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TAXONOMIC AND FAUNISTIC NOTES ON SOME NEOTROPICAL CEPHALOTINI ANTS (HYMENOPTERA, FORMICIDAE)

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ABSTRACT

Zacryptocerus solidus, sp. n., from Manaus, AM, Brazil, based on the worker caste, is described. Diagnoses are given for the hitherto unknown worker of Z. duckei *(Forel) and soldier of* Z. incertus *(Emery). New and significant locality records are presented for the latter two species and also for* Procryptocerus spiniperdus *Forel and* Eucryptocerus abdominalis *(Santschi).*

More frequent and intensive collections in recent years, especially in central and northern Brazil, have brought to light a great many myrmecological rarities, and substantially increased our knowledge of the occurrence and geographical distribution of a good number of species. The present note reflects this fact as regards the ants of tribe Cephalotini, the classification of which is more or less satisfactorily established by now, although we still know very little as regards their ethology.

My special thanksgiving goes to the collectors Col. Moacyr Alvarenga and Dr. Roger N. Williams for letting me have the valuable ant material gathered during their excursions. I am likewise grateful to Dr. Carminda da Cruz-Landim, of the "Faculdade de Filosofia, Ciências e Letras" of Rio Claro, SP, Brazil, for sharing with me the interesting collection of Amazonian ants made by the "Instituto Nacional de Pesquisas da Amazônia" in the environs of Manaus.

Attention is called to the fact that new evidence has forced

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me to place the genus *Paracryptocerus* into synonymy of the older genus *Zacryptocerus* (Kempf, 1973: 459), to which all species of the former had to be transferred.

Procryptocerus spiniperdus Forel

Procryptocerus spiniperdus Forel, 1899: 43 nota, pl.2, fig. 18 (☿ ♂; Trinidad); Wheeler,1922: 11 (♀; Trinidad: Port of Spain); Kempf, 1951: 55-58, figs. 2, 21, 49, 66 (☿ ♂; Trinidad); Kempf, 1964: 254 (Ecuador: El Reyo).

New locality record: BRAZIL, *Mato Grosso State*, Vila Vera (Long.55° 30' W, Lat. 12°46' S), October 1973, M.Alvarenga leg. 1☿ (WWK n. 10063).

This is the first Brazilian record for this poorly collected species. The specimen agrees very well with the description of the lectotype (Kempf, 1951: 55-57), much better than the specimen from Ecuador (Kempf, 1964: 254), but has the longitudinal rugae on cephalic dorsum with more frequent transverse connections. In my 1951 revision of the genus I overlooked the fact that Wheeler had already described the female in 1922.

Eucryptocerus abdominalis (Santschi)

Cephalotes abdominalis Santschi, 1929: 302 (☿; French Guiana: St. Jean du Maroni).

Eucryptocerus abdominalis; Kempf, 1951: 129, fig. 115 (☿; Brazil, Pará: Rio Cuminã; Bolívia: Rurrenabaque);Kempf, 1960: 397 (Brazil, Amapá: Rio Anicoí); Kempf, 1973: 460 (discussion).

New locality records: BRAZIL, *Espírito Santo State:* Linhares, September 1972, M. Alvarenga leg. 3☿☿ (WWK n. 9130, 9245); *Mato Grosso State:* Vila Vera, October 1973, M. Alvarenga leg. 10 ☿☿ (WWK n. 10060, 10130); *Rondônia Territory:* Vilhena, November 1973, M. Alvarenga leg. 4 ☿☿ (WWK n. 10212).

The vials containing the specimens from Vila Vera,MT (WWK n. 10138, 10139), and Vilhena, RO (WWK n. 10213), among several decades of other ant species, also contained specimens of *E. placidus*, all lumped together. Since this collection is the result of a general insect survey of the respective regions, and no attention had been paid in separating the different species and specimens according to colonies and collecting stations, the problems of the possible conspecificity of *abdominalis* and *placidus* is still not solved (cf. Kempf, 1973: 460).

The Espírito Santo record is remarkable because it shows that *Eucryptocerus*, like many other Amazonian species and groups also occurs in

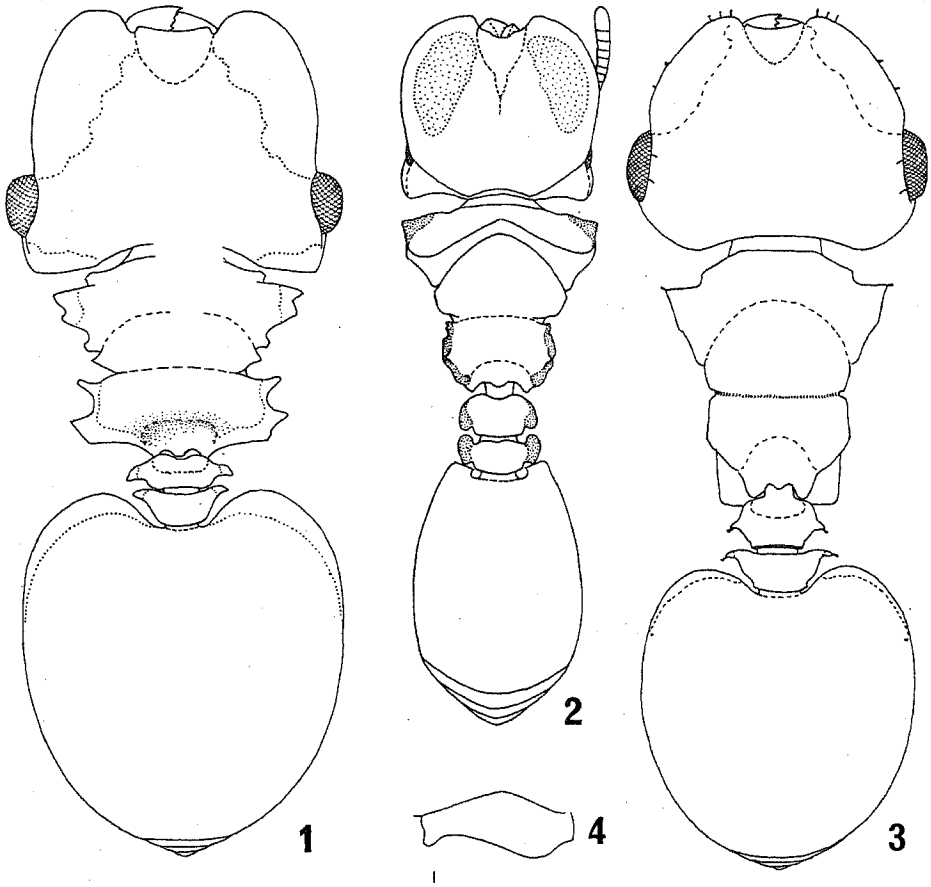
in the coastal rain forests of eastern Brazil.

Zacryptocerus duckei (Forel)
(Fig. 1)

Cryptocerus duckei Forel, 1906: 233, fig. 1 (♀; Brazil, Amazonas: Barcelos).

Paracryptocerus duckei; Kempf, 1951: 231; Kempf, 1967: 363-365, fig. 2 (♀; Brazil, Amazonas: Barcelos).

Recently, I redescribed (Kempf, 1967: 363-365) the types of *duckei*- two half-grown (aborted) soldiers. The species has never been found again since its discovery at the turn of the century. Finally, Alvarenga



1, *Zacryptocerus duckei*, worker from Vila Vera; 2, *Z. incertus*, soldier from Poconé; 3, *Z. solidus*, holotype; 4, same, hind femur.

managed to collect it in northern Mato Grosso State, Brazil, sending me the normal worker of the species, which gives me the opportunity of diagnosing this caste and reappraise the systematic relationship of *duckei*.

Worker (undescribed). Total length 3.7-4.3 mm; head length 1.11-1.28 mm; interocular width (distance between the inner borders of the eyes across the head) 1.13-1.35 mm; maximum diameter of eyes 0.27-0.30 mm; Weber's length of thorax 0.97-1.10 mm; pronotum width (projecting flange included) 1.03-1.19 mm; petiole width 0.45-0.54 mm; postpetiole width 0.39-0.54; gaster width 1.37-1.51 mm. Dorsal outline of body shown in Fig. 1. Exactly like the types (aborted soldiers) with the following differences: Head slightly narrower but still broader than long; occipital flanges more projecting and semidiaphanous. Scapular corners acute. Lateral projection of pronotum apically bidentate, foliaceous and semidiaphanous. Transverse pronotal carina absent (the larger specimens of the series already have vestiges of a transverse carina in the form of a pair of minute denticles on pronotum). Tips of propodeal, petiolar and postpetiolar spines likewise depigmented and light in color.

Material examined: BRAZIL, *Mato Grosso State:* Vila Vera (Long. 55° 30'W, Lat. 2°46'S), October 1973, M. Alvarenga leg. 6 ☿☿ (WWK n.10067).

Discussion. The worker caste shows that *duckei*, while still isolated, is closest to the *spinosus*-group, from which it differs in the worker caste in the shape of the hind femora (the dorsal surface forming a distinct angle at the middle when seen from the side), the compressed and broadened first tarsomere of mid and hind legs, the lack of silvery and dense scales on cheeks (below the antennal scrobe) and on sides of thorax, the latter also without prominent rugae. The first and second lateral tooth (not including the dentate scapular corner) of sides of pronotum, while situated on the tip of a common projecting lateral flange, still could be taken as an extreme condition within the *spinosus*-group.

The closest species is *simillimum*, from which *duckei* workers differ in the shape of the frontal carinae which are more or less parallel between eyes and anterior curvature (distinctly converging cephalad in *simillimus*); the smaller eyes, the maximum diameter of which does not exceed one fourth of head length; the shape of pronotum and propodeum, the latter with a much less differentiated declivous face; and the much shorter petiolar and postpetiolar lateral spines. In addition, the appressed silvery scales are more widely spaced and fewer in number, especially on the thoracic dorsum.

Zacryptocerus incertus (Emery)
(Fig. 2)

Cryptocerus incertus Emery, 1905: 171-172, fig. 31 (☿, Argentina: Corrientes); Santschi, 1921: 125 (Argentina, Corrientes: San Roque).
Paracryptocerus incertus; Kempf,1952: 15-18, figs. 1, 16 (☿☿, Argentina, Corrientes: Paso de la Patria; Santa Fē: Fives Lille); Kempf, 1958: 18(Argentina,Entre Rios: Hernandarios;Brazil,Mato Grosso: Corumbá).

I present here the description of the hitherto unknown soldier and give additional locality records for this rarely collected species:

Soldier (undescribed). Total length 4.5 mm; head length 1.24 mm; head width 1.27 mm; Weber's length of thorax 1.35 mm; width of pronotum 1.27, of mesonotum 0.84, of propodeum 0.73 mm; length and width of petiole 0.26 and 0.49 mm; length and width of postpetiole 0.25 and 0.53 mm; maximum width of gaster 1.11 mm. Ferrugineous; mandibles fuscous brown; subtranslucid portion of head disc above antennal scrobe, membranaceous margins of pronotum and propodeum, and lateral appendages of petiole and postpetiole yellowish brown.

Head quadrate, scarcely broader than long. Cephalic disc (fig. 1) deeply emarginate above mandibles, antero-laterally evenly rounded, postero-laterally obliquely truncate, posteriorly vestigially between a pair of faint and blunt teeth; rim of disc scarcely crenulate, never glassy nor translucid, obliquely upturned on sides; disc proper gently transversely convex in the middle behind clypeus, moderately concave postero-laterally at level of eyes; clypeal and frontal sutures more or less distinct. Occipital lobes rectangular with sharply carinate margins and a faint carina extending from the occipital corner upward to disc, but fading out before reaching the rim of the latter, separating the lateral faces from the occipital face of head below disc. Inferior border of cheeks continued backwards below eyes and distinctly marginate.

Thorax longer than maximum width of pronotum. Anterior border of the latter straight in the middle, gently deflected caudad on lateral sixth on both sides (fig. 2); lateral corner rectangular, scarcely excavate, narrowly mambranaceous; transverse pronotal carina blunt and low, narrowly interrupted in the middle. Promesonotal suture distinct. Mesonotum less than twice as broad as long, the prominent lateral lobes bluntly rounded at apex to obtusely angulate. Metanotal suture indistinct. Propodeum with narrow, membranaceous lateral borders, the border slightly constricted just behind the anterior corner, setting off a shorter membranaceous lobe; at the junction of the basal with the declivous face the border contains a low, solid denticle pointing upward; declivous face shallowly excavate above petiolar insertion. Base of fore coxae ante-

riorly not drawn out into a pointed cone.Hind femora bluntly angulate above, but without a longitudinal crest on apical half. First tarsomere of hind legs compressed and broadened, shorter than the remaining four tarsomeres combined.

Pedicelar segments rather stout and solid. Petiole as long as postpetiole, antero-mesially excised, laterally with a short, posteriorly strongly deflected, apically bluntly pointed membranaceous lobe (as in worker). Postpetiole slightly broader than petiole, with an elliptical membranaceous lobe on each side,the lobes constricted at their base. Gaster much longer than broad, the antero-lateral lobes (fig. 2) drawn out and mesially angulate to subdentate, not membranaceous.

Integument opaque to subopaque throughout, finely reticulate-punctate. Cephalic disc slightly shining due to superficial microsculpture, with sparse, shallow, oval, squamiferous foveolae; the minimum diameter of the latter subequal to distance between the foveolae. Sides and occiput similarly sculptured,microsculpture stronger, foveolae more crowded; the same holds true for the thoracic dorsum and the dorsum of the postpetiole; gular face of head, sides of thorax (except catepisternum of mesonotum), legs, postpetiole and gaster without distinct foveolae. All foveolae contain golden, canaliculate, appressed scales, which are also present on gular face of head, on sides of mesonotum and on legs, less conspicuous and smaller on gaster. No short, blunt hairs projecting laterally from beneath the rim of the cephalic disc.

New locality records: BRAZIL, *Mato Grosso State:* Poconé, April 22 1972, R. N. Williams leg.# 27, 105: 71 workers and the above described soldier, taken from hollow twigs of a native tree vulgarly known as "Assa-peixe" (WWK n. 8012, 8782). ARGENTINA, *Santa Fé:* Ceibalito, n. 193, date and collector unknown, 10 workers, 1 female (WWK). The first record is of special interest, not only because of the first discovery of the soldier, but because it is the northernmost extension of the knwon range of the species.

Discussion. The differential diagnosis of the above described soldier is as follows: on account of the lack of setulae projecting from beneath the rim of the cephalic disc, and the presence of a carina extending from the postero-lateral cephalic angle upward to the rim of the cephalic disc, separating the lateral face from the posterior face of head the soldier of *incertus* is closest to that of *grandinosus*, but differs from the latter by the lack of a sharp dorsal longitudinal crest on apical half of hind femora, by the solid, drawn-out and subangulate antero-lateral lobes of gaster, and by the lack of a delicate denticle projecting laterad just behind the lateral mesonotal lobe. For the separation and identification of the soldiers of the *pinelii*-group, I present a revised part of my previous key (Kempf, 1952: 5-7, couplets 9-12):

Key for the soldiers of the *pinelii*-group in genus *Zacryptocerus*

9. Tergum I of gaster completely surrounded by a thin, membranaceous margin, interrupted only by the postpetiolar insertion; head much broader than long; petiole broader than postpetiole, membranaceous margins included ..... *foliaceus* (Emery)
   Tergum I of gaster without a thin, membranaceous border, except, if at all, on antero-lateral lobes; head subquadrate to subelongate, at best scarcely broader than long; postpetiole always broader than petiole 10

10. Hind femora dorsally and ventrally with a longitudinal foliaceous crest on apical half; mesonotum with a thin denticle projecting laterad just behind the blunt lateral lobe . *grandinosus* (Fr. Smith)
    Hind femora without longitudinal foliaceous crests on apical half; mesonotum lacking the delicate lateral denticle behind the lateral lobe 11

11. Cephalic disc laterally without blunt setulae projecting from beneath the rim; antero-lateral lobes of gaster solid and mesially angulate to subdentate; transverse pronotal carina low and blunt .... *incertus* (Emery)
    Cephalic disc laterally with blunt setulae projecting from beneath the rim; antero-lateral lobes of gaster rounded and somewhat foliaceous; transverse pronotal carina sharp and crestlike 12

12. Base of fore coxae anteriorly drawn out into a pointed cone; head bicolorous, the upper face yellowish brown, the lower face black; tergum I of gaster sordid white, except for a large, lozenge-shaped black area in the middle .....*scutulatus* (Fr. Smith)
    Base of fore coxae anteriorly not drawn out into a pointed cone; color of head and gaster different 13

13. Head disc subcircular, with a deep median groove on vertex next to the occipital border, flanked by ridges projecting cephalad; lateral lobes of mesonotum more or less rounded ..... *pinelii* (Guérin)
    Head disc less rounded, subrectangular, without groove and ridges on vertex; lateral lobes of mesonotum dentate or angulate .... *maculatus* (Fr. Smith)

Zacryptocerus solidus, sp. n.

(Figs. 3, 4)

Worker (holotype). Total length 5.4 mm; head length 1.49 mm; head width (eyes included) 1.81 mm; interocular width (maximum width of head between upper border of eyes) 1.62 mm; maximum diameter of eyes 0.46 mm; Weber's length of thorax 1.57 mm; maximum width of pronotum 1.35 mm; hind femur length 1.00 mm, petiole width 0.58 mm; postpetiole width 0.65 mm; sagittal length of gaster 1.75 mm, width of gaster 1.70 mm. Black; tip of mandibles, frontal carinae (in part), tibiae (except fuscous flexor face of mid and hind tibiae), tarsomeres, and antero-lateral border of gaster ferruginous; tip of apical funicular segment pale yellowish brown. Integument opaque, finely reticulate-punctate throughout, with superimposed reticulate-rugose macrosculpture which is very distinct posteriorly and postero-laterally on dorsum of head, on cheeks, on dorsum and sides of thorax (the horizontally coarsely costate sides of pronotum excluded) on dorsum of petiole and postpetiole, on apical half of extensor face of

all femora, on extensor face of tibiae; the same reticulate-rugose sculpture is slightly more superficial on tergum I of gaster, and vestigial to obsolete on the remaining parts of the body and appendages; underside of gaster laterally finely longitudinally rugose, the rugae curving mesad in front, lacking entirely on disc of sternum I; mandibles longitudinally costate-rugose; declivous face of propodeum coarsely longitudinally costate. Common, pointed erect to suberect hairs abundant on mandibles, shorter and scarcer on funiculus of antennae which also bear dense appressed pubescence. Short, thick, erect and apically blunt setae scarce, on anterior and lateral margin of frontal carinae, above eyes, on tip of lateral pronotal and petiolar and postpetiolar spines, on tip of femora and tibiae. Remaining hairs scalelike, golden, glittering, appressed and mostly canaliculate, abundant on dorsum of head, dorsum and sides of thorax (except the glabrous sides of pronotum), on dorsum of petiole and postpetiole, on apical half of extensor face of femora and on entire extensor face of tibiae, on dorsum of gaster; very dense, masking entirely the integument, on cheeks which appear plated with gold; rare, simple not canaliculate golden hairs on gular face, on sides and flexor face of femora and tibiae and on sternum I of gaster. Laterotergite of pronotum, declivous face of propodeum, and anterior face of petiole, underside of petiole and postpetiole glabrous. Anterior border of clypeus with the usual comb of dense hairs projecting over the mandibles.

Dorsal outline of body shown in Fig. 3.Head broader than long, with strongly anteriorly converging frontal carinae.Clypeal suture vestigial. Sides of head scarcely upturned above eyes. The latter very large, measuring nearly one third of head length, the anterior orbit reaching the middle of head length. Occipital lobes solid, not foliaceous nor platelike,but with sharply carinate border. Cheeks sharply marginate below. Dorsum of head very gently curved longitudinally, nearly straight and flat transversely. Pronotum anteriorly distinctly marginate, the scapular corners distinct, projecting, visible from above, the sides with a strong projecting first tooth, the second tooth at best vestigial, the third entirely absent. Promesonotal suture distinct but not conspicuous. Mesonotum laterally unarmed and entirely immarginate. Metanotal suture impressed. Basal face of propodeum likewise unarmed and practically immarginate on sides; declivous face slightly excavated on disc, the sides submarginate. Femora, especially hind femora, not slenderly fusiform but compact, the extensor face, seen in profile is strongly convex and almost angulate in the middle (fig. 4). Petiole with an oblique anterior face, noticeably distinct from the dorsal surface, the sides with a prominent, stout denticle.Postpetiole longitudinally flat, transversely convex, the lateral appendages longer, with a subacute tip. Tergum I of gaster antero-laterally with a platelike prominent margin, which is subtransparent, but much narrower than the length of the postpetiole, reaching back on

sides of gaster to the vestigial dorsal stigma; anterior half of sides of gaster sharply emarginate, posteriorly half rounded.

Type. BRAZIL. *Amazonas State:* Manaus, Colônia Santo Antonio, June 11, 1971, coll. INPA (Instituto Nacional de Pesquisas da Amazônia), 1☿ (WWK n. 6666).

Discussion. Although this new species is represented only by a single minor worker, it bears so many outstanding features that a description seems entirely warranted. It belongs to the *angustus*-group in what was previously known as the genus *Paracryptocerus* (now a synonym of *Zacryptocerus*).In my key to the species of this group (Kempf, 1958: 67-68) it runs to couplet 15 and keys out with the Colombian *coffeae*, which is, however, totally different by being of much smaller size, having a more elongate head, the frontal carinae less converging in front, much smaller eyes that do not reach the middle of head length, the tridentate sides of pronotum, the armed sides of mesonotum and basal face of propodeum, the much longer petiolar and postpetiolar spines.

Z. solidus, as regards size, color and general shape reminds one of *bruchi*, of the Argentine and Mato Grosso, Brazil, but the latter has the sides of head strongly upturned above eyes,the latter significantly smaller and their anterior orbit not reaching the middle of head length, the sides of the mesonotum and the basal face of propodeum dentate, the lateral spines of petiole and postpetiole apically strongly pointed and curved caudad, the antero-lateral corners of gaster with solid thick lobes.

This is the second species of the *augustus*-group known to occur in the Amazon basin. The first is *conspersus*, which in the worker caste is distinct from *solidus* by much smaller size, smaller eyes, the many teeth on sides of propodeum (4-5) and pronotum (3), the armed sides of mesonotum, the foveolate dorsum of head and thorax.

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