

NEW AUSTRALIAN SPECIES AND RECORDS OF THE *PROMONTORII* GROUP OF THE GENUS *BEMBIX* F. (HYMENOPTERA: SPHECIDAE: NYSSONINAE)

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Abstract

Bembix eucla sp.n. and *B. tangadee* sp.n., belonging to the *promontorii* group, are described from Western Australia. Brief notes are presented on two other species of this group, *B. buntor* Evans and Matthews and *B. goyarra* Evans and Matthews. A key is presented to the males of the 12 species known from that sex.

Introduction

The *promontorii* group is one of 12 species-groups of Australian *Bembix* F. recognised by Evans and Matthews (1973). While the females of these groups are not particularly distinctive, the males have an unusual combination of secondary sexual features. These include elongate lateral lobes on tergite 7, elevations on sternites 2 and 6, and a series of teeth on the mid femora. Within the group, individual species have unusual modifications of the legs, including broadened fore femora (with or without a series of teeth), broad and patterned fore basitarsi, and spine-like processes adjacent to the mid tibial spurs (these spurs are absent in one species). Evans and Matthews included 10 species in the group, and Evans (1982) added another. One, *B. eleebana* Evans and Matthews, is known from the female only and is included in the group tentatively; it is not considered further here. Two new species are described below, both from males from Western Australia, and brief notes are presented on 2 other Western Australian species. A key is presented to the males of the 12 species known from that sex.

Terminology follows Evans and Matthews (1973). Wing index is defined as fore wing length from the distal end of the humeral plate to the proximal end of the stigma, divided by the width of the mesoscutum between the projecting angles of the mesoscutal laminae, adjacent to the tegulae.

Bembix eucla sp.n. (Figs 1, 3)

Type—WESTERN AUSTRALIA: *holotype* ♂, Weebubbie Cave Area, WNW Eucla, 31.39S, 128.46E, 22.i.1987, G. and A. Daniels (Queensland Museum, Brisbane).

Male

Colour—Scape yellow; flagellum black above, yellow-brown beneath; mandibles, labrum, and clypeus yellow; frons yellow, with a triangular black spot above each antennal socket; vertex broadly black; outer orbits yellow but occiput black. Pronotum yellow, spotted with black anterodorsally; mesoscutum black, with small yellow bands laterally; tegulae spotted with yellow; scutellum black, with small yellow spots laterally; metanotum black, propodeum black dorsally, broadly yellow laterally; meso- and metapleura yellow with black blotching. Legs yellow except coxae black at base, trochanters and tibiae black at extreme base, hind tibia with a black streak above; fore femur with a large black spot above; fore tarsus with complex black markings beneath (Fig. 1). Metasoma mostly black; tergite 1 with a small white spot medially and laterodorsal white bands, yellow laterally; tergites 2-5 with complete, sinuate white bands dorsally, yellow on extreme sides; tergite 6 with a small apical white spot. Sternites yellow except for median black markings on all but sternite 4. Wings hyaline. Body clothed with pale hairs, especially dense ventrally.

Head—Mandibles strongly curved, tooth and cutting edge well developed; clypeus 1.55 times as wide as high, disc strongly elevated and flat, extreme sides grooved for reception of basal segments of flagellum. Frons narrow, minimum width 0.56 times eye height; centre of vertex level with tops of eyes. Scape 2.3 times as long as wide; third antennomere 3.1 times as long as wide; antennomere 8 excavated beneath, 9-12 flattened beneath, 9 with a small spine.

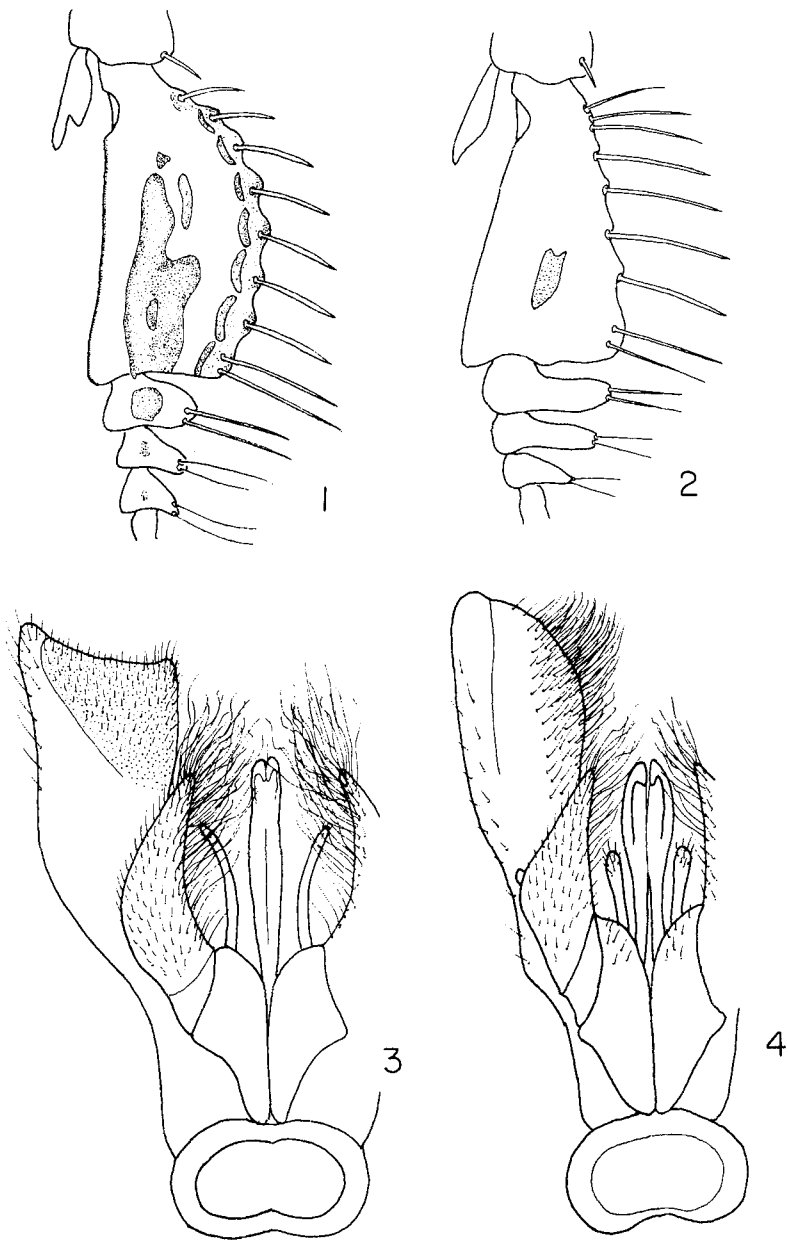
Legs—Fore femur subtriangular, 2.1 times as long as wide, strongly compressed and with a series of small spines beneath set back from margin; fore basitarsus expanded, 1.76 times as long as wide, outer margin with series of black lobes bearing 9 pecten spines, basal 7 rather broad, apical 2 slender (Fig. 1). Mid femur with strong basal, ventral tooth, beyond which margin is slightly concave and bears 9 additional teeth; mid tibia slender basally, swollen on distal 0.33; mid basitarsus concave ventrally.

Metasoma—Tergite 7 rounded laterally, weakly notched apically, lateral lobes large, flat, nearly equal to length of major part of tergite. Sternite 2 with large, compressed median process, rounded in profile but abruptly declivous posteriorly; sternite 6 with strong, angular median elevation; sternite 7 with high median ridge. Genitalia with parameres broad, obliquely truncate apically, outer part of dorsomesal margin subhyaline; cuspides slender, acute apically, clothed with very long hairs; digiti slender, with few apical bristles, nearly as long as aedeagus (Fig. 3).

Length—Body 19 mm; fore wing 11.5 mm; wing index 1.66.

Etymology

The species name, that of the nearest settlement to the type locality, is to be considered as a noun in apposition to the generic name.



FIGS 1-4—*Bembix* spp.: (1-2) Basal 4 segments of fore basitarsus, ventral aspect: (1) *B. eucla*; (2) *B. tangadee*; (3-4) Genitalia, left half, ventral aspect: (3) *B. eucla*; (4) *B. tangadee*.

Bembix tangadee sp.n. (Figs 2, 4)

Types—WESTERN AUSTRALIA: *holotype* ♂, 25 km SW of Tangadee Homestead, 24.25S, 118.56E, 22.viii.1984, T. F. Houston and B. P. Hanich, 590-1, on flowers of *Discrastyli flexuosa*; *paratypes*: 2 ♂, same data; all in Western Australian Museum, lot nos. 88/233-235.

Male

Colour—Scape yellow; flagellum black above, yellow-brown beneath; mandibles, labrum, and clypeus yellow; inner and outer eye margins largely yellow; central part of frons black except for median triangular yellow spot; vertex and occiput black. Pronotum yellow, with transverse black band of irregular shape; mesoscutum black; tegulae spotted with yellow; scutellum spotted with yellow laterally; metanotum, propodeum, pleura and mesothoracic venter wholly black. Legs yellow except coxae with considerable black, fore femur and basitarsus each with a small black streak beneath. Metasoma black except: tergite 1 with transverse band, emarginate anteriorly, white except yellow laterally; tergites 2-4 with bi-emarginate bands, white but also grading into yellow laterally; tergite 5 with small median white band; venter black except sides of sternite 2 with small yellow spots; parameres light yellow apically and with a lateral yellow streak. Wings hyaline. Body clothed with short, greyish hairs.

Head—Mandibles weakly curved, tooth well defined; clypeus 1.75 times as wide as high, disc strongly elevated and flat, surface sloping steeply from disc both above and to the sides. Frons narrow, minimum width 0.54 times eye height; centre of vertex level with tops of eyes. Scape 2.45 times as long as wide; third antennomere 3.3 times as long as wide; antennomeres, 8-12 concave beneath, 7-9 weakly spinose.

Legs—Fore femur subtriangular, 2.25 times as long as wide, compressed, ventral surface weakly concave, without spines; fore basitarsus gradually expanded from base, 1.8 times as long as maximum width, outer margin with small, unpigmented lobes and bearing 9 pecten spines, apical 2 thinner than others (Fig. 2). Mid femur weakly spinose ventrally on apical half; mid basitarsus swollen midway.

Metasoma—Tergite 7 sinuate laterally, with truncate apical lobe, lateral lobes flat, much shorter than major part of tergite. Sternite 2 with compressed median process that is rounded anteriorly in profile, with concave posterior slope; sternite 6 with angular median elevation truncate at extreme apex; sternite 7 with more narrow and strongly elevated triangular area. Genitalia with parameres moderately broad, inner margin densely setose subapically; cuspides acuminate and with long setae apically; digiti unusually short, bearing bristling setae apically (Fig. 4).

Length—Body 15 mm; fore wing 11 mm; wing index 1.9.

Notes

The paratypes are very similar to the holotype, but both have only 8 pecten spines on the fore basitarsus. One paratype lacks dark markings on the fore femora and has no yellow spots on sternite 2.

Etymology

The species name is that of the homestead near which the type series was collected and is to be considered as a noun in apposition to the generic name.

Bembix buntor Evans and Matthews

This species was described from 3 males and 2 females from 3 localities in Western Australia. I have since seen a male from Piawaning, 1.xii.1957, R. P. McMillan, and a female from Miling, 14.xii.1974, A. Page (both in Western Australian Museum). Four of the 5 known localities are within 150 km northeast of Perth, while the fifth, a paratype from Anketell, near Mt Magnet, is considerably farther north.

Bembix goyarra Evans and Matthews

This species was described from a single male from Kathleen Valley, W.A. It lacked mid tibial spurs and it was assumed that they had been broken off. However, a second male (in excellent condition) also lacks mid tibial spurs, so that it appears that the lack of these spurs is a character of the species. This specimen was collected 3.75 km northeast of Comet Valley Siding (29.57S, 121.07E), 7-25.iii.1979, T. F. Houston *et al.* (in Western Australian Museum). This is about 250 km south of the type locality.

Key to males of the *promontorii* group

- | | | | |
|--|----|----|---|
| 1. Fore femur with a series of small spines on ventral surface | .. | .. | 2 |
| Fore femur unarmed | .. | .. | 7 |

2. Fore femur broadly expanded, flattened, somewhat subtriangular,
length 2.1-2.3 times maximum width 3
Fore femur 2.7-3.0 times as long as maximum width 4
3. Fore basitarsus only slightly expanded, *ca* 2.4 times as long as
maximum width, with slender, dark streaks beneath
. **octosetosa** Lohrmann
Fore basitarsus strongly expanded, 1.76 times as long as maximum
width, with a complex pattern beneath (Fig. 1)
. **eucla** sp.n.
4. Mesoscutum with U-shaped yellow discal marking; frons broad,
minimum width *ca* 0.56 times eye height
. **buntor** Evans and Matthews
Mesoscutum without discal markings (may have lateral spots or
stripes); frons narrow, minimum width 0.42-0.45 times eye height
. 5
5. Mid tibia with a single straight spine just mesad of spur, none laterad
of it; inner margins of eyes evenly convergent to vertex
. **wowine** Evans and Matthews
Mid tibia with spine-like process on each side of spur; inner eye
margins subparallel, diverging slightly at vertex. 6
6. Frons entirely black; metasoma mainly black, with variably
expressed white markings (which may be absent)
. **kamulla** Evans and Matthews
Frons blotched with white to yellow along eye margins and in front of
anterior ocellus; metasoma with broad, complete yellow bands
on tergites 1-6. **weema** Evans and Matthews
7. Fore basitarsus expanded, at most 2.5 times as long as maximum
width; fore femur 2.2-2.5 times as long as wide. 8
Fore basitarsus slender, at least 3 times as long as maximum width;
fore femur at least 3 times as long as wide. 10
8. Fore basitarsus with 7 pecten spines, antennomeres 8 and 9 angulate
beneath, not really spinose. **gunamarra** Evans and Matthews
Fore basitarsus with 8 or 9 pecten spines; antennomeres 7-9 weakly
spinose beneath 9
9. Fore basitarsus with small black spot beneath (Fig. 2); mesoscutum
black; length about 15 mm. **tangadee** sp.n.
Fore basitarsus with 2 large and several small black spots beneath;
mesoscutum with yellow discal streaks, sometimes connected
behind to form a U-shape; length 20-24 mm
. **promontorii** Lohrmann
10. Mid tibia without an apical spur; fore basitarsus without black lobes
along margin. **goyarra** Evans and Matthews
Mid tibia with an apical spur; fore basitarsus with series of small
black lobes at bases of pecten spines 11
11. Metasomal tergites 2-5 with sinuate white bands, interrupted medially;
tergite 7 black; fore basitarsus without discal streak beneath
. **oomborra** Evans and Matthews
Metasomal tergites 2 and 3 broadly banded with yellow, band on
2 enclosing black spots; tergite 7 with yellow spot; fore basitarsus
with black discal streak beneath **obiri** Evans

References

- EVANS, H. E. (1982)—Two new species of Australian *Bembix* sand wasps, with notes on other species of the genus (Hymenoptera, Sphecidae). *Aust. ent. Mag.* 9: 7-12.
- EVANS, H. E. and MATTHEWS, R. W. (1973)—Systematics and nesting behavior of Australian *Bembix* sand wasps (Hymenoptera, Sphecidae). *Mem. Am. ent. Inst.* 20: 1-387.

[Manuscript received 6 March 1989. Revised 4 August 1989.]