

Complement to the inventory of Phasmatoidea of Trinidad (Phasmatoidea, Prisopodidae, Prisopodinae)

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Abstract. – *Damasippus zymbraeus* (Westwood, 1859), previously known only from Colombia, is reported for the first time from the island of Trinidad. The history of the specimen found in the University of the West Indies Zoology Museum is exposed and the egg is described.

Résumé. – **Complément à l'inventaire des Phasmatoidea de Trinidad (Phasmatoidea, Prisopodidae, Prisopodinae).** *Damasippus zymbraeus* (Westwood, 1859), auparavant connu uniquement de Colombie, est cité pour la première fois de l'île de Trinidad. L'histoire du spécimen retrouvé dans la collection du Muséum de Zoologie de l'Université des Antilles est exposée et l'œuf est décrit.

Keywords. – Taxonomy, inventory, complement, *Damasippus zymbraeus*.

In November 2010, Philippe Lelong, Toni Jourdan and Yannick Bellanger, members of the ASPER team, spent two weeks in the northern part of Trinidad in order to collect Phasmatoidea. In 2012 they published their results, including the description of two new species and one new genus (BELLANGER *et al.*, 2012). All in all, 7 species were listed from the island. More recently, in 2015, Avion Phillips, student at the University of the West Indies, St Augustine Campus, in Trinidad, has found a specimen and eggs of another species in the collection of the University. This specimen allows us to complete the previous inventory. Measurements, illustrations and history of this specimen are given, as well as the description of the previously unknown egg. The biology of this species is discussed.

MATERIAL AND METHODS

Measurements are given in millimeters with a precision of ± 0.01 mm. Pictures of the specimen have been taken with an Olympus TG-4 camera. Listed information and data of the types are mainly based on the online database Phasmida Species File (BROCK *et al.*, 2016).

Abbreviations used. – ASPER, Association pour la Systématique des Phasmes et l'Étude de leur Répartition (Le Ferradou n°3, 31570 Sainte-Foy-d'Aigrefeuille, France) - <http://www.asper.org>; BMNH, The Natural History Museum, London, United Kingdom; MNHU, Museum für Naturkunde der Humboldt-Universität, Berlin, Germany; UMO, University Museum, Oxford, United Kingdom; UWIZM, University of the West Indies Zoology Museum, St Augustine Campus, Trinidad.

RESULTS

Phasmatoidea, Areolatae, Aschiphasmatoidea, Prisopodidae, Prisopodinae, Prisopodini

Genus *Damasippus* Stål, 1875

Type-species: *Damasippus westwoodii* Stål, 1875.

Damasippus zymbraeus (Westwood, 1859)

Dinelytron zymbraeus Westwood, 1859: 163. Syntypes: 1 ♀ (UMO); 1 ♂ (UMO); 1 ♂, Magdalena (UMO).

Syn. *Damasippus intermedius* Redtenbacher, 1906: 148. Lectotype: ♂, Bogota (MNHU); paralectotype: ♂, Bogota (MNHU). Synonymised by CONLE *et al.* (2011).

Specimen studied in UWIZM. – 1 ♀ (fig. 1-2), Trinidad W.I., Blanchisseuse-Paria bay track, 22.I.1980, M.J.W. Cock; *Damasippus zymbraeus*; CABI.99.

Description of the egg. – Fig. 3-6. Capsule very elongated and cylindrical, narrowed upward and downward, slightly higher than wide, 3.0 times longer than wide and 2.9 longer than high. General color light brown to cream with sparse dark brown spots. Surface covered by a fine entangled network. Ventral face smoother and almost flat. Posterior pole ended by a slight rounded indentation in vertical plane. Anterior edge of the capsule with a slightly crenelated collar of cream color. Micropylar plate almost as long as the capsule, lance-shaped, its narrow part reaching the anterior collar of the capsule; cream colored with a quite wide border dark brown. Surface of the same texture than the rest of the capsule. Micropylar cup well visible. Median line short, dark brown and quite wide. Operculum ovoid, 1.6 times longer than wide, slightly wider and with a small protruding in its anterior side. Central surface slightly textured and colored like the capsule. Anterior border crenelated. Opercular opening distinctly facing on dorsal face of the capsule, forming a negative opercular angle (facing upward) of about -55°.

When laid, the egg is stuck to a surface by the ventral face.

Measurements (mm). – **Adult female (UWIZM).** Body length: 46.78; antenna: >31; head: 5.13; pronotum: 3.80; mesonotum: 3.92; metanotum: *not measured*; tegmina: 16.04; alae: 28.15; profemora: 7.60; mesofemora: 5.83; metafemora: 9.52; protibia: 6.62; mesotibia: 5.01; metatibia: 8.67. **Egg.** Capsule length: 5.52; capsule width: 1.87; capsule height: 1.91; operculum: small diameter: 1.16; large diameter: 1.90.

HISTORY OF THE SPECIMEN IN UWIZM

The studied specimen in UWIZM (fig. 5-6) was collected by Matthew J. W. Cock along the trail from Blanchisseuse to Paria Bay on the north coast of Trinidad on 22.I.1980. The habitat in that area is a mix of dry evergreen-littoral forest, young secondary forest and evergreen seasonal forest (HELMER *et al.*, 2012). At this time, Cock was working for CABI (Centre for Agriculture and Biosciences International) so the specimen was originally lodged unidentified to species level in the CAB International Insect Collection, Gordon Street, St Augustine, Trinidad. In 2012, the entire collection was transferred to the University of the West Indies Zoology Museum, Department of Life Sciences, St Augustine Campus, Trinidad, and as part of an ongoing cataloguing project, all the Phasmatodea in the museum were identified, if necessary, and catalogued by Avion Phillips in 2015.

DISCUSSION

The genus *Damasippus* Stål, 1875, contains 13 known species in South America, from Brazil, Peru, Colombia and Panama. *D. zymbraeus* (Westwood, 1859) was so far only known from the northern part of Colombia, in the departments of Magdalena, Cundinamarca and Bolívar (CONLE *et al.*, 2011). Its presence in Trinidad suggests it should also occur in Venezuela. Here is the first record of this species in another country, but the specimen in UWIZM is not the only known from Trinidad: in 2014, Oskar Conle (pers. comm.) identified a male and a female in BMNH collection. Both specimens were collected in the Moruga area near the southern coast on 2nd March 1986 by G. B. Popov. Those specimens facilitate the completion of the inventory of the Phasmatodea of Trinidad started by the ASPER team in 2012 with a first paper.

The biology of this species remains unknown but, even if we have to be careful with hasty comparison, it should be very similar to an undescribed species from Costa Rica which is bred in Europe since 2013 (KNEUBÜHLER, 2014) and is known as *Damasippus* sp. "Monteverde". *In natura*, this species eats leaves of *Quercus brenesii* Trelease (Fagaceae) and *Struthanthus*

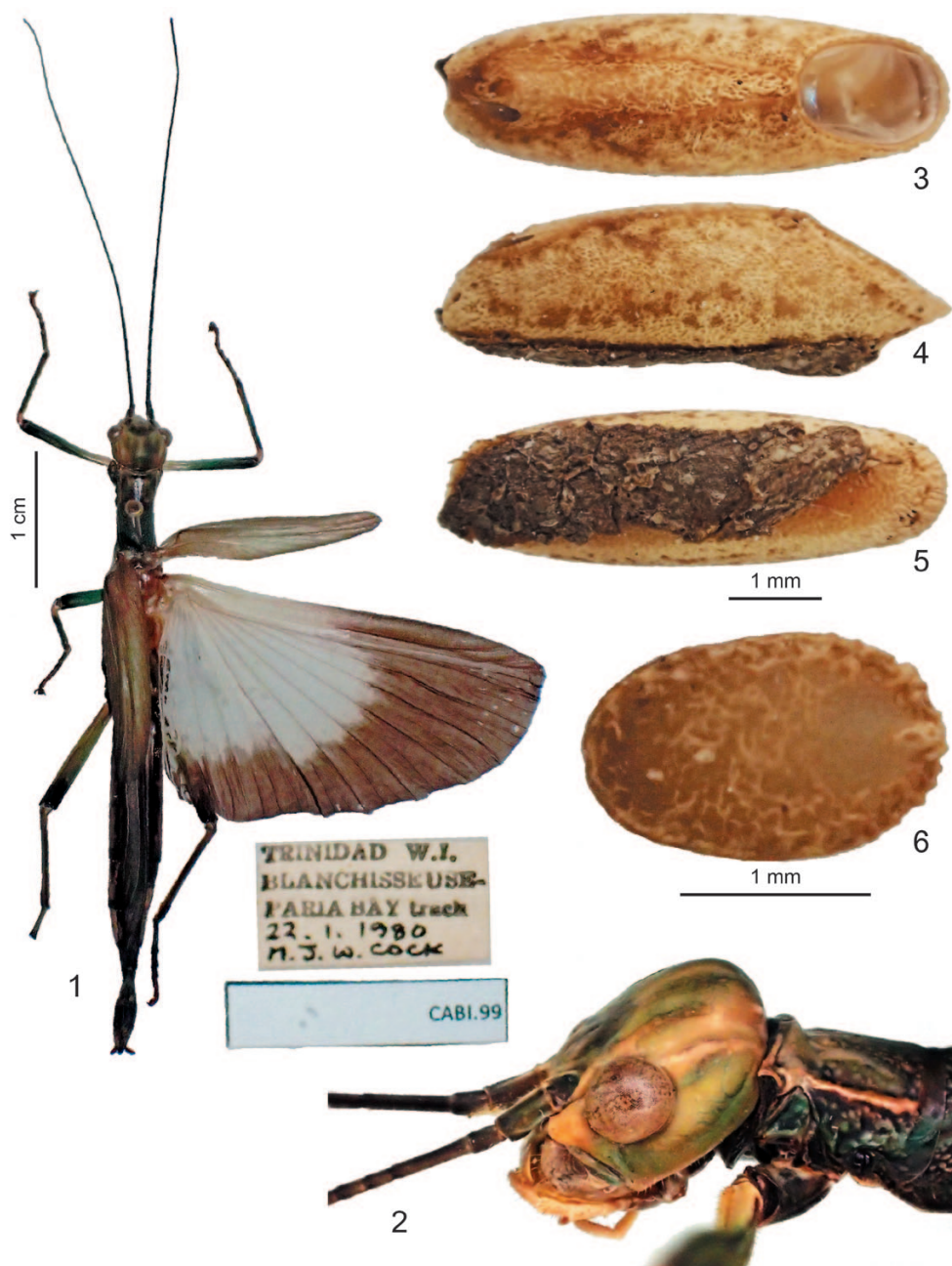


Fig. 1-6. – *Damasippus zymbraeus* (Westwood). – 1-2, ♀ in the collection of UWIZN: 1, habitus in dorsal view; 2, head in lateral view. – 3-6, Egg: 3, dorsal view without operculum; 4, lateral view without operculum; 5, ventral view without operculum; 6, dorsal view of operculum.

costaricensis Standley (Loranthaceae), but in Europe breeding is possible with *Quercus spp.*, *Rubus spp.*, *Eucalyptus spp.* and *Gaultheria shallon* Pursh (KNEUBÜHLER, 2014). Both male and female fly very well and when disturbed they spray a white defensive liquid. They can stay together, the male hangs on the female for some days. Eggs are glued alone on leaves, stems, branches or other surfaces. Like the other species of the tribe Prisopodini, the *Damasippus spp.* seems to live in the canopy or just under the crown, which is very difficult to prospect and explains why only few specimens were collected.

The egg of *Damasippus zymbraeus* described above is of the same typical shape than the one of *Damasippus sp.* “Monteverde” and it also has a sticky ventral face. Furthermore, the high opercular angle is typical of the species sticking their eggs to a support. This allows the juvenile to hatch more easily in particular when the eggs are laid together next to each other.

Identification key of the Phasmatodea of Trinidad. – Completed on the basis of the identification key provided by BELLANGER *et al.* (2012).

Adults

1. Males winged, females winged or brachypterous 2
 - Males and females apterous 4
2. Wings less than 2× longer than tegmina 3
 - Females brachypterous; wings of males 3-3.5× longer than tegmina .. *Creoxylus spinosus* (Fabricius)
3. Profemora serrate ventrally *Prisopus horstokkii* (Haan)
 - Profemora smooth ventrally *Damasippus zymbraeus* (Westwood)
4. Median segment as long or almost as long as metanotum 5
 - Median segment 3-7× shorter than metanotum *Ocnophiloidea regularis* (Brunner von Wattenwyl)
5. Mesonotum more than 6× longer than wide 6
 - Mesonotum about 4× longer than wide *Apteroxylus chaguaramalensis* Bellanger, Lelong & Jourdan
6. Body length more than 130 mm and subgenital plate clearly exceeding apex of the abdomen (females); body length more than 80 mm (males) *Paraphanocles keratoskeleton* (Olivier)
 - Body length less than 100 mm and subgenital plate not exceeding apex of the abdomen (females); body length less than 70 mm (male) 7
7. Mesonotum 1.4-1.6× longer than metanotum including median segment
 - *Caribbiopheromera trinitatis* (Werner)
 - Mesonotum 1.7-2.0× longer than metanotum including median segment
 - *Clonistria caputaurata* Bellanger, Lelong & Jourdan

Eggs

1. Operculum with a capitulum 2
 - Operculum without capitulum 3
2. Surface of the capsule smooth *Caribbiopheromera trinitatis* (Werner)
 - Surface of the capsule covered by a relief network .. *Clonistria caputaurata* Bellanger, Jourdan & Lelong
3. Capsule very flattened laterally; micropylar plate whitish
 - *Ocnophiloidea regularis* (Brunner von Wattenwyl)
 - Capsule not flattened laterally, globose; micropylar plate brown or cream 4
4. Opercular angle close to 0° (operculum perpendicular to the main axis than the capsule) 5
 - Opercular angle more than -30° (operculum distinctly on the dorsal side of the egg) 6
5. Micropylar plate elongated; capsule with numerous pores *Paraphanocles keratoskeleton* (Olivier)
 - Micropylar plate suboval; capsule without pore and almost smooth ... *Creoxylus spinosus* (Fabricius)
6. Capsule stocky and rectangular (opercular angle about -60°) *Prisopus horstokkii* (De Haan)
 - Capsule very elongated, cylindrical (opercular angle about -55°) *Damasippus zymbraeus* (Westwood)

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REFERENCES

- BELLANGER Y., LELONG P. & JOURDAN T., 2012. – Contribution à l’inventaire et à la biologie des Phasmatodea de Trinidad. *Bulletin de la Société entomologique de France*, **117** (4): 483-502.
- BROCK P. D., BÜSCHER, T. & BAKER E., 2016. – *Phasmida Species File Online*. Version 5.0/5.0. <http://Phasmida.SpeciesFile.org>.
- CONLE O., HENNEMANN F. & GUTIERREZ Y., 2011. – The Stick Insects (Phasmatodea) of Colombia. BoD – Books on Demand, 412 p.
- HELMER E. H., RUZYCKI T. S., BENNER J., VOGGESSER S. M., SCOBIE B. P., PARK C. & RAMNARINE S., 2012. – Detailed maps of tropical forest types are within reach: Forest tree communities for Trinidad and Tobago mapped with multiseason Landsat and multiseason fine-resolution imagery. *Forest Ecology and Management*, **279**: 147-166.
- KNEUBÜHLER B., 2014. – Care sheet of *Damasippus* sp. “Monteverde”. <http://www.phasmatodea.com/web/guest/damasippus-monteverde>.
- REDTENBACHER J., 1906. – *Die Insektenfamilien der Phasmiden. I. Phasmidae Areolatae*. Wilhelm Engelmann, Leipzig, 180 p.
- WESTWOOD J. O., 1859. – *Catalogue of the Orthopterous Insects in the collection of the British Museum. Phasmidae. Part I*. Londres, The British Museum, 195 p.
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