Zootaxa 3646 (4): 447–486
www.mapress.com/zootaxa/
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Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.3646.4.7
http://zoobank.org/urn:lsid:zoobank.org:pub:9182F680-D613-4822-AF02-3F20D2BE4A41

A synopsis of the pin-hole borers of Thailand (Coleoptera: Curculionidae: Platypodinae)

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Abstract

The present state of knowledge of the pin-hole borers of Thailand is summarised to provide a basis for future studies of the fauna and its economic importance in forestry and timber production. A checklist of the fauna is provided with information on local and world distribution, host trees, biology and taxonomy. Six faunal elements based on geographical distribution, and the host preferences of species are discussed. Ninety-two species have now been recorded in Thailand, of which forty-three are recorded here for the first time. Three species are endemic to Thailand. The following new combinations are given: *Dinoplatypus piniperda* (Schedl), *Treptoplatypus fulgens* (Schedl), both transferred from *Platypus*.

Key words: ambrosia beetles, biogeography, faunal synopsis, host preferences, new combinations, new records

Introduction

The Platypodinae is considered here to be a subfamily (Kuschel 1995, Lawrence & Newton 1995, Alonso-Zarazaga & Lyal 2009, Haran *et al.* 2013) rather than a family (Wood & Bright 1992, Wood 1993) of wood-boring weevils, including about 1500 described species (Wood & Bright 1992). They are of considerable economic importance in tropical and subtropical countries because their gallery systems often penetrate deeply into recently felled timber, and their associated symbiotic ambrosia fungi cause staining of the wood around the galleries, resulting in a downgrading of timber quality (Browne 1961, 1968). A few species may attack and breed in healthy living trees (Faulds 1977, Kent & Simpson 1992, Kirkendall *et al.* 1997), but more usually attack on a living tree indicates that the tree is stressed or unhealthy (e.g. Browne 1961, Roberts 1969, Beaver 1977). Such attacks may often be unsuccessful in that the beetle is unable to breed, but pathogenic fungi may be introduced into the tree by the attacking beetles (Hulcr & Dunn 2011), and the value of the timber may be adversely affected by the holes and the staining (Browne 1968, Roberts 1977). However, the majority of species breed in recently fallen or cut trees or branches in the forest, or in logs and lumber stored at sawmills for processing (e.g. Browne 1961, Sittichaya & Beaver 2009, Kangkamanee *et al.* 2011).

Browne (1961) and Schedl (1972) provide reviews of the biology of the subfamily, and Beaver (1989) reviews their association with fungi. All of the species are ambrosia beetles, living in an obligatory symbiotic relationship with various fungi which form the food of both larvae and adults. The ambrosia fungus is carried by the adults in glandular mycangia which are usually found on the dorsum of the prothorax in one or both sexes (Beaver 1989), but can occur in other parts of the body (Nakashima 1971, 1972, 1975). The great majority of species are not host-specific, but will breed in any host tree which is of suitable size and in suitable condition (Browne 1961, Beaver 1977, Hulcr *et al.* 2007). However some are associated with particular families of trees (see below). The gallery system is started by the male. It is likely that males of all species produce pheromones which attract the female and other males, although very few species have been investigated (e.g. Renwick 1977, Milligan & Ytsma 1988, Gonzalez Audino *et al.* 2005, Kamata *et al.* 2008, Gatti *et al.* 2011). The attracted female then has to induce the male to temporarily leave the gallery. This requires a period of courtship, which can involve stridulation, as well as

Accepted by L. Kirkendall: 19 Mar. 2013; published: 6 May 2013