HERBIVORES IN THAILAND ON RHODOMYRTUS TOMENTOSA (MYRTACEAE), AN INVASIVE WEED IN FLORIDA

Authors: Winotai, Amporn, Wright, Tony, and Goolsby, John A.

Source: Florida Entomologist, 88(1) : 104-105

Published By: Florida Entomological Society

URL: https://doi.org/10.1653/0015-4040(2005)088[0104:HITORT]2.0.CO;2

HERBIVORES IN THAILAND ON *RHODOMYRTUS TOMENTOSA* (MYRTACEAE), AN INVASIVE WEED IN FLORIDA

AMPORN WINOTAI[1], TONY WRIGHT[2] AND JOHN A. GOOLSBY[3]
[1]Entomology and Zoology Group, Plant Protection Research and Development Office
Department of Agriculture, Chatuchak, Bangkok 10900, Thailand

[2]CSIRO Entomology, Australian Biological Control Laboratory, 120 Meiers Road, Indooroopilly, Australia 4068

[3]United States Dept. of Agriculture, Agricultural Research Service, Australian Biological Control Laboratory
120 Meiers Road, Indooroopilly, Australia 4068

Downy rose myrtle, *Rhodomyrtus tomentosa* (Aiton) Hassk. (Myrtaceae), is an evergreen shrub native to Southeast Asia including Thailand (Verheij & Coronel 1992). It was introduced to the United States as an ornamental and is now invading native plant communities in Florida (Langeland & Craddock-Burks 1998). A preliminary survey of herbivores attacking this plant in Thailand was conducted from April 2001 to May 2002 to assemble data on their distribution, biology, and potential as biological control agents.

More than 60 field sites with *R. tomentosa* were visited, resulting in 43 collections and observations of insects and damage. Live immature insects were taken to the Department of Agriculture (DOA), Thailand, for rearing to their adult stage on nursery stock of *R. tomentosa*. Voucher specimens of the insects are lodged in the DOA insect collection, Bangkok, and at the USDA-ARS, Systematics Entomology Laboratory, Beltsville, MD. We used sequence data D2 expansion domain of the 28S rRNA to characterize morphological similar insects that were reared from hosts other than *R. tomentosa.* The methods are those described by DeBarro et al. (2000). Information is presented below on the species that were most common in our surveys.

In Thailand *R. tomentosa* occurs most frequently in coastal sandy soils on both coasts of the southern Peninsula, extending around to Trat Province and Klong Yai District in the east. We measured soil pH at several sites and found that it ranged from 4.0 to 10.0 with a mean of 5.8. The soils were mostly acidic except for two sites in Chumphon Province.

Two species of weevils *Sternuchopsis patrulis* (Faust) (= *Alcidodes patrulis*) and *Hypolixus truncatulus* (Fabricius) were collected from *R. tomentosa* at sites in southern Thailand near Nakhon Si Thammarat (NST). Weevils were observed on flushes of new growth causing stem damage resulting in death of growing tips. Eggs and larvae of these species have not been positively identified. *Sternuchopsis frenatus* (Feisthamel) (= *Alciodes frenatus*) was reported damaging leaf midribs and boring twigs of teak, *Tectona grandis* Teck (Verbenaceae) in Thailand (Hutacharern and Tubtim 1995).

A unknown species of thrips (Thysanoptera: Thripidae) was collected from flowers of *R. tomentosa* at sites in Surat Thani and NST. The species is similar to *Thrips coloratus* Schmutz. However females of the rhodomyrtus thrips are strikingly different as they have very long ovipositors. This may be a new species, possibly specific to *R. tomentosa* (L. Mound, pers. comm. Canberra, Australia).

Carea varipes Walker (Lepidoptera: Noctuidae) was not common, but this moth was collected at widely separated sites in Trat and NST. Larvae are large and obvious leaf feeders but have not been observed in large numbers. Pupation occurs in rolled leaves or between touching leaves. *Carea varipes* also has been recorded from Hong Kong, also on *R. tomentosa* (Mohn 2002).

Larvae in the genus *Agriothera* (Lepidoptera: Roeslerstamiidae) were found boring and feeding inside young flower buds and young fruit. This insect was the most common in our surveys and often found in large numbers. It is widely distributed, being collected from Chantaburi, Trat, Surat Thani, NST, Songkhla, and Trang provinces. The full grown larva is about 6-7 mm long, head pale, body creamy white with a red stripe on each abdominal segment. The adult moth is tiny, having brown fore wings with yellow bands at the posterior margins. Adults and larvae used in the identification came from different sites, so it is possible that more than one species is involved. Very similar but unidentified species of Lepidoptera larvae were collected attacking rose apple, *Syzygium jambos* (L.) Alston (Myrtaceae). Sequencing of the D2 gene showed around 60 base pair differences between this insect and the *Agriothera* sp., indicating it is not the same species.

Pingasa chlora (Stoll) (Lepidoptera: Geometridae) was found on *R. tomentosa* in Trat and NST. Young larvae bore inside folds and feed on young shoots and young flowers. Large larvae feed on young flushes of *R. tomentosa*. Head and body are pale green covered with short dense white hairs, with a spiracular line and oblique lateral streaks of each segment. *Pingasa chlora* is known as a pest of rambutan, *Nepthelium lappaceum* L. (Sapindaceae) and litchi, *Litchi chinensis* Sonn. Mill. (Sapindaceae) (Kuroko & Lewvanich 1993).

Trabala vishnou (Lefroy) (Lepidoptera: Lasiocampidae) is distributed widely in Thailand but was found on *R. tomentosa* only at one site in Bangkok. The female moth lays eggs in masses covered with anal tufts. Newly hatched larvae are gregarious; the body is yellow with black stripes, and the last instar larva is about 6 cm long. Wingspan of the adult is about 5 cm. The body and wing coloration of males is pale green, and yellow in females. Larvae feed on many fruit crop plants, such as rose apple, *S. jambos*; sapodilla plum, *Manilkara zapota* L. (Sapotaceae); Rangoon creeper, *Quisqualis indica* L. (Combretaceae), and others (Kuroko and Lewvanich 1993).

Lepidopteran larvae of a tortricid species were found feeding on young shoots of *R. tomentosa*. Larvae clumped leaves together to form shelters in which they fed. The moths are about 2-2.5 cm long, with bell-shaped wings when resting. It was found only in the south in NST and Surat Thani.

Larvae of *Hyposidra infixaria* Walk (Lepidoptera: Geometridae) cause minor damage to leaves of *R. tomentosa*. This moth was found at just one site in Trat province. Specimens in the DOA Insect Collection, Bangkok, have been collected from castor bean, *Ricinus communis* L. (Euphorbiaceae) and pomegranate, *Punica granatum* L. (Punicaceae).

We thank Pimolporn Nanta and Auranuj Kongkanjana from DOA in Bangkok (Entomology and Zoology Division) for discussions and support; Saroj Kaewwaree, Usa Impong, Kaewmanee Nachin, Pattana Phasorn, Tawat Matoon, and Pathomporn Laichapit (Plant Protection Research and Development Office) for collection assistance; Somchai Suwongsaksri and Sommai Chumram (Plant Protection Research and Development Office); for identifications, Ted Edwards, Laurence Mound, Rolf Oberpeiler (Australian National Insect Collection, CSIRO Entomology, Canberra); David Adamski of the USDA-ARS Systematic Entomology Laboratory, Washington, D.C. for identifications, and Ernest Delfosse and Richard Greene of USDA-ARS for funding.

Summary

Rhodomyrtus tomentosa is a perennial shrub of Asian origin, which is becoming an increasingly serious invader of native plant communities in Florida. Based on a one-year survey of herbivores of this plant in Thailand, a suite of herbivorous insects was collected, including leaf and flower feeders, and stem and fruit borers. Six species, including two moths, *C. varipes* and *Agriothera* sp., an undescribed thrips, and two weevils, *S. patrulis* and *H. truncatulus*, show some traits of narrow host specifity and are recommended for further study as biological control agents.

References Cited

DeBarro, P. J., F. Driver, I. D. Naumann, G. M. Clarke, and J. Curran. 2000. Descriptions of three species of *Eretmocerus* Haldemann (Hymenoptera: Aphelinidae) parasitising *Bemisia tabaci* (Gennadius) (Hemiptera: Aleyrodidae) and *Trialeurodes vaporariorum* (Westwood) (Hemiptera: Aleyrodidae) in Australia based on morphological and molecular data. Australian J. Entomol. 39: 259-269.

Hutacharern, C., and N. Tubtim. 1995. Checklist of Forest Insects of Thailand. Office of Environmental Policy and Planning, Thailand. 392 pp.

Kuroko, H., and A. Lewvanich. 1993. Lepidopterous Pests of Tropical Fruit Trees in Thailand (with Thai Text). Japan International Cooperation Agency, Tokyo. 132 pp. + plates.

Langeland, K. A., and K. Craddock-Burks [Eds.]. 1998. *Rhodomyrtus tomentosa* (Ait.) Hassk, pp. 112-113 *In* Identification and Biology of Non-Native Plants in Florida's Natural Areas. Univ. of Florida Press, Gainesville, USA. 165 pp.

Mohn, D. L. 2002. http://www.ccs-hk.org/DM/butterfly/Nolid/Carea-varipes.html.

Verheij, E. W. M., and R. E. Coronel [Eds.]. 1992. Plant Resources of South-East Asia 2: Edible Fruits and Nuts. Prosea Foundation, Bogor, Indonesia. 446 pp.