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A review of the literature on the life history of Bostrichidae (Coleoptera)

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Abstract

We review the scattered published literature in many languages on the biology of the beetles family Bostrichidae, and discuss it according to the type of breeding place (stored cereals, dead wood and timber, living tree) in which the bostrichids become pests. We summarize the available data in three life history tables.

Introduction

Bostrichids are commonly known as powder-post beetles, because of the ability of the larvae to reduce sapwood, particularly of hardwoods, into a powdery frass. Hence, the beetles are of considerable economic importance to forestry and the wood-using industries (RAI & CHATTERJEE 1963), and a few species have become important pests of timber, wooden works and ancient structures in tropical countries (HICKIN 1975).

Except for the economically important species, such as the important pests of cereals (FISHER 1950, CABI 2008), *Rhyzopertha dominica* (FABRICIUS, 1792) and *Prostephanus truncatus* (HORN, 1878), and the important pests of wooden and bamboo structures (FISHER 1950; GERBERG 1957), *Sinoxylon* spp., *Dinoderus* spp. and *Lyctus* spp., studies of the life history of Bostrichidae have rarely been made, because the propensity of the Bostrichidae to burrow into sapwood made the task of studying the life-cycle very difficult (RAI & CHATTERJEE 1963).

Compared to other Polyphagan beetles, we know far too little about the biology of the xylophagous ones, especially the Bostrichidae (MATEU 1967). Hence, we have tried to review as many references about the biology of Bostrichidae as we have been able to collect. These references are scattered in different journals throughout the world, and in many different languages. We hope this paper can provide the basic knowledge about the biology of Bostrichidae to encourage more people to study the family further.

Host Plant

Bostrichidae are among those beetles which seem most perfectly adapted to a xylophagous way of life (LESNE 1924). Both as adults and larvae they feed on the woody tissues of their host plants. Most species gain their food from starches and sugars in the plant tissues on which they feed, but endosymbiosis with bacteria in mycetomes of the hind part of the midgut is well-known in Bostrichidae (CROWSON, 1981).

Bostrichids are almost never confined to particular host plants (LESNE 1911). BEESON and BHATIA (1937) recorded about 42 families, 145 genera, 226 species of plant hosts in India, amongst which Caesalipiniaceae, Mimosaceae, Papilionaceae, Anacardiaceae, Euphorbiaceae and Dipterocarpaceae were the most 'popular' host plant families. Some species can develop in quite different types of food, e.g. *Heterobostrychus brunneus* MURRAY and *Dinoderus minutus* (FABRICIUS) develop side by side both in bamboo, and in dried potato tubers (LESNE 1911).

Only *Endecatomus* LECONTE 1861 has been reported to feed on fungi, *Polyporus* spp., growing on the dead logs of birch (*Betula*) (CROWSON 1961; KOMPANTSEV 1978). The biggest bostrichids, *Dinapate wrighti* HORN (over 30mm long) is the only palm feeder in Bostrichidae. It feeds on the California endemic fan Palm, *Washingtonia filifera*, and other species of this genus (GARNETT 1922).