



<http://dx.doi.org/10.11646/zootaxa.4020.1.2>

<http://zoobank.org/urn:lsid:zoobank.org:pub:DEC9A4D9-8A52-4AF0-B45B-076BC40730BA>

Taxonomic review of the major larval pests of bolete fungi (Boletaceae) in Europe: The *Pegomya fulgens*, *furva* and *tabida* species groups (Diptera: Anthomyiidae)

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Abstract

A taxonomic review of the European species of the *Pegomya fulgens*, *furva* and *tabida* species groups is given with emphasis on characters of importance for the identification of males and females. These *Pegomya* species groups are represented in Europe by two, two and nine species, respectively. Their mycophagous larvae may all feed exclusively on bolete sporocarps of *Leccinum* and *Boletus* aff. *edulis*. Their relationships and biology are summarized. Each species is given a selective list of references and synonymy, richly illustrated descriptions of males and females, a list or summary of the examined material, and a synopsis of the known distribution and biology. *Pegomya ringdahli* sp. nov., previously confused with *P. scapularis* (Zetterstedt, 1846), is described from Fennoscandia. Lectotypes are designated for *Anthomyia fulgens* Meigen, 1826 and *Pegomyia (Pegomyia) furva* Ringdahl, 1938. An identification key is given to all 17 species (males and females) of *Pegomya* that supposedly feed as larvae on sporocarps of Boletaceae and Suillaceae in Europe.

Key words: European anthomyiids, Boletaceae, mycophagy, new species, key

Introduction

The firm and fleshy young sporocarps of various bolete fungi (Boletaceae) are tasty, nutritious and in many countries regarded as a seasonal delicacy. These fungi are ectomycorrhizal, meaning that they only grow in symbiotic association with certain trees and scrubs. They are in other words fungi that cannot easily be commercially cultured, but rather have to be harvested in the “wild”. The production of bolete sporocarps can be very impressive during high seasons, especially in boreal conifer forests. However, all mushroom hunters have experienced the competition on this fast growing and short-lived resource from larvae of mycophagous Diptera. Anthomyiid larvae of the genus *Pegomya* Robineau-Desvoidy are in this context by far the most destructive, as documented by Hackman & Meinander (1979), Bruns (1983), Ståhls *et al.* (1989) and others.

Pegomya is a large group of anthomyiid flies with many poorly differentiated species complexes. It was only through the landmark study by Hennig (1973a–c), using differences in the male terminalia as a primary tool in species recognition, that it became possible in most cases to make reliable identifications of the European species. The Finnish dipterist Walter Hackman (1916–2001) first made use of Hennig’s work to attain a detailed picture of species composition, host range and life history for the diverse fauna of mycophagous *Pegomya* in Finland. Large scale rearing of *Pegomya* and other mycophagous Diptera from fungal sporocarps resulted in a lot of new basic insight presented in a series of papers by Hackman (1976), Hackman (1979), Hackman & Meinander (1979) and Ståhls *et al.* (1989). These studies showed that all species of mycophagous *Pegomya*, apart from the polyphagous *P. winthemi* (Meigen), develop in sporocarps of either bolete fungi (Boletaceae, Suillaceae) or gilled mushrooms.

Griffiths (1983), in a revision of North American *Pegomya*, gathered most of the species known to feed on bolete sporocarps in a supposedly monophyletic “*Pegomya fulgens* subsection”. This group has a circumboreal, temperate to low arctic distribution and currently includes 15 species, among them nine Holarctic, two Nearctic, and four Palearctic species. Their host range is remarkably narrow, as they have only been reared from sporocarps of *Leccinum* and the *Boletus edulis* species group (Boletaceae). Contributions to the nomenclature and taxonomy of the European species other than Hennig (1973a–c) are those of Michelsen (1985) and Ackland (1989).