

## Research article

Submitted: July 18<sup>th</sup>, 2024 – Accepted: November 28<sup>th</sup>, 2024 – Published: December 10<sup>th</sup>, 2024  
DOI: 10.13133/2284-4880/1661

# *Cybaeodes gardinii*, a new species of the genus *Cybaeodes* Simon, 1878 from Sardinia, Italy (Araneae: Liocranidae)

Alessio TROTTA

Via delle Ginestre 1/A2, 17024 Finale Ligure (Savona), Italy - alessiotrotta1973@libero.it

### Abstract

Four species of the genus *Cybaeodes* Simon, 1878 are currently known from Italy: *C. marinae* Di Franco, 1989, widespread in peninsular and insular Italy; *C. avolensis* Platnick & Di Franco, 1992 from E Sicily; *C. molaria* (Roewer, 1960) from NW Sicily; and *C. sardus* Platnick & Di Franco, 1992 from central Sardinia. A fifth species is described here, *Cybaeodes gardinii* sp. nov. from SW Sardinia (South Sardinia province, Iglesias, Marganai).

**Key words:** spiders, taxonomy, Mediterranean region

<http://zoobank.org/urn:lsid:zoobank.org:pub:79E1E7E8-3B57-4201-905B-3B30190EDD31>

### Introduction

The genus *Cybaeodes* Simon, 1878 currently includes 13 species (epigean and troglobiontic), all characterized by the following combination of characters: endites with a serula, precoxal triangles weak or absent, intercoxal sclerites absent, two ventral rows of modified setae on the anterior legs, tibiae and metatarsi with multiple pairs of ventral spines, presence of five pairs of tenent hairs on the tarsal tips and tarsal claws with 5–7 teeth. In addition, this genus exhibits an interesting sexual dimorphism of its spinnerets, mainly the anterior spinnerets: males with gnaphosid-like spinnerets (elongate, cylindrical and clearly separated at the base bearing enlarged spigots) and females with clubioid-like spinnerets (short, subconical and slightly separated or contiguous at the base) (Platnick & Di Franco 1992; Bosselaers 2009; Ribera & De Mas 2015).

Its geographic range extends across the Mediterranean region, from Spain to Italy through France (including Mallorca, Corsica, Sardinia and Sicily) and in North Africa (Algeria and Tunisia) (Ribera & De Mas 2015; World Spider Catalog 2024).

So far, four species are reported from Italy: *Cybaeodes avolensis* Platnick & Di Franco, 1992 (Sicily: Siracusa province, Avola; Catania province, Oasi del Simeto), *Cybaeodes marinae* Di Franco, 1989 (Liguria, Tuscany, Latium, Calabria, Sicily and Sardinia), *Cybaeodes molaria* (Roewer, 1960) (Sicily: Palermo province, Cozzo Santa Croce, grotta Molaria) and *Cybaeodes sardus* Platnick &

Di Franco, 1992 (Sardinia: Nuoro province, Parco Laconi). Among the conspicuous material examined, I have identified a few specimens that I believe belong to a further Italian new species from SW Sardinia, whose description is the object of the present article.

### Material and methods

The specimens used in this study are preserved in 75% ethanol. They were examined using a Leica MS5 stereomicroscope and were photographed by Francesco Ballarin with a Canon EOS Kiss X10 digital camera mounted on a Nikon SMZ 1270 stereomicroscope.

Photographs were merged using Helicon Focus 7 image stacking software and improved with Adobe Photoshop CC.

All measurements are in millimetres; those taken from digital photo were calculated using the software ImageJ 1.54g.

Holotype of the new species is deposited in the Museo di Storia naturale di Verona, paratypes are in author's collection.

### Abbreviations

ALE = anterior lateral eyes

AME = anterior median eyes

AS = anterior spinnerets

CAT = A. Trotta private collection, Finale Ligure, Italy

d = dorsal

Fe = femur

MS = median spinnerets

MSNV = Museo Civico di Storia Naturale, Verona, Italy  
 Mt = metatarsus  
 pl = prolateral  
 PLE = posterior lateral eyes  
 PME = posterior median eyes  
 PS = posterior spinneretes  
 rl = retrolateral  
 Ti = tibia  
 v = ventral  
 X = leg or leg article absent

### Genus *Cybaeodes* Simon, 1884

Type species: *Cybaeodes testaceus* Simon, 1878

### *Cybaeodes gardinii* sp. nov. (Figs 1–15)

*Cybaeodes* sp.: Trotta 2011: 146

**Type material.** Holotype (♂): **ITALY**: Sardinia, South Sardinia province, Iglesias, Marganai, 700 m, 5 Aug - 13 Sep 2005, pitfall trap, G. Chessa leg. (MSNV). Paratypes: 1♀: same data (CAT); 1♂ (specimen in very poor condition): same data but 30 Sep - 17 Oct 2005 (CAT); 1♀ (specimen in very poor condition): Sardinia: South Sardinia province, Iglesias, Vecchia Cantoniera Marganai, 491 m, direct collecting, M. Bardiani, D. Birtele, P. Cornacchia & D. Whitmore leg. (CAT).

**Diagnosis** (♂♀). A *Cybaeodes* species differing from the other known congeneric in having the following dentition pattern of chelicera: promargin without teeth (Fig. 5) and retromargin with five teeth (Fig. 6; the other *Cybaeodes* species have promargin with two teeth and retromargin with three teeth). Male can also be recognized by the combined presence of two large and pointed apophyses of the embolar base and by the coiled shape of the laminate embolus; female differs from other known representatives of the genus by the shape of the epigyne, the shape of the epigynal anterior rim, the epigynal lobes and the long epigynal ducts.

**Etymology.** It is an honour for me to dedicate this new species to my mentor in arachnology and friend Giulio Gardini, renowned pseudoscorpion specialist, to which I express my deep sense of gratitude and indebtedness.

**Description** (♂♀). Prosoma yellowish brown with fovea dark brown and sternum yellowish, chelicera yellowish brown, legs pale yellowish and opisthosoma white greyish to greyish. Prosoma longer than wide (Figs 1, 3). Eyes formula: ALE > PLE > AME > PME. Chelicera robust (Figs 2, 4); cheliceral promargin without teeth and with long stout hairs on the cheliceral rim (Fig. 5), cheliceral retromargin with five teeth: three contiguous in basal position (the first the smallest; the second and third the largest), two well separate teeth in median position (Fig. 6). Labium slightly longer than wide apically with hairs. Endites subrectangular, frontally rounded, with apical tuft hairs. Legs long with trochanters notched and patella spineless, tarsal claws with five teeth and spatulate hairs on the tarsal tips; leg spination as in Tables 1 and 2. Opisthosoma with very fine pubescence and an evident hairs tuft in the anterior part.

Measurements and morphological indices (due to the poor conditions of some specimens, only the holotype and 1♀ paratype were measured): total length: ♂ 5.86, ♀ 4.97; carapace length: ♂ 2.68, ♀ 2.07; carapace width ♂ 2.06, ♀ 1.59; carapace length/width ratio: ♂♀ 1.30; AME: ♂ 0.06, ♀ 0.04; ALE: ♂ 0.08, ♀ 0.07; PME: ♂ 0.05, ♀ 0.03; PLE ♂ 0.07, ♀ 0.05.

**Male:** all the spinnerets gnaphosid-like (cylindrical, elongate and bearing enlarged spigots), AS well separated at the base, MS contiguous and PS well separated at the base; spinnerets size: AS > PS > MS (Fig. 7).

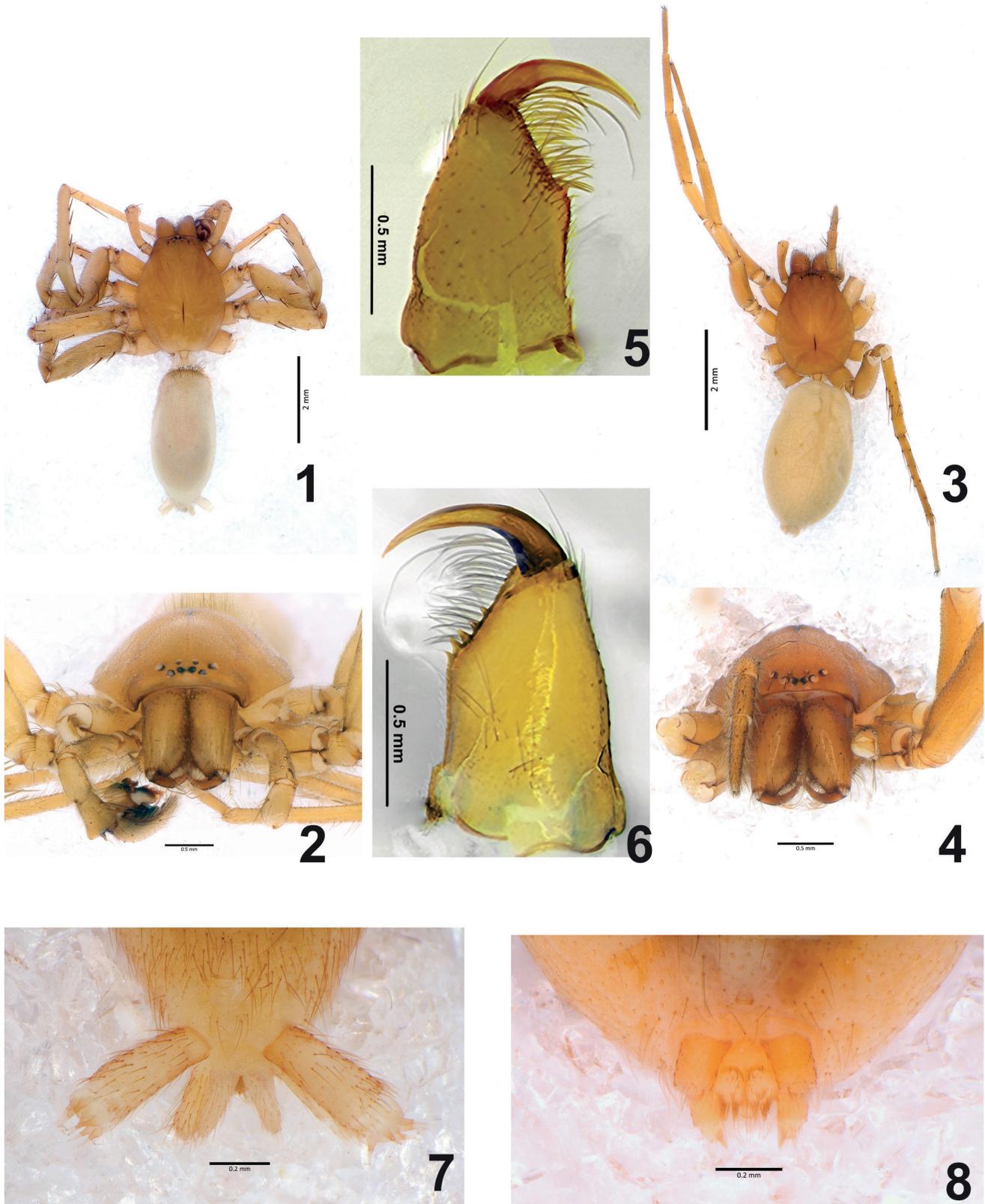
Pedipalp tibia with long setae on ventral and lateral side; retrolateral tibial apophysis triangular longer than wide and apically pointed; tegulum wide with a well-defined rounded peak on the anterior edge; median apophysis moderately robust and elongate, apically rounded and with a spur located near the apex; wide embolar base with

**Table 1** – Leg spination of the male holotype.

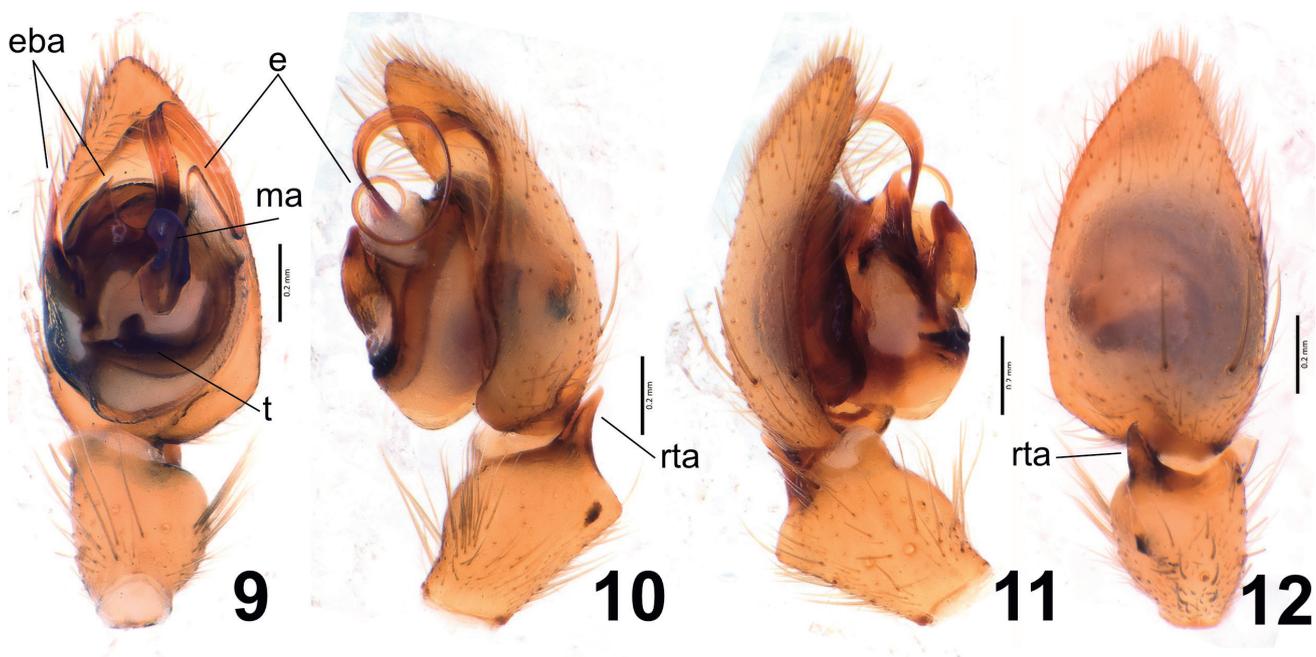
Fe	d	v	pl	rl	Ti	d	v	pl	rl	Mt	d	v	pl	rl
I	11	0	011	0	I	0	11111	0	0	I	0	200	0	0
II	111(0)	0	111	0	II	0	11111	011	0	II	0	200	0	0
III	111	0	11	111	III	11	22	11	11	III	0	22	111	111
IV	111	0	11	1(0)11	IV	111	222	11	11	IV	0	222	111	111

**Table 2** – Leg spination of the female paratype.

Fe	d	v	pl	rl	Ti	d	v	pl	rl	Mt	d	v	pl	rl
I	11	0	001	0	I	0	22222	0	0	I	0	200	0	0
II	11	0	001	0	II	0	1121	0	0	II	0	200	0	0
III	X	X	X	X	III	X	X	X	X	III	X	X	X	X
IV	110	0	001	011	IV	0(3)0	2(3)2	X	X	IV	0	12(3)2	X	X



**Figs 1–8** – *Cybaeodes gardinii* sp. n.: 1, ♂ holotype, habitus, dorsal view; 2, same, prosoma, frontal view; 3, ♀ paratype, habitus, dorsal view; 4, same, prosoma, frontal view; 5, ♂ holotype, left chelicera promargin; 6, same, left chelicera retromargin; 7, same, spinnerets, ventral view; 8, ♀ paratype, spinnerets, ventral view.



**Figs 9–15** – *Cybaeodes gardinii* sp. n.: 9, ♂ holotype, left palp, ventral view; 10, same, retrolateral view; 11, same, prolateral view; 12, same, dorsal view; 13, ♀ paratype, epigyne, ventral view; 14, same, after dissection, ventral view; 15, same, after dissection, dorsal view.

e = embolus; ear = epigynal anterior rim; eba: apophysis of the embolar base; ma = median apophysis; rta = retrolateral tibial apophysis; t = tegulum.

two large, robust and pointed apophysis; long and laminate embolus, curved and coiled in the distal part (Figs 9–12).

**Female:** all the spinnerets subconical, AS well separated at the base, MS contiguous and PS well separated at the base; spinnerets size: AS > PS > MS (Fig. 8).

Epigyne with anterior ridge well defined and with central part thicker and semicircular shaped; atrium completely occupied in the central part by two slightly curved longitudinal lobes, contiguous in the middle part and separated in the upper and lower part; the two longitudinal lobes have inner and outer margins thicker and darkest, with the outer margins strongly curved to form two well-defined lobes in the upper lateral part of the epigyne (Figs 13–14).

Vulva with moderately thin insemination ducts strongly curved at the base (look like a question mark overturned) and small spermatechae located at the base of the longitudinal bands in the outer part (Fig. 15).

### Remarks

Although several *Cybaeodes* species are mostly known from only one sex and almost exclusively from type material, an affinity between *C. gardinii* sp. nov. and *Cybaeodes madidus* Simon, 1914 (male unknown; females known only from Menton, SE France) could be assumed, based on the similarity of the epigynal ducts and epigynal

lobes. None of the remaining species present in the Sardinian-Corsican-Provencal area [*Cybaeodes marinae* (present in Liguria, Tuscany, Latium, Calabria, Sicily and Sardinia), *C. sardus* (Sardinia) and *C. testaceus* Simon, 1878 (Corsica)] show similar characters.

On the other hand, the peculiar dentition pattern of the cheliceral margins allows *C. gardinii* **sp. nov.** to be placed in a rather isolated position compared to the congeneric species.

Current knowledge (unfortunately still too fragmentary) does not allow further phylogenetic or biogeographical considerations to be developed.

**Acknowledgements** – Special thanks to Francesco Ballarin (Tokyo) for taking the digital photos and to Carlo Giusto (Genoa) for the very precious comments and suggestions which he made on the manuscript.

### References

- Bosselaers J. 2009. Studies in Liocranidae (Araneae): redescription and transfers in *Apostenus* Westring and *Brachyanillus* Simon, as well as description of a new genus. *Zootaxa*, 2141: 37–55.
- Platnick N.I., Di Franco F. 1992. On the relationships of the spider genus *Cybaeodes* (Araneae, Dionycha). *American Museum Novitates*, 3053: 1–9.
- Ribera C., De Mas E. 2015. Description of three new troglobiontic species of *Cybaeodes* (Araneae, Liocranidae) endemic to the Iberian Peninsula. *Zootaxa*, 3957 (3): 313–323.
- Trotta A. 2011. Second contribution to the knowledge of the spiders of Sardinia (Arachnida, Araneae), pp. 137–161. In: Nardi G., Whitmore D., Bardiani M., Birtele D., Mason F., Spada L. & Cerretti P. (eds), *Biodiversity of Marganai and Montimannu (Sardinia). Research in the framework of the ICP Forests network. Conservazione Habitat Invertebrati*, 5. Cierre Edizioni, Sommacampagna, Verona, 896 pp. + 1 map.
- World Spider Catalog 2024. Version 25.5. Natural History Museum Bern, online at <http://wsc.nmbe.ch>, accessed on 15.06.2024. doi: 10.24436/2

