Bull.Br.arachnol.Soc. (1979) 4 (9), 402-406

Arctosa villica (Lucas) 1846: drawings and observations

Frances Murphy
323 Hanworth Road,
Hampton,
Middlesex TW12 3EJ

and

Paolo Tongiorgi
Istituto di Zoologia,
via dell'Università 4,
41100 Modena, Italy

Introduction

In the extensive revision of Italian species of the genus *Arctosa,* carried out by Lugetti & Tongiorgi (1965, 1966) (a review which covers almost all the central western European species), *Arctosa excellens* (Simon) and *A. villica* (Lucas) were not considered. The first species is, in fact, exclusively from the Iberian peninsula. The second was dealt with indirectly, since the authors did not have reliably identified material for comparison and were not able to confirm the only Italian record (Di Caporiacco, 1949).

The type of *A. villica* cannot be found and is presumed to be lost. To complicate the situation further, it was then observed that among the material in the Simon collection of the Museum National d'Histoire Naturelle, Paris, specimens belonging to several different species were labelled *"villica".* It is clear from the literature that *A. villica* has often been confused with other species, in particular with *A. personata* (L. Koch). Lugetti & Tongiorgi confined themselves to reporting the scanty information to be found in the literature and the very schematic sketches of the palpus and the epigynum, drawn from Simon (1937, figs. 1773, 1774). Once the species has been identified, it is not difficult to recognize in Simon's drawings the characteristic features of the genitalia of *A. villica*. However, in taxonomic studies the important thing is to be able to identify the species from the drawing and not vice-versa.

An investigation of the literature has shown that existing illustrations of *A. villica* are rather poor. In fact, other than Simon's drawings, already mentioned, and the drawing of general appearance by Lucas (1846, tab. 2, fig. 9), only Roewer (1959, fig. 522 a-c) (epigynum, tegular apophysis and general appearance) and Guy (1966, figs. 59-60) (arrangement of the eyes and epigynum) have supplied drawings, none of which are really useful for identification purposes.

Now, the possibility of studying some females and a male of this species, all originating from the Iberian peninsula, enables us to fill this gap, and to supply some useful facts for comparison with related species.

Material examined

Spain: Salamanca, Puente Alagon-Sequeros, 13 August 1971, 1♀. *Sevilla,* Alains, 2 July 1969, 1♀. *Huelva,* Aracena (near

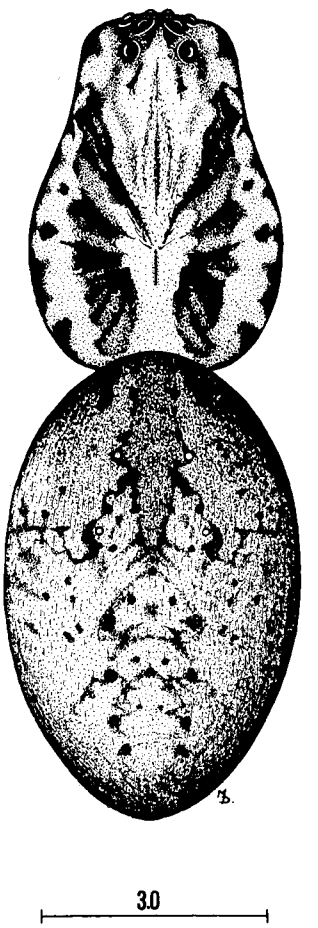


Fig. 1: *Arctosa villica* (Lucas). Female carapace and abdomen. Scale line in mm.

Linare de la Sierra), 5 July 1969, 1♀. Zalamea la Real, 10 July 1969, 1♀. *Granada*, Pueblo de Don Fabrique, 1000-1200 m, 6 July 1971, 1♀. Lacalahora, Ferreira, 17 July 1971, 1♀. Trevelez, 4 July, 1♀. *Malaga*, on the mountains between Montejaque and Ronda, 22 July 1969, 1♀. (All coll.A.Senglet).

Portugal: Algarve, Monte Gordo, April 1971, many ♀♀ (Murphy leg.). ♂ reared in laboratory from egg sac laid by one of the above ♀♀.

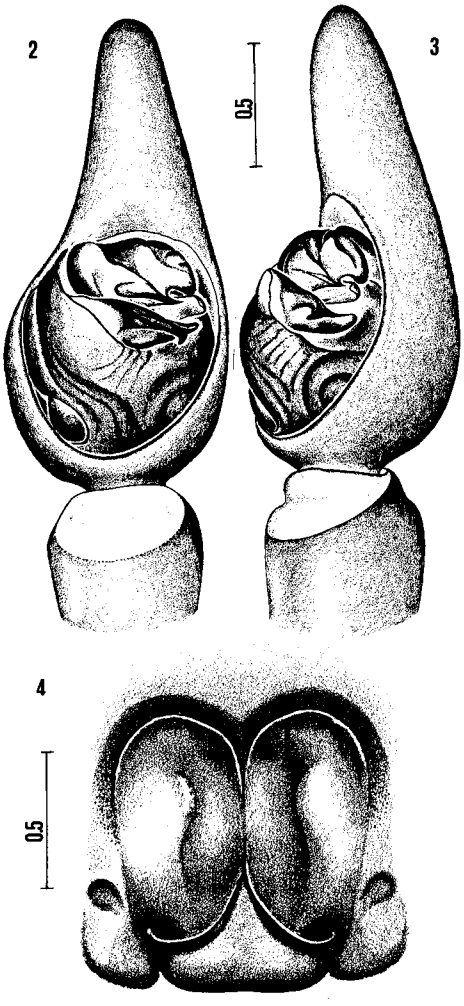
Description

Dimensions (calculated from 5♀ and 1♂) : Cephalothorax: ♀: 4.6-5.2 mm long, 3.3-3.9 mm wide. ♂: 6.1 mm long, 4.0 mm wide.

Cephalothorax (Fig. 1): yellow-brown, with median and lateral whitish bands. Median band slightly dilated, V shaped at level of thoracic furrow, widening and less distinct anteriorly with a thin dark brown line running through the cephalic region. Lateral bands separated from edges of cephalothorax by three or four marginal brown marks, and by two or three submarginal clearer marks. Pale bands a little narrower than the brown ones. Anterior row of eyes recurved. Clypeus height equal to diam. of AM. AM larger than AL. Distance between AM and between AM and AL, about half diam. of AM. Distance from AM to PM less than diam. of AM. Distance between PM about the same as diam. of AM. *Abdomen:* covered by fine, yellow ochre pubescence, interspersed with reddish-brown coarse hairs. A thin, lanceolate middle band, defined by darker dotting, is present on the anterior half. Posteriorly the dark dotting forms a vague design consisting of oblique stripes defining triangular areas, not always perceptible in adult specimens. Sides, belly and sternum yellowish. *Chelicerae:* lower margin with two subequal teeth, superior margin with three teeth. *Legs:* reddish-yellow with femora marked by two or three brown annulations; the proximal ring often scarcely visible and restricted to ventral side; the middle and distal ones consist of four clear marks, two dorsolateral and two ventro-lateral, the latter sometimes being confluent. Darker blotches occur on all patellae. A pair of blotches also visible on tibiae, especially III and IV. Other segments uniformly reddish. Ventral surface of metatarsi I and II with a distal central spine and two pairs of short, stout lateral spines. Tibiae I ventrally with a pair of distal spines and two pairs of short, thin lateral spines, the proximal ones being almost bristle-like. Often only a single proximal spine is present. Tibiae II with a pair of distal spines and two other spines on retro-lateral side, though the proximal one is not always present. Prolateral side without spines. *Male palpus* (Figs. 2 and 3). *Epigynum* (Fig. 4).

Types

A female *Arctosa villica* is here designated neotype and deposited in the British Museum (Natural History), register number 1979.1.29.1. The laboratory reared male is deposited with her.



Figs. 2-4: *Arctosa villica* (Lucas). **2** left palpus, ventral view; **3** ditto, lateral view; **4** epigyne. Scale lines in mm.

Taxonomic position

In the present study *villica* is still assigned to the genus *Arctosa* although some authorities have placed *villica* together with *A. excellens* (Simon), *A. personata* (L. Koch), *A. letourneuxi* (Simon) and *A. fulvolineata* (Lucas) in a separate genus or subgenus *Leaena*, and there are some distinctive characteristics which suggest that this would be a more precise arrangement. *Leaena* was established by Simon (1885) as a subgenus of *Lycosa*, distinct from the subgenus *Arctosa*, for the Tunisian species *villica*, *letourneuxi* and *personata*. This subdivision was also preserved later (Simon 1898) and in fact the species of the subgenus *Leaena* were placed in the "S group of Sectio 11: *Chelarum margo inferiore bidentatus*" (Simon, 1898, p. 349). This grouping is reasonable considering the obvious similarities of these species but ignores the fact that *personata* has 3 teeth on the cheliceral margin. Species of the subgenus *Arctosa* (together with various species now assigned to the genus *Pirata* and others) are to be found in "L group of Sectio 1: *Chelarum margo inferiore tridentatus*". The subgenus *Leaena* has subsequently been raised to generic rank by Dahl (1908) and retained by Bonnet (1957) and Roewer (1954). The dentition of the chelicerae should not be adopted as an absolute discriminating character to distinguish the two genera or subgenera, since as a result species which are very similar morphologically, like *A. villica* and *A. personata*, having respectively two and three teeth on the lower margin of the chelicera, would be separated only on the basis of this single character, into the two different genera *Arctosa* and *Leaena*. On the other hand all other characters, e.g. disposition and ratio between the various pairs of eyes, disposition of spines on the legs etc., would be, at least apparently, of secondary taxonomic importance (see Lugetti & Tongiorgi, 1965, pp. 168-69). The creation of the genus *Leaenella* (Roewer, 1954, 1959) is not justified, as the genus has been established exclusively to include those species, like *A. personata*, which could not be included in the definition of *Leaena*. Moreover, as already stated by Lugetti & Tongiorgi (1966, p. 137) the diagnoses of *Leaena* and *Leaenella* are such that they would not include just those species for which Roewer created the genus *Leaenella* and redefined *Leaena*.

Nevertheless, the oval form of the head, which is inclined forward more gently than in other *Arctosa*; the definitely recurved row of the anterior eyes, wider than that of the PM eyes, the distance between the PM eyes clearly less than their diameter; the reduced spination, especially of the anterior legs, are all characters which combine effectively to distinguish the *villica* group from other *Arctosa* species. Therefore, in our opinion, it would not be wrong to retain the genus *Leaena* distinct from *Arctosa*, but if this were done it would be necessary to redefine not only the genus *Leaena*, which could not be characterised by the presence of only two teeth on the lower margin of the chelicera, but also the genus *Arctosa*, specifying more clearly the differences between the two genera. However this work would require, at least, a knowledge of the North African species, which is anything but complete. For the moment, therefore, we consider it best to leave *villica* and the other species in the genus *Arctosa*.

Diagnosis

As already stated, *A. villica* differs from *A. personata* by the presence of only two teeth on the lower margin of the chelicera.

The epigyna of the two species also differ in the form of the genital pockets which are pyriform and posteriorly divergent in *A. personata*, while they are approximately rectangular and subparallel in *A. villica*. The different shape of the epigynum with the genital pockets clearly divergent in front, is sufficient to distinguish *A. fulvolineata*. Finally *A. villica* can be separated from *A. excellens* because, while in the former the epigynum is about twice as long as broad, in the latter it is almost as long as broad and the genital pockets diverge posteriorly as in *A. personata*.

The drawing of the epigynum of *A. villica* in Roewer (1959, fig. 522a) corresponds well enough to that of the specimens examined by us. On the other hand, the drawing of the epigynum supplied by Guy (1966, fig. 60) is very summarily carried out, and fits more closely the epigynum of *A. personata* or *A. excellens*.

It is more difficult to distinguish the males, with the exception of *A. personata* where the dentition of the chelicera furnishes a useful diagnostic character. The males of *A. fulvolineata* differ from those of *A.*

villica in having a more slender terminal apophysis and in the prominent part of the tegular apophysis being triangular (see Holm, 1947, p. 5). *A. excellens* can also be distinguished by the form of the tegular apophysis, as well as by its greater size. Observing the palpus from the ventral side, the superior margin of the apophysis is extended into a laminar expansion directed forwards and outwards as in *A. personata*, while in *A. villica* the margin of the tegular apophysis appears more or less flattened.

A comparison with *A. letourneuxi* is not possible, because the drawings supplied by Roewer (1959, fig. 523a-b) and by Guy (1966, fig. 61-62), the only existing ones of this species, are totally inadequate. The spination of the legs is remarkably variable, as already noted by Simon (1937), and sometimes it is missing altogether (Roewer, 1959).

The dimensions of the specimens studied are slightly less than those supplied in the literature.

Distribution, geography and ecology

The species is widespread along the western basin of the Mediterranean: southern France, the Iberian peninsula including the Atlantic coast, Algeria and Tunisia. Although discovered only once in northern Italy, by Di Caporiacco (1949), the presence of *A. villica* is very probable in the Italian peninsula and in the large islands (Sicily and Sardinia). The species has been reported also in Germany (Koch, 1848; Menge, 1850) and in Czechoslovakia (Prach, 1866; Barta, 1868). Nevertheless, the records concerning these last two regions must be considered doubtful, especially because of the difficulty in distinguishing this species from other *Arctosa*.

Arctosa villica lives in dry places, under stones and rubble, often in localities near the sea, though it has also been discovered in mountainous zones higher than 1200 m.

Biology

A number of *Arctosa villica* were found near Monte Gordo, Algarve early in April, 1971, on the inland edge of sand dunes near the pine woods, living in holes in the sand. They were dug up from a depth of about 20 cm. In many cases the holes were found under stones, tiles or other debris with a horizontal entrance, just under the cover, leading to a vertical hole. No males were found and the females either had egg sacs or laid eggs shortly after capture. One female with egg sac was kept alive and taken to England. She was kept in a plastic box 14 x 8 x 6 cm. On 22 April about 30 spiderlings emerged and climbed onto their mother's back.

On 25 June the mother died. About a week earlier most of the young had left their mother and taken up an independent existence. However, a few days before her death, when she was already moving awkwardly and clearly dying, several of the young returned and climbed onto her back again. As soon as she was dead they started to eat her. This was allowed to continue in order to give the young a good start. The process lasted about a day.

The spiderlings were subsequently placed in a large cage (about 30 x 60 cm) with 2 cm of sand in the bottom. By August most of the young were living in tubes in the sand. Initially they were fed on collembola and small woodlice shaken from herbage or sifted from litter, and later on house flies.

In due course two partly grown spiders were left which were installed in separate plastic cages each with a pile of sand at one end. The spiders made cells, lined with very fine silk, to live in. From these they would reach out to catch a fly which walked over the cell. These cells were often made along one side of the clear plastic cages and so could be more or less clearly seen, although the entrance would generally be drawn together so that there was no sign of the spider's existence on the surface of the sand.

By 17 November 1973 the male was mature. The other, a sub-adult female, never became mature.

References

BARTA, E. 1868: Verzeichniss der Spinnen des nördlichen Böhmens. *Arch.naturw.Landes Durchforsch.Böhmen* **1**(4, Zool): 133-140.

BONNET, P. 1957: *Bibliographia Araneorum* **2**(3): 1927-3026. Toulouse.

DAHL, F. 1908: Die Lycosiden oder Wolfspinnen Deutschlands und ihre Stellung im Hanshalt der Natur. *Nova Acta Acad.Caesar.Leop.Carol.* **88**: 175-678.

DI CAPORIACCO, L. 1949: Aracnidi della Venezia Giulia. *Atti Mus.Civ.Stor.nat.Trieste* **17**: 29-43.

GUY, Y. 1966: Contribution à l'étude des araignées de la famille des Lycosidae et de la sous-famille des Lycosinae avec étude spéciale des espèces du Maroc. *Trav. Inst.scient.chérif.* (Zool.) **33**: 1-171.

HOLM, A. 1947: Fam. 8-10, Oxyopidae, Lycosidae och Pisauridae. In *Svensk Spindelfauna* **3**: 1-48. Stockholm.

KOCH, C. L. 1848: *Die Arachniden* **14**: 1-210. Nürnberg.

LUCAS, H. 1846: *Histoire naturelle des Animaux articulés.* In *Exploration scientifique de l'Algéria pendant les années 1840, 1841, 1842. Zoologie* **1**: 89-271. Paris.

LUGETTI, G. & TONGIORGI, P. 1965: Revisione delle specie italiane dei generi *Arctosa* C. L. Koch e *Tricca* Simon con note su una *Acantholycosa* delle Alpi Giulie (Araneae-Lycosidae). *Redia* **49**: 165-229.

LUGETTI, G. & TONGIORGI, P. 1966: Su alcune specie dei generi *Arctosa* C. L. Koch e *Tricca* Simon (Araneae-Lycosidae). *Redia* **50**: 133-150.

MENGE, A. 1850: Verzeichniss der danziger Spinnen. *Neue Schr.naturf.Ges.Danzig* **4**(3): 57-71.

PRACH, Hrn. 1866: Monographie der Thomisiden (Krabbenspinnen) der Gegend von Prag, mit einem Anhange, das Verzeichniss der bisher in der Umgebung unserer Haupstadt aufgefundenen Araneen enthaltend. *Verh. zool.-bot.Ges.Wien* **16**: 597-638.

ROEWER, C. Fr. 1954: *Katalog der Araneae* **2a**: 1-923. Bruxelles.

ROEWER, C. Fr. 1959: Araneae Lycosaeformia. II. (Lycosidae). *Explor.Parc natn.Upemba Miss. G. F. de Witte* **55**: 519-1040.

SIMON, E. 1885: Etude sur les Arachnides recueillis en Tunisie en 1883 et 1884 par MM.A.Letourneux, M. Sédillot et Valéry Mayet. In *Exploration scientifique de la Tunisie* 1-55. Paris.

SIMON, E. 1898: *Histoire naturelle des Araignées* **2** (2): 193-380. Paris.

SIMON, E. 1937: *Les Arachnides de France* **6**(5): 979-1298. Paris.