



Revision of the *Crematogaster brevis* complex in Asia (Hymenoptera: Formicidae)

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Abstract

The *Crematogaster brevis* complex is revised and seven species and one subspecies, including one new species, are recognized. Two species groups are established based on the worker caste. The *C. brevis* group contains two species: *brevis* Emery, 1887; and *overbecki* Viehmeyer, 1916. The *C. treubi* group contains five species and one subspecies: *bouvardi* Santschi, 1920. **stat. nov.**; *kojimai* **sp. nov.**; *treubi* Emery, 1896; *treubi apilis* Forel, 1913; *walshi* Forel, 1902; and *yappi* Forel, 1901. The following new synonymies are proposed: *C. treubi* Emery, 1896 = *C. millardi* Forel, 1902 = *C. treubi vastatrix* Forel, 1911. A key to the species based on the worker caste is given. *Crematogaster jacobsoni* Forel, 1911 is transferred to the subgenus *Crematogaster*.

Key words: Formicidae, *Crematogaster*, *C. brevis*, *C. treubi*, *Mesocrema*, taxonomy, Asia, new species

Introduction

The genus *Crematogaster* is one of the most species-rich ant genera in the family Formicidae and is abundant in the tropics (Hölldobler and Wilson, 1990). The genus includes more than 900 available species-level names and is divided into 16 subgenera (Bolton, 1995, 2003; Bolton et al. 2006). The taxonomy of *Crematogaster* species has been improved in recent years (Blaimer, 2010; Hosoishi & Ogata, 2009; Longino, 2003). Taxonomic works at the subgeneric levels are sometimes useful in a large group, but some subgenera are out of date because diagnostic features are not clearly indicated.

In the course of classifying Asian *Crematogaster* species to subgenus using a traditional subgeneric classification (Santschi, 1918; Emery, 1922; Wheeler, 1922), we found that the species complex treated in this paper could not be clearly assigned to subgenus. The *Crematogaster brevis* complex can be distinguished from other Asian *Crematogaster* species by the following characters: (1) anterolateral margin of clypeus produced anteriorly; (2) antenna 11-segmented; (3) antennal club 2-segmented (exceptionally seems 3-segmented in the larger workers within a species); and (4) postpetiole weakly bilobed. Workers of the subgenus *Orthocrema* share features (2) and (3), but they do not share feature (1) for Asian fauna.

The species complex mostly falls in the old subgenus *Mesocrema*, but the taxonomy of the subgenus is quite confusing because of the vague subgeneric diagnosis established by Santschi (1928). Santschi (1928) referred to the species *C. rasoherinae brunneola* Emery (known from Madagascar), *C. queenslandica* Forel (Australia), *C. scita* Forel (Australia), *C. brevis* Emery (Indonesia), *C. millardi* Forel (Myanmar), *C. overbecki* Viehmeyer (Singapore), and *C. walshi* Forel (India) as “*Neocrema*-like” since they have a developed median sulcus on the postpetiole. In contrast to *Neocrema*, which have small queens with enlarged postpetiole, these species had normal-sized queens with small postpetiole (“*La ♀ de ce groupe a la grande taille des reines normales du s. g. Orthocrema avec le postpétiole pas notablement élargi*”) and Santschi placed them in a new subgenus *Mesocrema*. In the same paper Santschi (1928) also suggested that *C. jacobsoni* Forel and *C. treubi vastatrix* should be placed in the subgenus *Acrocoelia* because of a three-segmented antennal club and an anteriorly elongated petiole. However he later transferred *C. jacobsoni* Forel, *C. flavicornis* Emery and *C. treubi* Emery to the subgenus *Mesocrema* without any comments (Santschi, 1937). We therefore consider the diagnoses presented by Santschi (1928) as problematic.

We divide the *C. brevis* complex into two species groups: the *C. brevis* group has a developed occipital carina and the petiole is rectangular in dorsal view; the *C. treubi* group has an undeveloped occipital carina and the petiole is broader anteriorly than posteriorly in dorsal view.