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A new species for the Italian fauna: *Aphaenogaster strioloides*, not *A. crocea*, inhabits Pantelleria Island (Hymenoptera: Formicidae)

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Abstract
Species of the recently recognized *Aphaenogaster crocea* group, which spreads across Canary Islands, Maghreb region and Southern Italy, have frequently been confused with one another and even with species belonging to other groups. We revised the identity of the population previously attributed to *A. crocea* from the island of Pantelleria (Sicilian Channel) by comparing voucher specimens of the older records as well as newly collected specimens with type specimens and descriptions of the other members of the group. As a result, we re-identify the population from Pantelleria as *A. strioloides*, a species so far known to occur exclusively in Algeria and Tunisia. Finally, we discuss the key diagnostic features of this species.

Key words: ant distribution, Maghreb, Mediterranean basin, Sicilian Channel, North Africa.

The genus *Aphaenogaster* Mayr, 1853 counts over 200 species, distributed across all biogeographic regions except the Afrotropics (Bolton 2021); the Indomalayan, Malagasy and Neotropical species, however, do likely belong to a different genus (Branstetter et al. 2016). The Mediterranean hosts a significant diversity of *Aphaenogaster* species, not only in terms of absolute number of taxa (over 80 according to the outdated count by Borowiec 2014), but also in terms of species-groups (Schultz 1994; Boer 2013; Alicata & Schifani 2019). The *crocea* group was proposed recently, and a comprehensive taxonomic revision is still required to properly understand its diversity and boundaries (Alicata & Schifani 2019). According to the available data, most of the species in this group are distributed in the Maghreb region (including the Canary Islands), while three species, whose identity has been recently revised (Alicata & Schifani 2019), are endemic to Southern Italy and Malta (*A. fiorii* Emery, 1915, *A. sicula* Emery, 1908 and *A. trinacriae* Alicata & Schifani, 2019). However, a fourth species of the group had been earlier recorded from the Italian territory: records of *A. crocea* André, 1881 were published by Bernard (1958, 1960) and Mei (1995), from the islands of Lampedusa and Pantelleria respectively (Sicilian Channel).

It is unclear if any species of the *crocea* group ever inhabited Lampedusa before the strong anthropization of the habitat, but it seems reasonably established that none of them is present today. Voucher specimens of the past records were never found, and recent investigations did not yield any result (Mei 1995; Schifani, unpublished data 2017; Scupola, pers. comm. 2018). Perhaps *A. crocea* records were based on a gross misidentification of *A. pallida* (Nylander, 1849), *A. sardoa* Mayr, 1853 or *A. splendida* (Roger, 1859), the three *Aphaenogaster* species present on the island (Mei 1995; Schifani & Alicata 2018). Misidentification may also explain the old record of *A. subterranea* (Latreille, 1798) (Failla Tetaldi 1887).

On Pantelleria, a form identified as *Aphaenogaster crocea* was collected from four localities by Mei (1995). Such identification was tentative, due to the still uncertain identity of *A. crocea*, based on an old description (André 1881) and a single damaged type worker from Oran (Algeria) (currently in the Natural History Museum of Wien, Austria). The redescription by Cagniant (1966) is of no use as it revolves around an outdated "superspecies" concept without distinguishing between the four currently recorded subspecies (in addition to *A. crocea crocea*: *A. crocea croceoides* Forel, 1890, *A. crocea lenis*

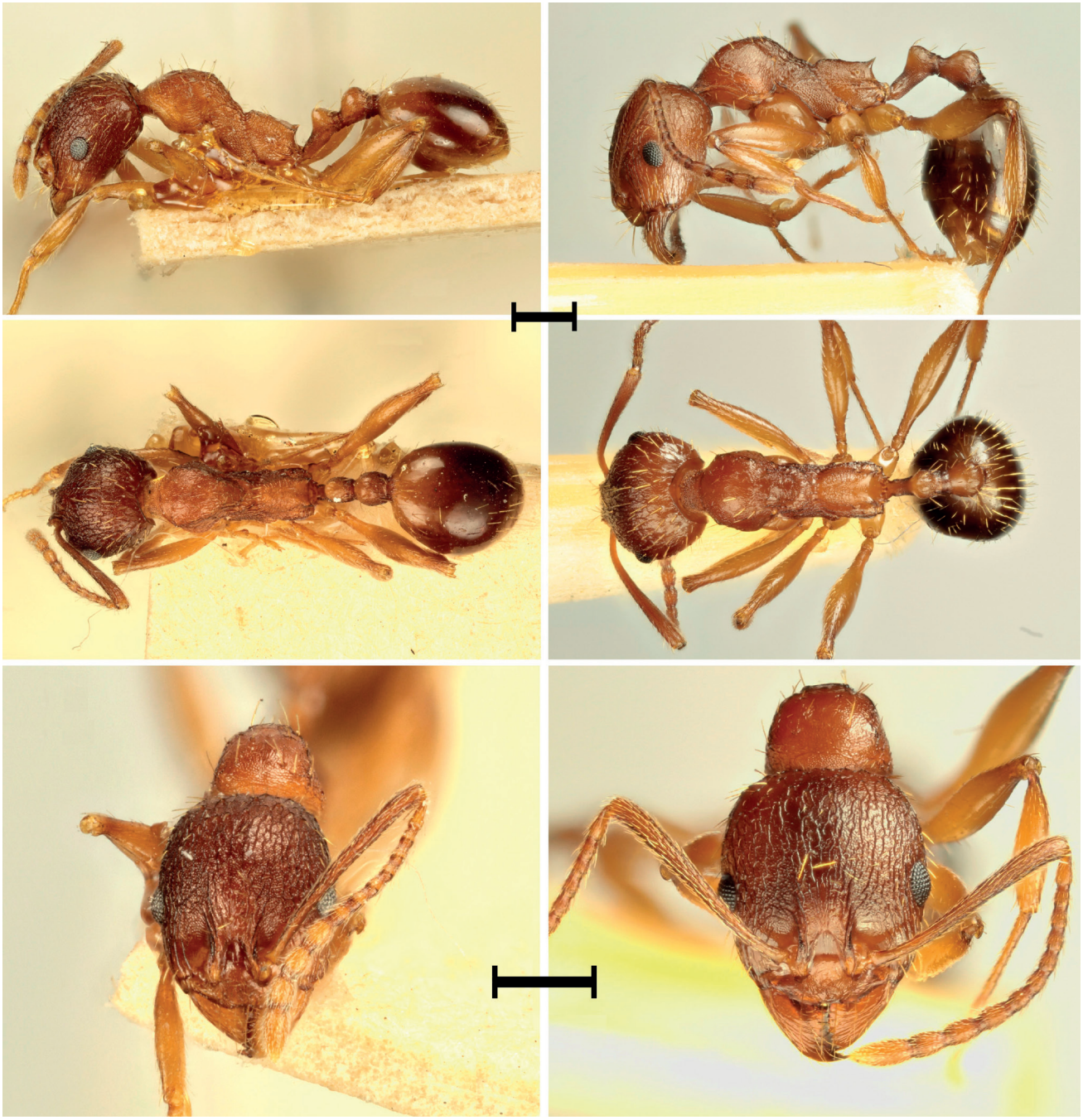

Fig. 1 – *Aphaenogaster strioloides* workers, lateral profile (above), dorsal view (middle) and head view (bottom). On the left, a relatively small specimen of unknown provenience determined by A. Forel (Natural History Museum "G. Doria" of Genoa, Italy). On the right, a relatively large and recently collected specimen from Montagna Grande, Pantelleria (Enrico Schifani personal collection). Scale bars: 0.5 mm.

Santschi, 1911 and *A. crocea splendidoides* Forel, 1890 described from Algeria and Tunisia, see Forel 1890; Santschi 1911). A taxonomic revision of all these forms is badly needed, as no clear criteria for their reciprocal delimitation were ever provided.

In this context, we studied the voucher specimens of the previous *A. crocea* records in Pantelleria (Bagno dell'Acqua, Kattibuale, Piano dell'Acqua, Punta Elefante; see Mei 1995) and a newly collected sample (8 workers, Montagna Grande, 36°46'39.9"N, 12°00'10.7"E, 800 m a.s.l., *Arbutus unedo* L. 1753 forest, 20.VII.2020, S. Costa leg., see Fig. 1). We attribute these specimens to *Aphaenogaster strioloides* Forel, 1890 by following the available literature (André 1881; Forel 1890; Santschi 1911; Barquin 1991; Cagniant 1969; Alicata & Schifani 2019), and by comparison with museum material of all species from the *crocea* group (except *A. faureli* Cagniant, 1969, whose type specimens we have so far failed to locate).

Within the *crocea* group, *Aphaenogaster strioloides* is not difficult to distinguish, as it can be recognized by the combination of the following two features (Fig. 1): *i*) body color reddish-brown except the black gaster; *ii*) head sculpture strong (several longitudinal striae with numerous anastomoses on top of a weaker alveolate sculpture), contrasting with the rather weak sculpture of the dorsal part of the pronotum (weak alveolate sculpture with few or no short longitudinal striae on top). In addition, more clearly in dried specimens, the head color is darker than the mesosoma and nodes, the resulting bicolored aspect being only shared with *A. sicula* within the *crocea* group.

So far *Aphaenogaster strioloides* was only known from a few sites in Algeria and Tunisia (Forel 1890; Santschi 1932), while records from Iberia were almost certainly based on misidentifications (Alicata & Schifani 2019). The presence of *A. strioloides* on Pantelleria is not surprising considering that the island hosts a significant proportion of North-African arthropods (Massa 1995; Mei 1995). Nonetheless, it represents the Easternmost record of this species and the first from the Italian territory. The ecological requirements of *A. strioloides* are little known. On Pantelleria, it seems to be widely distributed, from low shrubland to the centenary *Arbutus unedo* forest that grows on Montagna Grande.

Further investigations are needed to establish the identity of the still unidentified ants from the genera *Solenopsis* Westwood, 1840 and *Temnothorax* Mayr, 1861 that occur on Pantelleria (Mei 1995). Additional species are also not unlikely to be discovered on the island: the current checklist is mostly based on an intensive but still relatively brief investigation conducted over 25 years ago (Mei 1995) and on some occasional recent records (Schifani & Alicata 2018). In 2016, the Island of Pantelleria National Park was established on much of the territory of the island, which may hopefully incentive further studies on its fauna.

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