

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

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### Nuevo registro de *Brontocoris tabidus* (Hemiptera: Pentatomidae) atacando larvas de *Heteroperreyia hubrichi* (Hymenoptera: Pergidae)

**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.** Chinche 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 Paraíba south to Rio Grande do Sul states, west to north-eastern Argentina and adjacent Paraguay and Uruguay (Barkley, 1957; Muñoz, 2000; Wheeler et al., 2016b).

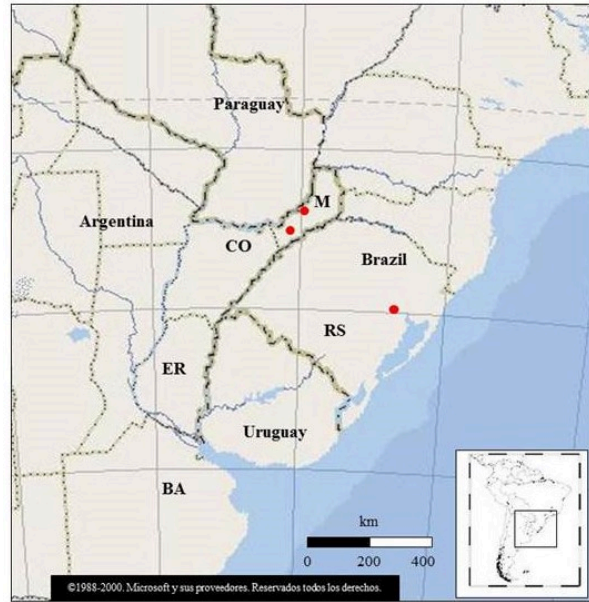
This species has been introduced to many countries around the world as an ornamental (Morton, 1978; Panetta & McKee, 1997). Currently, Brazilian peppertree is one of the most aggressive and widespread invasive species in Florida, Hawaii, and Texas (USA) (Ewel, 1986; Yoshioka & Markin, 1991; Rodgers et 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; Mc Kay 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; Mc Kay 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 surveying 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, *Haplostegus 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.

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