



<http://dx.doi.org/10.11646/zootaxa.3861.3.7>

<http://zoobank.org/urn:lsid:zoobank.org:pub:D2C074B4-7F26-4517-952D-3F53F87F5C7D>

### First report of *Ricania speculum* (Walker, 1851) in Europe (Hemiptera: Fulgoromorpha: Ricaniidae)

GIUSEPPE MAZZA<sup>1,5</sup>, FABRIZIO PENNACCHIO<sup>1</sup>, ELISABETTA GARGANI<sup>1</sup>, ITALO FRANCESCHINI<sup>2</sup>,  
PIO FEDERICO ROVERSI<sup>1</sup> & FABIO CIANFERONI<sup>3,4</sup>

<sup>1</sup>Consiglio per la Ricerca e la Sperimentazione in Agricoltura, Research Centre for Agrobiological and Pedology, via di Lanciola 12/a, Cascine del Riccio, I-50125, Firenze, Italy.

<sup>2</sup>Retired Inspector of Corpo Forestale dello Stato (State Forestry Corps), Via San Lorenzo 11, I-16030, Casarza Ligure, Genova, Italy

<sup>3</sup>Natural History Museum of the University of Florence, Zoological Section “La Specola”, via Romana 17, I-50125, Firenze, Italy.

E-mail: [fabio.cianferoni@unifi.it](mailto:fabio.cianferoni@unifi.it)

<sup>4</sup>Institute of Agroenvironmental and Forest Biology, CNR - National Research Council of Italy, via Salaria 29.300, I-00015, Monterotondo Scalo (Roma), Italy.

<sup>5</sup>Corresponding author. E-mail: [giuseppe.mazza@entecra.it](mailto:giuseppe.mazza@entecra.it)

#### Abstract

*Ricania speculum* (Walker, 1851) (Hemiptera: Fulgoromorpha: Ricaniidae) is reported for the first time in Europe. Both nymphs and adults were observed from 2009 in several municipalities of Liguria (Italy). Since the species is extremely polyphagous and is a real pest for several crops in tropical and subtropical areas, the presence of this alien insect is noteworthy, representing a new possible threat for native species and human activities.

**Key words:** *Ricania speculum*, Fulgoromorpha, Hemiptera, Italy, Europe

The family Ricaniidae is mainly distributed in tropical regions, and it is represented only by the genus *Ricania* in the Palaearctic region (Demir 2009). Only three species are known to be in Europe: *Ricania hedenborgi* Stål, 1865, an element spread in the Palaearctic and Afrotropical regions, present in Greece (Demir 2009), *R. japonica* Melichar, 1898, an East-Palaearctic species introduced in Bulgaria and Ukraine (Gjonov 2011), and *R. limbata* Lallemand, 1935, an Australian element introduced in France (cf. Bourgoïn 2013).

Even if most species belonging to this family are harmless, few are relevant agricultural pests, such as *Ricania speculum* (Walker, 1851), *Pochazia sublimata* Schumacher, 1915 and *Scolycopa australis* (Walker, 1851) (see Bu & Liang 2011). The biology of the three species of Ricaniidae present to date in Europe has not been comprehensively studied; only *R. japonica* seems to be a pest for several plants due to its polyphagy (Gjonov 2011).

According to Bourgoïn (2013), today *Ricania speculum* (Fig. 1) is distributed in Korea, Japan, China, Vietnam, Philippines and Indonesia. This species, commonly known as black planthopper, is here reported for the first time in Europe. Moreover, the family Ricaniidae is new for the Italian fauna.

In 2013, October 16<sup>th</sup>, 21 specimens (16 females and 5 males) were collected by I. Franceschini in Casarza Ligure (GE), 44°16'41"N 9°27'04"E (WGS84) (Liguria, Italy) and are now preserved in pure ethanol at the Research Centre for Agrobiological and Pedology of Florence. Under the name of *Ricania speculum* there is probably a complex of about ten species (Stroński A., *in litteris*), but these specimens (Figs 1–3) belong properly to *R. speculum* as illustrated in Yang (1989).

Since 2009 the species has been observed in Italy (Liguria) and now it can be considered as established. This alien species is already present in several coastal municipalities of Liguria: Genova, and Carasco, Casarza Ligure, Chiavari, Cogorno, Lavagna, Sestri Levante (Franceschini I., pers. obs.). The pathway of introduction is still unknown, however, it could have been accidentally introduced with ornamental plants or crops.

Italy is one of the most invaded European country by alien insects (see Inghilesi *et al.* 2013) and this record updates the list of the established Auchenorrhyncha to ten species.



**FIGURE 1.** *Ricania speculum* collected in Casarza Ligure (Liguria, Italy) (photo: F. Pennacchio).



**FIGURE 2.** Forewing of *Ricania speculum*.

Data on this species are also reported in some naturalistic forums on the web (“Forum Natura Mediterraneo”, <http://www.naturamediterraneo.com>; “Forum Entomologi Italiani”, <http://www.entomologiitaliani.net>). Numerous specimens of both adults and nymphs were found since 2009, from July to September, in several Ligurian localities in the same municipalities mentioned above. Oviposition was observed during the same period. In Liguria, this extremely polyphagous insect, was detected on many plants as both nymphs and adults—Agavaceae: *Hosta* sp.; Liliaceae: *Asparagus* sp.; Apiaceae: *Petroselinum crispum* (Mill.) A.W. Hill; Araliaceae: *Schefflera* sp.; Fabaceae: *Cercis* sp., *Gleditsia* sp., *Wisteria sinensis* (Sims) DC.; Hamamelidaceae *Loropetalum chinense* (R. Br.) Oliv.; Lauraceae: *Laurus nobilis* L.; Lardizabalaceae: *Akebia quinata* (Thunb. ex Houtt.) Decne.; Malvaceae: *Grewia occidentalis* L.; Moraceae: *Ficus benjamina* L.; Oleaceae: *Jasminum* sp.; Rhamnaceae: *Sageretia* sp.; Rosaceae: *Chaenomeles* sp., *Prunus armeniaca* L., *P. domestica* L., *P. persica* (L.) Batsch, *Sorbus domestica* L.; Sapindaceae: *Acer* spp.; Scrophulariaceae: *Buddleja davidii* Franchet; Ulmaceae: *Ulmus* spp.; Verbenaceae: *Aloysia citrodora* Palau.

In Italy, the invasiveness is not yet assessed, but this insect is known to be a relevant pest for several crops in tropical and subtropical areas: on twigs of citrus (*Citrus* spp., Rutaceae); on foliage of cocoa (*Theobroma cacao* L., Sterculiaceae), coffee (*Coffea* spp., Rubiaceae) and cotton (*Gossypium* spp., Malvaceae); on stems of sorghum (*Sorghum bicolor* (L.) Moench, Poaceae) and as sap sucking on oil palm (*Elaeis guineensis* Jacq., Palmae) (Hill 2008); on young branches and shoots of apple tree (*Malus* spp., Rosaceae) (Ma 2006); on foliage of patola (*Luffa aegyptiaca* Mill., Cucurbitaceae) and ampalaya (*Momordica charantia* L., Cucurbitaceae) (Solis & Esguerra 1982); on sugarcane (*Saccharum officinarum* L., Poaceae) (Box 1953) and on tea oil (*Camellia oleifera* C. Abel, Theaceae) (Yu 2007).

Further studies are thus necessary to assess the pathway of introduction, the actual distribution and the impacts of this new insect on native ornamental and crop plants in Italy, with the purpose of developing efficacious management policies to prevent other introductions and to control the already established populations.



**FIGURE 3.** Male terminalia of *Ricania speculum* from left and right sides.

## Acknowledgments

We are grateful to Elena Tricarico (University of Florence, Department of Biology, Italy) for the critical reading of the manuscript. Thanks to Adam Stroński (Museum and Institute of Zoology, Polish Academy of Sciences, Warsaw, Poland) who confirmed the identification.

## References

- Box, H.E. (1953) *List of sugar-cane insects. A synonymic Catalogue of the Sugar-cane Insects and Mites of the World, and of their Insect Parasites and Predators, arranged systematically*. Commonwealth Institute of Entomology, London, 100 pp.
- Bourgoin, T. (2013) FLOW (Fulgoromorpha Lists on The Web): a world knowledge base dedicated to Fulgoromorpha. Version 8, updated [2013-11-03]. Available from: <http://hemiptera-databases.org/flow/> (accessed 3 September 2014)
- Bu, C-P. & Liang, A-P. (2011) First Record of the Genus *Aprivesa* Melichar (Hemiptera, Fulgoromorpha) from South India, with Description of One New Species. *ZooKeys*, 81, 1–12.  
<http://dx.doi.org/10.3897/zookeys.81.816>
- Demir, E. (2009) *Ricania* Germar, 1818 species of Western Palaearctic Region (Hemiptera: Fulgoromorpha: Ricaniidae). *Munis Entomology & Zoology*, 4 (1), 271–275.
- Gjonov, I. (2011) *Ricania japonica* Melichar, 1898 – a representative of family Ricaniidae (Homoptera, Fulgoromorpha), new to the fauna of Bulgaria. *ZooNotes*, 23, 1–3.
- Hill, D.S. (2008) *Pests of Crops in Warmer Climates and Their Control*. Springer, London, 298 pp.
- Inghilesi, A.F., Mazza, G., Cervo, R., Gherardi, F., Sposimo, P., Tricarico, E. & Zapparoli, M. (2013) Alien insects in Italy: Comparing patterns from the regional to European level. *Journal of Insect Science*, 13 (73). Available from: <http://www.insectscience.org/13.73> (accessed 3 September 2014)
- Ma, C.S. (2006) Pests, diseases and weeds of apples published by Key Laboratory of Agriculture Department, China. Available from: [http://www.ecolsafety.org.cn/db/Fruit/login\\_pg.asp](http://www.ecolsafety.org.cn/db/Fruit/login_pg.asp) (accessed 19 June 2006)
- Solis, A.D. & Esguerra, N.M. (1982) Biology of the black leafhopper, *Ricania speculum* Walker on patola (*Luffa cylindrical* (L.) Roem). *Annals of Tropical Research*, 4 (4), 259–267.
- Yang, C.T. (1989) Ricaniidae of Taiwan (Homoptera: Fulgoroidea). *Taiwan Museum Special Publication Series*, 8, 171–204.
- Yu, A. (2007) Biological characteristics of *Ricania speculum* and Its Control. *Jiangxi Forestry Science and Technology*, 34–35.