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## The identity of *Apis zonata* LINNAEUS, 1758 (Insecta: Hymenoptera: Apoidea: Anthophoridae)

With 10 Figures

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**Abstract.** The identity and synonymy of *Apis zonata* L., 1758, are established. The name has been widely misapplied. *Amegilla zonata zonata* (L., 1758) is a darker, Malaysian, form of the Indian bee well known as *Amegilla cingulifera* (COCKERELL, 1910), = *A. zonata cingulifera* (CKLL.).

### *Amegilla zonata* (LINNAEUS, 1758)

*Apis zonata* L., 1758: 576; [♀]; in Indiis. M. L. U. ['S:Æ LOVISÆ ULRICÆ Reginae Museum Msc. in Con-

*chiliis & Insectis stupendum, descriptionibus adornavi': p. [2].] Holotype Uppsala (examined).*

*Anthophora cingulifera* COCKERELL, 1910: 410; ♀; Dehra Dun, U.P., India. B.M. Type Hym. 17 b 634, NHM London (examined). **Syn. nov.**

*Anthophora walkeri* var. *nigritarsis* DOVER, 1924: 233, fig. 2c, 3a, 4d; ♂♀; Bandra (Bombay Presidency); Kumaon; Ceylon; Formosa. B.M. Type Hym. 17 b 635, NHM London (two syntypes with this registration number, both labelled 'type'; examined). Junior primary homonym of *Anthophora nigritarsis* FRIESE, 1905.

*Anthophora doveri* COCKERELL, 1931: 7; nom. nov. for *Anthophora nigritarsis* DOVER.

[*Anthophora dulcifera* COCKERELL, COCKERELL 1931 6, fig. 1; misidentification.]

*Amegilla zonata* (L.), LIEFTINCK 1975: 280, footnote; identity with *dulcifera* (COCKERELL, 1931) nec *dulcifera* (COCKERELL, 1926).

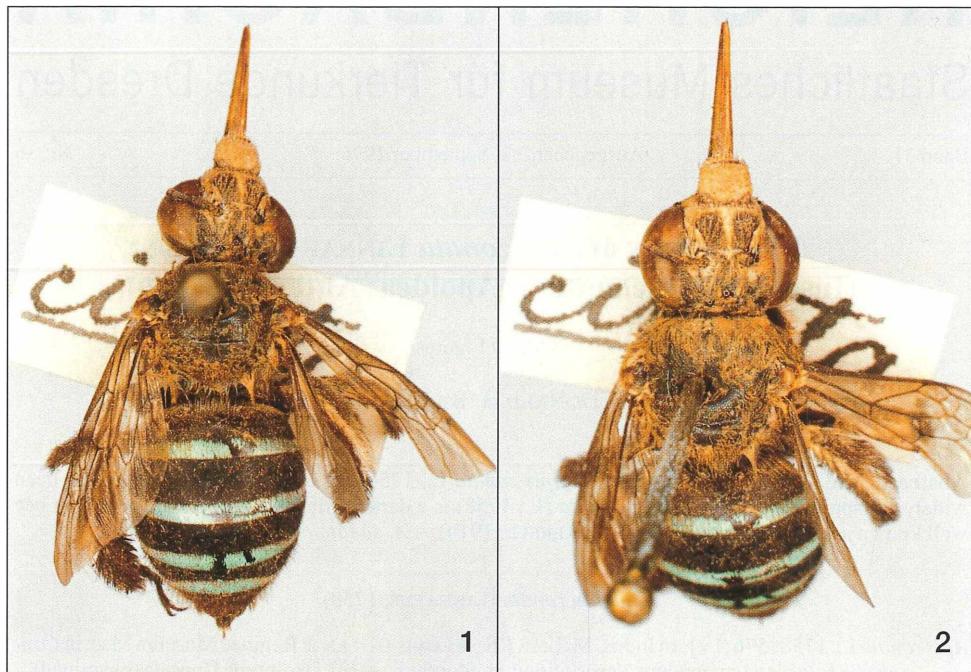
A number of Oriental, blue-banded, species of *Amegilla* have in the past been confused, and continue to be confused in collections, under the names *Anthophora zonata* or *Amegilla zonata*. Superficially similar species, which are numerous, occur throughout eastern Asia, and several of these have not yet been described.

DAY (1979: 77), dealing with the species of Apoidea described by LINNAEUS, left the identity of *Apis zonata* undecided and (p. 50) referred to the extant specimen in Uppsala, as well as the specimens of two other species described by LINNAEUS from the collection of Queen Ludovica Ulrica (*Apis caffra* L., 1767, *Sphex antarctica* L., 1767), as being of enigmatic origin. Whatever their original labelling may have been, the specimens now bear Thunberg's<sup>1)</sup> labels, respectively *cincta*, *caffer* and *flavicornis*. In the instance of *Apis zonata* at least, THUNBERG's labelling must have been done some years after the date of description (in 1758 he would have been a boy of 15), and possibly, if he was confusing it with *Andrena cincta* F. [= *Amegilla cincta* (F., 1781)], after 1781. As remarked by SCHULZ (1912: 58), 'Cincta ist wohl nur ein Schreibfehler Thunbergs auf der Etikette an der Type von *Apis zonata* L. (Mus. Ludov. Ulric., 1764, p. 415). Ein *Podalirius cinctus*, ebenfalls aus Indien, existiert

<sup>1)</sup> Carl Peter Thunberg (1743–1828).

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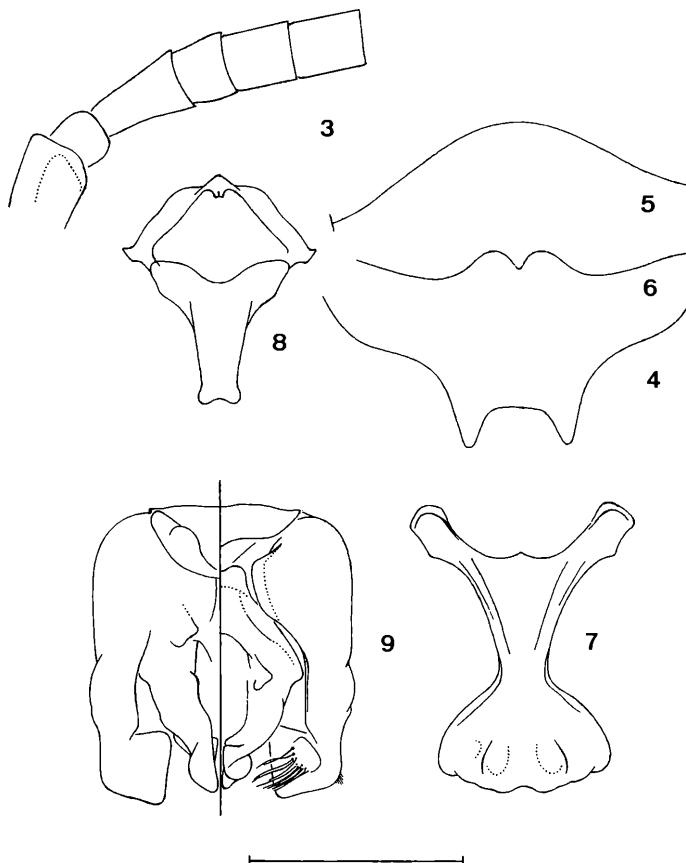


Figs. 1, 2: Holotype ♀ *Apis zonata* LINNAEUS, 1758 [0519M15, 16]

durch Fabricius (1781)'. Inasmuch as these specimens agree with the original descriptions and are the unique specimens of their species in the collection from which they were described, THUNBERG's labels may be disregarded: there seems to be no sound reason why these specimens should not be accepted as the holotypes of the three Linnaean taxa they represent. It is unfortunate that CLERCK's incompletely *Icones* (1759→), which might have shed further light on the matter, did not extend beyond partial coverage of the Lepidoptera.

Dr STEN JONSSON courteously sent for examination the Uppsala specimen of *Apis zonata* (Fig. 1, 2) and also photocopies of associated labels in the University Entomological Collections (Fig. 10). The specimen, a female, is in poor condition: the pubescence is matted, the right antenna is lost and the left reduced to the four basal segments, all the legs except the right posterior leg are more or less incomplete, and the colours are faded. The specimen bears THUNBERG's label 'cincta' and is accompanied by LIEFTINCK's label 'Amegilla zonata L. det. M.A. Lieftinck rev. 1966' and an anonymous red label 'Lectotype zonata L.'<sup>2)</sup>. No lectotype designation appears to have been

<sup>2)</sup> It is much to be desired that the International Commission on Zoological Nomenclature should stipulate in the Code that, from a date to be notified, to be valid for nomenclatural purposes, a lectotype designation must not only be published but be accompanied by appropriate labelling including specifically the name of the person making the selection and the date. All too often specimens bearing 'lectotype' or similar labels, often anonymous, are encountered in museum collections and it is frequently a time-consuming process to establish whether labelling has or has not been validated by publication. As to the dating of lectotype labels, while it is appreciated that the revision of some large or 'difficult' group may take several years, it is unreasonable and unethical effectively to inhibit work on some included smaller group, or species, that could be published more expeditiously by another author. A rider might well be added to the effect that an author would be entitled to disregard any lectotype labelling not published within, say, ten years, and to make an independent selection.

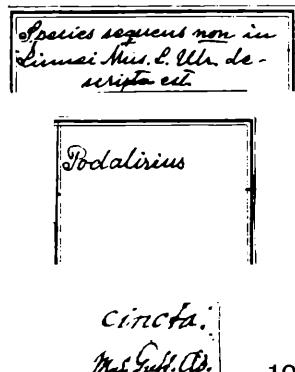


Figs. 3–9: Details of ♂ of *Amegilla zonata* (L.): basal segments of antenna (3), apical margins of tergum 7 (4) and sterna 5 and 6 (5, 6), sterna 7 (7) and 8 (8), and genital capsule, L ventral, R dorsal aspect (9). MALAYA: Perlis, Kangar, 28 v 1974 (C.G. Roche).

published, nor is it seen why the specimen should be labelled as 'lectotype' when no element of choice exists. The specimen has now been labelled as the HOLOTYPE of *Apis zonata* L., 1758.

In spite of its condition, it is evident that the holotype of *zonata* belongs to a widely-distributed species whose Indian representative is well known under the name *cingulifera* (CKLL.) [*Anthophora cingulifera* CKLL., 1910: 410] and whose Chinese representative has been figured by COCKERELL (1931, fig. 1, ♂, Foochow, simple but recognizable figures of the gonocoxite and apical sterna) under the name *dulcifera* [a misidentification: not the same as *Amegilla dulcifera* (CKLL., 1926)]. Available material of *zonata* does not adequately represent the species' distribution, large areas of continental SE Asia being either very poorly represented or unrepresented in collections, and it is not yet possible to map boundaries between the paler-haired western populations (from, e.g., peninsular India and Nepal, = *cingulifera*) and the darker haired eastern populations – or indeed to determine whether such variation is clinal.

The holotype of *zonata* agrees very well with Malayan specimens of the darker form, and can be matched in all essential details by females in a series from Perlis: Kangar, various dates, 1973–1975 (C.G. ROCHE). The exact source of the Uppsala specimen is of course not known, and such accounts of the history of collecting in the East as that given by CORBET & PENDLEBURY (1978: 50–54) do not suggest a possible collector [though CORBET & PENDLEBURY do note (p. 50) that LINNAEUS' pupil



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Fig. 10: Labels in the Entomological Collections, Uppsala University: (a) 'Species sequens non in Linnei Mus. L. Utr. scripta est': this of course would be correct if it referred to *cincta*, which was described from BANK's collection; (b) 'Podalirius': XIX<sup>th</sup> C. label [the generic name *Podalirius* was proposed by LATREILLE in 1802]; (c) 'cincta. Mus. Gust. Ad.': the label is THUNBERG's (SCHULZ, 1912: 55), the reference to Mus. Gust. Ad. unexplained.

OLOF TOREN<sup>3</sup>) spent two weeks at Kuala Kedah in May, 1751, when travelling from Surat to China on the Swedish East India Company's *Der Gothische Löwe*. Since *Amegilla zonata* is a polytypic species, restriction of the type locality, 'in Indis', may appear desirable: 'Malay Peninsula' is proposed, without further limitation – the species shows little variation in this area.

Details of a ♂ from the Kangar series referred to above are illustrated at Figs. 3–7.

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<sup>3</sup>) Noted also briefly by LINNAEUS (1758: [2]).

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