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Source: Florida Entomologist, 94(2) : 354-355

Published By: Florida Entomological Society

URL: https://doi.org/10.1653/024.094.0235

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MULTIPLE DETECTIONS OF TWO EXOTIC AUGER BEETLES OF THE GENUS *SINOXYLON* (COLEOPTERA: BOSTRICHIDAE) IN GEORGIA, USA

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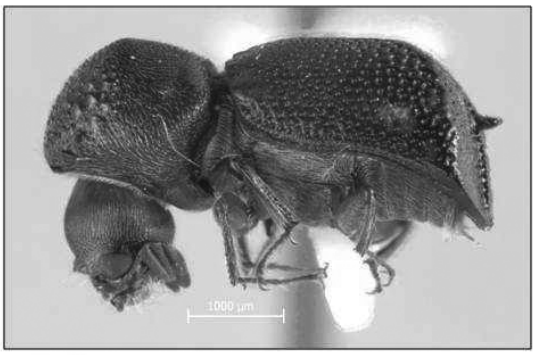
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False powderpost or auger beetles (Coleoptera: Bostrichidae) are important pests of agricultural and forestry products colonizing living plants, lumber, and finished wood products. Seventy three species of bostrichid beetles are present in North America, with an additional 34 exotic species intercepted at ports-of-entry with varying degrees of frequency (Ivie 2002; Haack 2006). Bostrichid beetles have frequently been found on crates, dunnage, and pallets (collectively termed "solid wood packing material") (SWPM) arriving from other countries (Haack 2006). In particular, members of the genus *Sinoxylon* Duftschmid, commonly known as auger beetles, have been transported on SWPM from the Old World tropics to other parts of the world. Between 1985 and 2000, *Sinoxylon* species accounted for 32% of total interceptions of bostrichid beetles, and half of the total number of bostrichid beetle species intercepted in 16 U.S. states (Haack 2006). Of the 50 or so described species of *Sinoxylon*, at least 2 species, *S. unidentatum* (F.) (synonym: *conigerum* Gerstaecker) (Borowski 2007) and *S. ceratoniae* (Linnaeus), are thought to be established in Florida and California, respectively (Peck & Thomas 1998; Ivie 2002).

We report multiple collections of *Sinoxylon*, including *S. anale* Lesne and *S. unidentatum* from various storage facilities and ports-of-entry in Georgia, USA (Fig. 1 A, B). Twenty one adults of *S. anale* (Fig. 1 A) were collected on 15 May 2004 emerging from wooden pallets holding peanuts from India in a storage facility in Albany, Dougherty County, Georgia. In addition, 12 adults of *S. anale* were collected on 22 Jul 2010 from SWPM originating from India and intercepted at a port-of-entry in Fulton County, Georgia. Two adults of *S. unidentatum* (Fig. 1 B) were collected on 3 Oct 1996 emerging from SWPM originating from India in Laurens County, Georgia. All specimens are deposited in the Georgia Museum of Natural History, University of Georgia in Athens.

Sinoxylon anale, endemic to the Oriental Region, is one of the most commonly found bostrichid species in imported material around the world. This species has been reportedly introduced to Venezuela (Joly et al. 1994), Brazil (Teixeira et al. 2002), Israel (Argaman 1987), Australia (Stanaway et al. 2001), Poland (Sliwa 1971, Skalski 1971), and Ukraine (Gumovsky 2010). In North America, *S. anale* has been intercepted in New York, Detroit, Philadelphia, San Francisco, Miami, Florida, and Columbus (Fisher 1950; Teixeira et al. 2002). *Sinoxylon anale* is one of the most destructive woodboring beetles in India (Fisher 1950), and is quarantined in Hawaii, Brazil, Argentina, Uruguay, and Paraguay. It is



(A)



(B)

Fig. 1. Lateral views of the adults of *Sinoxylon anale* Lesne (A) and *Sinoxylon unidentatum* (F.) (B). Note the differences in elytral declivity between these 2 species.

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polyphagous, colonizing >70 deciduous woody plant species and a wide variety of products such as lumber, logs, stored wood, and plant seeds (Lesne 1906; Beeson & Bhatia 1937, Sittichaya et al. 2009). In Israel, an infestation by *S. anale* resulted in mortality of the ornamental tree species, *Delonix regia* (Bojer ex Hook.) Raf., which were subsequently burned, but *S. anale* still became established (Argaman 1987). *Sinoxylon unidentatum* is also of oriental origin, polyphagous, and has been introduced to all major continents including North America (Fisher 1950, Filho et al. 2006). Recently, *S. unidentatum* was found infesting wood pallets used to import tea to Italy from Sri Lanka (Savoldelli & Regalin 2009), and it was found for the first time in Colombia in imported furniture from India (cited as S. *conigerum*) (Quiroz-Gamboa & Sepúlveda-Cano 2008).

Our records for *S. anale* and *S. unidentatum* in Georgia indicate that SWPMs are the most common source of these exotic beetles. Similarly, *S. anale* was intercepted in wooden crates of manhole covers from India in Escambia County in Florida (Halbert 1996). We, therefore recommend a greater emphasis be placed on inspecting and treating SWPM originating from the Old World to reduce the introductions of exotic bostrichid beetles. It is unclear whether either of these bostrichid beetle species has become currently established in Georgia. However, our results indicate multiple introductions spanning >14 years and hence, a high potential for establishment of these 2 bostrichid beetle species over time.

We are grateful to Michael Ivie (Montana State University) for assistance with species verifications, and James Hanula (USDA Forest Service) for taking photographs of the beetles. We thank Lee Ogden (University of Georgia), Daniel Miller (USDA Forest Service), and anonymous reviewers for providing useful comments on this paper. This research was supported by funds from the Georgia Forestry Commission and the Daniel B. Warnell School of Forestry and Natural Resources, University of Georgia, Athens.

Summary

Two exotic bostrichid beetle species, *Sinoxylon anale* and *S. unidentatum*, were collected on multiple occasions over 14 years from solid wood packing materials (SWPM) originating from India that were either stored in warehouses or intercepted at ports-of-entry in Georgia, USA.

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