



Molecular phylogeny in 'nano-weevils': description of a new subgenus *Nanoacalles* and two new species of *Calacalles* from the Macaronesian Islands (Curculionidae: Cryptorhynchinae)

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Abstract

A molecular phylogeny for the eastern Atlantic weevil genus *Calacalles* Peyerimhoff, 1925 is presented, using two mitochondrial genes (CO1 and 16S). Based on a phylogenetic (Bayesian) analysis, we propose the following taxonomic amendments: the new subgenus *Nanoacalles* subg. n. is described and two new species, *Calacalles hermigua* sp. n. and *Calacalles nataliae* sp. n., are described from the Canarian island La Gomera and distinguished from other species of the genus. *Calacalles palmensis* (Roudier, 1954) (formerly *Acalles wollastoni palmensis* Roudier, 1954), which is illustrated here for the first time (habitus and aedeagus), is not a synonym of *Acalles seticollis* Wollaston, 1864, but a valid taxon. *Calacalles subcarinatus* (Israelson, 1984) from the Azores is assigned to the subgenus *Crateracalles* Stüben 2004. We also present a catalogue of all known *Calacalles* species.

Key words: taxonomy, catalogue, new species, new subgenus, endemic species, Bayesian analysis, 16S, COI, Canary Islands, Azores, Madeira, western Palaearctic

Introduction

The genus *Calacalles* comprises 18 species of slender, conspicuously bristled weevils that – among the subfamily Cryptorhynchinae – are characterised by their often very small size (around 2 mm), hence the name 'nano weevils'. Most species are endemic to the Macaronesian islands and are difficult to tell apart by their habitus. The taxon *Calacalles*, with the type species *Acalles (Calacalles) theryi*, was originally described by Peyerimhoff (1925) as a subgenus of the genus *Acalles* Schoenherr, 1826. In his revision, F. Bahr (2000) raised *Calacalles* to genus level—a step that received support from recent molecular work, where *Calacalles* is recovered as a distinct, monophyletic cluster among other representatives of the 'Atlantic clade', like *Dichromacalles* or also the 'Macaronesian clade' (Astrin & Stüben 2008; Stüben & Astrin, in press).

In addition to *Calacalles* s. str., Bahr (2000) also described the subgenus *Saetiacalles* with the type species *Calacalles (Saetiacalles) seticollis* (Wollaston, 1864), formerly *Acalles*. As a diagnostic character for the subgenus *Saetiacalles* he proposed an antennal funiculus with 7 antennomeres as opposed to the 6 antennomeres in *Calacalles* s. str. species. However, Stüben (2005) synonymised the subgenus *Saetiacalles* Bahr, 2000 after examining the species *Calacalles moraguesi* (Desbrochers, 1898), which he rediscovered on Mallorca. The minimal exoskeletal differences of *Calacalles theryi* (6 antennomeres) and *Calacalles moraguesi* (7 antennomeres) and the fact that the structures of the internal sac of the aedeagus are highly similar in their basic pattern (Figs. 9, 10) suggested a close relationship of these taxa (see Discussion).

An additional subgenus, *Crateracalles*, was described by Stüben (2004) from the mid-Atlantic Azores. The so far two species recognized as belonging to this taxon are large (3.5–6.6 mm not including the rostrum),