NORMAN I. PLATNICK AND NICOLAS PAZ S.

On the *Cryptocellus magnus* Group
(Arachnida, Ricinulei)
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ABSTRACT

The magnus group of Cryptocellus is characterized by the presence of a straight and massive accessory piece of the male tarsal process, and includes five species restricted to northwestern South America. One new species, Cryptocellus narino, is described from northwestern Colombia. A hypothesis of interrelationships for the five species and a revised key to the South American species of Cryptocellus are presented.

INTRODUCTION

This paper, the third in a series on the arachnid order Ricinulei, supplements previous studies of the South American representatives of the group (Platnick and Shadab, 1976, 1977) by defining the Cryptocellus magnus species group, investigating the interrelationships of its members, and describing a new species from northwestern Colombia. The new species brings to 12 the number of recognizable ricinuleid taxa from South America (table 1); two nominal species are not included in this total. One, Cryptocellus manni Ewing (1929), has been shown to be a synonym of C. magnus by Platnick and Shadab (1976); the other, Cryptocellus leleupi Cooreman (1977), described on the basis of a protonymph from Oriente, Ecuador, will (like the Central American nymphs described by Ewing, 1929) remain a nomen dubium until topotypical adult specimens become available. Although Cooreman's description of the nymphal specimen provides useful information, there is little to be gained by naming such specimens; other nymphs from Ecuador are in various collections, but it is not possible to judge their conspecificity with C. leleupi. Cooreman's discussion contains numerous inaccurate statements seemingly due to unawareness of the literature on the order published subsequently to Beck and Schubart's (1968) "revision" of Cryptocellus. This literature (including such papers as Pollock, 1967; Kennaugh, 1968; Coronado, 1970; Mitchell, 1970; Gertsch, 1971, 1978; Pittard and Mitchell, 1972; Cooke, 1972; Cooke and Shadab, 1973; Dumitrescu and Juvara-Bals, 1973, 1977a, 1977b; Brignoli, 1974; Tuxen, 1974; Marquez and Conconi, 1974; Legg, 1976a, 1976b, 1977a, 1977b, 1978; and Armas, 1977) has added as much to our

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knowledge of Ricinulei as was available prior to the last decade.

Among the dozen recognizable South American ricinuleids is a group of five species which seem to be interrelated as shown in figure 1 (as indicated by the numbered characters discussed below). The group as a whole is united by the presence of a straight and massive accessory piece of the male tarsal process (character 1); this has been illustrated for Cryptocellus glenoides by Cooke and Shadab (1973, fig. 37); for C. magnus by Platnick and Shadab (1976, figs. 13, 15); for Cryptocellus bordoni by Dumitrescu and Juvara-Bals (1977a, figs. 9, 10); and for Cryptocellus narino in the present paper (figs. 10, 11). The other known species of Cryptocellus have accessory pieces that are curved and small (see, for example, Cooke and Shadab, 1973, figs. 36, 38). Outgroup comparison with the only other Recent ricinuleid genus, Ricinoides (see, for example, Tuxen, 1974, fig. 17c), indicates that the massive accessory piece is a derived character. Males of Cryptocellus pseudocellatus are unknown but have been predicted to have a massive accessory piece (Platnick and Shadab, 1977, p. 3).

Among the group thus defined, four of the species are united by the presence of peculiar deep cuticular pits containing round flattened tubercles on the carapace, cucullus, and abdomen of both sexes (character 2); these have been illustrated for C. magnus by Platnick and Shadab (1976, figs. 1, 2, 4, 5); for C. bordoni by Dumitrescu and Juvara-Bals (1977a, figs. 1, 5); and for C. narino in the present paper (figs. 3-6). In the other known species of Cryptocellus and Ricinoides the pits are absent and the tubercles arise from the cuticular surface (as in Legg, 1976a, plate 1), so the presence of pits is regarded as a shared derived character.

Among the group thus defined, three of the species are united by the presence of elongated and elevated tubercles on the distal half of the palpal tibia in both sexes (character 3); these have been illustrated for C. magnus by Platnick and Shadab (1976, figs. 8, 9) and for C. bordoni by Dumitrescu and Juvara-Bals (1977a, fig. 2). In other ricinuleids tubercles on the palpal tibia are either absent or of the same rounded type found elsewhere on the body.

Finally, among the group thus defined, C. magnus and C. bordoni seem to be sister species as they share an enlarged ventral lobe on the distal end of the accessory piece of the male tarsal process (character 4; cf. Platnick and Shadab, 1976, figs. 13, 15; Dumitrescu and
FIG. 1. Cladogram of the Cryptocellus magnus group; numbers refer to characters discussed in Introduction.

Juvara-Bals, 1977a, figs. 9, 10) not found in C. narino or other ricinuleids.

The five species of the Cryptocellus magnus group form a geographically compact cluster (fig. 2) restricted to northwestern South America and isolated from the remaining South American forms (all from the Amazonian region; Platnick and Shadab, 1977, fig. 58). It is not yet possible to identify the sister taxon of the magnus group, or even to determine whether the magnus group is more closely related to the other South American of to Central America species.

We are grateful to Dr. M. U. Shadab for supplying the illustrations. Depositories are abbreviated as follows: AMNH, American Museum of Natural History; BMNH, British Museum (Natural History); HDO, Hope Department of Entomology, Oxford University; ISER, Institut de Speologie “Emile Racovitza”; MCZ, Museum of Comparative Zoology, Harvard University; MNHN, Muséum National de Histoire Naturelle; NMS, Natur-Museum Senckenberg; USNM, National Museum of Natural History, Smithsonian Institution. All measurements presented below are in millimeters.

REVISED KEY TO SOUTH AMERICAN CRYPTOCELLUS

1. Legs coated with large navicular setae (figs. 7, 9; Platnick and Shadab, 1977, figs. 7, 8) ..........2
   Legs without navicular setae ........................3
2. Spermathecae triangular (Platnick and Shadab, 1977, fig. 52); Guyana .. albosquamatus
   Spermathecae elongate (fig. 8); Colombia .......... narino
3. Carapace with deep pits containing tubercles (figs. 3, 5; Platnick and Shadab, 1976, figs. 1, 5) ..........4
   Carapace without deep pits .................. 4
   couplet 4 of Platnick and Shadab (1977, p. 3)
4. Palpal tibia with elevated tubercles (Platnick and Shadab, 1976, figs. 8, 9) ..................5
   Palpal tibia without elevated tubercles; Peru .... pseudocellatus
5. Body of male tarsal process with serrate tip (Dumitrescu and Juvara-Bals, 1977a, figs. 9, 10); Venezuela ... bordoni
   Tip of body of male tarsal process not serrate (figs. 10, 11); Colombia .......... narino

FIG. 2. Distribution of Cryptocellus glenoïdes (1), C. pseudocellatus (2), C. narino (3), C. bordoni (4), and C. magnus (5) in northwestern South America, with superimposed cladogram.
Cryptocellus narino, new species
Figures 3-11

Types: Male holotype taken from under decaying tree on cattle ranch at an elevation of 1540 m. at km. 122 of the highway leading from Medellín to Nariño, Antioquia, Colombia (September 23, 1975; N. Paz), and female paratype taken from under small trunk near small, fast-flowing stream on cattle ranch (Hacienda El Carmen) at an elevation of 1076 m. at San Rafael, Antioquia, Colombia (July 30, 1976; N. Paz), deposited in AMNH.

Etymology: The specific name is a noun in apposition taken from the type locality.

Diagnosis: Cryptocellus narino may be distinguished from all other known species of the genus by the combined presence of navicular setae on the legs (as in Platnick and Shadab, 1977, figs: 7, 8) and cuticular pits on the carapace, cucullus, and abdomen (figs. 3-6).

Female: Total length 8.28. Carapace 2.81 long, 2.70 wide near middle of coxae III, where widest, uniformly dark brown except for translucent pale yellow areas near margins opposite coxae II; surface with few setae concentrated at margins, without raised tubercles, with deep pits containing tubercles arranged as follows: median longitudinal row of about 14 becoming deeper posteriorly; marginal rows of five anterior and six posterior at sides, and six on each side of posterior margin; long submarginal U-shaped row of about 12 on each side; short paramedian V-shaped row of five on
each side at center between submarginal and longitudinal rows. Cucullus 1.35 long, 2.02 wide, dark brown, with long white setae concentrated distally, about 10 tubercles at center of distal margin, median longitudinal and paired outwardly curved lateral rows of about five shallow pits, and slightly protuberant lateral lobes. Left chelicera: movable finger flattened posteriorly, slightly widened transversely, armed with seven teeth of which the most proximal is greatly enlarged, others reduced to denticles; fixed finger armed with six teeth of which most distal and most proximal are longest, third most proximal reduced to denticle. Sternal region with coxae I not meeting tri-

Fig. 4. Cryptocellus narino, new species, female, ventral view.
posterior margin, lateral plates five along inner margin and about four submarginal; tergite 12, median plate eight along anterior margin, eight along posterior margin, lateral plates six along inner margin and about five submarginal; tergite 13, median plate two on each side along anterior margin, about eight scattered posteriorly, lateral plates about four along inner margin; median plates of tergites 11-13 with outwardly curved longitudinal depressions along lateral margins, corresponding sternites with depressions in similar positions; median plates of tergites 11-13 wider than long; sternites with about six shallow pits along lateral margins. Pygidium without notch in posterior dorsal or ventral margin of basal segment. Palpal coxae and second trochanters dark red, other segments red; coxae and trochanters with few scattered tubercles; coxae each with two thick white setae posteriorly along inner margin; distal half of tibiae covered with elongate elevated tubercles. Leg formula 2431. Legs dark reddish brown with tarsi lightest, coated with navicular setae but with few tubercles scattered on coxae, trochanters, and ventral surfaces of tibia and metatarsus II; tibia II with enlarged prolateroventral tubercle projecting anteriorly at about one-third its length. Measurements:

<table>
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<th></th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>Palp</th>
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<tr>
<td>Coxa</td>
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<td>1.33</td>
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<tr>
<td>Trochanter I</td>
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<tr>
<td>Femur</td>
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<tr>
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<td>1.15</td>
<td>1.21</td>
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<td>13.38</td>
<td>9.85</td>
<td>10.65</td>
<td>5.18</td>
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Second legs slightly widened; femur I about three times, femur II about four times as long as wide. Tarsal claws thin, evenly curved. Posterior genital lip and spermathecae as in figure 8.

MALE: As in female, except for the following: total length 7.34. Carapace 2.56 long, 2.40 wide, surface with scattered navicular setae; pits distributed as in figure 5. Cucullus 1.19 long, 1.73 wide, distal margin with about six large tubercles. Teeth on cheliceral fixed finger subequal in length. Coxae IV not meeting anteriorly. Abdomen 4.75 long, 3.38 wide, with scattered navicular setae on all tergites and sternites; pits distributed as in figures 5, 6. Palpal femur with tubercles situated on large proximoventral swelling; palpal tibia compressed at middle to half its apical height, with compressed area opposing femoral swelling.

Leg formula 2341. Tibia II with enlarged pro- lateroventral and retrolateroventral tubercles.

Measurements:

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>Palp</th>
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<td>Coxa</td>
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<td>11.13</td>
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Metatarsus and tarsus III as in figures 7, 9; tarsal process as in figures 10, 11.

MATERIAL EXAMINED: Only the types from Antioquia, Colombia.

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