.

Oregon: Taken by Joe Schuh, 3 males, 1 female.

Kansas: Taken by R. H. Beamer, 2 females; taken by J. M. Bruer, 3 males; Taken by Robert Guntert, 1 female.

Missouri: Taken by J. F. Abbott, 2 females.

Arkansas: Taken by H. H. Schwardt, 5 males, 9 females.

Ohio: Taken by J. L. Lipovsky, 1 male.

Maryland: Taken by P. W. Oman, 1 male, 3 females.

Notes: This species is very closely related to R. quadridentata Stal and shows some affinity to R. australis Hungerford.

We have also studied one male from Kansas taken by R. H. Beamer and a female from Louisana taken by Percy Viosca, in the Francis Huntington Snow Entomological Collections, which are placed under R. fusca sub sp. edentula Mont. There is no indication of a subapical tooth on the anterior femur. In the male specimen the metaxyphus is similar to that of R. fusca
P. B. while in the female specimen it approaches that of *R. australis* Hungerford. In both specimens the jugae are less prominent than the tylus.
The original description is in French. The translation follows:

Very close in form to *R. macrophthalmalma* H. S. and *R. robusta* Mont'd, with almost the same metasternal plaque prolonged into a point at the back in the middle between the posterior coxae allowing to be seen at its end a small part of the first abdominal segment rather strongly raised; this plaque rather slightly raised on its median longitudinal line which appears vaguely and very obtusely with carina at least on its posterior half, and on its terminal process consequently less flattened than in the other 2 species. With same very elongate tarsi, posterior femora reaching end of abdomen especially in the males; a little shorter in the females. The anterior femure thinned with a single median tooth situated visibly in front of the middle of femur. The same coria with the extremity of membrane covering the base of the abdominal segment. This new form is separated abruptly from *R. macrophthalmalma* H. S. and *R. robusta* Mont'd by the shape of its head proportionately a little narrower, with eyes a little less robust but still very perceptibly wider than interocular space which is perceptibly narrowed, and by the very great length of the pronotum almost
as long on the lateral sides as anterior femur and almost 4 times its greatest width on the posterior part. The pronotum is almost cylindrical on its anterior three-fourths. The posterior part of abdomen is moreover less strongly dilated.

Its appendages are also more elongate than in R. Macrophthalma H. S. and R. Robusta Mont'd; a little longer than length of the body. The female genital operculum rather strongly arched and carinate on its top, more sharpened at the top than that of males but not surpassing the end of the abdomen.

Length of body: 44-47 mm.; appendages 52-5 mm.

Distribution: Corrientes.

Specimens in Senckenberg Museum, Frankfurt, and in my collection. It is with well known obligenance of Mr. Heydin to whom I am indebted for the communication of this species as very feeble gratitude.

The following structural characteristics are added from a study of 7 male and 7 female specimens, including one male R. heydeni Mont., determined by Doctor De Carlo.

The width of one eye is subequal to one and one-half times the width of the interocular space. Jugae are slightly divergent, not closely appressed to the tylus, being separated from the tylus, by a prominent fissure. Tylus and jugae extending a short distance in front of the anterior margin of the eyes and terminating abruptly, posteriorly, leaving a shallow transverse indentation between tylus and vertex. The median longitudinal
length of pronotum is three and one-half times the posterior width of pronotum (Doctor Montandon must have used lateral length of pronotum). The length of the anterior femur of the largest specimen is 15 mm, which is slightly greater than the lateral length of prothorax. Length of anterior coxa 10.4 mm.

Distribution: We have studied the following specimens in the Francis Huntington Snow Entomological Collections: 1 male from Villa Rica, Paraguay, Oct., 1939 (F. Schade); 4 males and 5 females from Molinesque, Paraguay, July 1, 1935 (F. Schade); 1 male and 1 female from Hape, Paraguay, Jan., 1925 (F. Schade); 1 male and 1 female from Villarica, Paraguay, Mar., 1931 (F. Schade).
Ranatra horvathi Montandon


Same size and very close to R. rabida White.

Distinguished from it by its eyes quite perceptibly smaller, equally a little transverse and scarcely wider than the vertex, by the anterior part of head more clearly prominent in front of eyes. The jugae surpassing only very slightly the anterior level of eyes and also scarcely shorter than the tylus. In R. horvathi Mont’d the very slender anterior femora are also proportionately more elongate; very distinctly longer than head and pronotum together. The appendages slender and longer than the body, especially in the females. In R. rabida, White the anterior femora are scarcely the length of the head and pronotum together and the appendages not longer than body. In the 2 species it is however almost the same proportions of the other parts. The pronotum is about half the length of the abdomen, the posterior tarsi long with the end of the femur surpassing a little the last abdominal suture; the same genital parts; not surrounded at their extremity in the males by the spineless end of connexivum. In the female the genital operculum is rather strongly arched but does not surpass the end of the abdomen under the base of appendages; the same coria
with the end of membrane covering the last abdominal suture as moreover in all the American species.

Metasternum raised very slightly, longitudinally on its median line; appears also to be advanced a little between the posterior coxae on the first abdominal segment which seems very raised.

Length of body: 28-32 mm.; appendages: 33-40 mm.

Distribution: Brazil, San Pablo.

This species appears intermediate between R. rabida B. White and R. signoretii Mont., but in the latter the eyes are still smaller and the tarsi perceptibly shorter.

Notes: Doctor Hungerford who has studied the type in Hungarian National Museum at Budapest states that the type is a female and adds the following structural characteristics: Length of body from tip of beak to tip of abdomen 34 mm.; length of respiratory appendages 41 mm. The width of one eye is greater than the width of interocular space. Jugae prominent, equal in height to tylus but not as long, although the elevated part of the tylus is only a little longer than the jugae. The tylus ends anteriorly in an obtuse angle. The width of head through the eyes 3.2 mm. The pronotum is slender. The length of the anterior portion of the pronotum compared to the length of the posterior portion is as 11 is to 5.5. Width of posterior portion of pronotum is equal to width of head through eyes. Anterior coxae long, extending over half the distance of the mesosternum to
the mesocoxal elevations. The mesocoxal elevations are more protuberant than the mesosternum which seems quite straight with ventral line of prosternum. The female genital operculum not extending beyond end of abdomen. Posterior femora reaching to posterior margin of penultimate abdominal segment. Measuring from middle of femoral tooth the distal portion of the anterior femur compared to the basal portion is as 7 2/3 is to 13 1/3.

There are no representatives of this species in the Francis Huntington Snow Entomological Collections. The illustrations of the antenna and anterior femur on plate figure were drawn from the type specimen by Dr. Hungerford.
Renatra hungerfordi Sp. n.

Size: Male: Length from tip of beak to tip of abdomen 40 to 44 mm.; length of respiratory appendages 32 to 37 mm. Female: Length 42 to 47 mm.; length of respiratory appendages 32 to 39 mm.

Color: In general a testaceous color but varying to a dark brown color.

Shape: A broad sturdy species with prominent eyes.

Structural characteristics: Head not extending prominently in front of eyes. Eyes large, transverse, transverse width greater than width of interocular space by one-third. Width of head through eyes 3.8 mm. Jugae almost as prominent as tylus, slightly divergent, separated from tylus by a broad fissure. Median length of pronotum 10.4 mm.; width of anterior portion 2.8 mm.; width of posterior portion 4.1 mm.; length of anterior portion 6.8 mm.; length of posterior portion 3.6 mm. a little more than twice the length of anterior portion. Length of pronotum is to the length of the rest of the body as 16.1 is to 43. Scutellum prominently convex on basal two-thirds; two prominent lateral declivities on posterior third. The respiratory appendages are fairly stout. Antenna large; penultimate segment with lateral prolongation subequal to the long ultimate segment. Anterior coxa 8.4 mm. in length a little less than two-thirds length of anterior femur which is 13.4 mm. Length from base of femur to base of femoral tooth 7.8 mm.
Femoral tooth moderately long and stout. Anterior tibia 4.5 mm. in length and slightly arched. Anterior tarsus long and slender. The two lateral sulci on prosternum joining each other before reaching posterior margin and having a prominent median carina between them on the anterior half. Meso-sternum prominently inflated and swollen. Posterior margin of metasternum developed into a long straight metaxyphus. Posterior femur sturdy, 21.5 mm. in length which is slightly greater than length of intermediate femur. Posterior tibia 27 mm. Posterior tarsus 3 mm. in length; slightly greater than intermediate tarsus. Posterior femora reaching beyond anterior margin of last abdominal segment in the males and to the anterior margin in the females. The female operculum extends prominently beyond end of abdomen.

Date on Distribution: Holotype male and allotype female from Villarrica, Paraguay taken by Fran. Schade. Also 5 male and 9 female paratypes from the same locality taken by the same collector; 1 male and 2 female paratypes from Peru, S. A. taken by F. Woytkowski. All types are in the Francis Huntington Snow Entomological Collections.

Notes: This species is closely related to R. braziliennis De Carlo. The anterior femur, genital clasper, and antenna are figured on Plate , figures
Ranatra insulata Barber


The original description follows:

Head and pronotum pale cinereous; narrow anterior part of the pronotum with a broad fuscous stripe along the side and two parallel narrower stripes along the side of the broader part; provided dorsally with small scattered spots, composed of short wax-like hairs. Hemelytra darker, more slate-grey, vaguely mottled with sordid-white; subcostal vein alternately banded with fuscous and sordid-white. Venter sordid-luteous. Legs lurid, faintly fuscous-mottled.

Head sparsely long-pilose, with the eyes slightly transverse, each subequal to the width of the vertex; tylius scarcely elevated above the jugae. Antenna with the lateral prolongation of the penultimate segment very nearly as long as the ultimate segment. Pronotum rather slender, distinctly constricted in the middle, the expanded anterior part much narrower than the width of the head across the eyes; anterior lobe along the median dorsal line nearly twice as long and at its narrowest point a little less than one-half as wide as the posterior lobe. Prosternum anteriorly with two distinct longitudinal grooves separated by a distinct carina. Anterior femur rather slender, the tooth placed nearer to apex than base, devoid of a preapical tooth. Metaxyphus reaching well beyond the middle
point of the hind coxae. Respiratory filaments 22.00-27.00 mm. long. The small preapical process of the paramere is distinctly curved and almost in contact apically with the terminal hook-like process.

Length of body: 35.00 mm.

Professor A. B. Hungerford, who has contributed so much to our knowledge of the aquatic forms, has examined specimens of this species and pronounced it new to science, and has compared it with his R. australis, to which it is closely related. This Porto Rican species differs from R. australis in the following respects: the juga is shorter, with the tylus more projected before these; the pronotum has much fewer and shorter wax-like hairs; the antenna has the lateral process of the penultimate segment nearly or quite as long as the ultimate one; the paramere has the pre-apical process more curved and almost in contact apically with the terminal hook-like process.

Type, male: Las Marias, Porto Rico, October 26, 1930 (S. T. Danforth). Paratypes, 7 males and 4 females: the same data. U. S. N. M. Cat. no. 51595.

Additional Notes: Length of anterior femur 10.1 mm.; length of basal portion 6.2 mm.; length of apical portion 3.9 mm. Lateral length of pronotum 3.4 mm. slightly less than length of anterior femur. Metaxyphus raised slightly above level of metacoxae and slightly arched.

Metathoracic femora reaching beyond false spiracles of penultimate abdominal segment.
Transverse width of head through eyes 2.7 mm., the width of one eye is slightly less than width of interocular space. Median dorsal longitudinal length of pronotum 9.1 mm. The Francis Huntington Snow Entomological Collections has one male paratype from Las Marius, P. R., Oct. 26, 1930 (S. T. Danforth); one male and one female bearing labels with the same locality data, and another male specimen from Mariam, Haiti, April 23, 1925 (W. A. Hoffman).

The anterior femur, genital clasper and antenna are figured on plate figs. respectively.
Ranatra *kirkaldyi* Bueno


Also referring to this species:


The original description follows:

"Abdominis dorsum oraculo brown; eyes small, not very prominent; prothorax much constricted at the middle, bisulcate, beneath; wings smoky; anterior femora broad, with a prominent tooth near the middle, otherwise smooth; posterior tarsi extending beyond the middle of the air-tube; air-tube shorter than the length of the abdomen; legs banded. Length from end of abdomen to tip of rostrum: Males 23 mm. to 26.4 mm.; females 27 to 31 mm."

Mr. Bueno also states, "I briefly give its salient characters, prior to a full description to be published
later". His complete description was never published; however, this species cannot be confused with any other North American Ranatra.

A redescription of *R. kirkaldyl* Bueno follows:

Size: Length of males, 23 to 28.5 mm.; length of respiratory appendages, 12 to 16 mm.; length of females 27 to 34 mm.; length of respiratory appendages, 14 to 19 mm.

Shape: The males are slender in shape with the females broader and more sturdy.

Color: The color varies from a light yellowish brown to a uniform dark brown.

Structural characteristics: Width of head through eyes 2.5 mm. The width of the interocular space one and one-third times the width of an eye. Tylus more prominent than jugae; jugae broadly rounded and slightly divergent. The jugae and tylus ending posteriorly just behind anterior margin of eyes. Vertex rounded and prominently elevated above the level of the eyes when seen in lateral view. The median longitudinal length of pronotum 6.2 mm.; posterior width of pronotum 2.4 mm., slightly less than width of head through eyes. Anterior margin of pronotum broadly rounded, posterior margin rather deeply and narrowly rounded. Transverse grooves of pronotum indistinct; length of anterior portion is slightly more than two times length of posterior portion. Scutellum raised, long and narrow.

Length of respiratory tubes distinctly less than length
than length of abdomen. The antenna is straight, penultimate segment does not have a lateral projection; the last segment smallest and sometimes fused with the second. The two lateral sulci of prosternum running to posterior margin without meeting. Metasternum not swollen or inflated so that it is almost on a line with prosternum and metasternum. Metaxyphus straight and ending at middle of metacoxae leaving a prominent portion of first abdominal segment exposed. The anterior femur 7.9 mm. in length; slightly more than the greatest lateral length of prothorax; not constricted in area of femoral tooth. Femoral tooth short and blunt, located slightly beyond middle of femur. Anterior coxa 5 mm. in length, a little less than two-thirds the length of anterior femur. Mesocoxae proximal, as close together as metacoxae. The posterior femora extending slightly beyond middle of penultimate segment. The female operculum does not extend beyond end of last abdominal segment. The anterior femur, antenna and genital clasper are figured on Plate IV, figures 3a, c and b respectively.

Data on distribution: The published record includes New York, N. Carolina, Florida, Kansas, S. Dakota, Illinois, Indiana and Michigan. We have studied the following in the Francis Huntington Snow Entomological Collections:

Virginia: Taken by R. H. Beamer, 2 males, 2 females; N. Carolina: Taken by R. W. Leiby, 1 male.

Georgia: Taken by R. H. Beamer, 4 males, 5 females;
taken by P. B. Lawson, 1 male; taken by P. W. Oman, 9 males, 7 females; taken by L. D. Tuthill, 2 males.

Kansas: Taken by Hungerford and Beamer, 3 males, 3 females; taken by R. H. Beamer, 23 males, 41 females.

Wisconsin: Taken by E. P. Breakey, 5 males, 6 females.

There is also in the Francis Huntington Snow Entomological Collections a series of specimens from Minnesota which are labeled *R. kirkaldyi var hoffmanni* Hungerford. This lot consisting of 3 males and 1 female taken by H. B. Hungerford and 8 females taken by W. E. Hoffmann, which bear holotype, allotype and paratype labels, and 2 males and 9 females without type labels are raised to subspecies rank. They are easily separated from *R. kirkaldyi* Bueno by the prominent subapical notch on the anterior femur. These specimens are not especially more robust and the anterior femur is not relatively thicker than *R. kirkaldyi* Bueno.
Ranatra lanei DeCarlo


The original description is in Spanish.

Ranatra lanei DeCarlo. Specimens observed--3 of both sexes. Males: Length of body 31-33.5 mm.; length of caudal appendages 30 mm.; female: Length of body 37 mm.; length of caudal appendages 30 mm.

Holotype: Male: Length of body 33.5 mm.; length of caudal appendages 28 mm.; color of body clear maroon, very pointed in the male beyond the posterior middle. Eyes of medium size; the width a little over, almost equal to the width of the interocular space; antennae as in fig. 18. Prothorax of medium size, the greatest length being along the lateral sides, 9.6 mm., a little less than the length of the anterior femur which is 11 mm.; posterior portion of prothorax is little dilated being 3 mm. at its maximum width, being a little over a third of the total length of the pronotum on the median line which measures 8.5 mm.; the thinnest portion of the prothorax a little constricted where the posterior third begins; length of the pronotum on the median line of the posterior portion of the pronotum at the transverse groove 3 mm.; a very little over half of the length of the thinnest portion that measures 5.5 mm.
Scutellum in the middle anterior, a little convex with smooth surface, depression very little marked and equally the carina is the same; pointed zone with some transverse grooves. Genital operculum in the female short, it does not pass the extremity of the abdomen, with the inferior edge a little curved, with long fine silky hair at the sides. You also find silky hair along the length of the respiratory appendages being thicker at the base. Claspers as in fig. 36.

Anterior femur long, robust, unidentate, with the superior portion that is in contact with the tooth a little constricted; the tooth is situated a little below the distal 1/3 of the femur. Intermediate and posterior tibiae with abundance of large and fine hair.

This species is very characteristic for its maroon color. It cannot be mistaken with R. sjostedii, Mont., because it has more robust femora and the posterior part of the body is more pointed; by the shape of the claspers, antennae and by the hair which lines the caudal appendages, intermediate and posterior tibiae.

Locality: Camp Bello, Rio de Janeiro, Brazil. Collected by Luderbald. Holotype and allotype in the Paulista museum; one male paratype in the Argentine museum of Natural Science—Catalogue No. 47166. The specimens were loaned to me by the distinguished Brazilian coleopterist Dr. Frederico Lane, chief of the Invertebrate section of the Paulista Museum in whose honor I dedicate this species.

Notes: No representatives of this species in the
Francis Huntington Snow Entomological Collections.
Ranatra lethierryi Montandon


The original description is in French. A translation follows:

It differs from R. annulipes Stal only by shorter legs; the end of the posterior femora almost reaching the middle of the fifth abdominal segment. The anterior femur with the same unique medial tooth but much less elongate, about one and one-fourth times the length of the coxa but very perceptibly shorter than half the length of the insect without the appendages which are absent from the specimen. The end of the pronotum almost the same shape, larger on its posterior third than the anterior third, and is much less elongate proportionally; its total length seen on the side is only about half the length of the abdomen. The female genital operculum is similar to R. annulipes Stal reaching just to the base of the respiratory appendages; with the same little median swelling out of the fifth abdominal segment near its end in front of the genital operculum. This species was described from a single female specimen.

Additional notes: Doctor Hungerford has studied the type specimen in the Paris Museum and has compared it with a male specimen from Matzatlan, Mexico. He adds the following notes: "It has a little shorter
pronotum and the pronotum is a little wider posteriorly than in the male specimen from Mexico. It has the same slender antennae, the same thin jugae and the same long high metaxyphus". He also adds the following structural characteristics: "The length of the anterior portion of the pronotum is as 11 is to 5 1/2 the length of the penultimate abdominal sternite is to the operculum as 2 1/2 is to 5 1/2."

Additional structural characteristics: In addition to the single male specimen which bears a "compared with type, H. E. Hungerford" label, there are three male and nine female specimens from Peru in the Francis Huntington Snow Entomological Collections which I place here. The following morphological characteristics will easily separate R. lethierryi Mont and R. annulipes Stal. The posterior portion of the prothorax widens out more prominently; the width of the base of the keel is much narrower; and the posterior lobe of the connexiva which envelopes the operculum in the males is not as prominent as in the case of R. annulipes Stal.

Data on distribution: The single female type is in the Paris Museum. The published record lists Sta.-Cruz, Mexico. We have studied one male specimen from Mazatlan, Mexico and three males and nine females from Peru, S. A. taken by F. Woytkowski. The antennae, genital clasper and a lateral view of the last abdominal segment of male are figured on Plate III, figures 6a and 6b respectively.
The original description is inadequate. The author’s figure of the head (Pl. 290, fig. K) shows the eyes to be almost two times the width of the interocular space. The author also gives its length as 3 inches and states that the respiratory tubes are as long as the body.

Doctor Montandon (Bull. Soc. Sci. Bucarest, xiv. p. 395) adds the following structural characteristics. "R. macrophthalma has the aspect of R. annulipes Stal having the same shaped pronotum and the same respective proportions, however its color is much darker; brownish to black even in the case of very clean specimens. It is distinguished easily by its much larger size which measures 39-41 mm. The eyes are much larger and the shape of the metasternal plaque is quite different; the metaxyphus prolonged posteriorly to end of metacoxae. The female genital operculum extends beyond the end of the abdomen under the base of the appendages. The
posterior femora almost reaching the end of the abdomen".

Additional notes: We have studied a male specimen in the Francis Huntington Snow Entomological Collections which Doctor Hungerford has compared with specimens identified by Montandon in the Stockholm, Paris and National Museum of Budapest, which he says is the same. This specimen has the following structural characteristics:

Length from tip of beak to tip of abdomen 39 mm.; length of respiratory appendages 38 mm. The greatest portion of the jugae and tylus is posterior to anterior margin of eyes. Jugae almost as prominent as tylus, divergent and separated from tylus by a broad deep fissure. There is a prominent fissure between anterior mesal margin of eye and jugae. The width of head through eyes is 3.8 mm. The width of one eye is almost two times the width of the interocular space. Vertex convex, not elevated above level of eyes when seen in lateral view. A transverse depression behind the tylus and jugae. The median length of pronotum 9.7 mm.; length of portion anterior to transverse groove 6.5 mm., length of portion posterior to transverse grooves 3.3 mm. The posterior width of pronotum equal to width of head through eyes. The scutellum slightly raised on basal two-thirds and having two lateral indistinct declivities on posterior third. The lateral projection of penultimate antennal segment a little shorter than ultimate segment. Length of anterior coxa 8.3 mm., length of anterior femur 12.8 mm.
which is perceptibly greater than lateral length of prothorax. The anterior tibia when folded against femur does not reach femoral tooth. The meso coxae are more widely separated than the metacoxae. Metaxyphus long and narrow, slightly arched posteriorly. (This does not extend to posterior margin of metacoxae). The posterior femora almost reaching end of last abdominal segment.

Data on distribution: The published record gives the following localities: French Guiana, Brazil, Bolivia and Venezuela. The single specimen in the Francis Huntington Snow Entomological Collections is from Surinam (Dutch Guiana). The anterior femur, genital clasper and antenna are figured on Plate respectively.
**Rana tra mculosa Sp. n.**

**Size:** Length of male from tip of beak to tip of abdomen 36 mm., length of respiratory appendages 20.5 to 24 mm., length of female 39 mm., of respiratory appendages 27.5 mm.

**Color:** A light brown to brown color with the legs a yellowish brown mottled with light brown.

**Shape:** A long, slender, narrow species with the transverse width through the eyes subequal to transverse width of posterior portion of pronotum and the posterior femora reaching the middle of the last abdominal segment.

**Structural characteristics:** The tylus and jugae not much advanced in front of eyes, the tylus slightly more advanced than jugae, the jugae slightly diverging and not closely appressed to tylus being separated by a shallow broad fissure. The transverse width of one eye greater than the width of interocular space. The vertex convex and elevated above the level of eyes when seen in lateral view. The anterior margin of pronotum appears doubly emarginate with the vertex inserted in the second emargination and the eyes in the first. The second emargination is broadly rounded and shallow. The anterior width of pronotum distinctly less than transverse width through eyes; the transverse width through eyes slightly less than posterior width of pronotum which is 3.2 mm. Median dorsal length of
pronotum 9.2 mm.; portion anterior to transverse grooves 6.1 mm., portion posterior to transverse grooves 3.1 mm. Scutellum convex on basal two-thirds and having a transverse groove on posterior third. Abdomen long and narrow with sides parallel for two-thirds of their length. The lateral prolongation of penultimate antennal segment almost as long as ultimate segment. The two sulci on prosternum are prominent anteriorly but gradually fade out on posterior third. The anterior coxa 7.1 mm. in length. The anterior femur is 10.5 mm. in length and equal to lateral length of prothorax; length from base of femur to base of femoral tooth 6.2 mm., of apical portion 4.3 mm.; rather long and sharp. The anterior tibia does not reach to femoral tooth when folded against femur. The anterior tarsus blade-like and rather short. The mesosternum swollen and inflated. The mesocoxae more widely separated than the metacoxae. The intermediate femora extend to and slightly beyond false spiracles of penultimate abdominal segment; posterior femora reaching slightly beyond middle of last abdominal segment. The intermediate femur 16.5 mm. in length; the posterior femur 18 mm. In most of the specimens the posterior tarsus will extend to end of respiratory appendages when hind leg is extended posteriorly. The metaxyphus is narrow, straight and not raised to level of hindcoxae, and extends posteriorly between metacoxae well
beyond middle of coxae leaving a small portion of the first abdominal segment exposed. The genital clasper with a very prominent and sharp subapical tooth.

In the female the intermediate femora do not reach the false spiracles of the penultimate abdominal segment and the posterior femora do not quite reach to the anterior margin of the last abdominal segment. The female genital operculum extends beyond the end of the genital segment by slightly more than one-fourth of its length.

Data on distribution: Holotype male, allotype female and 13 male and 9 female paratypes, all from Rio Grande, Br. Honduras, C. A. taken by J. J. White. All in the Francis Huntington Snow Entomological Collections. Also 3 males and 7 females from same locality taken by the same collector.

Notes: This species is closely related to *R. obscura* Mont. but differs in the length of the posterior femora and the distinct genital clasper. The anterior femur, clasper and antenna are figured on Plate figures.
**Panatra magna** Sp. n.

**Size:** Male: Length from tip of beak to tip of abdomen, 46.5 to 53 mm.; length of respiratory appendages, 47.5 to 51.5 mm.; female 49 to 57.5 mm.; respiratory appendages 48 to 55.5 mm. Transverse width of head through eyes 4.4 mm.; greatest width of prothorax 4.7 mm.

**Color:** Light brown, darker brown along anterior margin of hemelytra, prothorax and anterior femora. Much lighter mottling on anterior femora and coxae.

**Shape:** An elongate sturdy shape.

**Structural characteristics:** Eyes large, transverse; transverse width of one eye; one-half times width of interocular space. Jugae slightly divergent, prominent and with several bristles, not closely appressed to tylius, being separated from it by a prominent fissure, not elevated as high as tylius as seen in lateral view. Vertex convex, a transverse constriction between tylius and vertex. Prothorax moderately stout, long. Median length of pronotum 13 mm., length of anterior portion 9.1 mm.; posterior portion 3.9 mm. The greatest width of posterior portion of pronotum more than two times the width of narrowest part at middle of prothorax. The length of the prothorax is to the length of the rest of the body as 20.8 is to 53. Scutellum convex, plain on basal two-thirds, two lateral declivities on anterior part of posterior third.
Respirtory appendages stout basally, a little shorter than length of the body. Anterior margin of pronotum broadly but not deeply emarginate with a transverse median elevation which is lightly depressed in its middle. Prosternum with two prominent sulci, separated by prominent median carina on anterior half; these fading out beyond middle. Anterior coxa 11.4 mm. long. Anterior femur 17 mm. long, slightly longer than greatest lateral length of prothorax which is 16 mm.; 11.3 mm. from base to middle of femoral tooth; femoral tooth, usual in size and shape; anterior femur without apical tooth or sinuosity and prominently constricted in region of femoral tooth. The anterior tibia when closed on the femur does not reach to the femoral tooth. Posterior femur 30 mm. long, posterior tibia 34 mm.; the posterior femora almost reaching end of last abdominal segment in males. Metaxyphus not arched nor as high as metacoxae. The female operculum extends under the appendages for about one-fourth of its length.

Data on distribution: Holotype male, allotype female and 5 male and 7 female paratypes from Mana-capuru, Brazil (Manaos Amaz.) taken by S. M. Klages. Also 8 male and 8 female paratypes from Rio Amazonas and Rio Purus regions Brazil, S. A. taken by A. M. Olalla and 4 males and 4 females from Sao Phelipe River taken by A. M. Olalla. All specimens in the
Francis Huntington Snow Entomological Collections.

Notes: This species is closely related to E. hungerfordi sp. n. but differs from it by its much greater length and the distinct genital clasper. The anterior femur, antenna and genital clasper are figured on Plate figures.
Ranatra mediana Montandon


A translation of the original description follows:

Form between R. macrophthalma H. S., R. mixta and R. obscura Montandon. The same size as the latter and the same female genital operculum, not surpassing the end of the abdomen. The operculum breaks off abruptly. The posterior femora much longer passing perceptibly the last suture of last abdominal segment; also much longer appendages, as long as the body. By the last character it is more like R. macrophthalma H. S. except for the much larger size of the latter it cannot be compared to it for in case of R. macrophthalma H. S. as in the case of R. mixta Montandon the female genital operculum passes perceptibly under the appendages. In case of R. mixta Mont'd. the appendages are also shorter than the abdomen. Moreover in the case of R. mediana Mont'd. the anterior femora are perceptibly longer than head and pronotum joined; that is, rather similar in form to those of the 3 species to which I have just compared it. Almost as elongate proportionately as in case of R. macrophthalma H. S. and perhaps relatively a little longer than in the case of R. mixta and R. obscura Mont'd. In the case of these 4 species the metasternum seems to be
constructed almost in the same fashion; sometimes slightly raised on its median line; prolonged in the plaque in the middle behind in a long process penetrating deeply between the posterior coxae. In all 4 species it is also the same head with very large eyes, a little transverse, the interocular space rather convex and perceptibly narrower than an eye. I relate for the time being to this form two male specimens from Surinam (National Museum of Hungary) which appear very identical in all the details except the anterior tibiae (femora?) which are a little thinner and proportionately a little less elongate although always visibly longer than the head and pronotum together.

Length of body: 27-28 mm.; appendages: 25-26 mm.

Additional notes: The original description is inadequate to delimit this species. We have not studied this form as this species is not represented in the Francis Huntington Snow Entomological Collections.
Ranatra mixta Montandon


A translation of the original description follows:

The same shape as R. obscura and R. macrophthalmalma H. S. with same head, eyes very large, wider than vertex. This last rather strongly convex between the eyes. The same rather elongate pronotum, a little longer than one half the length of the abdomen, rather strongly narrowed in the middle, posterior two-fifths moderately dilated, as wide in back as the head including the eyes. Same long hemelytra with the end of the membrane covering the last dorsal suture; same metasternum but much smaller than R. macrophthalmalma H. S. with appendages proportionately much shorter, scarcely three-fourths the length of abdomen, which makes it resemble much more R. obscura from which it differs however by a little larger stature, by longer tarsi, the anterior femora thin and very visibly longer than pronotum. The posterior femora also more elongate, almost as long as abdomen and by the female genital operculum surpassing very visibly behind the base of appendages.

Length of body of male: 29.5 mm.; of appendages: 22 mm.
Length of body of female: 37.5 mm.; appendages: 23.5 mm.

Distribution: French Guiana.

Additional notes: The original description is not adequate to delimit the species. We have not studied representatives of this species.
**Ranatra moderata Sp. n.**

**Size:** Length from tip of beak to tip of abdomen: 39.5 mm., appendages 25.5 mm.; length of female 41 mm., appendages 24 mm. greatest width across thorax 4 mm.; transverse width of head through eyes: 3.3 mm.

**Color:** Dark brown with yellowish mottlings on legs and light brown on head.

**Structural characteristics:** Body moderately stout. Width of head through eyes 2.9 mm. Eyes large, transverse, distinctly wider than interocular space, width of one eye one and one-third times width of interocular space. Jugae divergent and prominent, not elevated as high as tylus and with few bristles on lateral margin. The tylus usually dropping away abruptly anteriorly so as to form an obtuse angle rather than a curve. Prothorax moderately heavy; the width of the posterior portion equal to the transverse width of head through eyes. The length of the anterior portion is to the length of the posterior enlarged portion as 9 is to 5 measured on dorsal median line. The length of the prothorax is to the length of the rest of the body as 14 is to 40. Respiratory appendages rather stout and a little longer than half the length of the body. Antenna with lateral prolongation of penultimate segment about as long as ultimate segment. Anterior femora slightly more
than 10 mm. long, rather stout, without apical tooth or sinusinity, the femoral tooth small, stout and blunt. The tibia when closed on the femur does not reach to the femoral tooth. The length of the apical portion of anterior femur from apex to the middle of tooth is 4.3 mm. and of the basal portion 6 mm. The length of the anterior femur is slightly greater than the lateral length of the thorax. The posterior femur is 17.3 mm. long and just reaches the anterior margin of the last abdominal segment. The metaxyphus narrow and slightly elevated but not reaching the level of the metacoxae; it does not cover the entire first abdominal segment. The female operculum extends 1/9 of its length beyond the tip of the abdomen under the respiratory appendages.

Data on distribution: Holotype male and allotype female and 16 male and 17 female paratypes from Rio Purus Region, Brazil S. A., taken by A. M. Olalla. Also 31 males and 11 females from Vic. Santo Antonio River Brazil, taken by A. M. Olalla; 29 males, 28 females from Vic Joao Pessoa (Sao Phelipe) taken by A. M. Olalla.

All specimens in the Francis Huntington Snow Entomological Collections.

Notes: This species is close to R. obscura Mont. but differs by the absence of a subapical tooth on the genital clasper.
Ranatra montei De Carlo


A translation of the original Spanish description follows:

*Ranatra montei* De Carlo. Specimens observed: 1 female.

Length of body—42.5 mm.; length of the caudal appendages—27 mm. Eyes of medium size, the width equal to half the width of the interocular space. Antenna as in figure 27.

Prothorax long, the greatest length being along the lateral sides 12.7 mm., a little less than the anterior femur which is 14.5 mm., posterior portion of prothorax very dilated with respect to the anterior and is visibly constricted in the posterior middle; the maximum width measuring 4.3 mm.; a little more than a third of the total length measured on the dorsal median line which is 11 mm. Length on median line of the posterior portion of the pronotum to the transverse groove 3.5 mm., slightly less than half the length of the thin portion which measures 7.5 mm.

Scutellum in the anterior middle with some wrinkles on the sides and visibly elevated with respect to the posterior half, depression without carina with a few transverse grooves that are also observed in the pointed zone.

Female genital operculum long, surpassing greatly
the extremity of the abdomen with its ventral margin
slightly curved narrowing markedly in a great portion
of the free extremity.

Anterior femur notably long, robust, unidentate
with the dorsal portion which is in contact with the
tooth slightly constricted. Interior margin and the
dorsal extremity with a well marked tooth forming at
the ventral extremity a slight point; tooth situated
a little below where the distal third of the femur
starts. Intermediate and posterior femurs without
spines—completely smooth. Figure—61.

This species cannot be confused with *R. unidentata*
Stal for the (second tooth) that it has at the dorsal
extremity of the internal margin of the anterior femur,
and for these also being more robust and a little
longer. Also for the characteristic form of the an-
tenna, the genital operculum and the caudal appendages
which are shorter than *unidentata.*

Locality: Minas, Brazil. Was captured and
donated to the museum by the distinguished Brazilian
hemipterist Dr. Oscar Monte to whom I have the honor of
dedicating this species.

Holotype: Only specimen known in the Argentine

Additional notes: We have not studied this species.
No representatives of this species in the Francis Hunting-
ton Snow Entomological Collections,
Renatra neiva De Carlo


The original description is in Spanish. A translation follows:

Renatra neiva De Carlo. 3 specimens observed; both sexes represented.

Females: Length of body 37-37.5 mm.; length of the caudal appendages 25-26.8 mm.

Male: Holotype: Length of body 35.8 mm.; length of the caudal appendages 24 mm. Eyes of medium size, the width slightly greater than half the width of the interocular space; antennae as in figure 28.

Prothorax of medium size being the greatest along the lateral sides 10.5 mm., slightly less than the anterior femur which is 12 mm. Posterior portion of prothorax moderately dilated, the maximum width measures 3.5 mm. slightly more than a third of the total length measured on the median line which is 9.3 mm. Thin portion of prothorax slightly constricted where the posterior third starts, length on the median line of the portion of the posterior third starts, length on the median line of the portion of the posterior pronotum to the transverse grooves 3.4 mm. slightly greater than half the length of the thin portion that measures 5.9 mm.

Scutellum on the anterior half with smooth surface; lateral depressions on posterior half and the median
carina which separates them lightly marked; pointed zone with a few transverse grooves; genital operculum long, surpassing in a marked form the extremity of the abdomen with its ventral margin slightly curved narrowing for a great portion of the free extremities.

Anterior femur of medium length, robust unidentate with the dorsal portion which is in contact with the tooth slightly constricted. Tooth situated a little below where the distal third of the femur starts. Femora of the second and third pair of legs without spines, completely smooth.

This species is differentiated especially from R. montei De Carlo by not showing the sub tooth at the extremity and the superior part of the internal margin of the anterior femur, for the so different form of the antenna and prothorax.

Locality: San Pablo, Brazil. The 3 specimens examined are from the same locality.

Holotype and Allotype in the Paulista Museum. One paratype in Argentine Museum of Natural Science Catalogue #47540.

The specimens were furnished by Dr. Fredrico Lane.

Additional notes: We have studied two male and four female specimens of this species in the Francis Huntington Snow Entomological Collections from Sao Paulo, Brazil, March, 1936 (A. M. Olalla).
These specimens are a little longer; the male being 37.5 mm. with respiratory tubes 28 mm.; females being 42.5 mm. in length with respiratory tubes 32 mm. The male genital claspers are identical.
**Ranatra nigra** Herrich-Schaeffer

1853. *R. nigra* Herrich-Schaeffer, G. A. W., Wenz. Ins., ix, p. 32, pl. ccxc, fig. L.


Also referring to this species:


The original description is inadequate. The author gives the length from the tip of beak to tip of respiratory tube as being 2 to 2 1/8 inches. The respiratory tubes not much more than half the length of the body and the eyes more advanced and therefore the vertex broader. The locality given is "Aus
Noramerika". Doctor Hungerford has very adequately described and delimited this species and completed the synonymy.

A redescription follows:

Size: Length of male from tip of beak to tip of abdomen 30 to 33 mm.; length of respiratory appendages 19.5 mm. Female: 34 mm.; length of respiratory appendages 22.5 mm.

Color: Varies from a very light yellowish-brown to a dark brown.

Shape: Elongate, narrow species.

Structural characteristics: Width of head through eyes 2.9 mm. Width of interocular space slightly greater than width of eye. Tylus more prominent than jugae. Jugae extending prominently in front of anterior margin of eye, slightly divergent, closely appressed to tylus. Vertex convex. Anterior margin of pronotum very weakly emarginate; posterior margin broadly and roundly emarginate. Median longitudinal length of pronotum 8.1 mm.; median length of portion anterior to transverse groove 2.4 mm. Posterior width of prothorax 2.4 mm. which is a little less than anterior width of head through eye. Median length of scutellum distinctly greater than width at base, basal two-thirds slightly raised, two prominent lateral depressions anterior to the posterior third. The antenna with lateral prolongation of penultimate segment less than half the

length of ultimate segment. Length of anterior coxa 6.6 mm. Length of anterior femur 10.4 mm, which is distinctly greater than the greatest lateral length of the prothorax. The lateral longitudinal sulci of prosternum rather indistinct. Posterior portion of prosternum and mesosternum very little developed. Mesocoxae proximal as close together as metacoxae. The meso- and metacoxae having a slight tubercle on mesal side. The posterior femur 16.9 mm. in length, slightly greater than intermediate femur. The posterior tibia 21.1 mm., slightly greater than the intermediate tibia. Posterior tarsus 2.4 mm. equal to the length of the intermediate tarsus. Intermediate femora almost reaching the posterior margin of the penultimate abdominal segment. Metaxyphus straight, rather short, leaving a large portion of the first abdominal segment exposed. Female operculum extending a little beyond the end of the body.

Data on distribution: The published record gives the following localities: New York, North Carolina, Florida, Louisiana, Minnesota, Illinois and Indiana. We have studied specimens in the Francis Huntington Snow Entomological Collections from the following localities:

Florida: Taken by J. D. Beamer, 4 females; taken by C. J. Drake, 2 males; taken by P. W. Oman, 1 female.

Georgia: Taken by R. H. Beamer, 14 males, 8 females.
Alabama: Taken by R. O. Christenson, 1 male, 1 female.

Texas: Taken by J. D. Beamer, 2 males; taken by L. D. Beamer, 1 male; taken by R. H. Beamer, 4 males.

Kansas: Taken by R. H. Beamer, 12 males, 7 females; taken by W. J. Brown, 3 males, 6 females; taken by M. Bruer, 6 males, 2 females; taken by Robert Guntart, 4 males, 4 females.

Minnesota: Taken by W. E. Hoffmann, 3 males, 1 female; taken by H. B. Hungerford, 14 males, 5 females.

Indiana: Taken by Charles O. Deam, 1 male.

Tennessee: Taken by L. C. Kuitert, 1 female; taken by J. O. Nottingham, 2 males, 1 female; taken by P. W. Oman, 3 males, 4 females.

Notes: The anterior femur, genital clasper, and antenna figured on Plate IV, figures 1a, 1b, 1c respectively.
Ranatra obscura Montandon


The original description is in French. A translation follows:

Generally a dark color, dull somewhat like **R. macro-phthalma** H. S. of which it has similar form but is smaller and the respiratory appendages are much shorter.

The head is with large eyes which are a little transverse and much wider than the interocular space which is very narrow, vertex slightly convex; jugae divergent in front, scarcely a little shorter than the tylus, surpassing very feebly the anterior margin of the eyes.

Pronotum narrower in front than the width of the head; very narrow on its middle with a little less than posterior two-fifths moderately dilated; as large at the shoulders as the head including the eyes; its length rather developed, scarcely a little more than half the length of abdomen.

Hemelytra well developed with the end of the membrane covering the last dorsal suture. Respiratory appendages short, about the length of abdomen. Posterior
tarsus rather short and thin; the anterior coxa a little shorter than the longest length of pronotum; the anterior femur with the medial tooth of most American species, scarcely a little longer than the pronotum. Posterior femur little elongate, scarcely reaching the middle of the penultimate segment of abdomen in the case of the females and not reaching the end of the fifth segment in the case of the males. Metasternal plaque resembling *R. macropthalmus* H. S. very much either not or very feebly raised on its medial longitudinal line; posterior margin of metasternum prolonged into a rather long, straight, very narrow metaxyphus advancing up to the middle of the posterior coxae, above the first abdominal segment which one notices between the posterior coxae.

Female genital operculum strongly arched on the top, scarcely surpassing the end of last abdominal segment with the preceding abdominal segment feebly enlarged, rounded on its longitudinal carina.

Length of body: 20-35 mm.; respiratory appendages: 20-25 mm. Two out of a series of 30 have longer respiratory appendages (30 mm.).

Distribution: French Guiana.

It is distinguished from *R. annulipes* Stal by its different metasternum having a plaque which is not raised.

The tarsi are shorter as in the case of *R. lethierryi*
Mont. It is also smaller, darker, and not shining; its eyes a little larger proportionately and in spite of its resemblance in appearance with *R. macrophthalmma* H. S. one could not put the two together. The difference in stature is too great and *R. obscura* Mont. is distinguished from it moreover by the length of the tarsi and by appendages proportionally smaller.

Additional notes: We have studied 3 specimens of this species. Two specimens, a male and female, from Paris Museum bear type labels. Another female specimen bears a "compared with type, H. B. Hungerford" label. To the above description can be added the following structural characteristics: Jugae not closely appressed to tyulus, tyulus ending anteriorly in an obtuse angle, Vertex convex. A light transverse depression posterior to jugae and tyulus. Width of head through eyes 2.9 mm., width of one eye a little more than one and one-third times the width of the interocular space. Anterior margin of pronotum broadly but not deeply emarginate, posterior margin deeply emarginate. Median longitudinal length of pronotum 7.8 mm., length of anterior portion is two times the length of posterior portion. Antenna weak, lateral prolongation of penultimate segment almost as long as ultimate segment. Length of anterior coxa 5.8 mm., which is distinctly less than greatest lateral length of prothorax. Length of anterior femur 9 mm., which is equal to the greatest lateral length of pro-
thorax. The prosternum has a prominent median longitudinal carina on anterior half in the case of the females, not so prominent in the males. The female operculum extends beyond the end of the abdomen for one-fifth of its length. The mesocoxae more widely separated than metacoxae.

Data on distribution: The published record gives the following localities: French Guiana, Brazil. The male and female type specimens from the Paris Museum are from French Guiana, taken by F. Geay. The female specimen compared with type is from Dutch Guiana.

Notes: This species is close to *R. macrophthalmalma* H. S. The genital claspers are very different. The anterior femur, genital clasper and antenna are figured on Plate figures respectively.
Ranatra oliveira--cesari De Carlo


A translation of the original Spanish description follows:

*Ranatra oliveira-cesari* De Carlo. Specimen observed--one female.

Length of body--31 mm.; length of caudal appendages 21 mm.

Eyes of medium size; the width a little greater than half of the interocular space.

Prothorax large, being of greatest length along the lateral sides, 9.3 mm.; a little less than the length of the anterior femora which are 10 mm.; posterior portion of the prothorax slightly dilated, the maximum width measuring 2.8 mm.; a little more than a third of the total length on the dorsal median line which measures 8 mm.; thin portion of prothorax lightly constricted in the middle zone. Median length of the posterior portion of the pronotum 2.5 mm.; slightly less than half the length of the thin portion which measures 5.5 mm.

Scutellum on the anterior middle slightly convex with an almost smooth surface, depression slightly marked and equally the carina that is in the same; pointed zone without transverse grooves.

Female genital operculum short, not surpassing
the extremity of the abdomen, with the ventral margin slightly curved with long, fine silky hair at the sides. There are also silky hairs along all the length of the caudal appendages being thickest at the base.

Anterior femur of medium size, robust unidentate with the dorsal portion that is in contact with the tooth slightly constricted; tooth situated a little below where the distal third of the femur starts. Intermediate and posterior femora with spines on the lower middle side, posterior legs with long and fine hair on the femur and tibia.

This species is very characteristic for the hairs on the abdomen and genital operculum, caudal appendages and posterior legs; also for the spines that are found on the intermediate and posterior femurs. It cannot be mistaken for *R. rabida* White for having shorter caudal appendages, smaller eyes, thicker anterior femurs and for its characteristics described previously; neither with *R. obscura* Mont. for this species has longer caudal appendages, also longer and thinner anterior femora, larger eyes.

**Locality**: Mato Grosso, Brazil. Was captured and donated to the Museum by Mr. Eduardo de Oliveira-Cesar to whom I dedicate this species.

**Holotype**: Only known specimen in the Argentine Museum of Natural Sciences, Catalogue #47169.

**Additional notes**: We have not studied this species.
No representatives of this species in the Francis Huntington Snow Entomological Collections.
*Renatra operculata* Sp. n.

Size: Length from tip of beak to tip of abdomen of male, 32.5 mm.; of female 39.0 mm.; appendages of male 17.5 mm.; of female 19.5 to 22.5 mm. Width of head through eyes, 2.5 mm. Width of thorax 2.8 mm.

Color: Generally testaceous with darker mottlings on the legs and dorsally, prosternum and anterior coxae brownish.

Structural characteristics: Body slender and moderately elongate. Width of interocular space almost one and one-third times the width of eye. Jugae extending prominently in front of eyes; slightly divergent, not reaching level of tylius. Prothorax slender, median length 8.1 mm., width of anterior portion less than transverse width of the head through eyes; the length of the anterior portion to the length of the posterior swollen portion is as 3 is to 4, width of posterior portion 2.8 mm. Length of prothorax to abdomen is as 12 is to 33. Respiratory appendages rather short being greater than half the length of abdomen but distinctly less than length. Antenna with lateral prolongation of penultimate segment smaller and shorter than ultimate segment; sometimes about half the length of ultimate segment. Anterior femur rather stout, 9 mm. long; femoral tooth sharp, slight sinuosity preapically; tibia when folded back on femur does not reach to femoral tooth. Anterior coxa 6 mm. long,
two-thirds length of femur. Mesocoxae proximal as close together as metacoxa. Posterior femur 14 mm., tibia 17 mm. Intermediate femur 13.2 mm. Posterior femora not reaching to anterior margin of last abdominal segment. Posterior and intermediate tarsi subequal. Metaxyphus with needle-like ending leaving part of the first abdominal segment exposed.

Data on distribution: Holotype male, allotype female and 7 male and 11 female paratypes in the Francis Huntington Snow Entomological Collections. The holotype and allotype from Zacapu, Michoacan, Mexico, taken by H. D. Thomas. The paratypes from the following localities:

Mexico: Jalisco, taken by H. D. Thomas 4 males, 2 females; Zacapu, taken by H. D. Thomas 2 females; Chiapas, taken by H. D. Thomas 1 male, 2 females; Tejupilco, taken by H. E. Hinton 3 males, 2 females; Tejupilco, taken by R. L. Usinger, 1 female; Nueva Leon, taken by Creaser-Gordon, 1 female.

Notes: This species resembles R. nigra H. S. The operculum of the female extends one-third of its length beyond the base of the respiratory appendages. The anterior femora are not as long and slender and the antenna has the lateral prolongation of the penultimate segment longer than in R. nigra H. S. Also set off by the genital claspers. The jugae are more prominent in
this species than in *R. nigra* H. S. The connexiva show some widening on posterior half in some specimens, the anterior femur, genital clasper, and antenna are figured on Plate
Ranatra parvula Sp. n.

Size: Length from tip of beak to tip of abdomen of male 25.5 to 27 mm., appendages 27 to 29 mm.; of female 29 to 32.5 mm. long, appendages 31 to 34.5 mm. Transverse width of head through eyes 2.1 mm.

Color: General color a light brown. Prothorax darker both ventrally and dorsally and hemelytra darker than body.

Shape: Body slender.

Structural characteristics: Eyes transverse, transverse width of one eye slightly greater than width of interocular space. Jugae prominent, extending prominently in front of anterior margin of eyes, nearly reaching level of tylius. Jugae not closely appressed to tylius being separated from tylius by a prominent wide fissure. Prothorax slender, the width of the posterior portion 2.2 mm., slightly greater than the transverse width of head through eyes; the length of the anterior portion is to the length of the posterior swollen part as 6.6 is to 3.2 measured on the dorsal median line. The length of the prothorax is to the rest of the body as 9.8 is to 25. measured on dorsal median line. Scutellum slightly raised on basal two-thirds and having two light lateral depressions just anterior to posterior third. Respiratory appendages slender and about equal to or slightly longer than the length of
the body. Genital clasper with a sharp anteanepical tooth about half as long as the apical one. Antenna with lateral prolongation of penultimate segment smaller and shorter than the ultimate segment. Anterior femur 8.5 mm. long, slightly longer than prothorax measured along lateral line; femoral tooth small and blunt situated closer to apex than base, no preapical tooth or sinuosity. Anterior coxae 5.6 mm. long. Posterior femur 12.3 mm. long, posterior tibia 16 mm. long. Posterior and intermediate tarsi subequal in length (without claws).

Distribution and types: Holotype, allotype, and paratypes from Manacapuru, S. A., Amazonas, Brazil, Solimoes River, 6/26, S. M. Klages.

Notes: This is one of the smallest new world species. Prosternum having the lateral longitudinal sulci rather indistinct on posterior half. Mesocoxae proximal as close together as metacoxae. The metasternum not having the posterior margin produced into a metaxyphus which extends posteriorly between metacoxae. The female operculum not extending beyond posterior margin of abdomen.

Data on distribution: Holotype male, allotype female and 23 male and 16 female paratypes from Manacapuru, Brazil, S. A. taken by S. M. Klages in the Francis Huntington Snow Entomological Museum. Also 61 males and 77 females bearing the same label.

Additional notes: This species is close to
R. rabida White but differs from it by the shape of the metasternum and the genital clasper.
Ranatra pittieri Montandon


The original description is in French.

Narrow shape, very elongate, head with very prominent eyes, rather large, a little transverse and wider than the interocular space, the latter slightly convex without a trace of central tubercle, jugae very little prominent, slightly divergent and widely rounded in front, almost as long as tylius which surpasses them slightly. Pronotum very elongate, almost 4 times as long as wide behind, rather perceptibly narrowing toward the middle, its anterior dilation narrower than head including eyes. Posterior dilation not very strong and little elongate but very much more accentuated than the anterior dilation with a little longitudinal carina on each side on the posterior lateral angles. Scutellum narrow, a little longer than wide at the base and rather strongly convex on its basal half. Coria subparallel elongate with end of membrane covering last dorsal suture as in all Ranatra.

Abdomen narrow and long; two and a half times as long as head and pronotum. Appendages rather robust and perceptibly shorter than abdomen. Female genital operculum arched on its top and surpassing a little the end of abdomen under the base of appendages. Next to last abdominal segment, arched longitudinally on the top
of its posterior half. Tarsi rather long, anterior femur very slightly robust and a little shorter than head and pronotum together with a single median, lower, internal tooth. Without a tooth or sinuosity apparent toward the end. With feet pressed back the posterior tarsi come almost to extremity of appendages and the end of posterior femur almost reaches the last abdominal suture. Metasternal plaque a little raised on the longitudinal median line, rather prolonged behind between the posterior coxae.

Length of body: 38.5 to 40 mm.

Distribution: Costa Rica, Rio Platanales.

This new form due to researches of Pittier is represented in my collection by 2 female specimens of a rather dark brown color with lighter blotches and incomplete rings on femora; it is characterized by its transverse eyes, much wider than vertex. Its very narrow and elongate form could perhaps show relationship with R. quadridentata var. Champ. but in the latter the eyes are globular not transverse, smaller and farther away from each other. The pronotum is less narrowed in the middle. The female genital operculum does not surpass the end of abdomen and anterior femora are dentate near their top with the tarsi very perceptibly less developed. I had hesitated a long time before deciding to describe this last form received several years ago because I supposed that it could belong to R. nigra H. S. but outside of
having more southern distribution than that attributed by H. S. to this last species it differs from it by its larger eyes, narrower vertex, and less elongate tarsi.

Notes: We have not studied this species. There are no representatives in the Francis Huntington Snow Entomological Collections. Types are supposed to be in Budapest Museum.
Ranatra quadridentata Stal


The original description is inadequate. The author mentions several color characters and the following delimiting characters: Length 33 to 36 mm., anterior femur bidentate and gives the locality as Mexico.

Doctor Hungerford has delimited this species and treated its synonymy(1). He has also studied the material in the Stockholm Museum and has made some useful notes which he very generously loaned to me for study. His notes state the following: "There are ten specimens under **R. quadridentata** Stal. One female bears a label Mexico, Salli **quadridentata** Stal and another label **R. quadridentata** Stal det. A. L. Montandon. There are also one male, one female and two nymphs taken by the same collector from the same locality. Also a male and female labeled Mexico, Boucard. Another specimen from Mexico labeled **R. quadridentata** Stal. det. Sjostedt.

Doctor Hungerford adds that all of above are one species. The last specimen is from Illinois and is *R. kirkaldyi* Bueno. Doctor Hungerford further states that it is quite impossible to say what is the type specimen but treats the first specimen which also bears a Montandon determination label as such and that in this specimen the apical anterior femoral teeth are two and are removed some little distance from the apex. In the males the teeth are not so marked as in the females and in the female the operculum just reaches to tip of abdomen.

A description of this species follows:

**Size:** Length of male from tip of beak to tip of abdomen 31 to 35 mm., length of respiratory appendages 21 to 23 mm.; length of female 35 to 42 mm., length of respiratory appendages 27 to 37 mm.

**Color:** A very light yellowish brown to a dark brown.

**Structural characteristics:** Tylus a little more prominent than jugae, jugae extending prominently in front of anterior margin of eyes, almost parallel and separated from tylus by a prominent fissure. Width of head through eyes 2.6 mm., width of interocular space a little less than one and one-half times the width of an eye. Vertex convex and prominently raised above the level of the eye when seen in lateral view. Anterior
margin of pronotum broadly and roundly emarginate. Median length of pronotum 8.3 mm., median length of portion anterior to transverse grooves 5.1 mm., median length of portion posterior to transverse grooves 3.2 mm. Posterior width of pronotum 3.3 mm. which is greater than width of head through eyes. Length of lateral prolongation of penultimate antennal segment a little less than length of ultimate segment. Length of anterior coxa 5.8 mm. Length of anterior femur 9.5 mm. which is equal to the lateral length of the pro-thorax; a subapical notch on anterior femur rather than a tooth. The anterior tibia 3.7 mm., hardly reaching the anterior margin of femoral tooth when folded against femur. The lateral longitudinal sulci of pro-sternum not prominent and not joining before the post-erior margin. The posterior portion of prosternum and the mesosternum moderately inflated and swollen. Mesocoxae more widely separated than metacoxae. Posterior margin of metasternum prolonged into a long, narrow, slightly arched metaxyphus. Metaxyphus elevated above level of metacoxae when seen in lateral view most of first abdominal segment. Length of intermediate femur 11.5 mm., length of posterior femur 12.7 mm. The posterior femora hardly reaching to middle of penultimate abdominal sternite. Female genital operculum just reaching to end of abdomen.
Data on distribution: The published record gives the following localities: Mexico, Arizona, Texas. We have studied the following in the Francis Huntington Snow Entomological Collection:

**Mexico:** Taken by Creaser-Gordon, 3 males; taken by H. D. Thomas, 148 males, 149 females.

**Arizona:** Taken by L. D. Anderson, 1 female; taken by R. H. Beamer, 15 males, 14 females; taken by P. A. Glick, 3 males, 5 females; taken by L. C. Kuitert, 2 males; taken by P. A. Readio, 7 males, 6 females; taken by F. H. Snow, 2 males.

**Texas:** Taken by E. I. Beamer, 1 male, 1 female; taken by J. D. Beamer, 1 male, 4 females; taken by R. H. Beamer, 17 males, 28 females; taken by A. M. James, 10 males, 16 females; taken by R. I. Sailer, 1 female; taken by J. G. Shaw, 7 males, 4 females; taken by L. D. Tuthill, 3 females; taken by Mrs. Grace Wiley, 1 male.

The collection also has a male specimen from N. Yucatan, taken by Gaumer; a male and a female from Yucatan, taken by E. P. Creaser and another female from Vera Cruz, taken by H. Smith. These have the same characteristics as *R. quadridentata* Stal but have very prominent subapical teeth on the anterior femur and the metaxyphus is more distinctly raised above the level of the metacoxae when seen in lateral view. We have called these *R. quadridentata* Stal guameri sub sp. n.
Ranatra rabida White


Also referring to this species:


The original description gives its length as being 27 mm., width 2.5 mm. Doctor Hungerford has compared a specimen bearing a number 28502 with some of the specimens in the Budapest Museum determined by Montandon. A description of this specimen follows:

Size: Length of male from tip of beak to tip of abdomen 27 mm., length of respiratory appendages 26 mm.

Shape: A thin narrow species.

Structural characteristics: Jugae and tylus not prominently extended in front of anterior margin of eyes. Tylus more prominent than jugae, jugae almost parallel and separated from tylus by a broad fissure. Vertex convex. Width of head through eyes 2.7 mm., width of one eye a little greater than width of interocular space. Median length of pronotum 6.7 mm., median length of portion anterior to transverse grooves 4.5 mm., length of portion posterior to transverse grooves 2.1 mm. Posterior width of pro-
notum 2.4 mm. which is a little less than width of head through eyes. Prothorax prominently contracted at middle. Scutellum lightly convex on basal half; two shallow lateral depressions a little posterior to basal half. The lateral prolongation of penultimate antennal segment slightly shorter than ultimate segment. Length of anterior coxa 5.1 mm., length of anterior femur 7.3 mm. The width of the portion of the anterior femur beyond femoral tooth distinctly less than width of basal portion of femur. The anterior tibia when folded against femur does not extend to anterior margin of femoral tooth. The lateral longitudinal sulci rather shallow on anterior portion of prosternum and becoming less distinct on posterior portion. The lateral sulci join just anterior to posterior margin of prosternum. The mesocoxae more widely separated than metacoxae. The posterior margin of metasternum prolonged into a narrow long metaxyphus which covers most of the first abdominal segment. The posterior femora just reaching the anterior margin of last abdominal segment.

Data on distribution: The published record gives the following locality: Brazil. We have studied the following in the Francis Huntington Snow Entomological Collection:

Brazil: The specimen described is from Corumba. Also
64 males and 73 females taken by A. M. Olalla from the Rio Purus and Vic. Santo Antonio Regions.

Notes: This species varies in size however all have the width of the portion of the anterior femur beyond the femoral tooth much narrower than the width of the basal portion.

We have also studied 2 males and 2 females taken by A. M. Olalla from the Sao Phelipe region, Brazil which have a prominent subapical notch or groove for which we propose the name *R. rabida* White *contracta* sub sp. n.
Ranatra robusta Montandon


A translation of the original description follows:

Eyes very large and protruding. Interocular space scarcely little more than half the transversal diameter of the eye. Jugae subparallel in front, slightly shorter than tylus. Pronotum scarcely more than 3 times as long on the sides as wide in back. Anterior coxae visibly shorter than pronotum; rather robust. Anterior femurs about 1 1/2 times the length of coxae, unidentate below a little beyond the middle on the internal side. The external side with a feeble or slight dilation very obtusely rounded a little behind the level of the tooth at the part reached by the end of the tarsi when the anterior tibia is folded against femur. Intermediate femura surpassing the head in front by more than a third of their length; a little shorter than posterior ones. These last reaching almost the end of the abdomen. The end of the membrane reaching the base of the last abdominal segment; membrane dark brown. Appendages shorter than the body, robust, visibly dilated near their base with long hairs, rare erected on the whole length of appendages. Metasternum in the plaque widened in front, rather abruptly narrowed in the back in front of the posterior coxae
between which it is prolonged in the back, in a point a little raised grooves on the sides, a little more advanced than the point of the medial carina up to the level of the middle of the posterior coxae, leaving uncovered the first abdominal segment on a line equal in length to the terminal process of the metasternum. This last segment very raised in front, strongly cintrate and falling rather abruptly on the next segment.

Length of body: 49 mm.; appendages: 46 mm.


Very near in form to R. macrophthalmalma H. S. which it resembles a great deal. This new species is distinguished by its larger size; its proportionately shorter pronotum and its more robust and less elongate anterior coxae; its stronger and shorter appendages visibly shorter than the body; by the form of the metasternum less high vanishing in front on the plaque of metasternum, appearing somewhat cintrate posteriorly in a profile view, less high than the posterior coxae. It is to be presumed that the specimens of 46 mm. assigned by Mayr to R. macrophthalmalma could belong to this new species.

Notes: We have not studied this species. No representatives in the Francis Huntington Snow Entomological Collections.
Ranatra segrega Montandon


A translation of the original description follows:

Form very elongate. Appendages very perceptibly shorter than abdomen, generally of gray color and ochraceous and clear. Head with rather large eyes, rather transverse, scarcely wider than interocular space. Width of head through eyes 2.9 mm. Vertex rather regularly swollen without a median tubercle. Jugae short but almost as long as tylius; subparallel, not converging in front, surpassing in all their length the anterior level of eyes. This length is visibly less than width of interocular space in front. Pronotum rather elongate; its greatest length on the side a little less than half as long as abdomen; rather longly narrowed on its median part, visibly but less dilated on its basal third, separated from the median part by a sunken transverse furrow, rather well accentuated. The anterior part scarcely and very narrowly widened, scutellum slightly convex, elytra very elongate with well developed membrane but cut very obtusely at its extremity which does not surpass the apical angle of the corium, surpassing slightly in back and consequently covering the last abdominal suture.

Female genital operculum not very sharp at the top but surpassing however in a rather perceptible fashion
the end of the abdomen under the base of the appendages. The latter rather robust and shortened, scarcely longer than half the length of the body with very fine long silk hairs on their complete length. These hairs are sometimes matted together against the appendages and then little distinct. Tarsus rather long but visibly shorter than pronotum. Anterior femur rather thin, appearing a little longer than the greatest length of pronotum seen on the side, with a single median tooth, rather prominent, situated on lower internal part a little beyond the middle to where the tarsus reaches when the tibia is folded against the femur. Metasternal plaque prolonged into a rather long point between the posterior coxae. Metaxyphus straight and not arched, leaving uncovered the posterior part of the first abdominal segment, which is rather raised and lowered abruptly on the second segment.

Length of body: 38 to 39 mm.; appendages, 22 mm.

Maximum width, 3.3 mm.

Distribution: Montevideo. Two female type specimens in my collection. Also found in Paris and Stockholm.

Additional structural characteristics: We have studied 2 males and 1 female from the Hamburg Museum. All of these specimens bear the following locality label: Buenos Aires, Dr. P. Frank, Sept. 15, 1910.

The length of the male, 36 to 37.5 mm., length of
respiratory appendages, 22 mm.; length of female, 39 mm.,
length of respiratory appendages, 23 mm. The width of
one eye is equal to the width of the interocular space.
Median length of pronotum 8.1 mm., the width of poster-
ior portion of pronotum slightly less than width of
head through eyes, lateral margins of prothorax sub-
parallel for half its length on the middle portion. The
lateral prolongation of the penultimate antennal segment
less than half the length of the ultimate segment. The
prosternum having a prominent median longitudinal carina
on its anterior two-thirds; prominent lateral sulci
which diminish posteriorly and end at posterior margin.
The mesocoxae are proximal. The intermediate femur
in length
subequal to posterior femur. Length of posterior femur,
16.5 mm., length of posterior tibia, 19.8 mm., distinctly
greater than length of its femur, the intermediate tarsus
is subequal to length of posterior tarsus. The respira-
tory appendages are rather stout and short being less
than the length of the abdomen. The female operculum
extends beyond end of body for about one-fifth of its
length.

Notes: This species is placed with the other
species having the lateral prolongation of the penultimate
antennal segment less than half the length of the
ultimate segment. The anterior femur, genital clasper
and antenna are figured on Plate IV, figures 6a, 6b and
6c respectively.
Ranatrea signoretii Montandon


A translation of the original description follows:

Thin, generally pale yellow, tarsi and appendages long and thin. Head small, scarcely wider through eyes than the anterior dilated part of pronotum. Eyes globular, very feebly transverse. Interocular space rather convex, little wider than an eye. Pronotum scarcely dilated in front, the anterior side without noticeable ridge. Very narrow up to the middle with an outstanding transverse furrow. The anterior part appearing as if laterally sunken in front of the transverse groove which is situated three-fifths of the length of the prothorax from the anterior margin.

Posterior dilation appearing progressively from a little in front of transversal groove up to the humeral angles. Scutellum elongate with a slight transversal depression in front of the top which appears slightly carinate.

Long hemelytra, membrane well developed covering entirely the base of the last abdominal segment and leaving uncovered a little more than the apical three-fourths of the last abdominal segment.
Appendages long and thin, pale yellow, longer than body. Anterior coxa long and thin, almost as long as pronotum, about two-thirds the length of the femur; anterior femur equally thin, with a single sharp tooth on the lower internal side situated very perceptibly beyond the middle of the femur. In the lower external side there is also a small very obtuse dilation situated a little nearer the middle. At the end of the femur the sides of the furrow, in which the tibia is lodged, are visibly but obtusely situated; without apparent teeth. Anterior tibia short and thin, without the tarsus it is scarcely one-third the length of femur. The intermediate and posterior legs subequal, thin, appearing sometimes with vague and wide rings a little browned toward the end of the femur. The end of posterior femora not completely reaching the base of the penultimate abdominal segment. Transparent wings with yellow veins, brownish in places. The back of the abdomen reddish; a little brownish on the last two segments. Prosternum widely but rather superficially sulcate behind the anterior coxae. These depressions reaching only up to the middle of prosternum. One could justly say that the prosternum is somewhat flattened behind the anterior coxae and feebly carinate longitudinally in the middle on its anterior half. The metasternum in an irregular hexagonal plaque. Usually
the mesosternal plaque is marked by a transversal depression in front of the posterior coxae and the posterior part a little raised is also slightly longitudinally carinate.

Length of body: 29 to 34 mm.; appendages: 34 to 43 mm.

Maximum width: 3 mm.


This species has been widely distributed in the collection by the Standinger house. I have found a specimen which had a label of the unedited R. signoretii which I keep for it. It differs from all the other American species by the form of its pronotum and still more by its small head and thin appendages which make it distinguishable at first sight.

Additional notes: Doctor Montandon(1) reported that it was by error that he stated that the end of the posterior femora did not reach the base of the last abdominal segment and added that the posterior femora extend slightly beyond the base of the last abdominal segment in the males and surpass slightly the base of the penultimate abdominal segment in the females. We have studied a male specimen, number 28507, from Argentina, S. A. which Doctor Hungerford has compared with the ootypes in the Stockholm Museum and with

specimens identified by Montandon in the Paris Museum. He states that the genital claspers show them to be identical. This specimen has the jugae closely appressed to tylus, the width of the interocular space slightly greater than the width of an eye and the posterior margin of the metasternum although being convex is not prolonged into a metaxyphus.

Data on distribution: The published record gives the following localities: Brazil, Venezuela. The Francis Huntington Snow Entomological Collection has specimens from the following localities:

- **Argentina:** Taken by McKinley Warren's boy, 1 male.
- **Paraguay:** Taken by F. Schade, 1 female.
- **Brazil:** Taken by H. Keerekoper, 1 male, 3 females.

The anterior femur, genital clasper and antenna
Ranatra sjostedti Montandon


Also referring to this species:

Doctor Hungerford in comparing the type of R. sjostedti Mont. and R. signoreti Mont. makes the following statement in his notes: "The jugae of R. sjostedti Mont. are distinct, prominent and hairy, also divergent instead of sloping convergently".

We have studied 4 males and 7 females from Argentina which have all of the salient characteristics of R. signoreti Mont. but can be easily separated from it by this characteristic. A description of a male specimen follows: Length from tip of beak to tip of abdomen 29 mm., length of respiratory appendages 23 mm. A narrow elongate shape. The width of the head through eyes 2.5 mm., width of one eye slightly greater than width of interocular space. Jugae prominent and divergent, not closely appressed to tylus being separated from it by a prominent fissure. Median length of pronotum 7 mm., length of portion anterior to transverse grooves 4.5 mm., length of portion posterior to transverse grooves 2.3 mm. Width of posterior portion of pronotum 2.5 mm. which is equal
to width of head through eyes. Scutellum lightly convex on basal two-thirds, a shallow median depression where posterior third starts. The lateral prolongation of the penultimate antennal segment subequal to length of ultimate segment. Length of anterior coxa 5.2 mm. Length of anterior femur 8.4 mm. which is slightly longer than the greatest lateral length of prothorax. The femoral tooth is moderately long and sharp. Lateral longitudinal sulci of prosternum prominent to posterior margin; median longitudinal carina little distinct. Mesocoxae more widely separated than metacoxae. Posterior margin of metasternum produced into a long straight metaxyphus which extends slightly beyond middle of metacoxae. The genital clasper is wide basally and has a long thin neck and a short sharp subapical tooth.

Data on distribution: The published record gives the following localities: Argentina, Uruguay. We have studied specimens from the following localities: Argentina: Taken by McKinley Warren's boy, 1 male, 2 females; taken by E. R. Wagner, 2 males and 6 females.

Notes: This species is distinguished from R. signoreti Mont. by the width of the eye being slightly greater than width of interocular space and by the posterior margin of the metasternum being produced posteriorly in a metaxyphus.
Ranatra spatulata Sp. n.

Size: Male: Length from tip of beak to tip of abdomen 37 mm.; length of respiratory appendages 43.5 mm.; width of posterior portion of pronotum 3.8 mm.

Color: This specimen is yellowish brown; with head, anterior portion of pronotum, median portion of mesosternum, lateral portions of abdominal sternites and apical portions of intermediate and posterior femora a dark brown.

Shape: A rather slender species with posterior portion of prothorax broad and pronotum prominently contracted at middle, hemelytra short only reaching to middle of penultimate abdominal segment, abdomen ending in a point, long slender respiratory appendages and long thin posterior femora which almost reach the posterior end of the last abdominal segment.

Structural characteristics: The eyes are prominent, globular, almost spherical and one-third wider than the width of the interoculare space, black with three light brownish transverse wavy lines and a narrow band of the same color on median margin of eye. Jugae prominent, raised above level of tylus posteriorly, slightly divergent and having a few scattered hairs, a rather prominent fissure separating jugae from anterior mesal margin of eyes. Vertex convex, not extending appreciably beyond posterior margin of
eyes. Anterior portion of pronotum slender, transverse width a little greater than half the width of posterior part; anterior portion a light brown color while posterior portion is nearly yellow; median length of anterior portion is a little less than twice the median length of posterior part (9.2 to 5.2). The transverse grooves slightly visible, almost indistinct. Anterior margin of pronotum an angular shape, weakly emarginate; posterior margin broadly but not deeply emarginate. Scutellum a little longer than wide at base, basal two-thirds convex and raised, a prominent transverse depression just before posterior third, apex ending in acute-angled point. Antenna with lateral prolongation of penultimate segment a little over half the length of ultimate segment, last segment short and stout. Anterior coxa 8.6 mm. in length. Anterior femur 13.3 mm. in length which is distinctly greater than lateral length of prothorax. Length from base of femoral tooth to base of femur, 7.8 mm. Femoral tooth long and sharp. Anterior tibia when folded against femur reaches beyond anterior margin of tooth. Anterior tarsus long and narrow. Prosternum having a prominent median carina on anterior three-fourths; lateral sulci very shallow except on anterior fourth. Posterior portion of prosternum and mesosternum prominently swollen and inflated. Mesosternum with
posterior margin angular in shape. Metasternum a lozenge shape with median ventral flattened area in shape of a spatula; the posterior margin is not prolonged into a metaxyphus leaving most of first abdominal segment exposed. The mesocoxae more widely separated than metacoxae. Length of intermediate femur 17 mm.; posterior femur 18.5 mm. The posterior femora almost reaching end of last abdominal segment. Intermediate and posterior tarsi subequal. The operculum has a prominent median ventral keel.

Distribution: Male holotype from Key West, Florida, May 8, 1919 in the Frank Lutz Collections, American Museum of Natural History.

Notes: The shape of the eyes, the short hemelytra, the shape of the metasternum and the genital clasper are distinct from all other known American Ranatra.
Ranatra subinermis Montandon


A translation of the original description follows:

The Museum of Paris has a specimen very similar in shape to R. tuberculifrons but too mutilated to give a complete description. It differs from it in the shape of the vertex very obtusely raised without apparent tubercle; by the anterior margin of pronotum less bi-tuberculate, by a single femoral tooth on the lower internal side of the anterior femur; the small medial lower external dilation very obtuse, largely subrounded, these small tubercles between the base of the femur and teeth either not at all or reduced to rather small openings scarcely visible, and especially by the length of the anterior tarsi very perceptibly shorter than in the case of preceding species. The end of the posterior femora scarcely reaching the last abdominal suture. The appendages are lacking and the author gives the description on a single mutilated specimen. He says it should be a variety but calls it R. subinermis.

Distribution: French Guiana.

Notes: It cannot be confused with R. brevicauda Mont'd. of Brazil which is smaller, the posterior tarsi short but the anterior ones much longer with the coxa almost as long and the anterior femur much longer than
pronotum. The metasternum constructed otherwise, raised longitudinally in the middle.

The original description is inadequate. To the above description the following structural characteristics, made by Doctor Hungerford from a study of the type specimen in the Natural History Museum of Paris, are added: The specimen is a female. The vertex is conoidal but not as prominent as in *R. tuberculifrons* Mont'd. The tylus and jugae are also not as prominent. The length of the anterior portion of the pronotum is to the posterior portion as 16.5 is to 7. Posterior femora not reaching the posterior margin of the penultimate abdominal segment. Posterior tibiae lacking. The meso and metacoxae are large. The female operculum surpasses the abdomen by one-fourth of its length. The length of the female operculum compared to the length of the penultimate abdominal sternite is as 8 is to 11. The small tufts of hair characteristic of *R. tuberculifrons* Mont'd. appear to be lacking; while the eyes in both species are large.

Notes: We have not studied this species. It is not represented in the Francis Huntington Snow Entomological Collections. The anterior femur and antenna figured on Plate.
Ranatra texana Hungerford


The original description follows:

Size: Length from tip of beak to tip of abdomen 33 mm.; caudal filaments 15 mm.; width of head 2.6 mm.

Color: Nearly black beneath, brown above. Front legs faintly mottled, hind femora with three pale annulations. Mesosternum, meso and meta acetabula longitudinally striped. Pale line on median metasternal carina and continued on the median longitudinal ridge of the abdominal venter.

Structural characteristics: Body slender, eyes transverse, tylus longer and more prominent than jugae. Antennae with lateral prolongation of penultimate segment cylindrical and extending about half the length of the ultimate. Prothorax slender, not as broad as the head. The anterior part of prothorax is to the posterior part as 11 is to 5. Prothorax is to the remainder of body as 17 is to 42. Hemelytra attaining base of last dorsal abdominal segment. Sides of the body (connexivum) of the male embracing the operculum of the genital segment for nearly half its length as measured on the sides. Front femur almost attaining base of operculum. Hind femur is to hind tibia as 29 is to 35.5. The tarsus is only about one-ninth the length of the tibia when the claws are not included.
Described from one male, the holotype, which bears the label "Bee Co., Texas, 7-25-28. R. H. Beamer." It is in the University of Kansas Entomological Museum.

Comparative notes: This species is slender like R. nigra H. S. and also has the short respiratory tube. It is readily distinguished from this species by the stouter, shorter anterior femora and by the form of the last abdominal segment which resembles somewhat R. annulipes Stal. From R. annulipes Stal it is distinguished by the smaller eyes, more slender body, shorter anterior femora and caudal filaments and by the much larger expansions of the connexivum which embrace the male operculum.

Additional notes: Length from tip of beak to tip of abdomen of female 37.5 mm.; length of respiratory appendages 19.5 to 22 mm. The female has the same shape as the male; the same slight widening of the posterior portion of the prothorax; the same short posterior femora not reaching beyond middle of penultimate abdominal segment and the same anterior femur with a long sharp femoral tooth and no indication of a sub-apical sinuosity. The female operculum extends beyond end of abdomen a short distance. In both the male and the female the metaxyphus is long, narrow, straight and not elevated to level of the metacoxae; the meso-coxae are proximal being as close together as the
metacoxae; the width of the interocular space is one and one-fourth times the width of one eye and the width of the posterior portion of the pronotum is subequal to or equal to the width of head through eyes.

Data on distribution: In addition to the holotype the Francis Huntington Snow Entomological Collection now has the following from Texas: Taken by R. I. Sailer, 21 males, 16 females; taken by D. W. Craik, 1 male; taken by D. D. Millsap, 3 females; taken by R. H. Beamer, 2 males, 1 female.

A lateral view of the last abdominal segment and the male genital clasper are figured on Plate III, figures 7a and 7b respectively.
Ranatra tuberculifrons Montandon


The original description is in French. A translation follows:

Rather long and thin, with tarsi very long and appendages short. Head with large subglobular eyes a little wider than interocular space; middle of vertex with a strong obtuse tubercle very visible between eyes. Caloused jugae a little divergent in front and surpassing a little the anterior margin of eyes, scarcely shorter than tylus; space between the juga and anterior angle of eye appearing like a deep hollowed out portion recalling a little what he formerly said for the genus Amphichizops Mont., but less accentuated with the pronotum subcylindrical and straight, not concave or flattened below, very elongate; longer than half the length of abdomen; the anterior dilation almost as wide as head including eyes and almost as strong as the posterior dilation, the last occupying only the posterior third of the pronotum so that the pronotum is very narrow on the medial third. Anterior border as strongly raised and bituberculate on the margin behind the vertex, long hemelytra with the membrane covering narrowly the last dorsal suture.
Short appendages, scarcely a little longer than the pronotum. Female genital operculum strongly concave on top and very elongate at the sharp point on the end which surpasses perceptibly under the base of the appendages.

Anterior coxae subequal to about three-fourths the length of the pronotum. Anterior femur of length of pronotum with a feeble sinuosity, very obtuse below each side near the end; a rather strong femoral tooth on the lower internal side and a dentiform medial dilation very obtuse on the lower external side; the lower part of femur from femoral teeth up toward base with two rows of very small tubercles slightly visible appearing irregular and rather thick below.

Back tarsi very long, the end of the femora reaching the end of the abdomen. The metasternal plaque almost in the same shape as *R. macrophthalmum* H. S., prolonged at the middle in back between the coxae in a rather long narrow point covering the largest part of the first abdominal segment of which one sees only the end.

Length of body: 40 to 47 mm.; appendages 20 mm.

Distribution: Described from French Guiana.

This large very elongate species is distinguished by the strong obtuse tubercle of the vertex; by the anterior femur appearing bidentate in middle and
slightly sinuous at the end; and by the two rows of little tubercles on the lower section between the base and the femoral tooth. It could not be confused with any other American form known up to this time.

Additional notes: Doctor Hungerford has studied the male and two female types in the Paris Museum and gives the following additional characteristics: There is a conoidal elevation on the vertex, a transverse depression just behind the tylus and jugae; the tylus and jugae are prominent and the jugae divergent. The anterior margin of the pronotum has a transverse median elevation which is lightly depressed in its middle and from which extends posteriorly a median carina that is visible for most of the length of the pronotum, fading out behind the transverse grooves. The pronotum is slender flowing out broadly in front. Scutellum is slender and longitudinally carinate. Anterior femur is slender, without subapical teeth but having a secondary eminence in the middle region. Anterior tarsus slender, pointed. Length of male 42 mm.; respiratory appendages lacking, posterior femur 25 mm. long, posterior tibia 29 mm. and tarsus 2 mm. The posterior femur surpasses the end of the abdomen. Length of female from tip of beak to tip of operculum 50 mm., length of respiratory appendages 20 mm. The female operculum surpasses end of abdomen by one-third
of its length and is strongly keeled. The length of the operculum is to the length of the penultimate abdominal segment as 10.5 is to 12. The drawing of the anterior femur, genital clasper and antenna on Plate
Ranatra unidentata Stal


The original description is inadequate. The author gives its length as 40 mm. and the length of the respiratory appendages about equal to the length of the abdomen. Doctor Montandon adds the following structural characteristics:

According to the description given he adds that two species are confused under this name. The specimen of the Museum of Stockholm which had been sent to him as typical coming from Brazil had appendages 31 mm., that is a little longer than the abdomen. In the case of another specimen not less typical of the series studied by Stal for the creation of his species and coming from Montevideo the appendages are perceptibly shorter than abdomen. The pronotum is very little dilated at base, a little larger than the anterior part behind the eyes; much more cylindrical than R. macrophthalma.

Its length is about half or scarcely less than half the length of abdomen. The anterior coxae are
little shorter than pronotum with tibias subequal to the length of pronotum.

Length: 34-40 mm.
The female genital operculum surpassing feebly behind the base of the appendages.

Additional structural characteristics: We have studied two specimens identified by De Carlo and 1 male specimen compared to a specimen determined by Montandon by Doctor Hungerford. These specimens coming from Buenos Aires, Argentina are in the Francis Huntington Snow Entomological Collections. The length of the males from tip of beak to tip of abdomen 37 to 39 mm.; length of respiratory appendages 21 mm. Length of female 43 mm.; length of respiratory appendages 22.5 mm. Width of head through eyes 3 mm.; posterior width of prothorax slightly less than width of head through eyes. The lateral prolongation of penultimate antennal segment a little more than half the length of ultimate segment. Length of anterior femur 9.2 mm. which is subequal to the greatest lateral length of prothorax. The prosternum having a median longitudinal carina on anterior half; this becoming indistinct, on posterior half. The mesocoxae are proximal being as close together as metacoxae.
Ranatras wagneri Hungerford


Size: Length from tip of beak to tip of abdomen 29 to 33 mm.; respiratory filaments 15 to 16 mm. long.

Color: While color is often of little significance in the Nepidae, the darker specimens of this species show a distinct mottling of light and dark brown on the legs and entire dorsal surface except that of the membrane of the hemelytra which is dark brown. Even the lightest colored specimen has a row of distinct dark spots along the outer or anterior margin of the hemelytra. The prosternum in most of the specimens black.

Shape: A very slender species with a long, narrow prothorax, the posterior section of which is short, narrow and not developed beneath. The meso and metacoxae very prominent, the latter slightly carinate mesally.

Structural characteristics: Head wider than either the anterior or posterior section of the prothorax. Jugae and tyIus about equally elevated. Antenna of male holotype is simple but the allotype and paratypes have the penultimate segment laterally produced. The prothorax is slender. The transverse
grooves deep and the anterior portion of the pronotum is nearly three times as long as the posterior portion, the measurement being made on the dorsal longitudinal median line. The prosternal grooves are shallow but traceable throughout the length of the prosternum. The scutellum is very slender, nearly as long as the posterior part of the pronotum.

Metasternal plate slightly raised and continued as a ridge between the hind coxae. Anterior femora slender without distal tooth or sinuosity, a little shorter than the prothorax measured on its lateral line. Posterior femora nearly attaining the posterior margin of the penultimate abdominal segment. The male genital clasper is slender, the anteapical tooth greatly reduced.

Notes: This species is described from 6 specimens, 2 males and 4 females, bearing the label "Museum Paris, Misiones. Rio Parana, E. R. Wagner 1910". Holotype and allotype in the National Museum of Natural History in Paris.

This species differs from R. brevicauda Montandon in having the interocular space much narrower than an eye; in having a relatively shorter female genital operculum which surpasses the abdomen by only 3/11 of its length and by a general appearance not at all to be compared with R. parmata Mayr and R. atali Montandon. Ranatra wagneri is a smaller species than R. brevicauda
Mont’d. and in shape has the appearance of *R. emacéata* Montandon.

Additional notes: We have studied a male and a female in the Francis Huntington Snow Entomological Collection bearing paratype labels and the same data as the type. The width of one eye is one and one-fifth times the width of the interocular space. There is a shallow transverse depression just behind the tylius and jugae. Prosternum having a median longitudinal carina between the lateral sulci on anterior half and the mesocoxae are proximal being as close together as the metacoxae. The anterior femur, genital clasper and antenna are figured on Plate IV, figures 2a, 2b and 2c respectively.
Ranatra williamsi sp. n.

Size: Length from tip of beak to tip of abdomen of male 29 to 32 mm., length of respiratory appendages 28 mm.; length of female 31 to 33 mm., length of respiratory appendages 28 to 29 mm. Greatest width of pronotum 3.1 mm.

Color: In general a light brown color with the anterior portion of pronotum and prosternum dark brown to black.

Shape: Body slender to moderately stout.

Structural characteristics: Width of head through eyes 3 mm., eyes globular and transverse, width of one eye one and one-third times width of interocular space. Jugae and tylus not projecting prominently in front of eyes, jugae divergent, not closely appressed to tylus, tylus more elevated than jugae. Vertex convex and elevated to level of eyes when seen from the side. Anterior margin of pronotum broadly rounded, posterior margin broadly and deeply rounded. Median length of pronotum 8 mm.; length of anterior portion two times length of posterior portion. Prothorax narrow in middle region. The length of the prothorax is to the length of the rest of the body as 11 3/4 is to 29 1/2. Scutellum convex on basal two-thirds, plain; two lateral declivities on posterior third. Antenna with lateral prolongation of penultimate segment cylindrical and almost extending the length of the ultimate segment. Anterior
coxa 6.5 mm. long; two-thirds length of anterior femur which is 9.7 mm.; anterior femur without subapical tooth or sinuosity, femoral tooth moderately long and stout. Anterior femur constricted in region of femoral tooth. The anterior tibia does not reach to anterior margin of femoral tooth when folded on femur. Prosternum with prominent carina on anterior portion bordered by prominent longitudinal sulci which diminish on posterior portion; the sulci joining just before the posterior margin. Mesosternum somewhat inflated and swollen. Mesocoxae more widely separated than metacoxae. Metaxyphus long and narrow, slightly arched posteriorly. Length of posterior femur 14 mm., length of posterior tibia 16.7 mm., posterior tarsus without claws 2.3 mm. Length of intermediate femur 14.4 mm., intermediate tibia 15.2 mm., intermediate tarsus 2.4 mm. The female operculum extends slightly beyond end of body.

Data on distribution: Holotype, allotype and 5 males and 3 female paratypes from Botanic Gardens, Georgetown, Br. Guiana, taken by S. Harris; also 1 male paratype from New Amsterdam, Br. Guiana taken by F. X. Williams and 2 males and 3 females from Demerera, Br. Guiana taken by S. Harris.

Notes: This species is closely related to R. obscura Mont. but is readily distinguished from it by its unique genital clasper. The anterior femur, genital clasper and antenna figured on Plate.
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Plate I

Figure 1. *Nepa apiculata* Stal.
Fig. 1a. anterior femur
Fig. 1b. genital clasper
Fig. 1c. antenna

Figure 2. *Curicta scorpion* Stal.
Fig. 2a. anterior femur
Fig. 2b. antenna

Figure 3. *Curicta bilobata* Sp. n.
Fig. 3a. anterior femur
Fig. 3b. antenna

Figure 4. *Curicta intermedia* (Martin).
Fig. 4a. antenna
Fig. 4b. anterior femur

Figure 5. *Telmatotrephes grandicollis* Sp. n.
Fig. 5a. genital clasper
Fig. 5b. antenna
Fig. 5c. anterior femur
PLATE I

1a.

1b.

1c.

2a.

2b.

3a.

3b.

4a.

4b.

5a.

5b.

5c.
Plate II

Figure 1. C. hungerfordi Sp. n.
   Fig. 1a. antenna
   Fig. 1b. anterior femur

Figure 2. C. peruviana Sp. n.
   Fig. 2a. anterior femur
   Fig. 2b. antenna

Figure 3. C. pronotata Sp. n.
   Fig. 3a. anterior femur
   Fig. 3b. antenna

Figure 4. C. bonaerensis Berg
   Fig. 4a. anterior femur
   Fig. 4b. antenna

Figure 5. C. borellii Mont’d.
   Fig. 5a. anterior femur
   Fig. 5b. antenna

Figure 6. C. schoutedeni Mont’d.
   Fig. 6a. anterior femur
   Fig. 6b. antenna
Plate III

Figure 1. *C. volxemi* (Mont'd.).
   Fig. 1a. anterior femur
   Fig. 1b. antenna

Figure 2. *R. curtafemorata* Sp. n.
   Fig. 2a. anterior femur
   Fig. 2b. male genital clasper
   Fig. 2c. antenna

Figure 3. *C. carinata* Sp. n.
   Fig. 3a. anterior femur
   Fig. 3b. antenna

Figure 4. *R. camposi* Mont'd.
   Fig. 4a. lateral view of last abdominal segment.
   Fig. 4b. male genital clasper

Figure 5. *R. annulipes* Stal.
   Fig. 5a. lateral view of last abdominal segment
   Fig. 5b. male genital clasper

Figure 6. *R. lethierryi* Mont'd.
   Fig. 6a. male genital clasper
   Fig. 6b. lateral view of last abdominal segment

Figure 7. *R. texana* Hungerford.
   Fig. 7a. lateral view of last abdominal segment
   Fig. 7b. male genital clasper

Figure 8. *C. tibialis* (Martin).
   Fig. 8a. anterior femur
Plate IV

Figure 1. R. nigra Herrich-Schaffer.
   Fig. 1a. anterior femur
   Fig. 1b. male genital clasper
   Fig. 1c. antenna

Figure 2. R. wagneri Hungerford.
   Fig. 2a. anterior femur
   Fig. 2b. male genital clasper
   Fig. 2c. antenna

Figure 3. R. kirkaidyi Bueno.
   Fig. 3a. Anterior femur
   Fig. 3b. male genital clasper
   Fig. 3c. antenna

Figure 4. R. rabida B. White.
   Fig. 4a. anterior femur
   Fig. 4b. male genital clasper

Figure 5. R. rabida White contracta sub sp. n.
   Fig. 5a. anterior femur
   Fig. 5b. antenna

Figure 6. R. segregata Montandon.
   Fig. 6a. anterior femur
   Fig. 6b. male genital clasper
   Fig. 6c. antenna

Figure 7. A. compressicollis (Montandon).
   Fig. 7a. anterior femur
   Fig. 7b. antenna