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## FIRST RECORD OF *RICANIA SPECULUM* (WALKER, 1851) (HEMIPTERA RICANIIDAE) FROM VENETO, PIEDMONT AND LATIUM REGIONS AND NEW HOST PLANTS

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Mazza G., Marraccini D., Lucchi A., Marianelli L., Sabbatini Peverieri G., Bosio G., Giacometto E., Rapa L., Cianferoni F., Roversi P.F., Gargani E. – First record of *Ricania speculum* (Walker, 1851) (Hemiptera: Ricaniidae) from Veneto, Piedmont and Latium regions and new host plants.

The distribution of *Ricania speculum* (Walker, 1851) (Hemiptera Fulgoromorpha Ricaniidae) in Italy was updated and the species was recorded for the first time in Veneto (2017), Piedmont (2018) and Latium (2018) regions. The occurrence of this species in Sardinia, previously recorded, is here excluded. Moreover, 33 new host plants belonging to 29 families resulted to be attacked by this alien invasive species confirming its outstanding polyphagy.

KEY WORDS: alien invasive species, Fulgoromorpha, Fulgoroidea, Italy, polyphagous insect.

### INTRODUCTION

*Ricania speculum* (Walker, 1851) (Hemiptera: Fulgoromorpha: Ricaniidae) is an alien invasive species reported for the first time in Europe in 2009 (MAZZA *et al.*, 2014) and in a short time spread across Liguria (MAZZA *et al.*, 2014; ROSSI and LUCCHI, 2015) and Tuscany (SILVESTRI, 2017).

This univoltine species feeds and lays eggs on a wide range of host plants and its large polyphagy was immediately highlighted by MAZZA *et al.* (2014), ROSSI and LUCCHI (2015), ROSSI *et al.* (2015), LUCCHI and ROSSI (2016), LAUDONIA *et al.* (2017) and SILVESTRI (2017).

The host plants of this species in Italy include important crops (e.g. vines, citrus, olive and other fruit trees) and many ornamental plants (see references above). Sap suction is the main damage reported in addition to injuries, caused by the female which inserts the eggs into the plant tissues with its sharp ovipositor (e.g. ROSSI *et al.*, 2015; LUCCHI and ROSSI, 2016). This ovipositional behavior causes the withering of thin shoots or branch where the eggs were laid, as already mentioned in ROSSI *et al.* (2015). On the contrary, the honeydew production emitted from juveniles and adults seems to do not create damages on host plants (ROSSI *et al.*, 2015), but further studies are necessary in the light of the high number of individuals in the new areas of introduction (D. Marraccini, pers. obs.).

Since this exotic planthopper is a real pest for several crops in tropical and subtropical areas (reviewed in MAZZA *et al.*, 2014), the presence in Italy due to its polyphagy is noteworthy, representing a new possible threat for native species and human activities.

Moreover, since PILOTTI *et al.* (2014) found that the Banana-wilt associated phytoplasma (BWAP) was con-

firmed in two specimens of Ricaniidae collected from banana plants, the possible role of *R. speculum* in Italy as a vector of plant pathogens is pivotal and require further studies.

For these reasons, the aim of this note was to update the distribution of *R. speculum* and the list of host plants in Italy.

### MATERIALS AND METHODS

*Ricania speculum* eggs, nymphs and adults were collected weekly from April to October 2018 in the field, particularly in the municipality of Viareggio (province of Lucca, Tuscany). During the monitoring the host plants and the developmental stages were recorded following ROSSI *et al.* (2015).

We collected data on this species concerning distribution and host plants also in some naturalistic forums on the web (“Forum Natura Mediterraneo”, [www.naturamediterraneo.com](http://www.naturamediterraneo.com); “Forum Entomologi Italiani”, [www.entomologiitaliani.net](http://www.entomologiitaliani.net); “iNaturalist”, [www.inaturalist.org](http://www.inaturalist.org)).

Plant nomenclature followed the online nomenclatural database “The Plant List” ([www.theplantlist.org](http://www.theplantlist.org)). The datum for geographical coordinates is WGS84.

### RESULTS AND DISCUSSION

We confirmed the widely spread of *Ricania speculum* in Tuscany, particularly in the provinces of Massa-Carrara and Lucca, as already highlighted by SILVESTRI (2017), and Pisa (A. Lucchi, pers. obs.).

The report of this Asian planthopper in Sardinia after a

post in a naturalistic forum (ROSSI and LUCCHI, 2015) is, on the contrary, a misunderstanding, since F.C. interviewed directly the observer of the “Forum Entomologi Italiani” who explained that he lives in Sardinia, but the record of *R. speculum* regarded Liguria.

For the first time, we reported the presence of this species in Veneto and Piedmont regions. In particular, as regard Veneto, *R. speculum* was found in the Arcella neighborhood, province of Padua (an adult on an orchid plant in August 2017 and few adults inside a building in September 2018: 45°25'N 11°52'E) and in the province of Rovigo, where the species seems already well distributed (two sites in the center of Rovigo: 45°03'47.25"N 11°50'37.57"E; 45°04'19.25"N 11°49'33.13"E and one site in the municipality of Villadose: 45°04'N 11°53'E). In the Rovigo province several nymphs and adults were observed in July 2018, mainly on *Rosa* sp. and in September 2018 on *Magnolia grandiflora* L.

In Piedmont region the species was found in September 2018 on riparian plants around an artificial lake in the municipality of Settimo Torinese (45°08'37.6"N 7°43'15.8"E). More than 50 specimens of this alien insect were collected on *Acer* sp., *Crataegus monogyna* Jacq., *Lythrum salicaria* L., *Malvaviscus arboreus* Cav., *Quercus rubra* L., *Rosa* sp., *Rubus* sp., *Salix* sp., *Typha* sp. and *Ulmus* sp.

In Latium a specimen of *R. speculum*, attracted to lamp during a nocturnal monitoring, was photographed by Falvio Rocchi (www.inaturalist.org) in Rome in the “Parco Regionale dell’Appia Antica” (41°52'2.84"N 12°30'1.85"E).

Thirty-three new host plants, belonging to 29 families resulted to be attacked by this alien invasive species confirming its highly polyphagy (Table 1; Fig. I). The list of plants ranges from angiosperms to gymnosperms and, amongst the new host plants, we found several important vegetables, crops and ornamental plants in addition to wild plants and trees (Table 1). Further investigations on how host plant species nutritional and defensive chemistry affect the subsequent host plant species selection, oviposition and fitness in *R. speculum*, are necessary.

Moreover, eggs of *R. speculum* were found also in a Chestnut tree stakes, *Castanea sativa* Mill. (Fig. II) in Castiglione Chiavarese (GE) in September 2018 and this could be another important pathway of introduction for this species. Since *R. speculum* lays eggs in several plants, the species could be accidentally introduced in several regions of Italy. Moreover, since Pistoia (Tuscany), the Italian center of nurseries and one of the three most important suppliers of ornamental trees and shrubs in Europe, is close to Lucca, *R. speculum* represents a concern and then needs to be carefully monitored for its possible expansion in all Europe, as already highlighted in ROSSI *et al.* (2015).

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Table 1 – Development stages (E-eggs, N-nymphs and A-adults) of *Ricania speculum* in the new host plants.

FAMILY	GENUS, SPECIES AND AUTHOR	DEVELOPMENT STAGE
Adoxaceae	- <i>Viburnum</i> sp.	- N
Altingiaceae	- <i>Liquidambar styraciflua</i> L.	- E, A
Anacardiaceae	- <i>Schinus molle</i> L.	- E, A
Apiaceae	- <i>Daucus carota</i> L.	- A
Apocynaceae	- <i>Hoya</i> sp. - <i>Trachelospermum jasminoides</i> (Lindl.) Lem.	- N - N, A
Bignoniaceae	- <i>Catalpa</i> sp.	- A
Cannabaceae	- <i>Cannabis sativa</i> L.	- E, A
Caricaceae	- <i>Carica</i> × <i>pentagona</i> Heilborn	- A
Compositae	- <i>Cirsium</i> sp.	- A
Convolvulaceae	- <i>Ipomoea</i> sp.	- N
Cucurbitaceae	- <i>Cucurbita pepo</i> L. - <i>Cucumis sativus</i> L.	- N - A
Cupressaceae	- <i>Juniperus oxycedrus</i> L.	- A
Cycadaceae	- <i>Cycas revoluta</i> Thunb.	- N, A
Ericaceae	- <i>Vaccinium</i> sp.	- N
Fagaceae	- <i>Quercus rubra</i> L.	- A
Iridaceae	- <i>Crocasmia</i> sp.	- N
Juglandaceae	- <i>Carya illinoensis</i> (Wangenh.) K.Koch	- E, A
Lythraceae	- <i>Lythrum salicaria</i> L.	- A
Magnoliaceae	- <i>Magnolia grandiflora</i> L.	- A
Malvaceae	- <i>Abutilon pictum</i> (Gillies ex Hook.) Walp. - <i>Malvaviscus arboreus</i> Cav.	- E, A - A
Myrtaceae	- <i>Callistemon citrinus</i> (Curtis) Skeels	- A
Oleaceae	- <i>Fraxinus</i> sp.	- E, A
Poaceae	- <i>Hordeum marinum</i> Huds. - <i>Zea mays</i> L.	- N - A
Platanaceae	- <i>Platanus</i> sp.	- E, A
Solanaceae	- <i>Solanum melongena</i> L.	- N
Tamaricaceae	- <i>Tamarix</i> sp.	- A
Theaceae	- <i>Camellia</i> sp.	- N
Typhaceae	- <i>Typha</i> sp.	- A
Vitaceae	- <i>Parthenocissus quinquefolia</i> (L.) Planch.	- E, N, A

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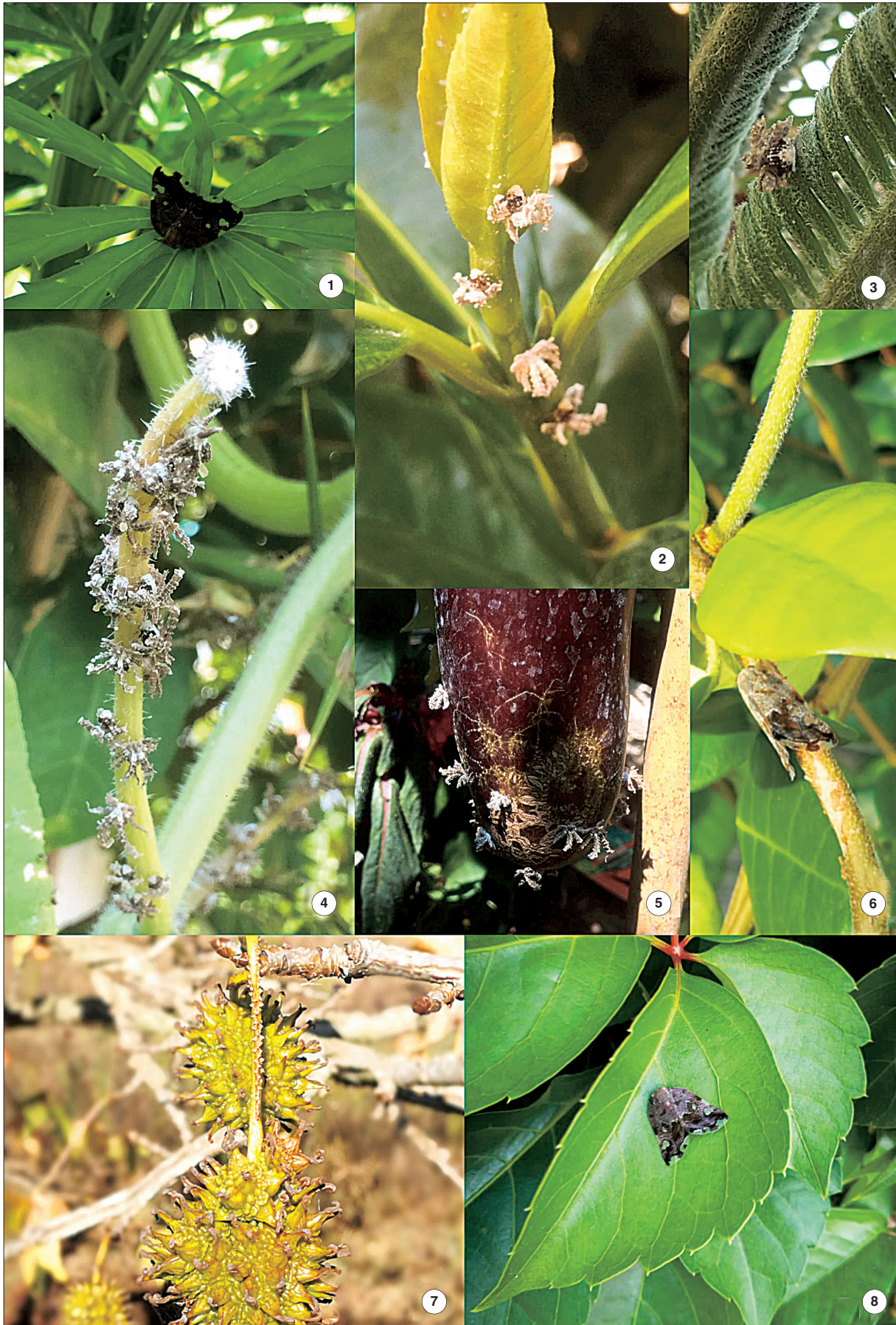


Fig. 1 – *Ricania speculum* on new host plants: 1) adult on *Cannabis sativa* L.; 2) nymphs on *Viburnum* sp.; 3) nymph on *Cycas revoluta* Thunb.; 4) several nymphs on *Cucurbita pepo* L.; 5) nymphs on *Solanum melongena* L.; 6) adult on *Trachelospermum jasminoides* (Lindl.) Lem.; 7) eggs inserted in a fruit of *Liquidambar styraciflua* L.; 8) adult on *Parthenocissus quinquefolia* (L.) Planch.





Fig. II – Eggs of *Ricania speculum* in a Chestnut tree stake.

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