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Generic Placements of Australian Ants Described by W. F. Erichson (Hymenoptera: Formicidae)

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ABSTRACT The generic placements of the five species of Australian ants described by Erichson in 1842 are reviewed. Three of the species, *Amblyopone australis*, *Camponotus consobrinus* and *Polyrhachis hexacantha*, are correct in their current placements. The remaining species, *macrocephala* and *procidua*, were incorrectly placed in *Iridomyrmex* Mayr and are transferred to *Camponotus* Mayr and *Anonychomyrma* Donisthorpe, respectively. A neotype is designated for *C. macrocephalus*, which is a new senior synonym of *C. fictor* Forel. The junior secondary homonym *C. macrocephalus* Emery, from Brazil, is replaced with its former junior synonym *C. geralensis* Emery (which is raised to full species).

Introduction

In 1842 Erichson described five new species of ants (among other insects) from Tasmania. One species was placed in a newly established genus *Amblyopone*, and four in the genus *Formica* Linnaeus. The first species, *Amblyopone australis*, has remained in its original genus (*Amblyopone*) while *Formica consobrina* and *F. hexacantha* were transferred shortly after their original description to *Camponotus* Mayr and *Polyrhachis* Smith, respectively. The placements of these three species have remained stable since.

The identities of Erichson's other species, however, have been less clear. The first, *F. macrocephala*, remained in *Formica* until Emery (1925) treated it as *incertae sedis* in the Dolichoderinae. This species was then transferred to *Iridomyrmex* Mayr by Taylor and Brown (1985) without comment. The final species, *F. procidua*, was transferred to *Liometopum* Mayr by Roger (1863) and then to *Iridomyrmex* by Dalla Torre (1893), where it has remained since. Neither of these species has received detailed taxonomic discussion and their current placements have not been seriously considered. In the present paper we review the status of all five species established by Erichson (1842) and propose two new generic assignments: *Camponotus* for *macrocephala* and *Anonychomyrma* Donisthorpe for *procidua*.

The specimens described by Erichson (1842) were collected by Mr Adolphus Schayer of Woolnorth Station, north-west coastal Tasmania (*ca* 40°41'S, 144°43'E) While the original descriptions do not list exact locations, it is likely that they came from Woolnorth Station. The type specimens examined during this study (for *C. consobrinus* and *A. procidua*) provide little information as they are labelled simply as being from "Tasmanie". The translation provided by Fogg (1859) adds no additional information as it is simply the introduction of Erichson's (1842) paper.

The details of Erichson's species are as follows.

Amblyopone australis Erichson

Amblyopone australis Erichson 1842: 261. Type material: Worker, not examined, status of type unknown.

A. australis was described from the worker caste and placed in a newly erected genus, *Amblyopone*. An extensive literature has considered this species and its close relatives, including two generic revisions (Wheeler 1927; Brown 1960, and included references). Although these revisions contain discussions of *A. australis*, neither of the authors examined Erichson's type specimens. Both based the identity of this species on two pieces of evidence: (i) a figure accompanying the original description, and (ii) that the species is morphologically distinct among the Tasmanian fauna (only two species of this genus are known from the state; for separation, see Brown 1960). These factors combine to assist in developing a clear and stable identity for this species.

Camponotus consobrinus (Erichson)

Formica consobrina Erichson 1842: 258. Type material: Holotype queen, examined.
Camponotus consobrinus (Erichson): Roger 1863: 4.
Camponotus dimidiatus Roger 1863: 4, synonymy by Wheeler 1933: 23. Type material: Worker and queen syntypes from Australia (as "New Holland") and Tasmania (as "Vandiemensland"), 1 queen from Tasmania in Museum für Naturkunde, Humbolt-Universität, Berlin, examined.

Formica consobrina Erichson was recognised as belonging to *Camponotus* by Roger (1863) and this placement has been followed by subsequent authors (e.g. Emery 1925; Clark 1934). The unique type queen, present in the Museum für Naturkunde, Humbolt-Universität, Berlin, is badly damaged with most of its gastral tergites and sternites missing. However, the distinctive notched anterior margin of the clypeus is clear and this is the only species of *Camponotus* known from Tasmania which possesses this configuration. The worker of *C. consobrinus* was described by Smith (1858) based on Tasmanian material. This species, and close relatives, are currently being investigated by one of us (AJM).

Polyrhachis hexacantha (Erichson)

Formica hexacantha Erichson 1842: 260. Type material: Lectotype worker and paralectotype queen, designated by Taylor 1989: 24.
Polyrhachis hexacantha (Erichson): F. Smith 1858: 74.

Placement of *hexacantha* in *Polyrhachis* was recently confirmed by Taylor (1989), who designated the worker described by Erichson as the lectotype (deposited in the Museum für Naturkunde, Humbolt-Universität, Berlin). The queen, also described by Erichson, was examined by Taylor (1989) and although not explicitly stated by Taylor, represents a paralectotype for the species.

Camponotus macrocephalus (Erichson) comb.nov.

Formica macrocephala Erichson 1842: 259, *incertae sedis* in Dolichoderinae by Emery 1925: 272. Type material: Neotype worker from 5 km E of Low Head, Tasmania, here designated.
Iridomyrmex macrocephala (Erichson): Taylor and Brown 1985: 100.
Camponotus (*Colobopsis*) *fictor* Forel 1902: 508. Type material: Worker syntypes from Newcastle and Native Dog Bore, N.S.W.; 1 major worker without locality data in ANIC, examined. Syn.nov.

The identity of *F. macrocephala* has remained obscure since it was originally described. The species was listed by Dalla Torre (1893) as a member of *Formica*, with a note that this placement was weakly supported and should be investigated further. Later, Emery (1925) considered *F. macrocephala* to be *incertae sedis* in Dolichoderinae but gave no discussion for this treatment and apparently did not see type specimens. Finally, Taylor and Brown (1985) transferred it to *Iridomyrmex*, but no justification was given for this change and type material was not examined.

During the present study, attempts to locate type specimens of *F. macrocephala* were unsuccessful. The types of three of Erichson's other species, *C. consobrinus*, *P. hexacantha* and *A. procidua*, are presently in the Museum für Naturkunde, Humbolt-Universität, Berlin, but the type of *F. macrocephala* could not be located in this collection. Additional requests have been made to the Deutsches Entomologiche Eberswalde, Eberswalde, Germany, and Deutsche Gesellschaft für allgemeine und angewandte Entomologie, Ulm, Germany, without success. Given the lack of type material, the original description provides the only clues as to the identity of this species.

Fortunately, Erichson's original description includes sufficient information to allow the development of a species-level concept for this taxon. The characters of most value are the reddish brown body colour with pale legs, the elongate, parallel-sided head which is emarginate anteriorly, the close resemblance to *Camponotus* (*Colobopsis*) *cylindricus* (Fabricius), and the small, low petiolar node which is subemarginate dorsally.

The comparison with *C. cylindricus* and the elongate head shape would suggest that this species belongs to the subgenus *Colobopsis* of *Camponotus*. The only other likely possibility would be the genus *Anonychomyrma*, which has some species with similarly shaped heads. However, in *Anonychomyrma* queens the anterior region of the head is rounded, not emarginate, and the dorsum of the petiole is rounded or angular, not subemarginate (Shattuck 1992b).

There are only two species of *Camponotus* (*Cobobopsis*) known from north-western Tasmania, *C. fictor* Forel and *C. gasseri* (Forel) (B. B. Lowery, pers. comm.). Of these species, *C. fictor* is consistent with the original description of *F. macrocephala* in colour pattern, while *C. gasseri* is uniformly dark brown to black. Based on this and the other characters listed in Erichson's (1824) original description *F. macrocephala* and *C. fictor* are considered conspecific, with *C. macrocephalus* (Erichson) (new combination) the senior synonym of *C. fictor* Forel.

To secure the identity proposed above, a neotype for *C. macrocephalus* is here designated. The type is a major worker from 5 km E of Low Head, Tasmania (*ca* 41°05′S, 146°52′E), collected by B. B. Lowery on 10 June, 1992, in dead wood on *Eucalyptus* in an area of dry sclerophyll coastal scrub. This specimen has been deposited in the Australian National Insect Collection (Type No. 7999).

The transfer of Erichson's *macrocephalus* to *Camponotus* causes Emery's (1894) *C. macrocephalus* to become a junior secondary homonym. Fortunately, the Brazilian *C. macrocephalus* has two junior synonyms which are available as replacement names (see Kempf 1968). The senior of these, *C. macrocephalus geralensis* Emery, is here raised to full species status and selected as a replacement name for *C. macrocephalus* Emery, with *C. leuderwaldti* Santschi as its junior synonym.

Anonychomyrma procidua (Erichson) comb.nov.

Formica procidua Erichson 1842: 259. Type material: Holotype queen, examined.
Liometopum prociduum (Erichson): Roger 1863: 14.
Iridomyrmex prociduus (Erichson): Dalla Torre 1893: 169.

The species *Formica procidua* has received limited discussion in the literature. It was transferred from *Formica* to *Liometopum* by Roger (1863), and then to *Iridomyrmex* by Dalla Torre (1893). This placement was followed by subsequent authors (e.g. Emery 1912; Taylor and Brown 1985; Taylor 1987), although recently Shattuck (1992a), as part of a review of *Iridomyrmex*, was unable to confirm this treatment. An examination of the unique, dealate queen type specimen of *F. procidua* (deposited in the Museum für Naturkunde, Humbolt-Universität, Berlin) has revealed that this species belongs to the genus *Anonychomyrma* (new combination) as defined by Shattuck (1992a, b). This placement is based on the flat anterior clypeal margin with slightly anterior lateral corners, the relatively anterior placement of the compound eyes on the head capsule, the shape of the propodeum, and the presence of numerous erect hairs on the mesoscutum. These conditions occur in *Anonychomyrma* but are not found in other genera of the Dolichoderinae (Shattuck 1992b).

An attempt was made to determine the species-level identity of *A. procidua* to allow evaluating its taxonomic status within *Anonychomyrma*. Unfortunately this was complicated by several factors: (i) the limited amount of Tasmanian *Anonychomyrma* material presently available for study; (ii) most of the available material consists of small numbers of individuals which limits its usefulness in determining intra- versus interspecific variation; (iii) there is considerable morphological variation in the available material, which complicates species boundaries; and (iv) most of the available collections consist only of workers which makes associating the queen-based species *A. procidua* with the worker-based concepts of most described species difficult. Therefore, it is likely that the species-level identity of *A. procidua*, the oldest available name currently in *Anonychomyrma*, will remain obscure until a complete revision of the genus is undertaken.

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