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Description of the Yunnan shoot borer, *Tomicus yunnanensis* Kirkendall & Faccoli sp. n. (Curculionidae, Scolytinae), an unusually aggressive pine shoot beetle from southern China, with a key to the species of *Tomicus*

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Abstract

We describe a new and highly aggressive species of pine shoot beetle, *Tomicus yunnanensis* Kirkendall & Faccoli, which has been decimating *Pinus yunnanensis* forests in southwest China for almost three decades. This species was confused with *T. piniperda* until recent molecular studies showed the SW China populations to be quite divergent from *T. piniperda* of northeast China and Europe. The clearest morphological differences between these two species lie in the surface sculpture of the elytra: the new species has more widely spaced interstrial granules on the elytral disc, the punctures of interstria 2 on the declivity arranged irregularly and those of striae 1 and 3 smaller. The new species also has dense small hairs on the tip of the antennal club, while *T. piniperda* has only scattered small hairs on that segment. Mature *T. piniperda* specimens are uniformly black, while those of *T. yunnanensis* have the bulk of the elytra lighter than the base of the elytra and the pronotum. The new species is actually more similar to the Mediterranean species *T. destruens*, which differs in geographical distribution and in having the punctures of interstria 2 dense on the declivity and light-colored antennae. Species of *Tomicus* are of general concern to foresters because of their impact on conifer growth, but good illustrations for many species are lacking. We here provide a detailed key to all seven species of the genus (*T. minor*, *T. piniperda*, *T. destruens*, *T. brevipilosus*, *T. yunnanensis* and the virtually unknown *T. puellus* and *T. pilifer*) as well as diagnostic photographs and drawings. We summarize the biological differences between the new species and *T. piniperda* and recommend improved communication between taxonomists and forest entomologists, as avoidable taxonomic confusion such as that of *T. yunnanensis* and *T. destruens* with *T. piniperda* hinders the combatting of outbreaks of forest insects.

Key words: Yunnan, *Pinus yunnanensis*, bark beetle, forest pest, *Tomicus piniperda*, *Tomicus minor*, *Tomicus destruens*, *Tomicus brevipilosus*, *Tomicus puellus*, *Tomicus pilifer*

Introduction

The pine shoot beetles of the genus *Tomicus* Latreille (= *Blastophagus* Eichhoff, *Myelophilus* Eichhoff) (Coleoptera, Curculionidae, Scolytinae) are among the more damaging insects in Eurasian pine forests (Escherich, 1923; Stark, 1952; Postner, 1974; Långström, 1983; Ye, 1991; Ye & Lieutier, 1997; Sun *et al*., 2005). Adults have a period of maturation feeding, during which they tunnel in branch tips. The cumulative damage of large numbers of individuals feeding on the same tree can be considerable, due to loss of needles and depressed growth (Escherich, 1923; Postner, 1974; Långström & Hellqvist, 1990; Czokajlo *et al*., 1997). Three species, *T. puellus* (Reitter), *T. pilifer* (Spessivtsew) and *T. brevipilosus* (Eggers), occur only in Asia and are rare in European and North American collections, while *T. piniperda* and *T. minor* (Hartig) are widespread

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