

AN EXAMPLE OF SUBSPECIATION IN THE PHALANGIDA

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Recently the opportunity was presented to the authors to study a long series of specimens of the species described by Banks as *Cynorta obscura* from Puerto Rico. This series revealed interesting variations of the characters of Banks's species. It also showed the close affinity of a species described by Roewer as *Neocynortoides dorsalis* from the Virgin Islands. Further, the variations suggested a possible relationship to another species described by Roewer, *Proerginus lineatus*, from Haiti.

In 1912 Roewer placed Banks's species in the genus *Metacynortoides* with the generic characters as follows: first and second areas each with median paired tubercles; third and fourth areas each with median paired spines; fifth area without armature; tarsal segments 6-remainder more than 6, distitarsus of first with 3 segments, 2nd with 3. In this same genus, he has also placed *Metacynortoides scabrosa* (Banks) of Cuba.

In 1916 Roewer described *Neocynortoides dorsalis* from St. Thomas, one of the Virgin Islands. This differed from the above genus (*Metacynortoides*) by having paired tubercles on the fifth area.

Among the many specimens of *Metacynortoides obscura* (Banks) studied, all had a row of tubercles across the fifth area; however, in some the median pair of this row was enlarged into paired tubercles. In other individuals, these median tubercles were so slightly enlarged as not to suggest paired armature. Thus it seems to be a matter of degree. Since practically all animals studied showed some increase in the size of these median tubercles, it is believed that the characters of this species should be amended to include paired tubercles on the fifth area. This would unite generically Banks's and Roewer's species. The types of Banks's animals were studied through the courtesy of the National Museum. They all proved to be females and none showed much enlargement of the tubercles of the fifth area.

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For this reason it is proposed here to unite the two species into one in the genus *Neocynortoides*, and to consider the two forms as subspecies of the species *obscura*. *Metacynortoides scabrosa* (Banks) which has no median armature on the fifth area would thus remain the type of the genus *Metacynortoides*.

The main distinguishing features observed between the two subspecies are these : *N. obscura obscura* is smooth while *N. obscura dorsalis* is tuberculate on the dorsal scute ; the tuberculations of the fourth leg are somewhat larger in *dorsalis*; and in general *obscura* has the spines of the third area larger than those of the fourth while *dorsalis* has those of the fourth larger than those of the third. Individual variations do occur which prevent this from being a universal difference.

Specimens studied from Culebra Island showed an intermediate set of characters. They were more granulate than the Puerto Rican form (*N. obscura obscura*), but not so granulate as the Virgin Island form (*N. obscura dorsalis*). The spines of the third and fourth areas were very nearly equal in size.

Here is presented a problem in insular evolution. Two species are apparently in the process of forming; but still clearly show their close affinity. This fact is further verified by the Culebra Island specimens which show characters intermediate in appearance between the two subspecies.

DESCRIPTION OF SPECIES

Suborder Laniatores Thorell

Cosmetidae Simon

Cosmetinae Cambridge

Neocynortoides obscura (Banks)

Cynorta obscura Banks, 1901, Proc. United States Nat. Mus., vol. 27, p. 226, pl. 15, fig. 5 Banks, 1903, Proc. Acad. Philadelphia, vol. 55, p. 342.

Metacynortoides obscura Roewer, 1912, Arch. Naturg., vol. 78, sect. A, no. 10, p. 66 ; Roewer, 1923, Die Weberknechte der Erde, p. 338.

Neocynortoides dorsalis Roewer, 1916, Arch. Naturg., vol. 81, sect. A, no. 12, fig. 3 Roewer, 1923, Die Weberknechte der Erde, p. 340, fig. 384.

Eye tubercle in median portion of cephalothorax, low, with a few granulations over each eye. Posterior to the eye tubercle, small granulations are present on the cephalothorax. Dorsum with paired tubercles on the first, second, and fifth areas, paired spines on the third and fourth areas. A few small tubercles laterad to the median armature. A row of small tubercles across the posterior margin of the fifth area and each free tergite. Anal operculum tuberculate, free sternites, each with a transverse row of small granulations, enlarged into tuberculations at the lateral margin. Venter and coxae smooth except for scattered hairs, first coxa with a transverse row of tuberculations. Third coxa with a few anterior and posterior teeth, fourth coxa with a lateral and dorsal surface covered with tuberculations. These are quite conspicuous from above. Fourth coxa with one or two dorsal apical spines.

Legs with scattered hairs. Third and fourth trochanters each with an apical-retrolateral spine, tuberculations on the femora. Fourth femora slightly enlarged, with many small tuberculations. Fourth patella and tibia likewise with tuberculations. Tarsal segments : 6-14-9-9. Distitarsus of first tarsus with 3 segments, second with 3.

Palpus characteristically flattened, with a row of teeth on the ventral margin of the femur.

Chelicera with scattered hairs. Tuberculations on the first segment, second greatly enlarged in male.

Entire body reddish brown, lighter markings bound the areas. Appendages light.

Neocynortoides obscura obscura (Banks)

Cynorta obscura Banks, 1901, Proc. United States Nat. Mus., vol. 27, p. 226, pl. 15, fig. 5; Banks, 1903, Proc. Acad. Philadelphia, vol. 55, p. 342.

Metacynortoides obscura Roewer, 1912, Arch. Naturg., vol. 78, Sect. A, no. 10, p. 66 ; Roewer, 1923, Die Weberknechte der Erde, p. 338.

MALE.—Total length of body, 4.6 mm. Cephalothorax, 1.7 mm. Width of body at widest portion, 3.7 mm.

	I	II	III	IV
Trochanter	0.6 mm.	0.6 mm.	0.6 mm.	0.7 mm.
Femur	2.2 mm.	4.7 mm.	3.3 mm.	4.2 mm.
Patella	0.7 mm.	1.3 mm.	1.0 mm.	1.5 mm.
Tibia	1.5 mm.	3.6 mm.	2.0 mm.	2.7 mm.
Metatarsus	2.4 mm.	4.6 mm.	3.5 mm.	5.0 mm.
Tarsus	1.7 mm.	3.7 mm.	2.0 mm.	2.3 mm.
Total	9.1 mm.	18.5 mm.	12.4 mm.	16.4 mm.

Dorsum of entire animal smooth. First and second areas with median paired tubercles. Third and fourth areas with median paired spines, those of the third being larger. Fifth area with median paired tubercles. First to third free tergites each with a transverse row of low tubercles; free sternites, each with a transverse row of small granulations.

Legs with scattered hairs. Fourth femur slightly enlarged, covered with low tuberculations.

Palpus : trochanter 0.8 mm. long, femur, 1.3 mm. ; patella, 0.7 mm. ; tibia 1.0 mm., and tarsus, 0.6. Total length, 4.4 mm. Entire body reddish brown; lighter markings as in Figure 2. FEMALE.—Total length of body, 4.5 mm. Cephalothorax, 1.7 mm. Width of body at widest portion, 4.0 mm.

Identical in appearance with male, but with the fourth leg much less tuberculate and not nearly so heavy.

Type locality : female types from Bayamon, Puerto Rico, January, 1899 (Busch). National Museum number 5794.

Records : Aibonito, Puerto Rico, June 24, 1914; Mandios Slope, Puerto Rico, March 17, 1906 (W. M. Wheeler) ; between Arecibo and. Uduado, Puerto Rico, March 13, 1906 (W. M. Wheeler) ; and Culebra Island, March 6, 1906 (W. M. Wheeler).

Neocynortoides obscura dorsalis (Roewer)

Neocynortoides dorsalis Roewer, 1916, Arch. Naturg., vol. 81, sect. A, no. 12, fig. 3 ; Roewer, 1923, Die Weberknechte der Erde, p. 340, fig. 384.

MALE.—Total length of body, 4.6 mm. Cephalothorax, 1.6 mm. Width of body at widest portion, 4.0 mm.

	I	II	III	IV
Trochanter	0.4 mm.	0.5 mm.	0.5 mm.	0.6 mm.
Femur	2.2 mm.	5.0 mm.	3.5 mm.	4.8 mm.
Patella	0.8 mm.	1.2 mm.	1.1 mm.	1.3 mm.
Tibia	1.6 mm.	3.8 mm.	2.1 mm.	3.0 mm.
Metatarsus	2.3 mm.	4.8 mm.	3.4 mm.	4.9 mm.
Tarsus	1.6 mm.	4.0 mm.	1.9 mm.	2.2 mm.
Total	8.9 mm.	19.3 mm.	12.5 mm.	16.8 mm.

Dorsum of entire animal tuberculate. First and second areas with median paired tubercles. Third and fourth areas with median paired spines, those of the fourth being larger. Fifth area with median paired tubercles.

Legs with scattered hairs. Fourth femur with somewhat larger tuberculations which stand out prominently from the leg.

Palpus: trochanter, 0.7 mm. long; femur, 1.3; patella, 0.6, tibia, 0.8 ; and tarsus, 0.5. Total length, 3.9 mm.

Entire body reddish brown; lighter markings as in Figure 1.

FEMALE. Total length of body, 4.7 mm. Cephalothorax, 1.6 mm. Width of body at widest portion, 4.5 mm.

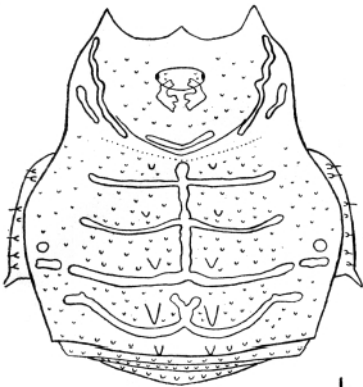
Identical in appearance with male, but- with the fourth leg much less tuberculate and not nearly so heavy.

Type locality: female holotype from Island of St. Thomas, Virgin Islands, in the collection of the Berlin Museum.

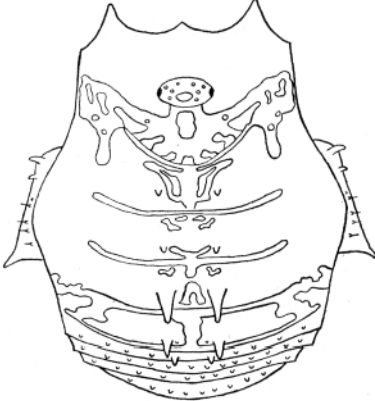
Record: St. Croix, Virgin Islands, March 9, 1925.

PLATE IV

- Figure 1. *Neocynortoides obscura dorsalis* (Roewer), dorsal view of male from Virgin Islands.
- Figure 2. *Neocynortoides obscura obscura* (Banks), dorsal view of male from Puerto Rico.
- Figure 3. *Neocynortoides obscura dorsalis* (Roewer), dorsal view of left fourth leg of male.
- Figure 4. *Neocynortoides obscura obscura* (Banks), dorsal view of left fourth leg of male.
- Figure 5. *Neocynortoides obscura dorsalis* (Roewer), dorsal view of fourth and fifth areas of male from the Virgin Islands.
- Figure 6. *Idem*, dorsal view of fourth and fifth areas of female from Puerto Rico.
- Figure 7. *Neocynortoides obscura obscura* (Banks), dorsal view of fourth and fifth areas of female from Puerto Rico.
- Figure 8. *Idem*, dorsal view of fourth and fifth areas of male from Culebra Island.



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NEOCYNORTOIDES