

The Ectatommini (Hymenoptera: Formicidae) of Ghana

DENNIS LESTON

Department of Zoology, University of Ghana

SYNOPSIS

Three species of Ectatommini, one of which is described as new, are reported from Ghana. A key to workers of the Ghanaian species is included.

The world-wide ponerine ant tribe Ectatommini is an old one, occupying a key place in the phylogeny of Formicidae (Brown, 1958). Compared with the Australasian and Neotropical faunas the Ethiopian is impoverished, but as the genera found in Africa both occur in the Americas, Asia and Australasia it is clear that its species are ancient survivors.

Tropical Africa has so far disclosed *Proceratium toschii* (Consani), known only from Kenya, *P.arnoldi* Forel, known only from Rhodesia, and a few specimens placed in some half-dozen or so species of *Discothyrea*. The finding of three species in Ghana adds considerably to knowledge of the tribe, especially in West Africa, and for the first time enables the African forms to be seen against an ecological background.

Discothyrea mixta Brown, 1958

Kibi, Eastern Region, 23.iii.1970 (*D.Leston*); in metre-square quadrat KX8, with *Camponotus flavomarginatus* Mayr.

The ant was found on the ground in moderate shade in an old cocoa-farm. The only previous record is of the type series, from Bolahun, Liberia. The two localities are both in the western bloc of the Guinean forest zone.

Discothyrea oculata Emery, 1901

Tafo, Eastern Region, 22.viii.1966 (*D.Leston*); in ant ecology sample 220. Other ants in the 25 sq.m. quadrat included *Bothroponera soror* (Emery), *Mesoponera caffraria* (Smith), *Trachymesopus brunoi* (Forel) and *Odontomachus assiniensis* Emery.

Tafo, Eastern Region, 6.x.1966 (*D.Leston*); in ant ecology sample 331. Other ants in the 25 sq. m. quadrat were *Mesoponera caffraria*, *Anomma nigricans* (Illiger) and *Oecophylla longinoda* (Latreille): the last named nested in the canopy but was also foraging on the ground.

In the first capture *oculata* was nesting in a small rotten oilpalm stump in the open in an old cleared cocoa plot with secondary forest elements. In the second it was nesting in a rotten log in an open plot of young bearing cocoa amidst knee-high undergrowth.

The published distribution covers localities in Guinea, Cameroun and Congo (Brazzaville) (Brown, 1958; Wheeler, 1922) and together with the new records suggests the species is confined to the Guinean and Congo forest zones: in the former it has only been reported so far from the western bloc, that is, west of the Dahomey Gap.

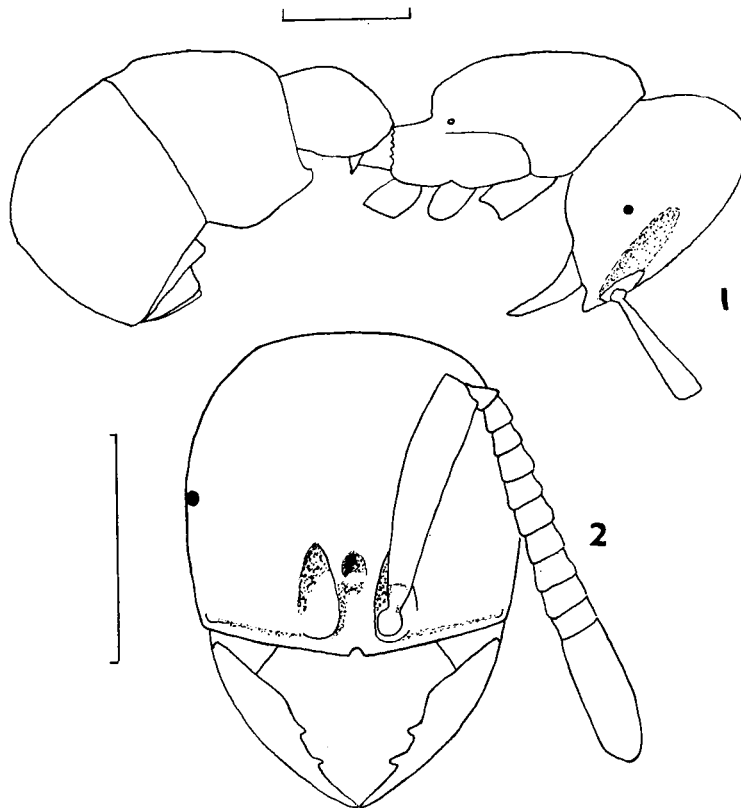
***Proceratium boltoni* sp. n. (figs. 1, 2)**

Worker holotype

Total length 2.70 mm., head length 0.82 mm., maximum head width 0.75 mm., cephalic index 91.

Black; antennae, legs, mandibles and clypeus brown. Integument coarsely and regularly punctate. Densely pubescent, the hairs semi-erect and golden, especially on second gastral segment.

Antennae 12-segmented, apical segment as long as five preceding segments together; all segments clearly visible. Antennal condyle visible from front and side. Frontoclypeal area as figured, depressed in the centre. Scrobe without distinct margins but delimited by its flat transverse pubescence. Eyes small, not protruding above level of adjacent



Figs. 1, 2. Outlines of *Proceratium boltoni* sp. n.: (1) lateral and (2) head. Scales: 0.5 mm.

pubescence. Mandibles with three teeth, including the apex; inner angle rounded and obtuse. Palp formula 4, 3.

Notum and propodeum fused dorsally, with no visible sutures; propodeal angles as figured. Petiole longer than wide, width and height subequal; a single sharp tooth below. First gastral segment smaller than second, remainder telescoped.

Worker paratypes (means and standard deviations of ten, from the same nest as the type).

Total length 2.61 ± 0.20 mm., head length 0.87 ± 0.03 mm., maximum head width 0.73 ± 0.04 mm., cephalic index 84.

Female paratype (dealate, from the same nest as the type).

Total length 3.37 mm., head length 0.94 mm., maximum head width 0.86 mm., cephalic index 92.

Three ocelli present, small and inconspicuous. Alitrunk normal, flight sclerites present. Postero-inferior propodeal angle somewhat rounded.

Holotype, GHANA: Legon, Accra District, 8.vii.1970 (*D.Leston*).

Paratypes: 34 mature workers, one dealate female, same data as holotype.

The holotype, two paratype workers and paratype female deposited in the Museum of Comparative Zoology, Harvard College, U.S.A.; other paratypes in the Australian National Insect Collection, British Museum (Nat. Hist.), University of Ghana and the private collections of Peter Room, Barry Bolton and the author.

This species differs from both *P.toschii* and *P.arnoldi* in the shape of the subpetiolar tooth: here single, in *arnoldi* multiple, in *toschii* ridged. The shape of the frontoclypeal structures is also distinctive.

Other material: Legon, 13.vii.1970 (*D.Leston*); two workers. Associated ants included *Paltothyreus tarsatus* (Fabricius), *Trachymesopus brunoi*, *Hypoponera camerunensis* (Santschi), *Tetramorium guineense* (Fabricius) and *Camponotus acvapimensis* Mayr.

The types are from a colony found in a piece of rotten wood, of which only the shell remained, embedded in the surface soil in the Botany Gardens, Legon; the second capture was in the topsoil at the base of a tree in a mixed maize and cassava plot. The sites were about 600 m. apart. Both the sites are in land that is much disturbed. The type colony comprised a dealate female, 34 mature workers, eight callow workers, three worker pupae and five larvae, all of different sizes. An elongate greenish dipterous egg and a live nematode were with the colony.

Key to workers of Ghanaian Ectatommini

- | | | |
|---|--|----------------------------|
| 1 | Apical antennal segment about half the length of the preceding flagellar segments; black | Proceratium boltoni |
| - | Apical antennal segment as long or nearly as long as the preceding flagellar segments; brown | 2 |
| 2 | Eyes protruberant and conspicuous, although small..... | Discothyrea oculata |
| - | Eyes not protruberant, inconspicuous, minute..... | Discothyrea mixta |

Discussion

Legon was forested some fifty years ago but is now cleared and savanna-like. Its fauna, however, is a mixed one (birds, snakes, ants, mantids and Heteroptera have been

analysed). The spots at which *Proceratium boltoni* was collected have a savanna fascies, and the known localities for *P.toschii* and *P.arnoldi* also suggest that, in tropical Africa, this is a savanna genus.

Brown (1958) divided the African species of *Discothyrea* into two groups. The *oculata*-group, to which the two Ghanaian species belong, occurs in West and Central Africa. Published localities and the new data indicate that this group is confined to the forest zone. On the other hand, the *traegordhi*-group is predominantly a savanna one.

The population of the *P.boltoni* colony accords well with that of the New Guinean *Gnamptogenys macretes* Brown, another Ectatommini, which Wilson (1959) estimated at about 40 imagines per colony.

I acknowledge the great help given me in work on ants by Mr Barry Bolton (International Capsid Research Team, Tafo). Without the aid of my field assistants, C.A.McCarthy and Simon Mensah, the present study would have been impossible.

REFERENCES

- BROWN, JNR. W.L. 1958. Contributions toward a reclassification of the Formicidae. II. Tribe Ectatommini (Hymenoptera). *Bull. Mus. comp. Zool. Harvard* **118** : 175-362.
- WHEELER W.M. 1922. A synonymic list of the ants of the Ethiopian region. *Bull. Am. Mus. nat. Hist.* **45** : 711-1004.
- WILSON E.O. 1959. Some ecological characteristics of ants in New Guinea rainforests. *Ecology* **40** : 437-447.

Manuscript received 8th September 1970