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Notes on Wolf Spiders from Greece (Araneae, Lycosidae)

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Abstract: Comments are given on non-Pardosinae wolf spider species from Greece mainly based on new material of 17 species. There are literature records for at least 10 additional species, albeit some of them rather doubtful. Four new synonymies are proposed: *Alopecosa insignis* (NOSEK 1905) = *A. pentheri* (NOSEK 1905) (raised to species rank), *Lycosa thessala* SIMON, 1885 = *Alopecosa solitaria* (HERMAN 1876), *Lycosa hellenica* C.L. KOCH 1836 = *Hogna radiata* (LATREILLE 1817), *Trochosa ruricola rustica* THORELL 1875 = *T. hispanica* SIMON 1870. Most records of "*Tarentula fuscipes*" probably refer to *A. pentheri*. General distribution and habitat preferences of the species are briefly discussed. Wolf spiders are more rich in species in mid and Central Europe than in Greece. For the species identified, zoogeographic elements were recognized as follows: Trans-Palaeartic 2; Holomediterranean 4; Mediterranean-expansive 2, which are wetland species; mid-European, with southern limit of continuous range in n. Greece 2, endemic in Greece 1 (together with a n.sp.?), Pontocaspian 5.

Key words: Lycosidae, Greece, distribution area, zoogeography, synonymy.

Introduction

Even for conspicuous spider families general insight in European diversity is still poor, as very few comprehensive synopses at European scale exist. Of course in mid and northern Europe faunistic and ecological knowledge about spiders and especially Lycosidae was greatly promoted in the 20th century, see respective regional overviews. Unfortunately, the data about the amazing spider world of the Mediterranean are still far from complete in many respects, which holds true also for Lycosidae. This must be deeply regretted, as information about their presence and absence in the Mediterranean is essential for a more general understanding of the historical sources of European spiders. The Pontomediterranean region is one of the main refugia of the European fauna. It was therefore of interest to study a small collection of Lycosidae from Greece. In this first communication, species of the subfamily Pardosinae were excluded.

In araneological inventories, 15 species of Lycosidae have been named for Attica (HADJISSARANTOS 1940) and 25 only for the whole Greece (BRISTOWE 1935). Comparative numbers are 75 for Bulgaria (DELTSHEV & BLAGOEV 1995) and Austria (BUCHAR & THALER 1997), 70 for Switzerland (MAURER & HÄNGGI 1990), 52 for Bohemia (BUCHAR 1995). Lycosidae were recorded early from Greece, two species by BRULLÉ (1832) from "Morea", 10 by C.L. KOCH (1836-1847), most of them collected by Dr. Schuch around

"Nauplia" (now Nafplio, Argolis). The identity of BRULLÉ's records is without doubt: "*L. narbornensis*" (= *L. praegrandis*), *A. albofasciata*. Only three species named by KOCH are still valid, *L. praegrandis*, *A. variana*, *Pardosa proxima* (C.L. KOCH 1847), and two were accepted as synonyms ("*L. famelica*" = *H. radiata*, "*L. sagittata*" = *A. albofasciata*). To our surprise at least five names still must be regarded as "species inquirendae", which survived in the catalogues (ROEWER 1954): *L. hellenica* (= *Citilycosa h.*), *L. grisea* (= *Hogna graeca* ROEWER 1951 nomen novum), *L. fuscipes* (= *Alopecosa f.*), *L. invenusta* (= *Pardosa i.*), *L. atomaria* (= *Pardosa a.*). A better knowledge about lycosids in Greece probably will allow to identify these species.

For Lycosidae vision is vital not only for prey capture, but also for intra-specific communication (courtship). Many of them therefore show a characteristic pattern, which helps to recognize the species, see the photographs included.

Materials collected by the authors, if not indicated otherwise. Depository: Specimens are kept in the author's reference collections (CB, CTh). Some specimens are deposited in BZL Biologiezentrum Linz; NMW Naturhistorisches Museum Wien. – Photos: B. Knoflach.

List of Species

Alopecosa albofasciata (BRULLÉ 1832) (Figs 1-2)

Lycosa albofasciata BRULLÉ 1832. ♂, Type locality Peloponnese, "plaine de Modon".

Ident.: SIMON (1937), LUGETTI & TONGIORGI (1969), FUHN & NICULESCU-BURLACU (1971).

M a t e r i a l : Thrakia: w. Komotini, 1♂ CB 29 April 1997, leg. Kost'ál. – Makedonia: Chalkidiki, Ouranopoli 50-200 m, in pasture, 2♂♂ 1♀ CTh 29 April 2000; Sithonia, Parthenon 300 m, 4♂♂ 1♀ NMW 30 April 2000; Nikiti, in pasture, 1♂ BZL 28 April 2000, 1♂ NMW 1 May 2000; Gómati, in river bed, 2♀♀ NMW 2 May 2000. – Attiki: Cap Sounion, 1♀ BZL 12 April 1979, leg. Dethier [SO79/2]. – Peloponnese: Mistra, 1♂ CTh 15-20 May 1965, leg. Pruscha. – Corfu: Spartilas, in shrub, 1♂ NMW 29 May 1996. – E. Crete: Pefkos, in olive grove, 1♂ BZL 5 April 1998; road Lassithi/Neapoli, near Zenia 600 m, 1♂ NMW 8 April 1998; Ammoudara s. Ag. Nikolaos 20 m, 1♂ NMW 26 April 1990, leg. W. Schedl; 1♀ BZL 6 April 1998. – C. Crete: Moni Vrondisi s Iraklion, along brook, 1♂ CB 14 May 1997, leg. Buchar. – W. Crete: Georgioupolis, in olive grove, at beach, in phrygana 0-250 m, 1♂ 3♀♀ CTh 28 March - 1 April 1999. – Rhodes: Salakos, path to Prof. Ilias 400 m, 1♂, 2 sad.♀ BZL, 12 April 1996; 600 m, pasture and firs, 7♂♂ NMW+CTh 12 April 1996; 700 m, pasture and firs, 1♂ 3♀♀ CTh 8 April 1996. – Further records: Pilion, Malaki (Pi79/22), 1♂ NMW 18 April 1979, leg. Dethier. Alexandropolis w Probaton 100 m, 1♀ CTh 10 May 1969, leg. Ausobsky; Kara Oglou, Satrai 350 m, 2♂♂ CTh 14 May 1969, leg. Ausobsky.

♂ pattern distinct (Fig. 2), venter in both sexes black, with two longitudinal white stripes (SIMON 1937). *A. albofasciata* apparently can be taken as a Turanian-Mediterranean element in the sense of VIGNA TAGLIANTI et al. (1992). The species is Holomediterranean, occurring also in northern Africa (BONNET 1955), and ranges from the Iberian peninsula to Central Asia (LUGETTI & TONGIORGI 1969). It is the most common species of its genus in the region considered, both on the mainland as on islands (Corfu, Rhodes, Crete), and was taken at low elevation, from the sea shore to c. 700 m, in pasture, phrygana, olive grove. It is little surprising, that it was collected already by BRULLÉ (1832) and Dr. Schuch (KOCH 1846/47, *L. sagittata*). *Alopecosa albofasciata* is a stenochronous species, adult moults already in April, adults present until end of May.

***Alopecosa dryada* CORDES 1996 (Fig. 43)**

Alopecosa dryada CORDES 1996. ♂ ♀, Type locality Thessalia, Katara pass.

M a t e r i a l : Thessalia: Pindos mts., w. Kalambaka, road Kastania to Arta, close to bifurcation for Stefani 1200-1500 m, 1 ♀ CTh 20 Sept. 1995. – Epiros: Pindos, Katara pass 1300 m, beech forest, 1 ♂ CTh 13 June 1999, leg. Osella. – Peloponnese: Taygetos mts. 1400 m, pine forest close to Motel Taygetos, 1 ♀ CTh 23 Sept. 1995; Katafigion 1000 m, 2 ♂ ♂ 2 ♀ ♀ CB, 17 June 1974, leg. Svihla. Parnon mt. 1700 m, 1 ♀ NMW 28 Sept. 1992.

The species was based on specimens also taken in Pindos mts., Katara pass (CORDES 1996), and reported furthermore to occur in Thrakia, in an oak wood at 800 m, and in Peloponnese, in Taygetos mts. at 1000 m and Messinia at 1100 m. Range apparently narrow, confined to mainland Greece and Peloponnese. Epigyne: Fig. 43.

***Alopecosa pentheri* (NOSEK 1905) (Figs 3-4, 42, 46-47)**

Pardosa pentheri NOSEK 1905. ♂ ♀, type locality Turkey, Erdschias Dag; depository NMW, lectotype designated by LUGETTI & TONGIORGI (1969: 55) (examined).

Lycosa cursor insignis NOSEK 1905. ♀, type locality Turkey, Indschesu. NMW, "type" (examined). New synonym (already suggested by DELTSHEV & BLAGOEV 1995).

Tarentula cursor elatori KRATOCHVIL 1935. ♀ type locality Macedonia, Veles. Synonymy recognized by LUGETTI & TONGIORGI (1969: 57).

Tarentula fuscipes - HADJISSARANTOS (1940: 40, ♀ Fig. 11).

Alopecosa cursor pentheri - LUGETTI & TONGIORGI (1969: 55). Material from Turkey only (♂ ♀ NMW). Specimens from Italy (Rieti, Lago di Rascino, ♂ Fig. 15a-c, leg. Brignoli) probably belong elsewhere.

Alopecosa insignis - LUGETTI & TONGIORGI (1969: 57, ♀ Fig. 15 d-e).

M a t e r i a l : Macedonia: Athos mt. 2033 m, 1 ♀ CTh 2 May 1969, leg. Ausobsky. Chalkidiki: Sithonia, Itamos mt. 500-750 m, 3 ♀ ♀ CB 30 April 2000. – Kefallonia: Aenos mt. 1600 m, alpine pasture, 5 ♂ ♂ 3 ♀ ♀ NMW+CTh 23 Sept. 1999. – E. Crete: Kritsa above Ag. Nikolaos, road to Katharo 1100 m, carstic slope with oak, 1 ♂ NMW 1 Oct. 1998; Lassithi, Avrakondes, ascent to Mt. Dikti 1500 m, 1 ♂ 27 Sept. 1998 BZL (adult Oct. 98); Lassithi, Ag. Timios-Stavros above Tzermiado 800-1100 m, 1 ♀ BZL 4 April 1998; Mt. Selena, on summit 1550 m, 1 ♂ CB 7 April 1998. – C. Crete: Ida mt., Psiloritis above Anogia, at bifurcation to Skinaras, 1 ♀ CB 23 Sept. 1998. – W. Crete: Lefka Ori 2100 m, 2 ♂ ♂ 1 ♀ CTh 30 April 1990, ded. M. Chatzaki.

♂ ♀ pattern indistinct, colour rather dark, greyish (Figs 3-4). The taxonomic history of this species is rather confuse. It was described twice already by NOSEK (1905) from Asia minor, first, without figure, from the female as a subspecies of *A. cursor* (HAHN 1831) from Indschesu; secondly from both sexes from Erdschias Dag, but in the genus *Pardosa*. Furthermore, in the type series of "*P. pentheri*" a third species was included, *P. incerta* NOSEK 1905 (TONGIORGI 1966: 339). In the course of the years, another subspecies of *A. cursor* was named from Macedonia, again for the female (KRATOCHVIL 1935), which was recognized since as a synonym of *A. insignis*. Further records came from Macedonia again (Skopje, LUGETTI & TONGIORGI 1969), Bulgaria (as summarized in DELTSHEV & BLAGOEV 1995) and Azerbaijan (MIKHAILOV 1997). We now report further localities in the mountains of Greece, in Macedonia, Kefallonia and Crete, in 500-2000 m a.s.l., all stony slopes with open vegetation. Apparently the species occupies a wide range in the mountain regions of Eastern Mediterranean and Turkey.

There are still more records in the literature, which might refer to *A. pentheri*. The epigynum illustrated by HADJISSARANTOS (1940: 40) for *T. fuscipes* clearly belongs to *A. pentheri*. For LUGETTI & TONGIORGI (1969: 2) this was a doubtful species, which cannot

be recognized from the original description. It was recorded several times from Greece: Athens (SIMON 1885 a), Makedonia (PAGE 1921), Tempe valley (SIMON 1885 b), Corfu (GILTAY 1932). For SIMON (1885 a: 117) *L. fuscipes* was a close relative of *A. cursor*. These records therefore might refer to *A. pentheri* as well. SIMON'S diagnosis of the male palp of *A. fuscipes* is as follows: "La patte-machoire est presque semblable dans les deux espèces: le bulbe offre à la base externe une apophyse lamelleuse courte et tronquée avec les deux angles brièvement et inégalement prolongés" (SIMON 1885 a: 118). Probably also DRENSKY'S record of *A. simoni* from Macedonia (1929, 1936) refers to *A. pentheri*.

We do not believe, that *L. (Tarantula) fuscipes* C.L. KOCH 1847 will turn up as a senior synonym of *A. pentheri*. The male depicted in fig. 1398 has contrasting forelegs, femora and tibiae black, metatarsi and tarsi brownish, and palps: femur to tibia brown, cymbium black.

General appearance as *A. cursor*; total length 5.5-7.3 (n=8), length (width) of prosoma ♂ (n=5) 3.0-3.5 (2.2-2.5), ♀ (n=3) 3.1-3.4 (2.2-2.4) mm. The epigynum of the females recorded above corresponds perfectly to the figures provided by KRATOCHVIL (1935), HADJISSARANTOS (1940), LUGETTI & TONGIORGI (1969, sub *A. insignis*), see Fig. 42. The male might best be recognized from the shape of the tegular apophysis, see Figs. 46-47. We are convinced, that the specimens from Italy (Lazio: Rieti, Lago di Rascino, 2♂♂ 2♀♀, leg. Brignoli) assigned to "*cursor pentheri*" by LUGETTI & TONGIORGI (1969, figs 15 a-c) belong to another species, females probably to *A. cursor* (HAHN 1831), as they were said not to differ from "typical" *cursor*. The true identity of the males still remains to be settled.

Alopecosa solitaria (HERMAN 1876) (Figs 5-6, 44)

Lycosa thessala SIMON 1885 [b]. ♀, type locality Thessalia, "Sommet du mont Ossa; au-dessus de la région boisée", leg. Stussiner; probably lost (LUGETTI & TONGIORGI 1969: 2). New synonym.

Ident.: LUGETTI & TONGIORGI (1969), FUHN & NICULESCU-BURLACU (1971), MILLER (1971).

M a t e r i a l : Thessalia: Mt. Timfristos near Karpenisi 1900 m, 1♀ NMW 4 July 1998, leg. Osella.
– Boiotia: Pamassos mts., Ski Center near Arahova 2100 m, 1♂ 1♀ CTh 22 Sept. 1997.

A. solitaria ranges from "S. Siberia" and Kazakhstan (MIKHAILOV 1997) to C. Europe, westernmost localities in Moravia (MILLER 1947) and in E. Austria (KULCZYNSKI 1898; THALER & BUCHAR 1994), northernmost records in Poland have been regarded as doubtful (STAREGA 1983). There is a single old record from Italy, "Cima del Cesima", leg. Cavanna (LUGETTI & TONGIORGI 1969). Records of this species on the Balkans are few and scattered (FUHN & NICULESCU-BURLACU 1971; DELTSHEV & BLAGOEV 1995), the specimens from Thessalia and Boiotia therefore coming from the southern limit of its range. From the description of epigynum and habitat (SIMON 1885 b) we have the strong suspicion, that "*Lycosa thessala*", which was considered as a species inquirenda by LUGETTI & TONGIORGI (1969: 2), should be accepted as synonym of *A. solitaria*. *L. thessala* is known only from the female and belongs according to SIMON to the "groupe des *L. fabrilis* CL. et *inquilina* CL." It was collected in the summit region of Mt. Ossa. Epigyne: Fig. 44.

***Alopecosa* sp. (Figs 7-9)**

M a t e r i a l : Peloponnese, Ahaia: Erymanthos mts., Olonos 2000-2200 m, 2♂♂ 2♀♀ (CB+CTh), Helmos mt. 2300 m, 1♂ NMW 18 Sept. 1993; above Kalavrita 1400 m, in forest of Greek fir, 1♀ NMW 20 Sept. 1993.

Median band of prosoma with two dark stripes in anterior half, Figs. 7-9. Specimens were taken in the mountains of n. Peloponnese, mostly in stony fields and slopes of the alpine zone, in 2000-2300 m above the *Abies cephalonica* forest; 1♀ in the forest belt at 1400 m. To our great surprise these specimens apparently are closely allied to a species from Moravia and Slovakia, which is new and will be described in near future (BUCHAR, in preparation).

***Arctosa cinerea* (FABRICIUS 1777) (Figs 10, 12, 48)**

Ident.: HOLM (1947), LOCKET & MILLIDGE (1951), LUGETTI & TONGIORGI (1965), FUHN & NICULESCU-BURLACU (1971), MILLER (1971).

M a t e r i a l : Makedonia: Chalkidiki, Kolpos Ag. Oros, sand beech near Pirgadikia, 1♂ 1♀ CTh 2 May 2000 (adult in July).

Pattern and colour cryptic, Figs 10, 12. Trans-Palaeartic, both at sea-shore and on river banks. The embolic division of the ♂ from Pirgadikia fits well to specimens from central Europe (Fig. 48, BUCHAR & THALER 1995). The geographical and ecological separation of this species from *A. variana* (which was described from Peloponnese, Argolis) still must be investigated in more detail.

***Arctosa latithorax* LUGETTI & TONGIORGI 1965 (Fig. 11)**

Ident.: LUGETTI & TONGIORGI (1965).

M a t e r i a l : Makedonia: Chalkidiki, Nikiti, garden of hotel 10 m, 1♂ CTh 27 April 2000. – Peloponnese: Olimpia, 1♂ CTh May 1965, leg. Pruscha.

A. latithorax was first described as a subspecies of *A. perita* from peninsular Italy, Sicily and Sardinia, then given full specific status by WUNDERLICH (1984 a) from materials collected in Greece (Mesolongion, Crete). A further record came from e. Makedonia, from a marshy area not far from the sea, together with *Aulonia kratochvili* (see KRONESTEDT 1997). It is probably a stationary species in the central and eastern Mediterranean (also in Bulgaria, DELTSHEV & BLAGOEV 1995).

***Arctosa leopardus* (SUNDEVALL 1833) (Figs 13-14)**

? *Lycosa (Leimonia) invenusta* C.L. KOCH 1847. ♀, "Morea: Nauplia".

Ident.: LUGETTI & TONGIORGI (1965), FUHN & NICULESCU-BURLACU (1971), MILLER (1971).

M a t e r i a l : Epiros: Pindos, Smolikas 1700 m, on muddy soil around a pond in pasture, 1♀ NMW 16 Sept. 1995. – C. Crete: around Iraklion, Amoudara, in moist meadow, 1♂ 1♀ CB 12 May 1997, Gazi, river bank, under dead leaves of *Phragmites*, 16♂♂ 3♀♀ CB, 18 May 1997, Zaros, moist meadow along river bank, 1♂ 1♀ CB, 14 May 1997; all leg. Buchar. – W. Crete: Georgioupolis, muddy soil at spring < 5 m a.s.l., 8♂♂ 8♀♀ NMW+BZL 28 March 1999. Lake Kourmas, at shoreline 100 m, 4♂♂ 4♀♀ CTh 30 March 1999.

Colour dark, heart stripe distinct, Figs 13-14. This is a common European species, which extends to S. Siberia (MIKHAILOV 1997). According to its common occurrence in mediterranean Italy (LUGETTI & TONGIORGI 1965) it may be classified as Mediterranean-expansive.

There are only scarce records from Greece, in Makedonia and Attiki (FAGE 1921, HADJISSARANTOS 1940, KRONESTEDT 1997), probably due to the aridization of this region. Nevertheless it can be expected to occur also on islands in the Aegean Sea, like in the Central Mediterranean (Sicily, Sardinia). At Mt. Smolikas *A. leopardus* occurs much higher than in the Alps, where it is confined to sites lower than 1100 m (BUCHAR & THALER 1995).

The illustration (fig. 1434) provided by KOCH (1847) for *L. invenusta* strongly resembles *A. leopardus*, see Fig. 13.

***Arctosa tbilisiensis* MCHEIDZE 1947 (Figs 15-16, 49-51)**

Arctosa kozarovi BUCHAR 1968. ♀, type locality Sandanski, Bulgaria (OVTSHARENKO 1979: 40).

M a t e r i a l : Makedonia: Chalkidiki, Nikiti, in hotel garden 10 m, 2♂♂ 4♀♀ CTh+NMW, 27 April - 4 May 2000. – Peloponnes, Argolis, Tolo, at small pond, 1♂ 1♀ CB, 20 June 2000, leg. Buchar.

Bright and brilliant, with contrasting legs: femora dark, distal joints yellow, Figs 15-16. Hitherto known from Caucasus (MIKHAILOV 1997) and Bulgaria (BUCHAR 1968), range apparently Pontocaspian. ♂ palp and embolic division: Figs 49-51.

***Aulonia albimana* (WALCKENAER 1805)**

Ident.: SIMON (1937), HOLM (1947), LOCKET & MILLIDGE (1951), FUHN & NICULESCU-BURLACU (1971), MILLER (1971).

M a t e r i a l : Thessalia: Katara pass 1600 m, 2♀ NMW 18 Sept. 1995; hill-side with open pine forest and bushes of *Juniperus*.

Records of this common mid-European species in southern Europe are scarce, albeit it was recorded even from Cairo (ROEWER 1959 a) and Near East, "among water-weeds on the banks of [a] stream" (CAMBRIDGE 1872). It is well represented in Bulgaria (BUCHAR 1968, DELTSHEV & BLAGOEV 1995), but was not mentioned for Greece by Bristowe (1935) and HADJISSARANTOS (1940). Our record comes from northern Greece, where an influence of mid-European fauna still can be expected.

***Aulonia kratochvili* DUNIN, BUCHAR & ABSOLON 1986 (Figs 17-20)**

M a t e r i a l : Makedonia: Chalkidiki, near Gomati, in shady river bed with *Platanus*, running on muddy substrate and sand, 2♂♂ 1♀ CTh 2 May 2000.

Very conspicuous, with distinct median white stripe on abdomen and also prosoma, palps like *A. albimana* with white patellae, Figs 17-20. This species was described from Azerbaijan (DUNIN et al. 1986) and recently discovered in e. Makedonia, in "a flat marshy area with halophilous vegetation not far from the sea" (KRONESTEDT 1997). Apparently *A. kratochvili* is a Pontocaspian element again.

***Hogna radiata* (LATREILLE 1817) (Figs 21, 31, 33)**

Lycosa hellenica KOCH 1836. ♂, type locality probably Nauplia, leg. Schuch; probably lost (WUNDERLICH 1984). **New synonym.**

Lycosa hellenica - KOCH (1838/39: 104). ♀ "Greece".

Ident.: SIMON (1937), FUHN & NICULESCU-BURLACU (1971), MILLER (1971), LOKSA (1972).

M a t e r i a l : Epiros: Dodoni 700 m, open slope, 1 ♂ CTh 15 Sept. 1995. Morfi, hillside with oak shrubs near lake, 2 ♀ ♀ NMW 21 Sept. 1996. – Thessalia: Ossa mts., above Spilia 1200-1400 m, stony field with *Juniperus*, 1 ♂ CTh 19 Sept. 1996. – Makedonia: Chalkidiki, Ouranopoli 50 - 200 m, 1 ♀ CTh 29 April (adult July 2000). Nikiti, 1 ♂ CTh 28 April (adult 12 Aug. 2000). – Thrakia: Xanthi, Stavroupoli 100m, 1 ♀ CB 4 Nov. 1986, leg. V. Vohralik. – Kefallonia: near Poros 150 m, 1 ♀ CTh 22 Sept. 1999; near Grizata 400 m, 1 ♀ CTh 21 Sept. 1999. – Peloponnese: S. Taygetos mts., M. Pan i. Giatrissa 1100 m, chalk hill with bushes, 1 ♀ BZL 30 Sept. 1991. Lakonia, Nomia, 3 ♂ ♂ CB 16 June 1974, leg. Svihla. Without exact locality, 1 ♂ CB July 1983, leg. Dolezalová. – Crete: Malia, wall of a house, 1 ♀ NMW 19 Sept. 1998. – Levkas: Ag. Donatos 800 m, 1 ♀ NMW 10 July 1998, leg. Osella. Koos, Pili, 1 ♀ BZL 6 Sept. 1988, leg. Osella. Karpatos, Stes 500 m, 2 ♀ ♀ NMW 2 Sept. 1988, leg. Osella. Í. Tilos, 2 ♀ ♀ CTh 1 Sept. 1988, leg. Osella.

Holomediterranean, eastwards to Kazakhstan and "S. Siberia" (MIKHAILOV 1997), southwards to Ethiopia and Sudan (THALER & BUCHAR 1994). This large species is rather variable in size and appearance, its venter varying "from pure black to pure grey or yellowish" (THORELL 1872: 314, PAVESI 1876). According to SIMON (1937) a light-coloured venter is present rather in small specimens ("forme de petit taille") less than 15 (♂) and 20 mm (♀) total length. This can be seen also in the specimens recorded above. Due to this variability the old literature presents nominal confusions, which probably cannot be resolved properly any more for lack of voucher specimens. *Hogna radiata* is a common vagrant spider in Greece, both on the mainland as on islands, in shrubs and open habitats, even in cultivated land, from the sea shore to mountainous sites at c. 1500 m.

Lycosa famelica KOCH 1838 from "Morea" since long stands as a synonym of *H. radiata* (see Pavese 1878). *L. hellenica* was listed by ROEWER (1954) as *Citilycosa h.*; WUNDERLICH (1984 b) suggested affinities to *H. radiata*. We feel confident, both from the distribution of *H. radiata* in Greece and from the figures provided by KOCH (1836/37, ♂ fig. 481; 1838/39, ♀ fig. 409), that *L. hellenica* should be placed as a synonym of *H. radiata*.

Lycosa praegrans C.L. KOCH 1836 (Figs 22, 24-26, 29-30, 40, 45)

Lycosa narbonnensis - BRULLÉ (1832: 54), Morea, "se creuse des trous en terre".

Lycosa praegrans KOCH 1836. ♀, terra typica "Greece".

L. praegrans - KOCH (1838/39: 114, fig. 414), ♀.

Hogna praegrans - HADJISSARANTOS (1940: 37, figs 9-10), ♂ ♀.

M a t e r i a l : Epiros: Katara pass 1300 m, near Koridalos, 1 ♂ CTh 16 July 1998, leg. Osella. – Kefallonia: Aenos mt. 1600 m, open grassland with rocks, 3 ♂ ♂ CTh+NMW 23 Sept. 1999 (adult 20 May, July 2000). Agia Efimia, among screes at road side near coast, 1 ♀ CTh 21 Sept. 1999 (adult June 2000). – Peloponnese: near Koumaris 700 m, dry slope with bushes of *Quercus*, 1 ♀ CTh 21 Sept. 1992. Around Karstia caves e. Kalavrita, dry pasture, 1 ♀ NMW 20 Sept. 1993. Mani peninsula, near Porto Kargo, stony slope, 1 ♀ CTh 23 Sept. 1993. – E. Crete: Lassithio, Ag. Timodis Stavros above Tzermiado 1100 m, 1 ♀ NMW 9 April 1998, 1 ♂ 2 ♀ ♀ (ad. July 1998) CTh, 1 ♀ NMW 21 Sept. 1998; Ag. Georgios, 1 ♀ BZL 24 Sept. 1998. – W. Crete: Arkadi, dry slope, 1 ♀ 1 sad. ♂ CB, 21 June 1999, leg. Buchar.

Ventral view conspicuous: venter black, with narrow reddish band before spinnerets, legs with black spots at base and distal end of femora, Figs 29-30, head with median band, Fig. 24. The large burrowing species of the genus *Lycosa* in the Mediterranean are still insufficiently known. As males from Epiros and from Crete appear to be identical, they probably belong to *L. praegrans*, which is widely distributed in Greece according to the literature (PAVESI 1878: 385; SIMON 1885b; HADJISSARANTOS 1940), see also GERHARDT

(1928). Specimens have been taken from burrows near the coast, but also on mountain pastures up to 1300 m. This species probably should be regarded as another Pontocaspian element, as it occurs also in Asia minor (KULCZYNSKI 1903 a) and even more in the East, in Crimea and Azerbaijan (Buchar, unpubl.). Burrow: Fig. 40, epigyne: Fig. 45.

HUMPHREYS' (1987) study on the thermal biology of a burrowing *Lycosa* from Macedonia, Amissa, probably refers to this species and not to *L. tarantula* (L. 1758). The bites of this species may have been feared in Greece as in Italy. BRISTOWE (1958: 165) reports about a cure in Patmos in 1933, to put the bitten man to the baker's shop and to place him in the oven "as long as he can stand the heat."

Lycosa vultuosa C.L. KOCH 1838 (Figs 23, 27-28, 32)

Lycosa vultuosa KOCH 1838. ♂ ♀; origin uncertain ("Vaterland: Ungewiss").

Ident.: FUHN & NICULESCU-BURLACU (1971), MILLER (1971), LOKSA (1972).

M a t e r i a l : Thrakia: w. Komotini, 3 juv. CB, 29 April 1997, leg. Kost'ál. – Macedonia: Chalkidiki, Nikiti, pasture, 1 juv. CTh 1 May 2000. Sithonia, Parthenon 300m, pasture, 4 juv. CTh 30 April 2000 (1 ♂ 1 ♀ ad. end Aug.).

Head dark, black spots at base of femora absent, Figs 23, 32. Records mainly come from northern Greece and Attiki (HADJISSARANTOS 1940), not from Peloponnese. Burrows deeper than in *L. praegrans* (own obs.). Pontocaspian element, general distribution SE Europe to Turkmenistan, westernmost records in Slovakia (GAJDOS et al. 1999) and Hungary (SAMU & SZINETAR 1999).

Pirata latitans (BLACKWALL 1841) (Figs 34-35)

Ident.: SIMON (1937), LOCKET & MILLIDGE (1951), MILLER (1971), FUHN & NICULESCU-BURLACU (1971).

M a t e r i a l : Macedonia: Chalkidiki, Gomati, in shady river bed, 27 ♂ ♂ 16 ♀ ♀ BZL+CTh+NMW 2 May 2000. – Boiotia: Parnassos 1800 m, 1 ♀ CB 22 June 1974, leg. Svihla. – C. Crete: Iraklion, Amoudara, on irrigated meadow and along the banks of a small brook, 2 ♂ ♂ 6 ♀ ♀ CB, 12 May 1997, leg. Buchar.

The characterization of this common mid-European species as "Extra-Mediterranean" by THALER & BUCHAR (1996) probably should be changed now to "Mediterranean-expansive". As in *A. leopardus* the scarcity of records in the Mediterranean may be due to present arid conditions in this region. Former records of this species come from Corfu (GILTAY 1932) and "Thrakia" (DRENSKY 1928).

Pirata piraticus (CLERCK 1757) (Fig. 36)

Ident.: MICHELUCCI & TONGIORGI (1975), KRONESTEDT (1980).

M a t e r i a l : Macedonia: Chalkidiki, Gomati, in shady river bed, 1 ♀ CTh 2 May 2000. – W. Crete: Georgiopolis, at sea shore, in tussocks near mouth of a small river, 2 ♀ ♀ NMW, with cocoon, 31 March 1999.

Epigyneal characters of these females fit well to diagnostic fotos forwarded by KRONESTEDT (1980). The pattern of distribution of this Holarctic species in the Mediterranean is not yet clear. Its sibling *P. temuitarsis* (SIMON 1876) probably is a Mediterranean-expansive element, occurring northwards up to England and Sweden (KRONESTEDT 1980), easternmost records coming from the Don area (THALER & BUCHAR 1996),

Uzbekistan and Kazakhstan (MIKHAILOV 1997). The presence of *P. piraticus* at least in the eastern part of the Mediterranean has been corroborated now by recent captures. The species was already recorded from Thessaloniki (Salonique) by SIMON (1917) and from Crete by GILTAY (1932).

Trochosa hispanica SIMON 1870 (Figs 37-39, 41)

T. ruricola rustica THORELL 1875. ♂ ♀, Types from Italy, Gennazano, and Russia, Jekaterinoslaw = Dnjepropetrowsk. Types probably in Swedish Museum of Natural History, Stockholm (not examined). **New synonym.**

Ident.: SIMON (1937), HÄNGGI (1989), THALER & NOFLATSCHER (1990).

M a t e r i a l : Makedonia: Kerkini mt., Ano Poroia 600 m, shady river bed with planes (*Platanus*), 1 ♀ NMW 13 Sept. 1996. Chalkidiki, Gomati, shady river bed, 1 ♂ 2 ♀ ♀ NMW 2 May 2000. – Kéfallonia: Lake Avithos near Poros 300 m, 1 ♂ 2 ♀ ♀ CTh 22 Sept. 1999. – Peloponnese: Likeo mt., Neda river n. Kakaletri, *Platanus*, 1 ♂ 28 Sept. 1991. Ahaia, w. Kalavrita 700 m, 2 ♀ ♀ 19 Sept. 1985. Argolis, Tolo, at small pond, 1 ♀ CB, 20 June 2000, leg. Buchar. – C. Crete: around Iraklion, Gazi, river bank, under dead leaves of *Phragmites*, 1 ♂ CB, 18 May 1997. Amoudara, on irrigated meadow, 1 ♀ CB, 14 May 1997, leg. Buchar. – W. Crete: Georgioupolis, shore of lake Koumas, 1 ♂ 2 ♀ ♀ CTh, 30 March 1999.

Males conspicuous: tibiae of first legs with patches of white hairs, tarsi yellowish, Figs 37, 39, 41. If *T. manicata* THORELL 1875 from Algeria correctly stands as a synonym of this species (BONNET 1959), *T. hispanica* should be considered as Holomediterranean. In our opinion a further taxon described by THORELL (1875) must be accepted as its synonym, *T. ruricola rustica* from C. Italy and S. Russia. At least the description of tarsi I of the male fits to *hispanica*: "*tarsi autem pallidiores quam tibiae et metatarsi*". Furthermore, *T. r. rustica* was recorded from Crete, Rethymno, already by KULCZYNSKI (1903 b)! We feel therefore sure, that *ruricola* records from Greece, which were summarized by BRISTOWE (1935) and HADJISSARANTOS (1940), refer to *hispanica*. - Our captures come both from mainland Greece and from Crete. Specimens were taken at humid places and in low regions.

Concluding Remarks

The decrease in total number of Lycosidae species between Bulgaria and Greece does not only reflect gaps in our knowledge about the spider fauna of this most interesting region, but clearly also faunal change. This holds true also for the section of Lycosidae considered herein, i.e. species not belonging to Pardosinae. Species numbers reported in these groups for Attica (HADJISSARANTOS 1940) and for whole Greece (BRISTOWE 1935) are 10 (16) respectively. In our collection, which is far from complete and was achieved rather randomly, 17 species are included. Further species recorded from Greece by various authors are (GILTAY 1932; BRISTOWE 1935; DRENSKY 1936; ROEWER 1959 b; HUMPHREYS 1987):

**Alopecosa aculeata* (CLERCK 1757), *A. cuneata* (CLERCK 1757), **A. cursor* (HAHN 1831)

Arctosa perita (LATREILLE 1799), *A. variana* C.L. KOCH 1847 (see LUGETTI & TONGIORGI 1965: 180)

**Lycosa tarantula* (L. 1758)

**Pirata piscatoria* (CLERCK 1757) (see PAVESI 1878: 384)

**Trochosa ruricola* (DE GEER 1778), *T. terricola* THORELL 1856

Xerolycosa nemoralis (WESTRING 1861)

Five further species were mentioned from Rhodes by DI CAPORACCO (1948), but not included here. We feel sure, that the final list cannot be achieved yet. There will be additional species, whereas some records (especially those marked with an asterisk) seem to be rather doubtful and should be re-considered. Two species named by C.L. KOCH still must be re-evaluated: "*Lycosa*" *fuscipes*, "*L.*" *grisea*. What can be learned from this list?

It should be stressed, that non-Pardosinae wolf spiders are more rich in species in mid and Central Europe than in Greece. There are two Trans-Palaeartic (and in one case even holarctic) species, *A. cinerea*, *P. piraticus*, and four "Holomediterranean" species, all from lowlands: regularly in phrygana habitats *A. albofasciata*, *H. radiata*, along rivers *T. hispanica*, and *A. latithorax* (this one only in Italy and in the Balkans). Two wetland species, which are widely present in mid-Europe, also occur mainly at low elevation and may qualify as "expansive" elements: *A. leopardus*, *P. latitans*. Their scarcity in the Mediterranean is probably due to present arid conditions. A further Caspian littoral species was recently recorded in Makedonia, *A. kratochvili*. Another four species might be regarded as Pontocaspian elements, *A. pentheri*, *A. ibilisiensis*, *L. praegransis*, *L. vultuosa*. Mid-European mesophilic species like *A. albimana* (and *A. solitaria*) apparently exist in N. Greece at the southern limit of their range. In this group probably *T. terricola* and *X. nemoralis* also belong. For one species only the centre of distribution must be assumed in Greece, *A. dryada*, which occurs in the belt of montane woods. We consider this species as regional endemic. In the high mountains of Greece three species of *Alopecosa* were encountered above the timber line: in mts. Parnassos and Ossa *A. solitaria* from C. Europe, in Crete, Kefallonia and Chalkidiki *A. pentheri*, and finally *Alopecosa* sp. in Peloponnese, mts. Helmos and Erymanthos.

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Zusammenfassung

Die Wolfspinnen (Lycosidae) von Griechenland werden, soweit sie nicht zu den Pardosinae gehören, nach eigenen Fängen von 17 Arten besprochen, zusammen mit Angaben über allgemeine Verbreitung und Fundumstände. Im Schrifttum sind mindestens 10 weitere Arten gemeldet, darunter einige zweifelhafte Nennungen. Vier neue Synonyme werden vorgeschlagen: *Alopecosa insignis* (NOSEK 1905) = *A. pentheri* (NOSEK 1905), *Lycosa thessala* SIMON 1885 = *Alopecosa solitaria* (HERMAN 1876), *Lycosa hellenica* C.L. KOCH 1836 = *Hogna radiata* (LATREILLE 1817), *Trochosa ruricola rustica* THORELL 1875 = *T. hispanica* SIMON 1870. Die meisten Zitate von "*Tarentula fuscipes*" sind wahrscheinlich auf *A. pentheri* zu beziehen. Lycosidae sind in Mit-

teleuropa artenreicher vorhanden als in Griechenland. Die dort aufgefundenen Arten gehören zu folgenden Faunenelementen: trans-palaearktisch 2; holomediterran 4; mediterran-expansiv 2, beide Bewohner von Feuchtgebieten; mitteleuropäisch, mit S-Grenze der geschlossenen Verbreitung in N-Griechenland 2, endemisch in Griechenland 1 (und eine n.sp.?), ponto-kaspisch 5.

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Addendum

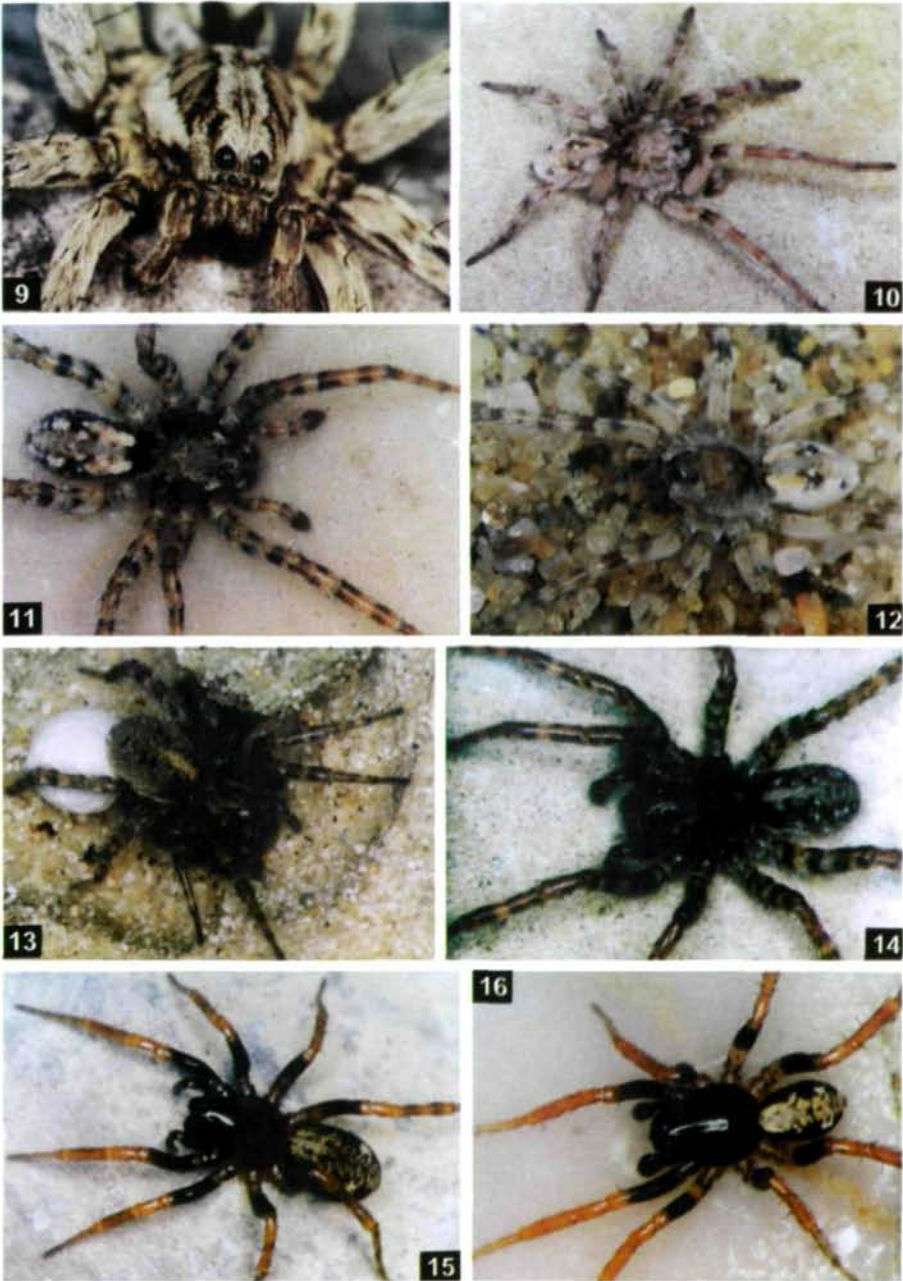
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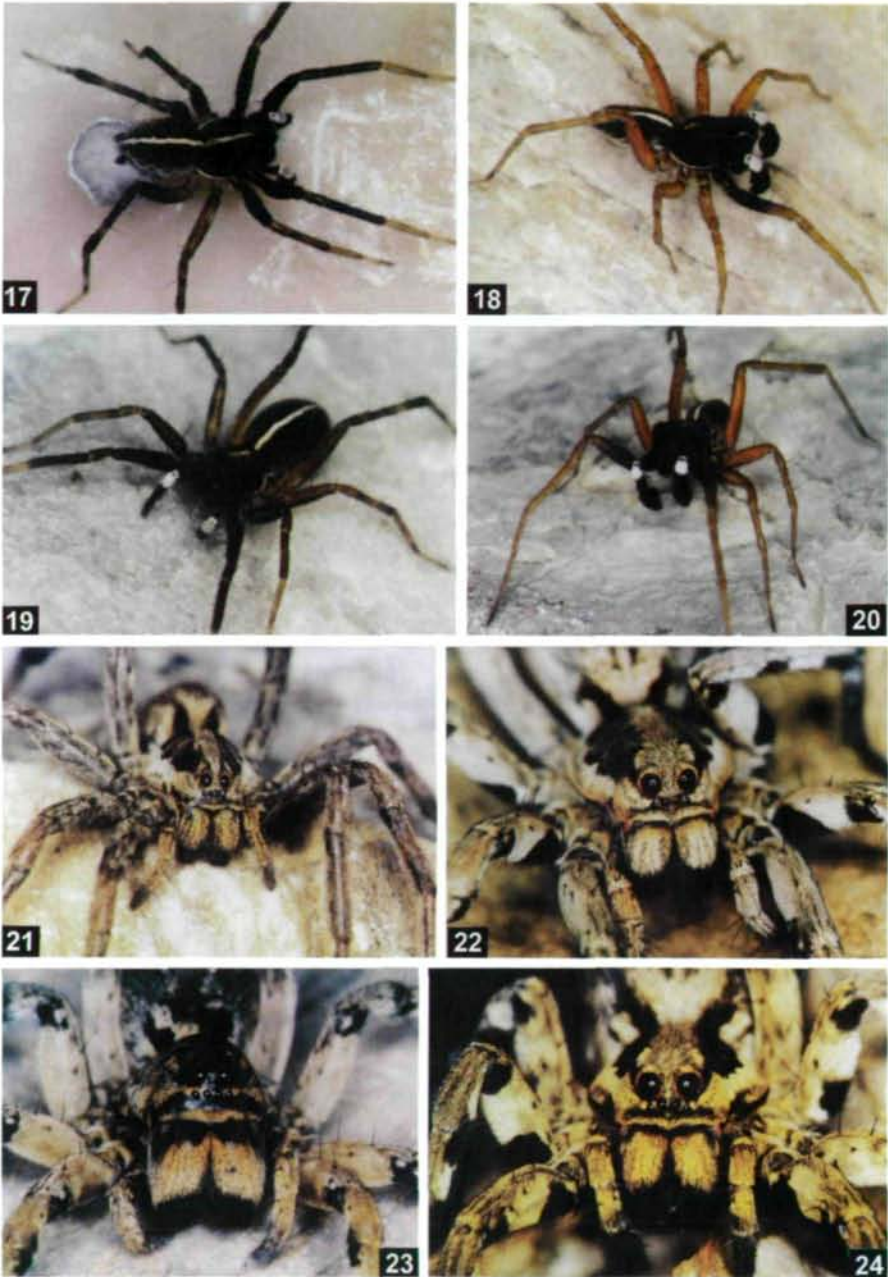
Prof. Dr. Jan BUCAR
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Figs 1-8: *Alopecosa albofasciata* (BRULLÉ), ♀ (1), ♂ (2), Rhodes. – *A. pentheri* (NOSEK), ♀ (3), ♂ (4), Kefallonia, Aenos mt. – *A. solitaria* (HERMAN), ♀ (5), ♂ (6), Parnassos mts. – *Alopecosa* sp., ♀ (7), ♂ (8), Helmos mt.



Figs 9-16: *Alopecosa* sp., ♂ face (9), Helmos mt. – *Arctosa cinerea* (F.), ♂ (10), juv. (12), Chalkidiki. – *Arctosa latithorax* LUGETTI & TONGIORGI, ♂ (11), Chalkidiki. – *A. leopardus* (SUNDEVALL), ♀ (13), ♂ (14), W. Crete: Georgioupolis. – *A. tbilisiensis* MKCHEDZE, ♀ (15), ♂ (16), Chalkidiki.



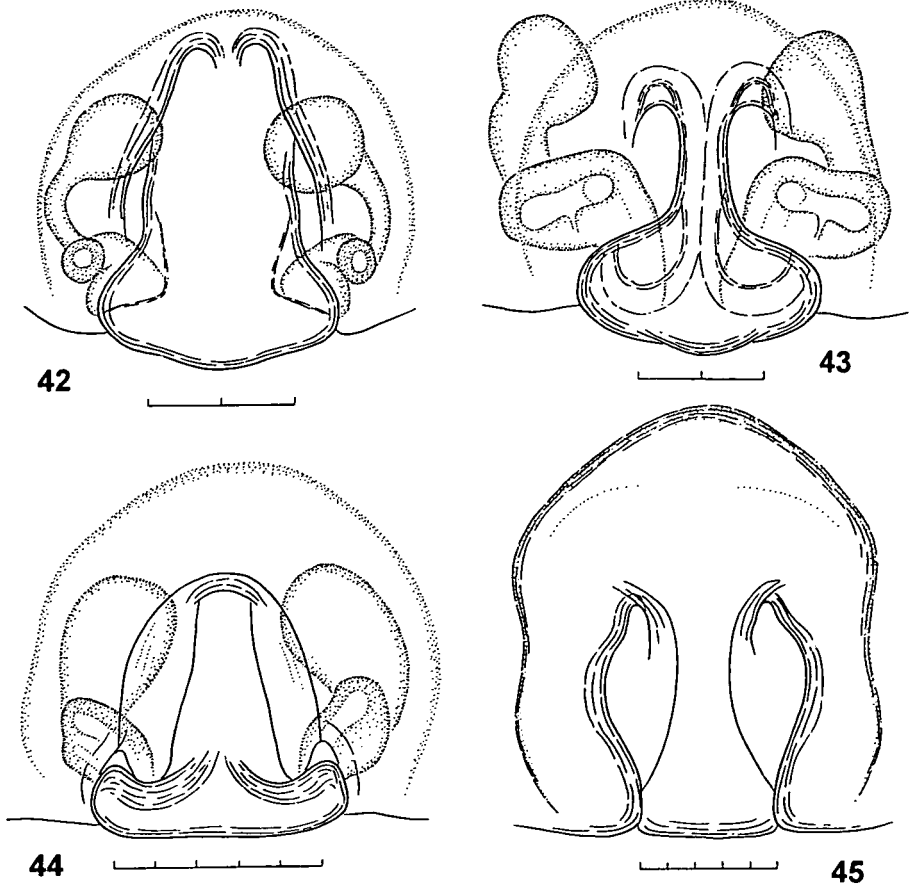
Figs 17-24: *Aulonia kratochvili* DUNIN, BUCAR & ABSOLON, ♀ (17, 19), ♂ (18, 20), Chalkidiki. – *Hogna radiata* (LATREILLE), ♀ face (21), Kephallonia: Grizata. – *Lycosa praegrandis* C.L. KOCH, ♀ face (22) E. Crete: Tzermiado, juv. face (24), Peloponnese: Koumaris. – *L. vultuosa* C.L. KOCH, ♀ sad. face (23), Chalkidiki: Parthenon.



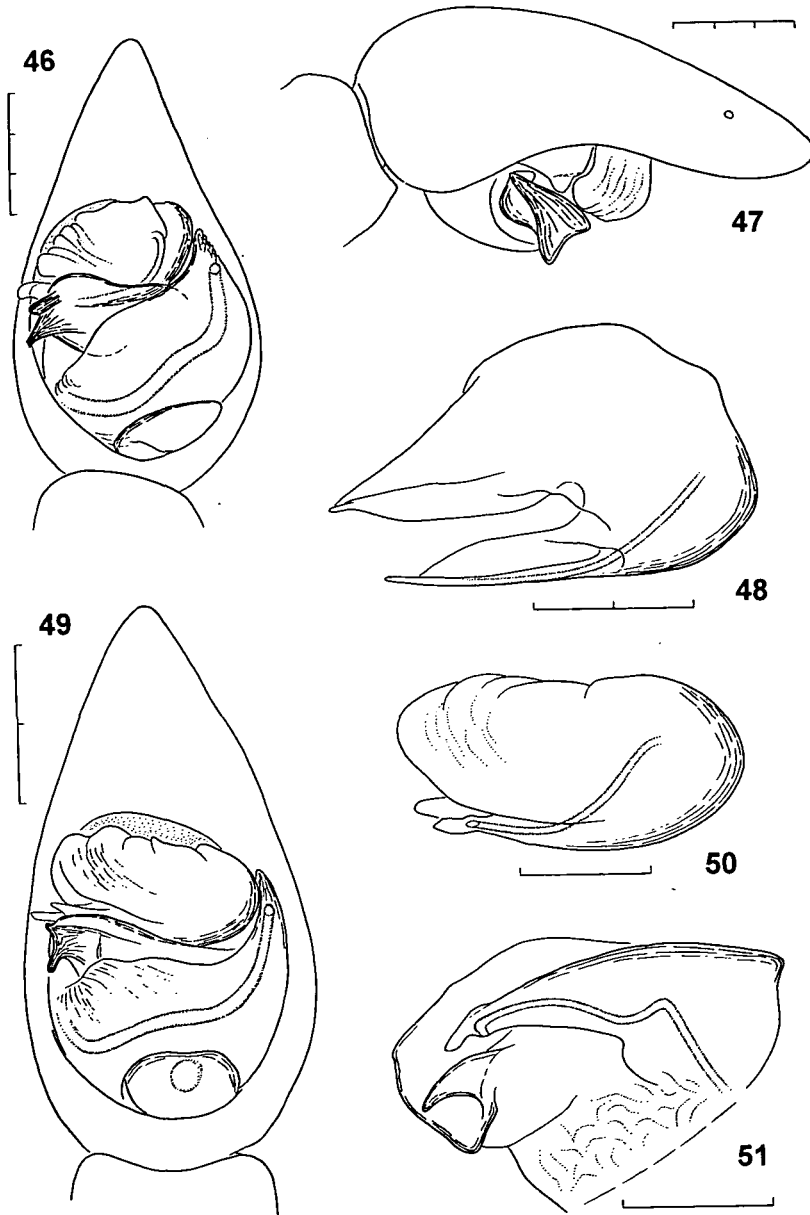
Figs 25-33: *Lycosa praegrandis* C.L. KOCH, ♀ (25) E. Crete: Tzermiado, ♂ (26) Tzermiado, ♀ ventral (29) Kephallonia: Ag. Efimia, ♂ ventral (30) Kephallonia: Aenos mt. – *L. vultuosa* C.L. KOCH, ♀ sad. (27), face (32), ♂ sad. (28), Chalkidiki: Parthenon. – *Hogna radiata* (LATREILLE), ♀ ventral (31) Chalkidiki: Ouranopoli, ♀ (33) Kephallonia: Grizata.



Figs 34-41: *Pirata latitans* (BLACKWALL), ♀ (34), ♂ (35), Chalkidiki: Gomati. – *Pirata piraticus* (CLERCK), ♀ (36) W. Crete: Georgioupolis. – *Trochosa hispanica* SIMON, ♂ (37) Chalkidiki: Gomati; ♀ (38), ♂ (39) Kephallonia: Lake Avithos, ♂ foreleg I (41), same specimen. – *Lycosa praegrandis* C.L. KOCH, burrow (40), Chalkidiki: Nikiti.



Figs 42-45: Epigynum, ventral view. – *Alopecosa pentheri* (NOSEK) (42), Kephallonia, Aenos mt. – *A. dryada* CORDES (43), Peloponnese: motel Taygetos. – *A. solitaria* (HERMAN) (44), Timfristos mt. – *Lycosa praegrandis* C.L. KOCH (45), Peloponnese: Koumaris. – Scale lines: 0.20 (43-43), 0.50 mm (44-45).



Figs 46-51: ♂ palp, ventral (46, 49), retrolateral (47), embolic division, ventral (48, 50), from behind (51). - *Alopecosa pentheri* (NOSEK) (46-47), Kephallonia: Aenos mt. - *Arctosa cinerea* (FABRICIUS) (48), Chalkidiki. - *A. tbilisiensis* MKCHEIDZE (49-51), Chalkidiki: Nikiti. - Scale lines: 0.30 (46-47), 0.20 (48-49), 0.10 mm (50-51).

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