

Pest Alert

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Adam H. Putnam, Commissioner of Agriculture

Giant Palm Weevils of the Genus *Rhynchophorus* (Coleoptera: Curculionidae) and Their Threat to Florida Palms

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INTRODUCTION: The giant palm weevils of the genus *Rhynchophorus* Herbst are among the worst palm pests in the world. One species, *Rhynchophorus cruentatus* (Fabricius), is native to Florida and the southeastern US. Two other species, *Rhynchophorus ferrugineus* (Olivier) and *Rhynchophorus palmarum* (L.), are found in the New World and are considered to be threats to palms in Florida.

Of particular concern is *R. ferrugineus*, known as the red palm weevil. It is a pest of coconut and other palms in its native range. Over the past three decades, its range has expanded into the Middle East, North Africa and Mediterranean Europe. It attacks many palm species, but is especially devastating on date palms. It recently became established in Curaçao in the Caribbean, placing it ever closer to Florida. In each case, it is suspected that the weevils travelled with imported palms. In January 2010, the federal government prohibited the importation into the United States of live palms belonging to 17 genera.

IDENTIFICATION: Identification of adult palm weevils is straightforward as they are the largest weevils in North America, ranging from about 1 to 1.8 inches (25mm to 45mm) in length. The individual species are rather similar, but the three species under consideration can be distinguished by the following key:

- 1. Pronotum strongly lobed posteriorly (Fig. 4, arrow); color black.....*R. palmarum*
— Pronotum evenly curved posteriorly (Fig. 3, arrow); color red, red and black, or black
- 2. Pronotum gradually narrowed anteriorly (Fig. 1, arrow).....*R. ferrugineus*
— Pronotum abruptly narrowed anteriorly (Fig. 2, arrow)..... *R. cruentatus*

BIOLOGY: Most of the information presented here was derived from Wattanapongsiri (1966). The female lays eggs at the base of the leaf-sheath, terminal shoots, or in wounds or burrows made by other insects in the trunk. One female may lay more than 800 eggs. The eggs hatch in 3-4 days and the larvae burrow into the tree tissue, feeding for 25-105 days and undergoing 9-20 molts before preparing a pupal cell constructed from palm fibers. Within the pupal cell, the larvae pass through a 2-17 day prepupal stage and then an 8-50 day pupal stage. Adults may live more than 100 days. The total life cycle requires 45-180 days.

HOSTS: The following host list for *R. ferrugineus* is from Malumphy and Moran (2007): The palms, *Areca catechu*, *Arenga saccharifera*, *Arenga pinnata*, *Borassus flabellifer*, *Borassus* sp., *Calamus merrillii*, *Caryota cumingii*, *Caryota maxima*, *Cocos nucifera*, *Corypha utan* (= *C. gebanga*, *C. elata*), *Corypha umbraculifer*, *Elaeis guineensis*, *Livistona decipiens*, *Livistonachinensis*, *Livistonac saribus* (= *Livistona cochinchinensis*), *Livistonac subglobosa*, *Metroxylon sagu*, *Oneosperma horrida*, *Oneosperma tigillarum*, *Phoenix canariensis*, *Phoenix dactylifera*, *Phoenix sylvestris*, *Oreodoxa regia*, *Sabal umbraculifera*, *Trachycarpus fortunei* and *Washingtonia* sp., plus sugar cane, *Saccharum officinarum* and century plant, *Agave americana*.

Hosts for *R. palmarum* include *Cocos nucifera*, *Elaeis guineensis*, *Euterpe edulis*, *Metroxylon sagu*, *Phoenix canariensis*,



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Phoenix dactylifera, *Saccharum officinarum*.

Rhynchophorus cruentatus has the most restricted host range of the species considered here. Its native host is *Sabal palmetto*. Although it seems to mostly attack wounded or dying palms, it can be a severe pest of sabal palms in landscape situations, especially where newly planted trees are under stress. In Florida, it has occasionally reached severe pest status on *Phoenix canariensis* in nurseries (Hunsberger *et al.* 2000). Hunsberger *et al.* (2000) and Division of Plant Industry records list other palm hosts as *Bismarckia nobilis*, *Washingtonia* sp., *Serrenoa repens*, *P. dactylifera*, *Pritchardia* sp., *Roystonea* sp., *Cocos nucifera*, *Latania* sp., *Caryota* sp., and *Thrinax radiata*.

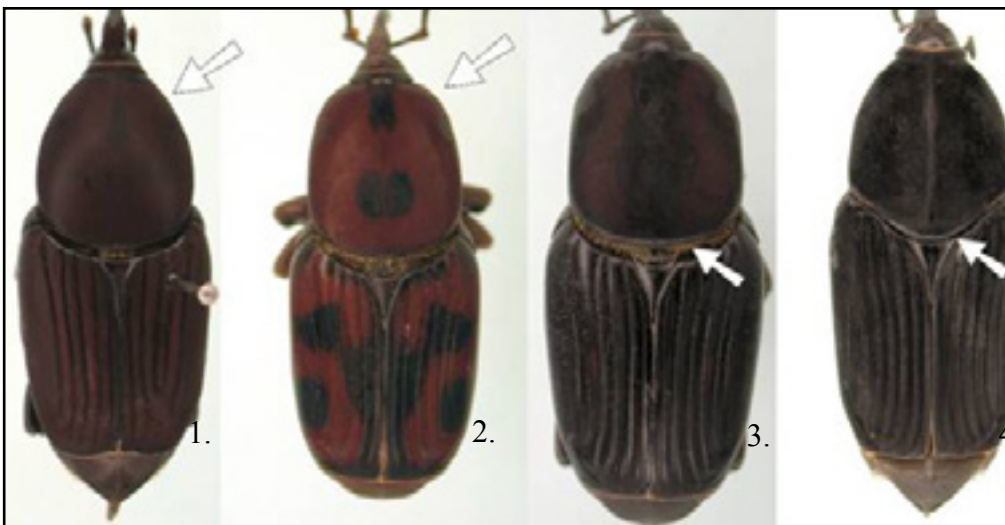
DISTRIBUTION: *Rhynchophorus ferrugineus* is native to southeastern Asia and the Pacific Islands. It arrived in the Arabian Peninsula in the 1980s and has since spread throughout the Middle East, North Africa, and Mediterranean Europe. It is a severe pest, especially of date palms, wherever it has been introduced. In late 2008, it was discovered on the island of Curaçao in the Dutch West Indies - the first time it has been found in the New World. Malumphy and Moran (2007) gave its distribution as Bahrain, Bangladesh, Cambodia, China, Egypt, France, Greece, India, Indonesia, Iran, Iraq, Israel, Italy, Japan, Jordan, Kuwait, Laos, Malaysia, Myanmar (Burma), Oman, Pakistan, Palestinian Authority Territories, Papua New Guinea, Philippines, Qatar, Saudi Arabia, Solomon Islands, Spain, Turkey, Sri Lanka, Taiwan, Thailand, United Arab Emirates, Vietnam and Western Samoa.

Rhynchophorus palmarum has been recorded (Anonymous 2005) from Argentina, Belize, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Dominica, Ecuador, El Salvador, French Guiana, Grenada, Guadeloupe, Guatemala, Guyana, Honduras, Martinique, Mexico, Nicaragua, Panama, Paraguay, Peru, Puerto Rico, St. Vincent, Surinam, Trinidad and Tobago, Uruguay and Venezuela. Wattanapongsiri (1966) recorded *R. palmarum* from California and Texas based on perhaps doubtful records not supported by modern information. *Rhynchophorus palmarum* is the vector of the nematode *Bursaphelenchus cocophius* (Cobb) Baujard, which causes red-ring disease in coconut.

Rhynchophorus cruentatus has been recorded from the southeastern coastal plain of the United States (Florida, Georgia, South Carolina, Louisiana, Texas) (Wattanapongsiri 1966) and the Bahamas (Turnbow and Thomas 2008). In Florida, it occurs throughout the state (Woodruff 1967).

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Figures 1-4. Adults of *Rhynchophorus* spp., illustrating diagnostic characters:

1. *R. ferrugineus*; 2. *R. cruentatus*, red and black form; 3. *R. cruentatus*, black form; 4. *R. palmarum*.