

# *Lasiochernes cretonatus*, a new pseudoscorpion species from Crete (Arachnida: Pseudoscorpiones)

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**Samenvatting.** Een nieuwe pseudoschorpioen uit Kreta van het merkwaardige genus *Lasiochernes* (Arachnida: Pseudoscorpiones).

Een nieuwe *Lasiochernes*-soort uit Kreta, *Lasiochernes cretonatus* sp. n. wordt beschreven en vergeleken met de verwante soorten.

**Résumé.** Une nouvelle espèce de pseudoscorpion de l'île de Crète du genre remarquable *Lasiochernes* (Arachnida: Pseudoscorpiones).

Une nouvelle espèce du genre *Lasiochernes* de l'île de Crète, *Lasiochernes cretonatus* sp. n., est décrite et comparée aux espèces voisines connues.

**Zusammenfassung.** Eine neue Pseudoscorpion von der Insel Kreta, (Arachnida: Pseudoscorpiones)

Eine neue *Lasiochernes* Art von der Insel Kreta, *Lasiochernes cretonatus* sp. n., wird neu beschrieben und mit den anverwandten Arten verglichen.

**Key words:** Pseudoscorpiones – *Lasiochernes cretonatus* – new species – Crete – Greece.

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## Introduction

In March 1997, during a faunistic survey of the caves in Crete, a number of cave dwelling Pseudoscorpions was collected. On 23.III.1997 Gijs Verkerk and the author visited the cave of Souré near Azogires (in the west of Crete, altitude 600 m). Arachnida were collected by sifting and picking with the use of an electric vacuum cleaner. However, it was by simply turning over a small piece of stone near the cave wall that an adult male specimen of the genus *Lasiochernes* Beier, 1932 was found. In spite of intensive search, no additional specimens of this peculiar species were found.

Males of the genus *Lasiochernes* can be identified by a typical local pilosity on the pedipalp. This character varies between the species. Harvey (1990) indicates 9 species of *Lasiochernes*. Two of them are described from Congo (former Zaire, Africa). *L. pilosus* Ellingsen, 1910 is distributed in western Europe to Yugoslavia and is host-specific (see *Biology and Ecology* below), *L. siculus* Beier, 1961 is only known from Sicily (Italy). The specimen from Crete was also compared with the 5 remaining species from Turkey, Albania, Greece and Israel. No *Lasiochernes* species was known to occur on Crete. Certain striking morphological characteristics distinguish the specimen from Azogires as a new species, which is described hereafter.

## *Lasiochernes cretonatus* sp. n.

Holotype male, Crete, cave of Souré near Azogires, 600 m, 23.III.1997, leg. H. Henderickx. Deposited in the Muséum d'Histoire naturelle de Genève.

Habitus as shown on fig. 1. The colour of pseudoscorpions varies during the hardening process of the cuticula after moulting. It can also change during long conservation in ethanol or other conservatives, and is therefore not very reliable as a determination tool. In this case the legs and opisthosoma are horny-brown, light yellowish brown between the tergites. The cephalothorax and pedipalps are darker, reddish-brown. Total length (excluding the chelicerae) 3 mm.

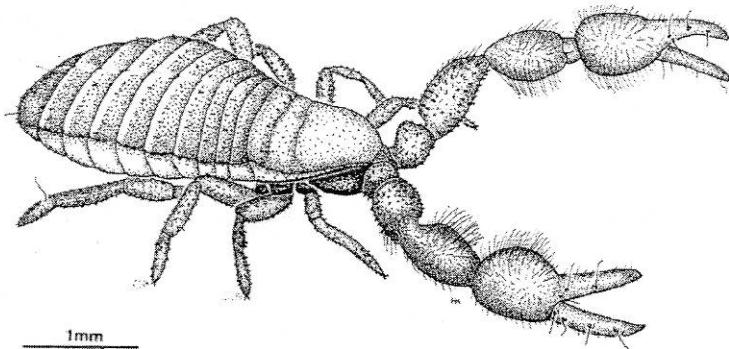


Fig. 1: *L. cretonatus* sp. n., holotype, Crete, Azogires, 23.III.1997.

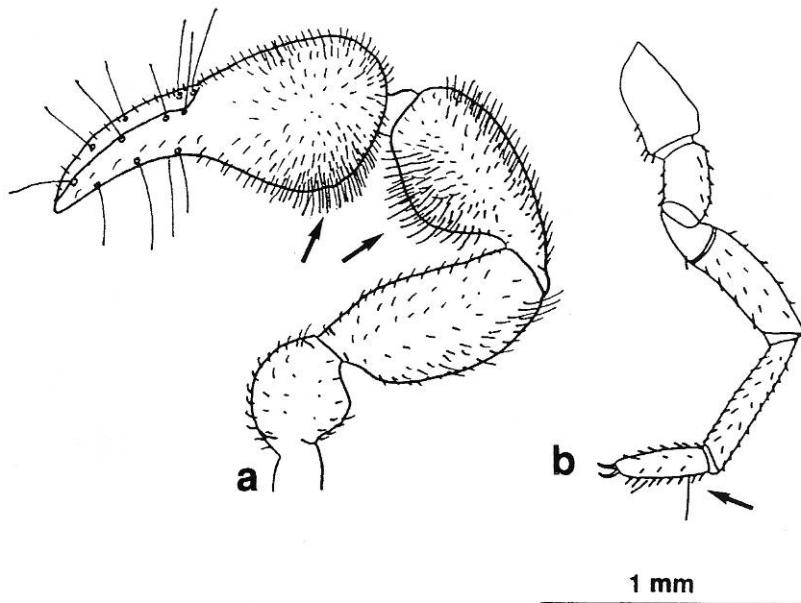


Fig. 2: *L. cretonatus* sp. n., holotype a. pedipalp (arrows indicate long pilosity); b. leg IV with indication of the tactile seta on the tarsus (arrow).

Cephalothorax with two distinct transverse grooves, no epistome, no eyes nor eyespots. Carapax granulate, bearing 12 setae in the posterior row.

Abdomen of usual *Lasiochernes* facies, 1.92 mm long.

Chelicerae: length 0.27 mm, long galea present.

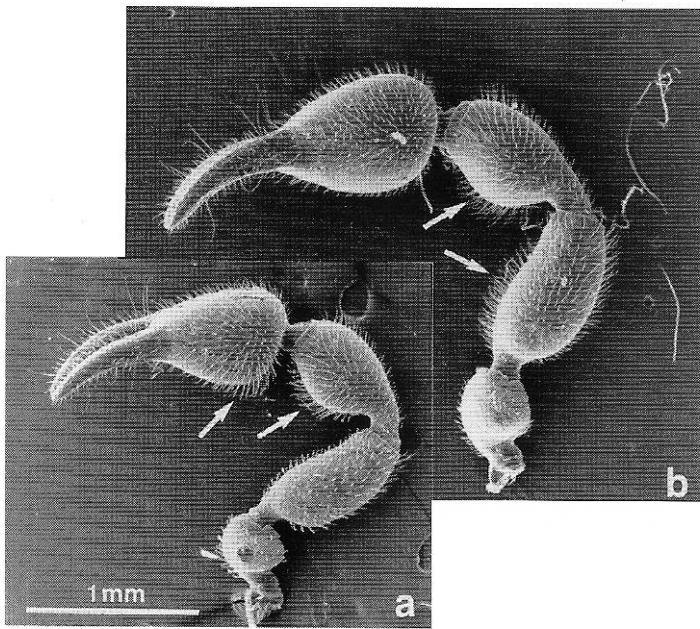


Fig. 3a: *L. cretonatus* sp. n., holotype a. pedipalp (arrows indicate long pilosity); b. pedipalp of *L. pilosus*, Belgium, Brussels, Forêt de Soignes, 14.XII.1996 (scanning microscopy).

Pedipalps (fig. 2, a): trochanter ( $0.84 \times 0.35$  mm); femur ( $0.90 \times 0.37$  mm); tibia ( $0.86 \times 0.47$  mm). Total length of hand + fixed finger: 1.62 mm; hand without finger ( $0.88 \times 0.59$  mm). Fixed finger ( $L = 0.74$  mm) with 44 teeth + 9 additional teeth on the outer and 4 on the inner margin, movable finger ( $L = 0.81$  mm) with 47 teeth + 8 additional teeth on the outer and 3 on the inner margin, both terminal claws present. The large number of additional teeth might be an indication for an adaptation to phoresy. Fig. 5 is a SEM-image of the lateral outerside of the hand with the trichobotriion pattern.

Leg IV (fig. 2, b): coxa ( $0.40 \times 0.24$  mm); trochanter ( $0.35 \times 0.20$  mm); femur 1+2 ( $0.81 \times 0.20$  mm); tibia ( $0.67 \times 0.13$  mm); tarsus ( $0.40 \times 0.12$  mm) with a tactile seta approximately one third removed from the joint with the tibia.

#### Differential diagnosis

Characteristics distinguishing the new species from those given in the original descriptions of allied species *L. anatolicus* Beier, 1963, *L. graecus* Beier, 1963, *L. jonicus* (Beier, 1929), *L. siculosus* Beier, 1961, *L. turcicus* Beier, 1949 and *L. villosus* Beier 1957 (see Beier 1949, 1957, 1963) were compared with the following type material:

*L. graecus*: 2 males, Greece, cave Petalás, 17.VII.1956, leg. Patrizi., Muséum d'Histoire naturelle de Genève

*L. anatolicus*: 3 males, Turkey, Mara (cave) Inhisar near Sögüt, 26.IV.1961, leg. Schweger, Naturhistorisches Museum Wien.

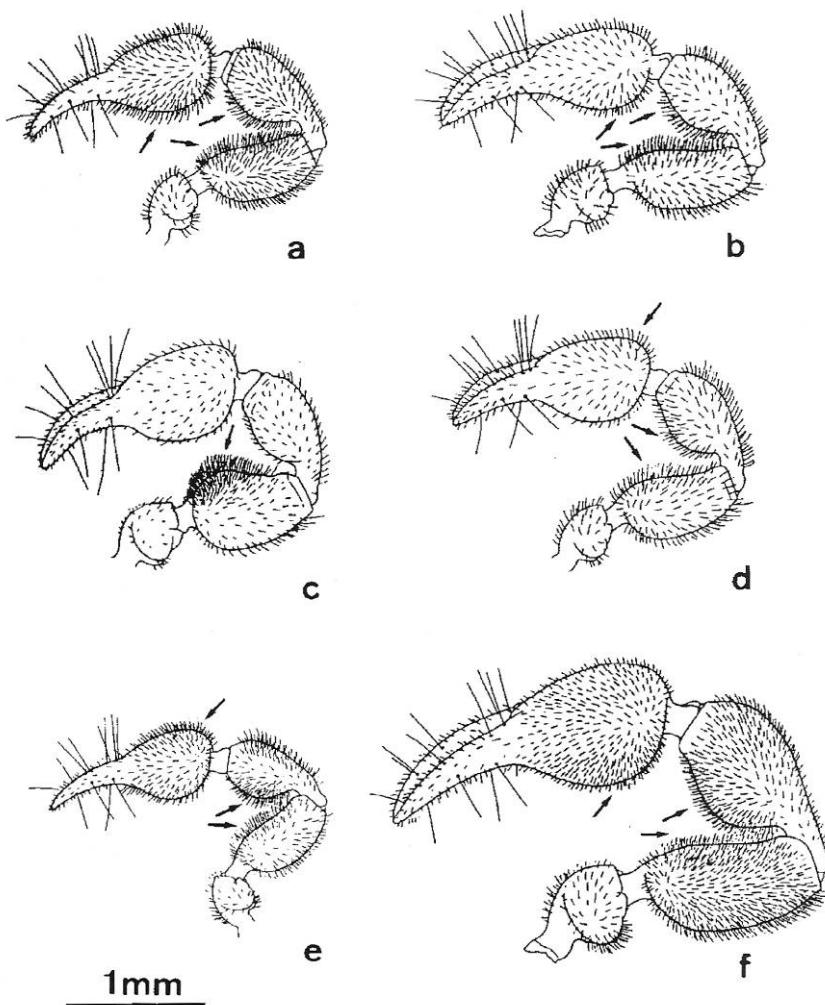


Fig. 4: Collation of published illustrations from different descriptions.

- a. – *L. siculosus* Beier, 1961 (from Beier 1963b).
- b. – *L. anatolicus* Beier, 1963 (from Beier 1963a, mirror view).
- c. – *L. jonicus* (Beier, 1929) (from Beier 1963b).
- d. – *L. graecus* Beier, 1963 (from Beier 1963b, original description).
- e. – *L. villosus* Beier, 1957 (from Beier 1957, original description).
- f. – *L. turcicus* Beier, 1949 (from Beier 1957, mirror view).

The figures were set to the same scale and turned in mirror view when necessary (indicated)

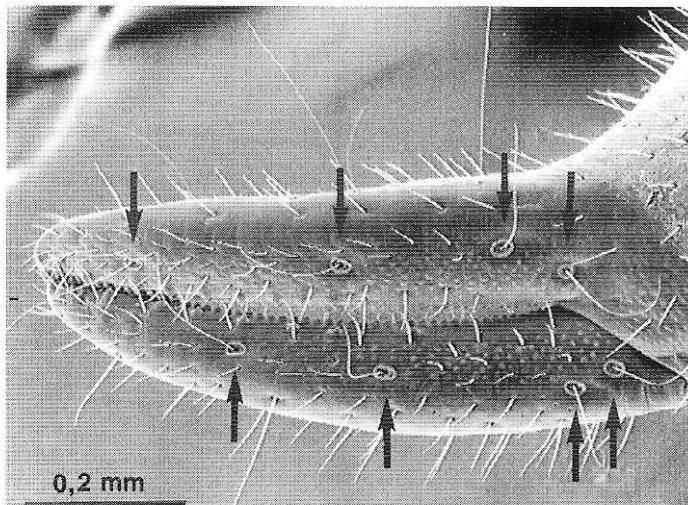


Fig. 5: *L. cretonatus* sp. n., external lateral view of the pedialpal fingers with the trichobotrium pattern indicated (arrows).

*L. siculus*: 3 males, Italy, Sicily, cave Chinsazza, 4.II.1960, Naturhistorisches Museum Wien.

*L. jonicus*: 2 males, Greece, Kerkyra, Agios Mathias, 600 m, 28–30.III.1926, leg. Beier, Naturhistorisches Museum Wien.

The trichobotrium on tarsus IV of *L. cretonatus* sp. n. is situated near the joint of the tibia. In all allied species this tactile seta is situated near the middle of the article or somewhat distally to the middle. Beier (1963 b) even considered the position of this tactile seta as an autapomorphy for the genus.

The dense and often long pubescence of some parts of the male pedipalp (fig. 2 a, fig. 4) is autapomorphic for the genus. Typical for the new species is the long lateral pilosity on the inner side of tibia and hand (longer than on the outer side) (figs. 2a, 3a). The femoral pilosity is scarce, with only a few longer hairs near the outer corner at the joint with the tibia. In most of the allied species the femoral pilosity is dense and long and there is no concentration of long pilosity on the inner corner of the hand (fig. 4, arrows).

The position of the trichobothria on the pedipalp of *Lasiochernes* seems to show certain variability (Mahnert 1979) and should be revised for all species.

#### Discussion

The new species is most closely related to the smaller species of *Lasiochernes* from Albania, Turkey and Greece (*L. graecus*, *L. villosus* and *L. jonicus*). However, the male of the new species can easily be distinguished from the related species by the typical pedipalp pilosity and the position of the trichobotrium on tarsus IV. Geographical isolation from the other species of this genus probably induced the formation of a new species.

### Biology and ecology

Many *Lasiochernes* species are presumed to be allied with mammals, since they are exclusively found in their nests. A typical example is *L. pilosus* Ellingsen, 1910 (fig. 3b). It seems to be very specific in the choice of its habitat, since it is only found in subterranean mole-nests (*Talpa* sp.) with a particular content of dead leaves. Although approximately a hundred mole-nests were sifted, the author could only find the species in leaf nests from ancient woodland (Forêt de Soignes, Brussels 1997 and 1998). This species was never found in mouse nests, even if these were connected to the moles habitat and also filled with leaf-litter.

A microcavernicolous habitat is also known from *Lasiochernes* sp. from Africa, where the species live in the nests of some subterranean rats (Beier 1959).

It is known that the fauna of crevices, humid soil and microcaverns can be the base of a true cavernicole population, e. g. when climate changes and the caves serve as refuges. Therefore cavernicolous populations can be the relicts of an ancient fauna populating the surface of the earth in the remote past (Curcic 1988). The *Lasiochernes* species from Crete however does not show adaptation to cave life such as loss of pigment or elongation of appendages (the total lack of eyes is an autapomorphy for the genus).

Often noticed *Lasiochernes* association to mammals (hyperparasitic?) gives opportunities for phoretic dispersion. It is likely that at least some species of this genus spread by attaching to the host mammal. E. g. *Chiroptera* can serve as an excellent transport vehicle from one cave to another and phoretic pseudoscorpions have already been found on bats (Leleup, pers. comm.). *L. jonicus* and *L. turcicus* were found in mouse nests (Beier 1963b and 1963c) and mice are known to make their nests in cave entrances sometimes.

Some pseudoscorpions appear to be phoretic on birds (e. g. *Dinocheirus panzeri* Koch, 1836). The cave of Souré opens as a giant cleft regularly visited by pigeons but we did not find *Lasiochernes* in the guano and feather detritus.

Since *L. cretonatus* sp. n. was not found in a nest of any kind nor in the neighbourhood of a mammal, the host, if it exists, remains unknown. It also remains uncertain how the new species reached its habitat. However, the occurrence of *Lasiochernes* as far South as Crete is not surprising, the genus is well represented in the Balkan and has also been found as far South as Congo (Africa) (Beier 1959).

### Distribution

The species is only known from the type locality on Crete.

### Etymology

Cretonatus is Latin for "born on Crete" or "born by Crete".

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