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Revision of the ant genus *Iridomyrmex* (Hymenoptera: Formicidae)

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Abstract

The world fauna of the dolichoderine ant genus *Iridomyrmex* (Hymenoptera: Formicidae) is revised. Seventy-nine species are recognised, 31 described as new. Four species are removed from *Iridomyrmex*: *I. butteli* (Forel) to *Chronoxenus*, *I. extensus* Emery to *Anonychomyrma* and *I. krakatauae* Wheeler and *I. latifrons* Karavaiev to *Tapinoma*. Twenty-five species and subspecies pass into synonymy: *I. emeryi* Crawley is synonymised under *I. victorianus* Forel (itself raised to species), *I. vicinus* Clark is synonymised under *I. splendens* Forel (itself raised to species), *I. wingi* Donisthorpe is synonymised under *I. pallidus* Forel (itself raised to species), *I. gracilis* Lowne (a preoccupied name) is synonymised under *I. bicknelli* Emery, *I. mimulus* Shattuck is synonymised under *I. viridigaster* Clark, *I. albitarsus* Wheeler and *I. notialis* Shattuck are synonymised under *I. calvus* Emery, *I. obscurus* Crawley is synonymised under *I. suchieri* Forel (itself raised to species), *I. greensladei* Shattuck is synonymised under *I. purpureus*, *I. variscapus* Shattuck is synonymised under *I. bigi* Shattuck, and *I. meinerti* Forel is synonymised under *I. anceps* Roger. Of the subspecies, *I. anceps formosae* Forel, *I. anceps ignobilis* Mann, *I. rufoniger metallescens* Emery, *I. anceps sikkimensis* Forel and *I. anceps watsonii* Forel are synonymised under *I. anceps*, *Iridomyrmex bicknelli splendidus* Forel is synonymised under *I. bicknelli* Emery, *I. rufoniger fusciventris* Forel is synonymised under *I. brunneus* Forel (itself raised to species), *I. chasei concolor* Forel and *I. chasei yalgooensis* Forel are synonymised under *I. chasei* Forel, *I. rufoniger incertus* Forel is synonymised under *I. pallidus*, *I. rufoniger domesticus* Forel and *I. rufoniger septentrionalis* Forel are synonymised under *I. rufoniger* Lowne, and *I. mattiroloi parcens* Forel is synonymised under *I. victorianus*. In addition to the five taxa mentioned above, the subspecies *I. bicknelli azureus* Viehmeyer, *I. bicknelli brunneus* Forel, *I. mattiroloi continentis* Forel, *I. gracilis minor* Forel, *I. gracilis rubriceps* Forel and *I. gracilis spurcus* Forel are raised to species. A single species, *I. bicknelli luteus* Forel, could not be identified and is treated as *species inquirenda*. A key to workers of the genus is supplied. Lectotypes are designated for *I. brunneus* Forel, *I. chasei* Forel, *I. conifer* Forel, *I. discors* Forel, *I. minor* Forel, *I. mjobergi* Forel, *I. pallidus* Forel, *I. suchieri* Forel and *I. victorianus* Forel. Neotypes are established for *I. anceps* (Roger), *I. parcens* Forel and *I. rufoniger* (Lowne). Five fossil species are considered to belong to *Iridomyrmex*, although only one of these is supported by rigorous morphological data. Four fossil species are regarded as *incertae sedis* within the genus. The following fossil-based species are removed from *Iridomyrmex* (all new combinations): *geinitzi* Mayr to *Anonychomyrma*, *haueri* Mayr to *Dolichoderus*, *oblongiceps* Wheeler to *Eldermyrmex* (**gen. n.**) and *bogdassarovi* Nazaraw, Bagdasaraw & Uriew to *Liometopum*.

Key words: Hymenoptera, Formicidae, Dolichoderinae, *Iridomyrmex*, taxonomy, new species, SE Asia, Australia.

Introduction

The ant genus *Iridomyrmex* belongs to the subfamily Dolichoderinae. All members of this subfamily are readily characterised as possessing a slit-like opening on the underside of the end of the abdomen (*i.e.*, that part of the ant abdomen known as the gaster). This opening is the means by which various chemicals, e.g., for defence or trail-marking, can be disseminated to the environment. *Iridomyrmex* is a quintessentially Australian phenomenon. Although a small handful of species range as far away as India and China, the vast bulk of the taxa of this ecologically important and speciose genus is restricted to Australia. Within Australia, members of the genus are a conspicuous part of most ecosystems, although they tend to avoid the very moist areas such as wet sclerophyll and rain forests (Shattuck, 1992b).

Taxonomic history

The genus *Iridomyrmex* was erected by Mayr in 1862, although the type-species was not designated until 1903 (Bingham, 1903). The type-species *Iridomyrmex detecta* had previously become a junior synonym of *I. purpureus* (F. Smith) (Lowne, 1865a). In this early period, ant subfamily classification was confused, and it was not until 1878, 16 years after publication of the formal diagnosis of genus *Iridomyrmex*, that Forel established the subfamily Dolichoderinae (as 'Dolichoderidae') (Forel, 1878a). *Iridomyrmex* was placed in that subfamily later in the same year (Forel, 1878b).

From the time of its inception, the genus *Iridomyrmex* (Fig. 1A–I) has also suffered from a confused taxonomic understanding, not least because of the failure of early researchers to identify easy-to-recognise diagnostic features. Some diagnostic characters used, such as the morphology of the proventriculus, were not so much unreliable as unwieldy and made separation of dolichoderine genera difficult for most researchers. The result was the gradual development of a portmanteau genus containing unrelated ants, and taxonomic instability that multiplied with the accumulation of new forms (Shattuck, 1992b). Brown (1958) was probably the first myrmecologist to

Liometopum bogdassarovi (Nazaraw, Bagdasaraw & Uriew), comb. nov.

Iridomyrmex bogdassarovi Nazaraw, Bagdasaraw & Uriew, 1994: 106.

Types. Holotype worker from Belarus (Quaternary).

Comments. This relatively young fossil from the Quaternary period (present to 2.5mya) almost certainly belongs to the genus *Liometopum* rather than *Iridomyrmex*. The illustration of the front of the head (Nazarw et al., 1994, fig. 2a) is typical of modern *Liometopum* species, with small anteriorly placed eyes and a roughly cordate head capsule which is narrowed at the mandibles (although slightly more than modern species) (Del Toro et al., 2009). While the figure shows only a top view of the body, this is also consistent with general *Liometopum* morphology. Until a more detailed study of the actual specimen can be undertaken, it seems appropriate to transfer this species from *Iridomyrmex* to *Liometopum*.

Technomyrmex hispaniolae (Wilson)

Iridomyrmex hispaniolae Wilson, 1985b: 32.

Types. Holotype worker from Dominican amber (Miocene).

Comments. Shattuck (1992a) considered this species to belong to *Linepithema*, while Brandão et al. (1998) and Bolton (2007) recognized it as being a *Technomyrmex*.

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