

PEST ALERT

Florida Department of Agriculture and Consumer Services, Division of Plant Industry
Charles H. Bronson, Commissioner of Agriculture

Two Asian Ambrosia Beetles Recently Established in Florida (Curculionidae: Scolyrinae)

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INTRODUCTION: Twelve species of ambrosia beetles, almost all of Asian origin, are known to have become established in the U.S. since 1990. All are suspected to have been introduced in solid wood packing materials, such as crates and pallets (Haack 2003). The two most recent Florida invaders are *Xylosandrus mutilatus* (Blandford) and *Euwallacea fornicatus* (Eichhoff).

IDENTIFICATION: *Xylosandrus mutilatus* is a relatively large beetle for a xyleborine, averaging a little more than 3.5 mm in length. It is black, with reddish legs and antennae. It is readily recognized by its unusual shape, with the elytra appearing shorter than the pronotum (Figs. 1-2).

Euwallacea fornicatus is a more typical xyleborine in appearance (Figs. 3-4), and as such it is less readily identifiable. Confirmation of its identity requires an expert in scolytid identification. It is about 2.5 mm in length and rather stout. It is brownish or blackish in color with reddish legs and antennae. There are four rounded teeth on the anterior margin of the pronotum. The apical declivity is evenly rounded to the apex, which is sharply margined. The body is covered sparsely with long and slender pale setae.

BIOLOGY: These are both members of the tribe Xyleborini which are known collectively as ambrosia beetles. These beetles feed on certain kinds of fungi which the females carry from tree to tree and inoculate in their burrow system. They do not actually feed on the woody tissue, as do most other bark beetles. Both of these species are considered to be pests within their native ranges and their life histories have been well-studied. Schiefer and Bright (2004) provide a synopsis of the life history of *Xylosandrus mutilatus*; while Sivapalan (1975, 1977) discusses the population dynamics of *Euwallacea fornicatus* in tea plantations.

DISTRIBUTION: Both species are native to Asia. *Xylosandrus mutilatus* ranges from Japan south to New Guinea and west to India. In the New World, it has only been found in Mississippi and Florida. In Florida, it has been collected only at Archbold Biological Station near Lake Placid, Highlands Co., and in Tallahassee, Leon Co. All Florida specimens were collected in traps.

Euwallacea fornicatus is found from Japan south to Indonesia and west to India. It has also been introduced into Australia, many of the oceanic islands of the Pacific, the islands of the Indian Ocean, Madagascar, Hawaii and Panama (CAB International 2003), which was the only published New World record (Wood 1980) until its discovery in Florida in 2002 and California in 2003.

COMMON HOSTS: Both species are highly polyphagous in their native ranges. *Euwallacea fornicatus* is a pest of tea (*Camellia sinensis* (L.) (Sivapalan 1975, 1977). Wood (1980) says of it: "This species has caused extensive economic damage in southern Asia, Sri Lanka, Indonesia, Micronesia, Africa, and Hawaii for a half century or more in a very large number of host species...Since it is moderately aggressive, it is expected to be of some economic importance in the tropical and subtropical areas into which it spreads."

In Florida, the only host association thus far is with royal poinciana (*Delonix regia* (Bojer ex Hook.) Raf.) (Fabaceae), an exotic tree widely used in landscaping in the southern part of the state. The first specimens were collected in the Kendall area of Miami, Dade Co., emerging from a dead branch of royal poinciana in April, 2002. Over the next two years, scattered specimens were collected in an unbaited Lindgren funnel trap placed in the same tree. Occasional specimens also turned up in an aphid-sampling suction trap operated in the same general area of Miami. Months represented

in these collections were: March, April, May, June and August. In May of 2004, Dr. Forest W. Howard, Ft. Lauderdale Research and Education Center, University of Florida, submitted long series of *E. fornicatus* and *Theoborus solidariceps* (Schedl) (a rarely collected Neotropical ambrosia beetle) that were reared from royal poinciana in Ft. Lauderdale, Broward Co. This was the first record of the species outside of Dade Co.

"We have observed cases of decline of royal poinciana trees in southeastern Florida for at least several years....The wood of dead branches and the main stem is discolored, indicating presence of a fungus....Exit holes of beetles (Curculionidae: Scolytinae) are often present in the main stem or branches." (Howard, pers. comm., 2004).

Xylosandrus mutilatus has been recorded from a large number of hosts in Asia (Schiefer and Bright 2004); many of the genera in that list are represented by native species in Florida. It has been listed as a pest in Japan, where it has been called the "camphor shot beetle," but it has not been explicitly recorded as attacking living plants, as do several other exotic species of *Xylosandrus* that have become established in the southeastern U.S. (Schiefer and Bright 2004). Even though thousands of beetles have been collected in a single Lindgren funnel trap in Mississippi, what hosts it is attacking there remains a mystery (Schieffer and Bright 2004).

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Fig. 1. *Xylosandrus mutilatus* (Blandford), female, dorsal view
Photo credit: Dr. Mike Thomas, FDACS/DPI



Fig. 2. *Xylosandrus mutilatus* (Blandford), female, lateral view
Photo credit: Dr. Mike Thomas, FDACS/DPI



Fig. 3. *Euwallacea fornicatus* (Eichhoff), female, dorsal view
Photo credit: Dr. Mike Thomas, FDACS/DPI



Fig. 4. *Euwallacea fornicatus* (Eichhoff), female, lateral view
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