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Olga Petko

Para La Tierra

Reserva Natural Laguna Blanca

Santa Rosa del Aguaray

San Pedro, Paraguay

Paul Smith

Fauna Paraguay, Encarnación, Paraguay

Lionel Stange

Florida State Museum of Arthropods,

Gainesville, Florida, U.S.A.

Sergio D. Rios

Museo Nacional de Historia Natural del Paraguay

San Lorenzo, Paraguay

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Olga Petko, Paul Smith, Lionel Stange. and Sergio D. Rios  
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Olga Petko

Para La Tierra  
Reserva Natural Laguna Blanca  
Santa Rosa del Aguaray  
San Pedro, Paraguay

Paul Smith

Fauna Paraguay, Encarnación, Paraguay  
Corresponding author: faunaparaguay@gmail.com

Lionel Stange

Florida State Museum of Arthropods,  
Gainesville, Florida, U.S.A.  
glenurus@gmail.com

Sergio D. Rios

Museo Nacional de Historia Natural del Paraguay  
San Lorenzo, Paraguay

**Abstract.** New records of Myrmeleontidae from Paraguay are presented: *Dimares elegans* (Perty, 1833), *Glenurus croesus* Banks, 1922, *Glenurus penningtoni* (Navás, 1918a) and *Vella fallax* (Rambur, 1842). The total number of species now recorded from the country is fourteen among 11 genera. Specimens of *Dimares elegans* from east (Cerrado) and west (Chaco) of the Paraguay River are phenotypically distinct; those west of the Paraguay River are assigned to the form “*lepida*” Navás, 1912. More research is required to understand the taxonomic limits in this genus.

**Key words.** *Dimares*, *Glenurus*, *Vella*

## Introduction

The myrmeleontid fauna of Paraguay is poorly known, and a recent review of the family confirmed just eight genera and 10 species as documented in the country (Stange, 2010): *Dimarella praedator* (Walker, 1853); the endemic *Eremoleon pulcher* (Esben-Petersen, 1933); *Glenurus peculiaris* (Walker, 1860); *Ameromyia dimidiata* Navás, 1915; *Argentoleon irrigatus* (Gerstaecker, 1893); *Argentoleon longitudinalis* (Navás, 1914b); *Austroleon dispar* Banks, 1909; *Myrmeleon (Nehornius) obscurus* (Navás, 1912); *Myrmeleon (Myrmeleon) argentinus* Banks; and *Porrerus famelicus* Navás, 1915. An additional three genera and seven species were listed because of their occurrence in neighboring Argentina or Brazil: *Dimares elegans* (Perty); *Dimarella riparia* (Navás, 1918b); *Elachyleon punctipennis* Esben-Petersen, 1927; *Vella fallax* (Rambur); *Ameromyia hirsuta* Navás, 1914a; *Ameromyia protensis* (Gerstaecker, 1893) and *Austroleon immitus* (Walker, 1853). In this note, we confirm the presence of two of these species in Paraguay, and add two further species to the Paraguayan fauna that were not listed by Stange (2010), bringing the total number of species documented in the country to fourteen. This also marks the first time that the genera *Dimares* and *Vella* are reported from Paraguay. Furthermore, we confirm the presence of two morphotypes of *Dimares elegans* in Paraguay, the taxonomic status of which remains to be clarified.

## Materials and Methods

All Paraguayan material studied is deposited at the Colección Zoológica Para La Tierra (CZPLT), based at Reserva Natural Laguna Blanca, San Pedro Department, Paraguay and the Museo Nacional de

Historia Natural del Paraguay (MNHNP), San Lorenzo, Central Department. Locality information for non-Paraguayan material is provided in Appendix 1.

### Subfamily Palparinae

#### Tribe Dimarini

##### *Dimares elegans* form “*lepida*” Navás, 1912 (Fig. 1)

*Dimares elegans lepida* Navás 1912: 41. Fig. 3. **Syntypes**, Catamarca and Mendoza, Argentina (Copenhagen).

**Specimens examined. Boquerón** (1): Cruce Loma Plata (estimated S22°34'38.1" W059°50'11.1") (MNHNP 9 I 1993, Col. C. Aguilar). No ecological data accompanies this specimen, but the habitat in this area is Dry Chaco scrub. **Presidente Hayes** (3): Laguna Capitán (S22°33' W059°42"), CZPLT 3382-3384 (23-24 III 2015, Col. P. Smith). All Laguna Capitán specimens were collected at house lights in an area of Dry Chaco scrub surrounded by salt lagoons.

##### *Dimares elegans* form “*elegans*” (Perty, 1833) (Fig. 2)

*Myrmeleon elegans* Perty 1833: 125. **Holotype female**, Brasilia (Munich).

**Specimens examined. San Pedro** (3): Reserva Natural Laguna Blanca (S23°48'43.0" W056°17'40.8"), CZPLT 1423A (19 III 2013, Col. V. Pinion); CZPLT 2872 (10 II 2013, Col. D. Greves); CZPLT 3106 (24 I 2015, Col. O. Petko). All specimens were collected at house lights or a light trap in a transitional area between Cerrado, Cerrado gallery forest and Atlantic Forest at the Reserva Natural Laguna Blanca. Prior to the collection of these specimens an individual of this species was photographed during the day on 17 February 2010 in campo sucio, sandy-soiled Cerrado at the same locality by P. Smith ([www.faanaparaguay.com/myrmeleontidae.html](http://www.faanaparaguay.com/myrmeleontidae.html), FPMYR003PH).

The San Pedro specimens are here tentatively assigned to form “*elegans*” as they differ from the Chaco specimens, (which we assign to the form “*lepida*” Navás, 1912) most obviously in their less boldly-marked wings. The presence of a thin yellow lateral line along the side of the abdomen, that is present in our specimens from west of the Paraguay River and absent in those from San Pedro, does not appear to be a consistent difference as this line is variably present in examined Argentine and Uruguayan specimens ascribed to *lepida*, and Bolivian and Brazilian specimens of typical *elegans*. Stange (1989) considered all *Dimares* to belong to a single species *Dimares elegans*, but noted the marked geographic variability and commented that variation may be clinal. More study is warranted to elucidate relationships in this genus. We refrain from making any taxonomic judgments regards the specific status of these forms pending the results of these studies.

### Subfamily Myrmeleontinae

#### Tribe Nemoleontini

##### *Glenurus croesus* Banks, 1922 (Fig. 3)

*Glenurus croesus* Banks 1922:59. **Syntypes**, Sara, Bolivia, 450 m (MCZC; type # 2031)

**Specimens examined. San Pedro** (1): Reserva Natural Laguna Blanca (S23°48'43.0" W056°17'40.8"), CZPLT 2872 (29 XI 2014, Col. O. Petko). The specimen was collected at a light trap in a transitional area between Cerrado, Cerrado gallery forest and Atlantic Forest at the Reserva Natural Laguna Blanca. Prior to the collection of this specimen, an individual of this species was photographed on 19 XII 2008 in the same location by P. Smith ([www.faanaparaguay.com/myrmeleontidae.html](http://www.faanaparaguay.com/myrmeleontidae.html), FPMYR006PH), having been attracted to house lights. This species was previously known only from Bolivia (Banks, 1922).

***Glenurus penningtoni* (Navás, 1918a) (Fig. 4)**

*Ledoscius penningtoni* (Navás) 1918a: 493, fig. 2 (hind wing). **Holotype male**, La Rioja, Argentina, Pennington (not located).

**Specimens examined. Alto Paraguay** (1): Parque Nacional Defensores del Chaco (estimated S20°38'00.7" W059°52'45.4") (MNHNP XI 1984, Col. R.T. Bonace). No ecological data accompanies this specimen. This species was previously known only from Argentina (La Rioja, Misiones, Santiago del Estero, Santa Fe, Tucumán) (Miller and Stange in prep.).

**Tribe Acanthaclisini*****Vella fallax* (Rambur, 1842) (Fig. 6)**

*Myrmeleon fallax* Rambur 1842: 385. **Type**, "La Guyane" (not located).

**Specimens examined. San Pedro** (9): Reserva Natural Laguna Blanca (S23°48'43.0" W056°17'40.8"), CZPLT 500 (7 XI 2010, Col. K. Atkinson); CZPLT 969 (VIII or IX 2012, Col. K. Atkinson); CZPLT 969 (VIII or IX 2012, Col. K. Atkinson); CZPLT 2761 (17 XI 2014, Col. O. Petko); CZPLT 2762 (14 XI 2014, Col. O. Petko); CZPLT 2871 (21 XI 2014, Col. O. Petko); CZPLT 2762 (14 XI 2014, Col. O. Petko); CZPLT 3167 (7 II 2015, Col. O. Petko); CZPLT 3168 (7 II 2015, Col. O. Petko). All specimens were collected at house lights or a light trap in a transitional area between Cerrado, Cerrado gallery forest and Atlantic Forest at the Reserva Natural Laguna Blanca. Prior to the collection of these specimens an individual of this species was photographed during the day on 17 February 2010 at the same locality by P. Smith ([www.faanaparaguay.com/myrmeleontidae.html](http://www.faanaparaguay.com/myrmeleontidae.html), FPMYR009PH).

**Closing remarks**

The Paraguayan Myrmeleontidae fauna remains incomplete and further collecting will no doubt continue to increase the national inventory. Myrmeleontidae are uncommon in collections and we suggest that targeted collection of this group is required to increase our understanding of diversity and distribution in Paraguay. With the addition of two further species here, three species of *Glenurus* (Tribe Nemoleontini) have now been documented as occurring in Paraguay, *Glenurus croesus* Banks, 1922, *Glenurus peculiaris* (Walker, 1860) and *Glenurus penningtoni* (Navás, 1918a). A key to adults of these species is presented here to aid identification and supplement the key in Stange (2010).

- 1 Pterothoracic pleura dark brown above and pale brown below ..... ***Glenurus penningtoni* (Navás)**  
 — Pterothoracic pleura not divided into dark brown above and pale brown below ..... **2**
- 2(1). Fore coxa nearly all dark brown; mesoscutellum without long white setae posteriorly; apex of forewing mostly solid black with transparent areas limited to anterior margin (Fig. 3) ..... ***Glenurus croesus* Banks**  
 — Fore coxa mostly pale brown or with only dorsal half dark brown; mesoscutellum with moderately long white setae laterally near posterior margin, some of which are longer than postnotum; apex of forewing with extensive transparent areas (Fig. 5) ..... ***Glenurus peculiaris* (Walker)**

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**Appendix 1: Non-Paraguayan specimens examined:*****Dimares elegans* (Perty)**

**Material studied:** 45 males, 41 females. November to May.

**Argentina.** Catamarca: Belén, 19.XII.1971, Porter and L. Stange (2f, FSCA, IMLA); 6 km. south Santa Maria, 21.III.1974. L. Stange (2m, 5f, 3 larvae, FSCA); Tinogasta, 8.II.1966, Stange (6m, 2f, FSCA, IMLA). Entre Rios: Concordia, Salto Grande, I.1975 (1m, FSCA). La Pampa: Sierra Lihuel Calel, 1.II.1968, L. Stange (2m, 1f, FSCA). La Rioja: Campanas, II.1966, Stange (1m, FSCA); La Rioja, 6.III.1970, Porter and L. Stange (1m, FSCA); Mazan, 14.III.1969, Stange (1m, FSCA). Santiago del Estero: Las Termas de Rio Hondo, 12.I.1966, Stange (1m, FSCA); Los Tigres, 16.I.1970, Golbach (3m, FSCA). San Luis: Luan, 23.II.1966, Stange (1m, FSCA). San Juan: Chicum, 20.I.1959 (1f, FSCA). Tucumán: Vipos, 21.III.1971, Fidalgo (1m, FSCA).

**Bolivia.** Santa Cruz: 3 km. north Brasilio, 7.III.1999, Stange (13m, 12f, FSCA, TAMU); El Palmar Oratoria, 25.I.1980, Stange (1m, 5f, FSCA).

**Brazil.** Ceara: Barbalha, V.1960, Alvarenga (2m, 6f, FSCA). Goiás: S. Isabel do Morro, Ilha do Bananal, VI.1961, Alvarenga (2m, 1f, FSCA); 48 km. south Peize, 2.VI.1956, Truxal (3m, 2f, FSCA, LACM). Mato Grosso: Barracao Queimado, XI.1960, Alvarenga (3m, 1f, FSCA); Gustavo Dutra, Cioaba. XI.1963, Alvarenga (3f, FSCA). Pernambuco: Petrolandia, V.1969, Alvarenga (1m, 3f, FSCA). Rondonia: Vilhena, XI.1960, Alvarenga (2m, FSCA).

**Uruguay.** Paysandú: Arenitas Blancas, 3.II.1962, San Martin (1f, FSCA).



**Fig. 1.** *Dimares elegans* form “*lepida*” Navás, 1912, female; Laguna Capitán, Presidente Hayes Department. Photo by Gabor Pozsgai.



**Fig. 2.** *Dimares elegans* form “*elegans*” (Perty, 1833), female; Reserva Natural Laguna Blanca, San Pedro Department. Photo by Gabor Pozsgai.



**Fig. 3.** *Glenurus croesus* Banks, 1922, Reserva Natural Laguna Blanca, San Pedro Department. Photo by Gabor Pozsgai.





**Fig. 4.** *Glenurus penningtoni* (Navás, 1918) Parque Nacional Defensores del Chaco, Alto Paraguay Department. Photo by Sergio Ríos.



**Fig. 5.** *Glenurus peculiaris* (Walker, 1860) Location unknown.



**Fig. 6.** *Vella fallax* (Rambur, 1842), Reserva Natural Laguna Blanca, San Pedro Department. Photo by Gabor Pozsgai.