New record of *Brontocoris tabidus* (Hemiptera: Pentatomidae) attacking larvae of *Heteroperreyia hubrichi* (Hymenoptera: Pergidae)

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RESUMEN. *Schinus terebinthifolia* Raddi (Anacardiaceae) es un árbol perenne nativo de Argentina, Brasil, Paraguay y Uruguay, considerado actualmente una de las especies invasoras más agresivas y extendidas en Florida, Hawai y Texas (Estados Unidos). La avispa sierra defoliadora, *Heteroperreyia hubrichi* Malaise (Hymenoptera: Pergidae), es un agente potencial de control biológico para *S. terebinthifolia*. Durante inspecciones de campo recientes en el área de distribución nativa de *S. terebinthifolia*, ninfas y adultos de *Brontocoris tabidus* (Signoret) (Hemiptera: Pentatomidae) fueron encontrados predando larvas de *H. hubrichi* y *Heteroperreyia n.?* sp. sobre plantas de *S. terebinthifolia* en Argentina (Provincia de Misiones) y Brasil (Estado de Rio Grande do Sul) respectivamente. La depredación de *B. tabidus* sobre larvas de especies de *Heteroperreyia* constituye nuevos registros.

PALABRAS CLAVE. Chinchera predadora. Control biológico. *Schinus terebinthifolia*.

ABSTRACT. Brazilian peppertree (*Schinus terebinthifolia* Raddi; Anacardiaceae) is a perennial tree native to Argentina, Brazil, Paraguay and Uruguay. Brazilian peppertree is one of the most aggressive and widespread invasive species in Florida, Hawaii, and Texas (USA). The defoliating sawfly, *Heteroperreyia hubrichi* Malaise (Hymenoptera: Pergidae), is a potential biological control agent for *S. terebinthifolia*. During surveys of plant use under natural conditions in the *S. terebinthifolia* native range, nymphs and adults of *Brontocoris tabidus* (Signoret) (Hemiptera: Pentatomidae) were found attacking *H. hubrichi* and *Heteroperreyia n.?* sp. larvae feeding on *S. terebinthifolia* in Argentina (Misiones Province) and Brazil (Rio Grande do Sul) respectively. The attack by *B. tabidus* on *Heteroperreyia* species constitutes new records.

KEYWORDS. Biological control. Predatory stink bug. *Schinus terebinthifolia*.

Brazilian peppertree (*Schinus terebinthifolia* Raddi; Anacardiaceae) is a Neotropical species whose native range extends along the Atlantic coast of Brazil from Paraiba south to Rio Grande do Sul states, west to northeastern Argentina and adjacent Paraguay and Uruguay (Barkley, 1957; Muñoz, 2000; Wheeler et al., 2016b). This species has been introduced to many countries around the world as an ornamental (Morton, 1978; Panetta & McKee, 1997). Currently, Brazilian peppertree is one of the most aggressive and widespread invasive species in Florida, Hawaii, and Texas (USA) (Ewel, 1986; Yoshioka & Markin, 1991; Rodgers et al., 2014).
Biological control research against Brazilian peppertree began in Hawaii in 1954, continued between 1960 and 1961 (Yoshioka & Markin, 1991), and has been conducted in Florida more recently (Hight et al., 2002; Wheeler et al., 2016a). Three biological control agents were released in Hawaii, a bruchid seed feeder Lithraeus atronotatus Pic (Coleoptera: Chrysomelidae), a tortricid leaf folder Episimus unguiculus Clarke (Lepidoptera: Tortricidae), and a gelechiid stem galler Crasimorpha infuscata Hodges (Lepidoptera: Gelechiidae) (Davis & Krauss, 1962; Krauss, 1962, 1963; Yoshioka & Markin, 1991). Despite the establishment of the first two species in Hawaii, their feeding has not sufficiently reduced the weed problem (Yoshioka & Markin, 1991; Hight et al., 2002; Winstson et al., 2014).

Finding specialized herbivores in the native range has been the major challenge for the biological control research of Brazilian Peppertree (Hight et al., 2003; Oleiro et al., 2011; Wheeler et al., 2011, 2013, 2014; McKay et al., 2012; Rendon et al., 2012; Manrique et al., 2014). However, two promising species, the leaf-feeding thrips Pseudophilothrips ichini (Hood) (Thysanoptera: Phlaeothripidae) and the foliage-gall former Calophya latiforceps Burckhardt (Hemiptera: Calophyidae) have been petitioned and recently approved for release in the US (Wheeler et al., 2016a).

Another potentially host-specific species is the defoliating sawfly, Heteroperreyia hubrichi Malaise (Hymenoptera: Pergidae), which has been intensively studied as a biological control candidate of Brazilian peppertree (Medal et al., 1999; Vitorino et al., 2000; Hight et al., 2003). This species is known to occur in southern Brazil and northeastern Argentina feeding on the leaves of S. terebinthifolia and on the closely related species S. weinmannifolia Engl. (Vitorino et al., 2000; McKay et al., 2009). Like other members of the Pergidae sawfly family, this species is known to produce cytotoxic peptides (Oelrichs et al., 1999). Additional host specificity studies with H. hubrichi have been delayed because of the potential for poisoning native wildlife and domesticated animals that may consume the insect larvae (Cuda et al., 2004; Dittrich et al., 2004). However, given the restricted host range of H. hubrichi, the utilization of this species as a biological control agent for S. terebinthifolia, is being reconsidered.

During 2017-18, while conducting surveys of plant use under natural conditions in the native range of S. terebinthifolia in Argentina and Brazil, nymphs and adults of the stink bug Brontocoris tabidus (Signoret) (Hemiptera: Pentatomidae) were found attacking H. hubrichi larvae feeding on S. terebinthifolia leaves at two localities (Garuhapé-Mi and Oberá) in Misiones Province, Argentina (Figs. 1 and 2). In March 2018, while sampling for natural enemies of S. terebinthifolia in southern Brazil, B. tabidus adults were also found attacking Heteroperreyia n.? sp. larvae feeding on S. terebinthifolia (Figs. 1 and 2).

Fig. 1. Field sites records of B. tabidus attacking Heteroperreyia larvae in northeastern Argentina and southern Brazil.

The genus Brontocoris includes only two species, Brontocoris nigrolimbatus (Spinola) from Chile, Uruguay and Argentina, and B. tabidus from Chile, Brazil, Paraguay and Argentina (Ruffinelli & Pirán, 1959; Grazia & Schwertner, 2008; Grazia et al., 2015). In Brazil, B. tabidus is a generalist predator that naturally controls defoliating Lepidoptera caterpillars in Eucalyptus plantations (De Menezes et al., 2013). Among the many prey used by this species, B. tabidus is known to prey on another leaf-feeding sawfly, Haplostegeus nigricrus Conde (Hymenoptera: Pergidae), this one feeding on Psidium guajava L. (Myrtaceae) (Azevedo Pereira et al., 2008). The predation by B. tabidus on Heteroperreyia species constitutes a new record.

If H. hubrichi is approved for the biological control of S. terebinthifolia in the US, predation by similar members of the Pentatomidae in the invaded range may decrease its performance against S. terebinthifolia.

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Fig. 2. *Brontocoris tabidus* attacking *Heteroperreyia* larvae. a. *H. hubrichi* in Argentina. b. *Heteroperreyia* n.? sp. in Brazil.

**LITERATURE CITED**


