

RESEARCH NOTE

ANOTHER PSEUDOSCORPION FROM EMPIRE CAVE, SANTA CRUZ COUNTY, CALIFORNIA (CHTHONIIDAE)

The pseudoscorpion *Fissilicreagris imperialis* (Muchmore) is currently being proposed as a candidate for listing as an endangered or threatened species because its habitat—Empire Cave and other caves in Cave Gulch, Santa Cruz County, California—is seriously threatened by vandalism and development (see Muchmore & Cokendolpher 1995). Another unique, heretofore undescribed, pseudoscorpion also lives in Empire Cave. As it, too, is threatened, it is described below to allow the recognition it deserves.

Genus *Neochthonius* Chamberlin

Neochthonius Chamberlin 1929:66; Muchmore 1969:388; Judson 1990:593-594.

Type species *Neochthonius stanfordianus* Chamberlin 1929, by original designation.

Neochthonius imperialis new species (Fig. 1)

Type data.—Holotype. Female (WM7720. 01001), from Empire Cave, Cave Gulch, Santa Cruz County, California, 8 September 1991, D. Ubick and S. Fend; mounted on slide, in California Academy of Sciences, San Francisco, California.

Diagnosis.—Similar to *Neochthonius stanfordianus* Chamberlin, but larger (palpal femur length 0.54 versus 0.39-0.43) and without eyes (versus two eyes).

Description of female (male unknown).—With the characters of the genus *Neochthonius* (see Muchmore 1969) and the following particular features. Palps and chelicerae light brown, carapace and other parts tan. Carapace slightly longer than broad; epistome distinct, serrate; no eyes; chaetotaxy 6-4-4-2-2. Coxal chaetotaxy 2-2-1: mmm2(3)-0: 2-2-CS: 2-4-CS: 2-4; each coxa II with four bipinnate coxal spines (CS) arranged in a row, each coxa

III with three similar spines. Tergal chaetotaxy 4:4:4:4:6:6:6:6:6:4:1T2T1:0; sternal chaetotaxy 12:(3)10(3):(2)7(2):m5m:m5m:m5m:?:?:7:0:2. Chelicera nearly as long as carapace; hand with six setae; flagellum of about eight setae; galea a small knob. Palp moderately slender (Fig. 1): L/B of trochanter 2.0, femur 4.9, patella 1.95, and chela 4.75; L/D of hand 1.8; movable finger L/hand L 1.85. Trichobothria typical. Fixed finger with 68 tall, cusped, retrorse teeth; movable finger with 52 mostly retrorse teeth. Leg IV with L/D of femur + patella 2.3 and tibia 3.75.

Measurements (mm).—Body L 1.38. Carapace L 0.46. Chelicera L 0.445. *Palp*: trochanter 0.21/0.105; femur 0.54/0.11; patella 0.245/0.125; chela 0.805/0.17; hand 0.29/0.16; movable finger L 0.54. *Leg IV*: femur + patella 0.415/0.18; tibia 0.28/0.075; basitarsus 0.15/0.06; telotarsus 0.42/0.04.

Etymology.—The species is named *imperialis* after its type locality, Empire Cave.

Remarks.—*Neochthonius imperialis* is found within the geographic range of *N. stanfordianus* (see Schuster 1962), from which it differs in being larger and eyeless. It is close in size and proportions to *N. amplus* (Schuster), which is distributed north of San Francisco, on the east side of the Coast Range; from this species it is distinguished by the complete loss of eyes, undoubtedly an adaptation to life in the cave. It is much smaller and less slender than the only other known cavernicolous species in the genus, *N. troglodytes* Muchmore, from Wool Hollow Cave, Calaveras County.

The type locality, Empire Cave, is also the type locality of *Fissilicreagris imperialis* (Muchmore), which has been found in two additional caves in Cave Gulch (see Muchmore

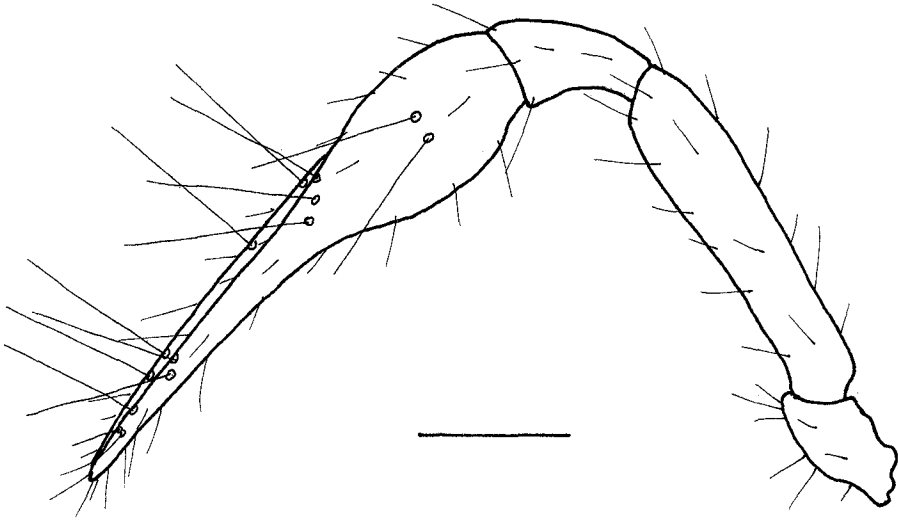


Figure 1.—*Neochthonius imperialis* new species, holotype. Right palp, dorsal view. Scale line = 0.2 mm.

& Cokendolpher 1995). It is quite possible that *Neochthonius imperialis*, too, has a wider distribution than the one cave, but has been overlooked because of its much smaller size. If it, also, is unique to the small Cave Gulch karst area, then it deserves to be on the list of endangered or threatened species, along with *F. imperialis*.

ACKNOWLEDGMENT

I am grateful to Darrell Ubick of the California Academy of Sciences for lending the type specimen for study.

LITERATURE CITED

- Chamberlin, J. C. 1929. A synoptic classification of the false scorpions or chela-spinners, with a report on a cosmopolitan collection of the same. Part I. The Heterosphyronida (Chthoniidae) (Arachnida-Chelonethida). *Ann. Mag. Nat. Hist.*, 4:50–80.
- Judson M. L. I. 1990. On the presence of *Chthonius* (*C.*) *halberti* Kew and *Chthonius* (*C.*) *ressli* Beier in France with remarks on the status of *Kewochthonius* Chamberlin and *Neochthonius* Chamberlin (Arachnida, Chelonethida, Chthoniidae). *Bull. Mus. Natn. Hist. Nat., Paris*, 11:593–603.
- Muchmore, W. B. 1969. The pseudoscorpion genus *Neochthonius* Chamberlin (Arachnida, Chelonethida, Chthoniidae) with description of a cavernicolous species. *American Midl. Nat.* 81:387–394.
- Muchmore, W. B. & J. C. Cokendolpher. 1995. Generic placement of the Empire Cave Pseudoscorpion, *Microcreagris imperialis* (Neobisiidae), a potentially endangered arachnid. *J. Arachnol.*, 23:171–176.
- Schuster, R. O. 1962. New species of *Kewochthonius* Chamberlin from California (Arachnida: Chelonethida). *Proc. Biol. Soc. Washington*, 75: 223–226.
- William B. Muchmore:** Department of Biology, University of Rochester, Rochester, New York 14627 USA

Manuscript received 11 September 1995, revised 11 November 1995.