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Systematic revision of the genus *Cerocoma* Geoffroy, 1762 (Coleoptera: Meloidae: Cerocomini)

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Abstract

The taxonomy of the Palaearctic genus *Cerocoma* is revised using a classical morphological approach. A catalogue to species with current synonyms, type information and repositories is provided as well as diagnostic keys to species (male and female) and subspecies (only male), illustrations of male dimorphic and diagnostic characters and detailed distribution data, including literature and collection records. The biology of *Cerocoma* is summarised, based on available literature and original field observations.

Three new species are described and figured: *Cerocoma confusa* **sp.n.** (= *C. syriaca* Auctorum), *C. longiseta* **sp.n.** and *C. martae* **sp.n.** New status is assessed for two taxa: *C. latreillei sterbai* **stat.n.** and *C. marginiventris* **stat.n.** New synonymies are proposed as follows: *C. syriaca* Abeille de Perrin, 1880 = *C. barthelemyi* Baudi, 1878 **syn. nov.**; *C. latreillei schah* Kaszab, 1968 = *C. latreillei sterbai* Mařan, 1944 **syn. nov.**; *C. scovitzii mirabilis* Dvořák, 1993 = *C. scovitzii intermedia* Mařan, 1944 **syn. nov.**

Adult morphological characters and molecular datasets (nuclear ITS2 and mitochondrial 16S) are used, separately and combined, to carry out the first attempt to elucidate the *Cerocoma* phylogeny, using Maximum Parsimony and Bayesian Inference. The resulted phylogeny supports the arrangement of *Cerocoma* into five subgenera: *Cerocomina*, *Mesocerocoma* and *Metacerocoma* as previously defined; the nominate subgenus, restricted to the species group of *C. schaefferi* Linnaeus, 1758; and *Meloides* Piller & Mitterpacher, 1783, recently resurrected on morphological data only.

Key words: new species, *Cerocomina*, *Meloides*, *Mesocerocoma*, *Metacerocoma*, taxonomy, phylogeny, morphology, DNA, 16S, ITS2, key, distribution, biology

Introduction

Meloidae are phytophagous tenebrionoid beetles, also known as blister beetles for the toxic and vesicant properties of the cantharidin present in the haemolymph (Bologna 1991; Bologna *et al.* 2010). Four subfamilies were recognised based on morphological and biological datasets, namely Eleticinae, Meloinae, Tetraonycinae and Nemognathinae, but more recent analyses based also on molecular data sank Tetraonycinae into the more diverse Meloinae (Bologna & Pinto 2001; Bologna *et al.* 2008).

The meloine Old World tribe Cerocomini is characterised by a striking sexual dimorphism, mostly related to male head, antennae, maxillary palpi and fore legs (Di Giulio *et al.* 2002; Turco *et al.* 2003; 2006; Turco & Bologna 2007; 2008). The monophyly of Cerocomini is supported by larval characters, firstly recognised in *Cerocoma* (Bologna & Pinto 2001; Di Giulio *et al.* 2002) and subsequently confirmed in *Diaphorocera* (Turco *et al.* 2006) and by adult synapomorphies, such as antennal position (sockets distant from eyes, placed below or on the frontal suture), epigamic modifications of male (head, antennae, maxillary palpi and fore legs), labrum elongate and longitudinally canaliculated or carinate, fringed galea and bidentate endophallus (Bologna 1991; Turco *et al.* 2003). Despite the phylogenetic studies on the family based on biological, morphological (larval and adult) and more recently molecular data, the placement of Cerocomini within the Meloinae remains uncertain (Bologna and Pinto 2001; Bologna *et al.* 2008). The tribe comprises six genera: *Anisarthrocera* Semenov, 1895 (1 species), *Rhampholyssodes* Kaszab, 1983 (1 species), *Rhampholyssa* Kraatz, 1863 (2 species), *Somalarthrocera* Turco & Bologna, 2008 (2 species), *Diaphorocera* Heyden, 1863 (8 species) and *Cerocoma* Geoffroy, 1762 (29 species).

Cerocoma is a Palaearctic genus, distributed from the Iberian Peninsula to western China (hotspot of diversity in eastern Mediterranean countries, Greece and Turkey), with one species (*C. vahli* Fabricius, 1787) in Northern Africa. These beetles live in open habitats, primarily steppe ecosystems, feeding on pollen (see Biology) and often in quite large numbers. Indeed, aggregation enhances the warning message carried by their conspicuous metallic colours, usually green, sometimes fading into bronze or blue.

Within the tribe, *Cerocoma* is placed as sister-group to the remaining genera and is defined by having nine antennomeres, the first raised in male to form a dorsal keel, and short mouthparts, especially stipes and galeae (Turco & Bologna 2008). The genus is characterised by an amazing diversification driven by sexual selection (Turco *et al.* 2003), leading to dimorphic features of male antennae, head, maxillary palpi, fore legs and, in subgenus *Metacerocoma*, last abdominal sternite (Figs 1–7), greatly variable in shape and size.

As a consequence of this high diversity, *Cerocoma* presents a complex taxonomy at subgenus, species and infraspecies level, also fueled by the attractiveness of these conspicuous beetles that arose the interest of several European entomologists (Motschoulsky 1872; Baudi 1878a; 1878b; Reitter 1885; 1913; Mařan 1944; Kaszab