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## Revision of the genus *Narvesus* Stål, 1859 (Hemiptera: Heteroptera: Reduviidae: Stenopodainae) and a new record for Argentina

FERNANDO, DIEZ<sup>1</sup> & MARÍA DEL CARMEN COSCARÓN<sup>2</sup>

<sup>1</sup>Universidad Nacional de La Pampa. Facultad de Ciencias Exactas y Naturales. Uruguay 151 L6300CLB, Santa Rosa, La Pampa. Argentina. E-mail: fddiez@gmail.com

<sup>2</sup>Universidad Nacional de La Plata. Facultad de Ciencias Naturales y Museo. División Entomología. Paseo del Bosque s/n 1900, La Plata, Buenos Aires. Argentina. E-mail: mcoscarron@fcnym.unlp.edu.ar

### Abstract

This is a revision of *Narvesus* Stål, a Neotropical genus with two species: *Narvesus carolinensis* Stål 1859 and *Narvesus minor* Barber 1930. Both known species are redescribed and illustrated, including data on male genitalia and new distributional records. We compared with the genus *Diaditus* Stål.

**Key words:** Stenopodainae, *Narvesus carolinensis*, *Narvesus minor*, redescription, morphological characters, distribution.

### Introduction

The Stenopodainae are Reduviidae; the subfamily consists of 113 genera and 713 species worldwide (Maldonado Capriles 1990). They are characterized by a large cell usually pentagonal or hexagonal in the venation of the hemelytra or basal cell, formed by the cubital and postcubital veins and the apical and posterior Cu-PCu crossveins (Barber 1930; Wygodzinsky & Giacchi 1991; Schuh & Slater 1995). From the basal cell arise two elongate cells in the membrane. Antenniferous tubercles and jugae are usually strongly produced anteriorly (Barber 1930; Wygodzinsky & Giacchi 1991; Schuh & Slater 1995). The first antennomere is elongate and incrassate, and is an important subfamily character (Barber 1930; Wygodzinsky & Giacchi 1991; Schuh & Slater 1995).

The Stenopodainae have a close phylogenetic relationship with the Triatominae and some genera of the Reduviinae (Weirauch 2008). The genus *Narvesus* was catalogued as a valid genus (Wygodzinsky 1957; Maldonado Capriles 1990), and according to Giacchi (1973; 1982) it is closely related to *Diaditus* Stål. *Narvesus* Stål has only two species, Stål (1859) described *Narvesus carolinensis* as a monotypic species and afterwards Barber (1930) *Narvesus minor*.

Here we give a diagnosis of *Narvesus*, redescribe its species, new distributional records and compare it with *Diaditus*.

### Material and methods

This study is based on material provided by the following institutions: Museo Argentino de Ciencias Naturales (MACN) and Museo de La Plata (MLP), Argentina. The terminology used is after Barber (1930), Giacchi (1974; 1982) and Blinn (2009). The materials were compared with photographs of type from the Naturhistoriska Riksmuseet of Stockholm, Sweden (<http://www.nrm.se/>) [last accessed on August 2013].

The measurements were expressed in millimeters. The images were taken with a digital camera (PANASONIC DMC-S3).

## ***Narvesus* Stål 1859**

1859 *Narvesus carolinensis* Stål, 16: 385. Type species: by monotypy *Narvesus carolinensis*.

**Diagnosis.** Jugae acute at tip, divergent and not surpassing apex of tylus (Fig. 3F). First antennomere shorter than head (Fig. 3F). Anterior femora scarcely incrassate (Figs. 1H, 2H). Hairs on hind tibiae 4-5 times longer than its diameter (Fig. 3C). Ventrally with a relatively high median longitudinal carina extending from sternum II to VI (Fig. 2B).

### **Key to species of *Narvesus***

- |   |   |                             |
|---|---|-----------------------------|
| 1 | Fore and middle tibiae without sub median dark ring (Fig. 1A), fore femora without a row of spiniferous tubercles (Fig. 1H) . . . . . | <i>N. carolinensis</i> Stål |
| - | Fore and middle tibiae with a sub median dark ring (Fig. 2A), fore femora with a row of spiniferous tubercles (Fig. 2H) . . . . .     | <i>N. minor</i> Barber      |

### ***Narvesus carolinensis* Stål 1859**

(Figs. 1A–H)

1859 *Narvesus carolinensis* Stål, 16:385.

1873 *Stenopoda carolinensis* Walker, 8:31.

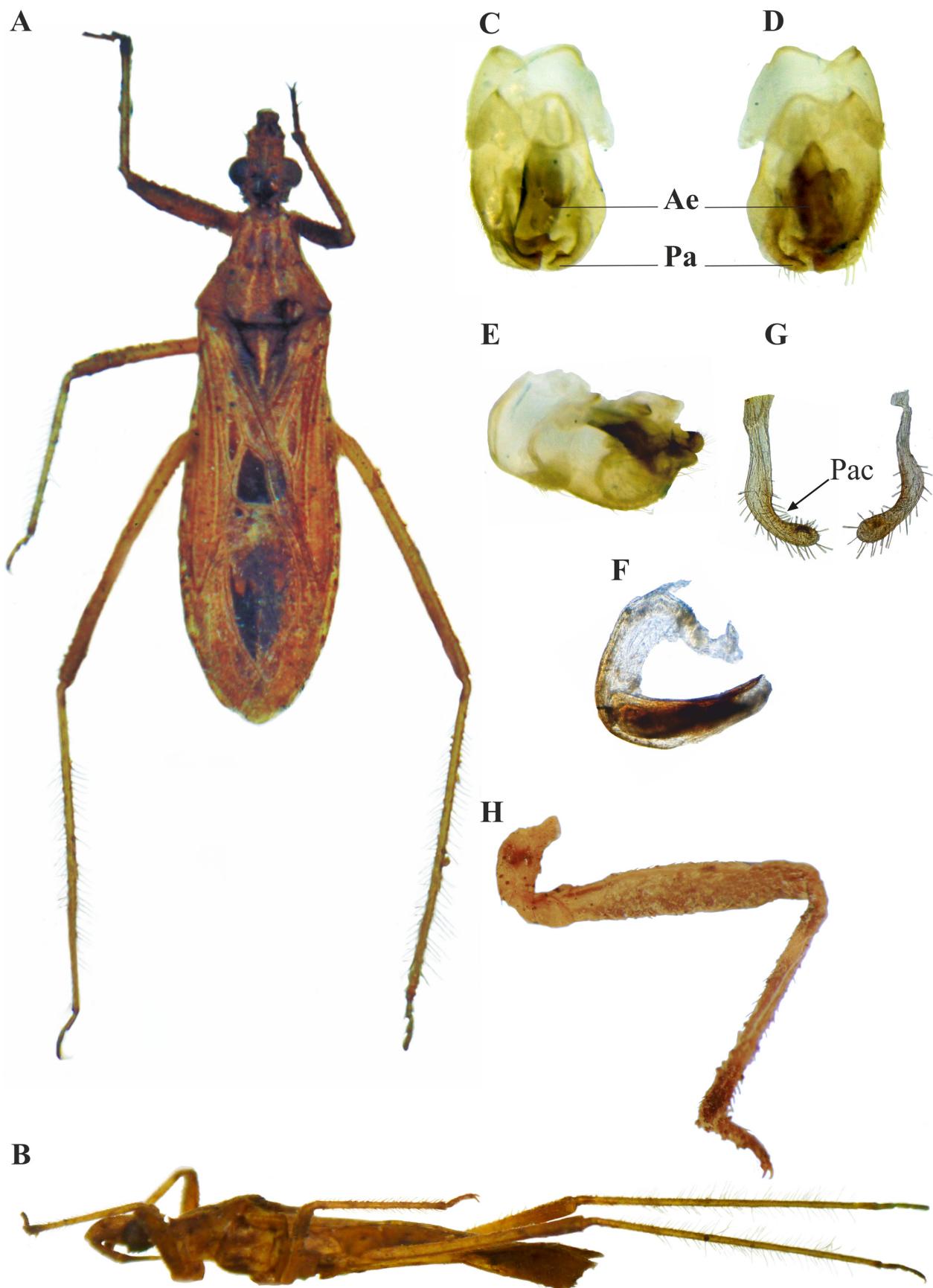
1884 *Diaditus annulipes* Berg, 16:111. Synonymized by Wygodzinsky 1949, 1:66.

**Distribution.** Cuba, Curaçao, Grenada, Honduras, Mexico, Nicaragua, St. Vincent, Uruguay, USA.

**Material examined.** Argentina: Buenos Aires Province: Olivos (1♀, MLP). Chaco Province: Río Oro. (1♂, MACN).

Male. Overall color, head, corium, and membrane light brown. Forefemora brownish yellow, mottled with many small, irregular, and dark brown markings, distally dark brown, Middle and posterior femora brownish yellow, distally dark brown. Fore and middle tibiae not curved, unarmed, yellowish and embrowned at base and apex. Scutellum and clavus with whitish pilosity. Scutellum dark brown laterally and light brown at center. Membrane not homogeneously pigmented. Hemelytra light brown. Membrane mottled with many small, irregular and dark brown spots on membrane. Discal cell of corium and external apical cell of membrane with small rounded spot at base and triangular one near apex, internal apical cell with small dark spot. Abdomen dorsally pale brown, connexival segments with one dark brown spot near intersegmental sutures. Pronotum covered with small setigerous tubercles. Pronotum with two longitudinal carinae. Abdomen ventrally yellowish brown, in middle part of each abdominal sternal (from 2 to 6) with a dark brown spot medially forming a longitudinal band. Postocular region 1.48 times as width as anteocular region width, anteocular region, from anterior margin of eyes to apex of antenniferous tubercles, less than twice as long as postocular. Eyes close together in ventral view. Eyes surpassing lateral margin of head in dorsal view, setae absent. One setigerous tubercle with two setae on the antenniferous tubercles. Ratio of antennomeres lengths (1: 0.53: 0.41: 0.40) in female (1: 2.29: - : -). Genae not produced. Jugae triangular, apex bifurcate and without setigerous or pilose tubercles. Head divided in two lobes by deep furrow just beyond the eyes. Ocelli located at top of globular posterior lobe of head, this lobe divided medially. Ratio of labial segment lengths (1: 0.94: 0.66) in female (1: 1.70: 1.65). First labial segment wider than interocular ventral space. Posterior lobe of pronotum width, at humeral angles, 2.58 times as width as anterior lobe of pronotum, at collar angles. Collar angle spiniform, rounded apically and divergent directed laterally, humeral angle triangular, not prominent, with rounded apex. Posterior lobe of pronotum width, at humeral angles, 2.58 times as width as anterior lobe of pronotum, at collar angles. Posterior lobe of pronotum twice wider than length. Scutellum with setigerous tubercles at base of each lateral margin, posterior process of scutellum elevated with tip rounded. Fore femora without a row of spiniform-like setal tubercles on ventral face. Fore femora thicker than middle and hind femora, 1.48 times as width as middle femora width and 1.26 times as width as posterior femora width. Posterior femora longer than fore and middle femora, 2.33 times as long as forefemora, and 2 times as long as middle femora. Hind tibiae very long (more than 2 times longer than others). Ratio of tarsi (1: 0.91: 1.25). Abdomen beneath carinate along meson from segment II to VI. Hemelytra not reaching the apex of abdomen.

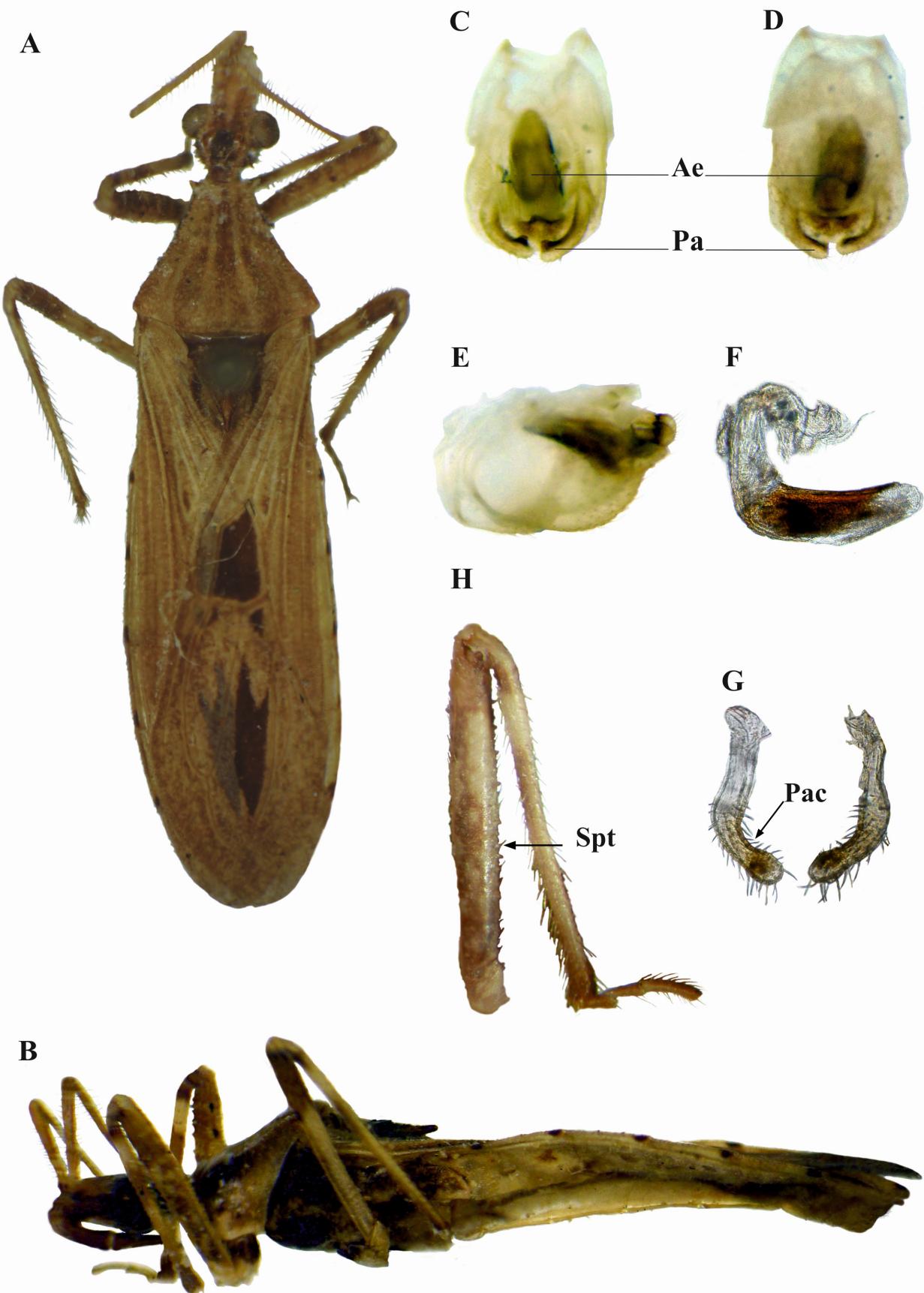
Male genital as in seen in Figs. 1C–G.



**FIGURE 1.** *Narvesus carolinensis*. A dorsal view, B lateral view, C–E genital capsule: C ventral view, D dorsal view, E lateral view, F aedeagus lateral view, G paramere dorsal view, H fore leg. Ae: aedagus, Pa: paramere, Pac: constriction of paramere.

**TABLE 1.** Selected measurements (mm.) of *Narvesus carolinensis* Stål and *Narvesus minor* Barber.

Characters	<i>Narvesus carolinensis</i>		<i>Narvesus minor</i> N=2 Male		
	Male	Female	Max	Mean	Min
Total length	11.52	21.8	11.43	11.11	10.80
Head length	2.13	3.20	2.29	2.17	2.05
Head width across eyes	1.41	2.80	2.77	2.38	2.00
Anteocular region length	0.72	1.26	0.95	0.85	0.76
Anteocular region width	0.81	1.26	0.87	0.81	0.75
Postocular region length	0.51	0.57	0.65	0.55	0.45
Postocular region width	1.20	1.57	1.17	1.11	1.05
Interocular space ventral view	0.09	0.73	0.09	0.09	0.09
Eyes length	0.60	0.60	0.72	0.58	0.45
Interocular space dorsal view	0.81	1.50	1.33	1.21	1.10
Jugae length	0.33	0.57	0.30	0.25	0.20
First labial segment length	1.05	1.54	1.12	1.11	1.11
Second labial segment length	0.99	1.52	1.08	1.00	0.93
Third labial segment length	0.70	1.47	0.72	0.64	0.57
First antennomere length	1.65	1.31	1.89	1.81	1.73
Second antennomere length	2.88	3.00	3.33	3.26	3.19
Third antennomere length	0.69	-	-	-	-
Fourth antennomere length	0.66	-	-	-	-
Pronotum total length	2.50	3.04	3.00	2.71	2.43
Anterior lobe of pronotum length	1.20	1.57	1.23	1.21	1.20
Anterior lobe of pronotum width	1.74	1.84	1.95	1.87	1.80
Posterior lobe of pronotum length	1.38	1.47	1.80	1.50	1.20
Posterior lobe of pronotum width	4.50	3.21	3.40	3.33	3.26
Scutellum length	1.35	1.52	1.61	1.60	1.59
Fore femora length	3.15	4.50	3.45	3.30	3.15
Middle femora length	3.68	4.47	3.51	3.40	3.30
Posterior femora length	7.36	9.40	8.15	-	8.15
Fore femora width	0.52	0.68	0.53	0.56	0.60
Middle femora width	0.35	0.57	0.40	0.39	0.39
Posterior femora width	0.41	0.57	0.48	-	0.48
Fore tibiae length	2.17	4.21	3.36	2.97	2.59
Middle tibiae length	2.94	4.21	3.82	3.34	2.87
Posterior tibiae length	6.09	9.57	6.75	-	6.75
Fore tibiae width	0.21	0.31	0.31	0.26	0.21
Middle tibiae width	0.15	0.26	0.30	0.24	0.24
Posterior tibiae width	0.21	0.26	0.12	-	0.12
Tarsi 1 length	0.36	0.34	0.30	0.30	0.30
Tarsi 2 length	0.33	0.30	0.27	0.30	0.33
Tarsi 3 length	0.45	0.34	0.36	0.42	0.48
Hemelytra length	7.47	12.00	9.80	8.45	7.11
Hemelytra at maximum width	2.72	4.03	3.40	3.20	3.00
Abdominal length	4.86	13.00	6.66	6.26	5.86
Abdominal at maximum width	3.28	5.13	3.28	3.21	3.15



**FIGURE 2.** *Narvesus minor*. A dorsal view, B lateral view, C–E genital capsule: C ventral view, D dorsal view, E lateral view, F aedeagus lateral view, G paramere dorsal view, H fore leg. Ae: aedagus, Pa: paramere, Pac: constriction of paramere, Spt: spiniferous tubercles.

***Narvesus minor* Barber 1930**

(Figs. 2A–H)

1930 *Narvesus minor* Barber, 10:224.

**Distribution.** Argentina: Buenos Aires Province: Parque Costera del Sur; Misiones Province: Bocetti, Montecarlo, Zaimán; Río Negro Province: Lamarque; Bolivia; Brazil; Guyana; Honduras; Paraguay; Puerto Rico; Surinam.

**Material studied.** Argentina: Santa Fé Province: Colonia Macías (1♂, MACN). Neuquén Province (unspecified locality) (1♂, MLP) (Posterior legs missing).

Overall color, head, corium, and membrane light brown. Head in lateral and dorsal view with setigerous tubercles. Forefemora brownish yellow, mottled with many small, irregular, and dark brown markings, distally dark brown, Middle and posterior femora brownish yellow, distally dark brown. Fore and middle tibiae not curved, unarmed, yellowish in the base, apex and a sub median ring fuscous. Scutellum and clavus with whitish pilosity. Scutellum dark brown laterally and light brown at center. Membrane not homogeneously pigmented. Hemelytra light brown. Membrane mottled with many small, irregular, and dark brown markings on membrane. Discal cell of corium and external apical cell of membrane with small rounded spot at base and triangular one near apex, internal apical cell with small dark spot. Abdomen dorsally pale brown, connexival segments with one dark brown spot near intersegmental sutures. Pronotum covered with small setigerous tubercles. Pronotum with two longitudinal carinae. Abdomen beneath yellowish brown, medially in each abdominal sternal from sternum 2 to 6 with dark brown spot forming a longitudinal band. Postocular region 1.34–1.40 times as width as anteocular region width, anteocular region, from anterior margin of eyes to apex of antenniferous tubercles, less than twice as long as postocular. Eyes close together in ventral view. Eyes surpassing lateral margin of head in dorsal view, setae absent. One setigerous tubercle with two setae on the antenniferous tubercles. Ratio of antennomeres lengths (1: 1.80: - : -). Genae not produced. Jugae triangular, apex bifurcate and without setigerous or pilose tubercles. head divided in two lobes by a deep furrow just beyond the eyes. Ocelli at top of globular posterior lobe of head and this lobe divided medially. Ratio of labial segment lengths (1: 0.90: 0.57), first labial segment wider than interocular ventral space. Posterior lobe of pronotum width, at humeral angles, 1.74–1.81 times as width as anterior lobe of pronotum, at collar angles. Collar angle spiniform, rounded apically and divergent laterally, humeral angle triangular, not prominent, with rounded apex. Posterior lobe of pronotum width, at humeral angles, 1.78 times as width as collar lobe of pronotum, at posterior angles. Posterior lobe of pronotum twice wider than length. Scutellum with setigerous tubercles at base of each lateral margin, posterior process of scutellum elevated with tip rounded. Fore femora covered with small setigerous tubercles and a row of spiniferous tubercles ventrally. Forefemora thicker than mid and hind femora, 1.32–1.53 times as wide as middle femora width and 1.10–1.25 times as wide as posterior femora width. Posterior femora longer than fore and middle femora, 2.36–2.58 times as long as forefemora long and 2.32–2.46 times as long as middle femora long. Hind tibiae very long (more than 2 times longer than others). Ratio of tarsi (1: 1: 1.4). Abdomen beneath carinate along segment II to VI. Hemelytra not reaching apex of abdomen.

Male genital as in seen in Figs. 2C–G.

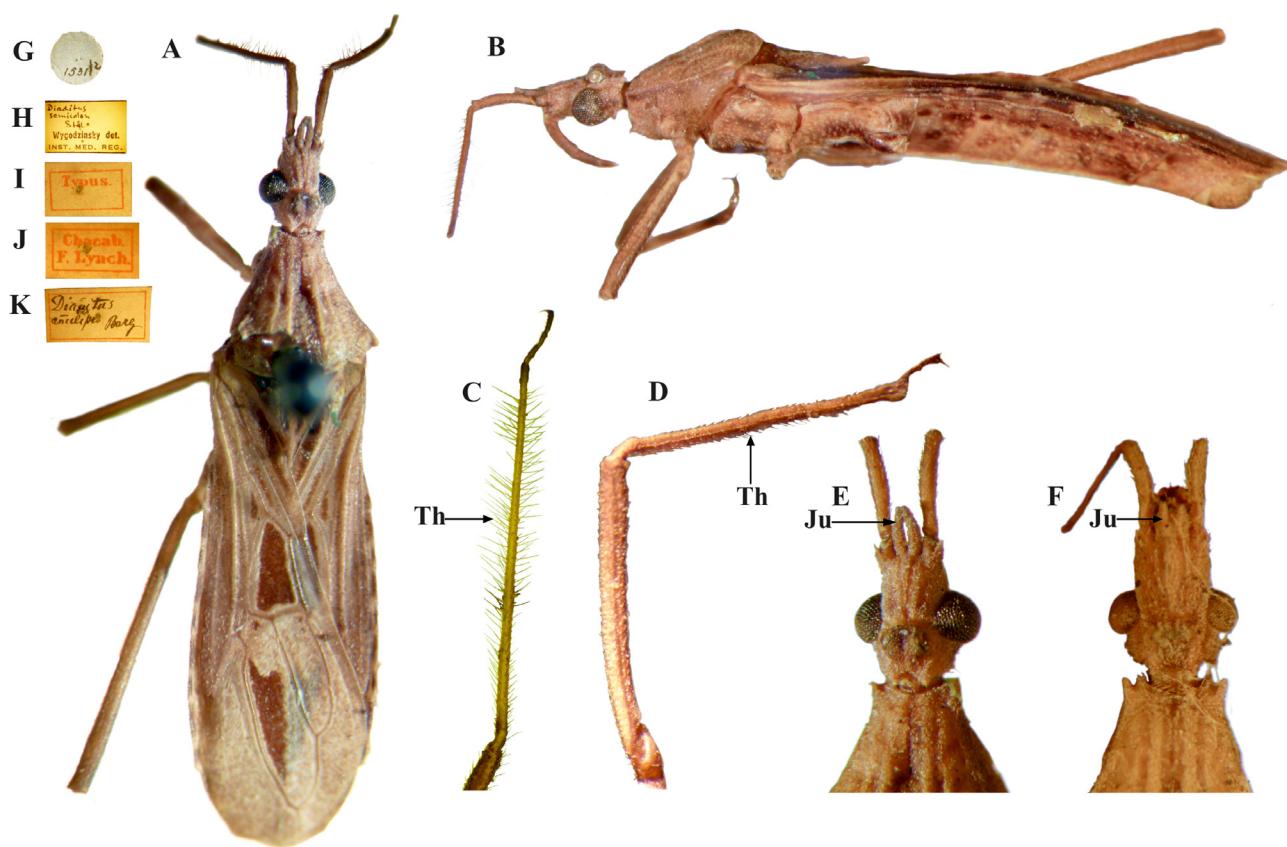
Parameres of both species apically expanded, lobe-shaped, widened in second one-third of their length. Curved inwardly medially. Presence of hairs from middle to apex. The parameres of *N. carolinensis* are more robust than those of *N. minor* and the constriction, located before apical lobe, is fainter (Figs. 1G, 2G).

***Diaditus* Stål**

1859 *Diaditus* Stål, 16:383 type species *Diaditus semicolon* Stål 16:383.

**Diagnosis.** We agree with Barber (1930) and Giacchi (1973) that this genus is characterized by the preocular region longer than postocular region (Fig. 3E). Jugae long, robust, and with blunt apices, well extended beyond apices of antenniferous tubercles (Fig. 3E). Hind tibiae with short hairs, less than twice the diameter of the tibia (Fig. 3D). Anterior femora scarcely incrassate (Fig. 3A). Abdomen ventrally with a fairly high median longitudinal carina extending from the sternum II to VI (Fig. 3B).

In [http://www2.nrm.se/en/het\\_nrm/s/diaditus\\_semicolon.html](http://www2.nrm.se/en/het_nrm/s/diaditus_semicolon.html) [last accessed on August 2013]



**FIGURE 3.** *Diaditus semicolon*. A dorsal view, B lateral view, D detail of tibiae, E detail of juga, G-K typus label. *Narvesus carolinensis*. C detail of tibia, F detail of juga. Ju: jugae, Th: tibia hairs.

## Discussion

We agree with Giacchi (1974) that *N. carolinensis* and *N. minor* are chiefly differentiated by the following characters: the relation between length and width of pronotum (Figs. 1A, 2A), and in *N. minor* the sub median dark ring on the fore and middle tibiae (Figs. 1B, 2B) and the presence of spiniferous tubercles on the ventral portion of fore femora (Figs. 1H, 2H). *Narvesus* and *Diaditus* share the morphology of the jugae (Figs. 3E, 3F) and chaetotaxy of the hind tibiae (Figs. 3C, 3D). They also share overall color, pattern pigmentation of the hemelytra, and general morphology.

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