Zootaxa 3986 (3): 251–278
www.mapress.com/zootaxa/

Article

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

http://dx.doi.org/10.11646/zootaxa.3986.3.1
http://zoobank.org/urn:lsid:zoobank.org:pub:5A852805-93B7-4C96-8521-A8D91DAC97CF

Cycadophila, a new genus (Coleoptera: Erotylidae: Pharaxonothinae) inhabiting *Cycas debaoensis* (Cycadaceae) in Asia

GUANG XU[1], WILLIAM TANG[2,5], PAUL SKELLEY[3], NIAN LIU[4] & STEPHEN RICH[1]

[1]*Department of Plant, Soil & Insect Sciences, University of Massachusetts, Amherst MA 01003.*
E-mail: gxu@umass.edu, smrich@umass.edu
[2]*USDA APHIS PPQ South Florida, P.O. Box 660520, Miami, FL 33266. E-mail: william.tang@aphis.usda.gov*
[3]*Florida State Collection of Arthropods, Florida Department of Agriculture and Consumer Services– Division of Plant Industry, 1911 SW 34th St., P.O. Box 147100, Gainesville, FL 32614-7100*
Email: Paul.Skelley@FreshFromFlorida.com
[4]*Horticulture Dept., Zhongkai University of Agriculture and Technology, Guangzhou, Guangdong 510225, China*
E-mail: liunian678@163.com
[5]*Corresponding author*

Abstract

Asian species assigned to *Pharaxonotha* Reitter formed a separate clade from New World species of the genus and are distinguished on the basis of morphology and analysis of 16S rRNA gene sequences. *Cycadophila*, **new genus**, is described based on a consideration of four Asian species in comparison with New World *Pharaxonotha*. This new genus includes two new species (*Cycadophila debaonica* **new species** and *Cycadophila fupingensis* **new species**) and two previously described species (*Cycadophila nigra* (Gorham) **new combination** and *Cycadophila yunnanensis* (Grouvelle) **new combination**). These latter two may represent species complexes. Lectotypes are designated for *Thallis nigra* Gorham and *Pharaxonotha yunnanensis* Grouvelle. Larvae of *C. debaonica* and *C. fupingensis* are described based on individuals collected on the cones of *Cycas debaoensis* Y. C. Zhong & C. J. Chen (Cycadaceae), a cycad native to Guangxi and Yunnan provinces, China.

Key words: cycad, pollination, Oriental region, taxonomy

Introduction

Several studies have demonstrated that beetles (Coleoptera) in the superfamily Cucujoidea are important pollinators of cycads (Tang 1987; Norstog *et al.* 1995; Donaldson *et al.* 1995; Donaldson 1997; Suinyuy *et al.* 2009; Terry *et al.* 2012). Beetles in the family Erotylidae (Cucujoidea) are found on the cones of cycads (Cycadales) on all continents where cycads are native. Other than the genus *Cycas* all extant Cycadales belong in the family Zamiaceae with the following genera, distribution and tentative subfamilial rank of their associated erotylids indicated in brackets: *Encephalartos* Lehm. in Africa [Xenoscelinae]; *Macrozamia* Miq. in Australia [Xenoscelinae]; and *Ceratozamia* Brongn., *Dioon* Lindl., *Microcycas* (Miq.) A. DC. and *Zamia* L. in the New World [Pharaxonothinae] (Vovides 1991; Forster *et al.* 1994; Leschen 2003; Tang 2004; Chaves & Genaro 2005; Terry *et al.* 2012; Skelley & Thomas in prep.). In a survey of 31 populations of *Cycas* L. (Cycadaceae) in southeastern Asia, cucujoid beetles assigned to the genus *Xenocryptus* Arrow were detected in 15 populations (Tang *et al.* 1999). These "*Xenocryptus*" species were originally assigned to the family Languriidae, tribe Xenoscelini (Tang *et al.* 1999); however, Leschen (2003) later placed them tentatively with New World cycad cucujoids in the genus *Pharaxonotha* Reitter in the Erotylidae subfamily Pharaxonothinae. These tentatively placed pharaxonothine taxa from Asia are examined in the present work.

In Leschen's system, Pharaxonothinae includes five genera: *Henoticonus* Reitter, *Leucohimatium* Rosenhauer, *Loberogosmus* Reitter, *Pharaxonotha* Reitter and *Setariola* Jacobson (Leschen 2003). The genus *Pharaxonotha*

Accepted by M. Gimmel: 2 Jun. 2015; published: 17 Jul. 2015