

Zoropsis saba sp. n. from Yemen, with notes on other species (Araneae, Zoropsidae)

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Summary

A new species in the genus *Zoropsis* is described from both sexes from Yemen, *Z. saba* sp. n. Further species are briefly commented upon: five from the European part of the Mediterranean, also *Z. libanica* Simon, which is shown to be a *nomen nudum* still awaiting description, an enigmatic *Zoropsis* female from Spain, and *Z. albertisii* Pavesi, which is tentatively redescribed from Tunisia.

Introduction

Despite the conspicuous appearance of its members, the species diversity and distribution pattern of the genus *Zoropsis* in the Mediterranean region are poorly known. Roewer (1955) listed as valid fourteen out of about 20 names proposed in this genus from that region, seven of which were later rejected authoritatively as synonyms by Lehtinen (1967). A new species, later transferred to a new genus *Akamasia*, was recently described from Cyprus by Bosselaers (1997, 2002). Several shortcomings still exist: some species were described without figures of the genital organs or only with inadequate figures, while others were based on immature specimens. Therefore species must be reconsidered in two ways, by re-examination of type specimens, but also from fresh material. We here describe a new species from Yemen and comment on some museum specimens recently studied.

Abbreviations used: CTh=Thaler & Knoflach collection; MHNG=Muséum d'Histoire Naturelle, Genève; MNHN=Muséum National d'Histoire Naturelle (Paris); NMW=Naturhistorisches Museum Wien. Terminology of genital organs adapted from Bosselaers (2002).

Taxonomy

Zoropsis saba Thaler & van Harten, new species (Figs. 1–6, 11–12)

Zoropsis spinimanus: Denis, 1953: 343 (misidentification)?

Type material: YEMEN: Holotype ♂ (MHNG), near Madinat ash Shirq, 1300 m [14°38'N, 43°58'E], 7 August 2001. Paratypes: 1♀ (MHNG), same locality as holotype, 19 June 2001 (adult moult 24 August 2001); 1♀

(MNHN), Hammam Ali, 1600 m [14°41'N, 44°08'E], 11 August 1998; 1♀ (NMW), near Hammam Ali, 1700 m [14°38'N, 44°10'E], 22 August 2000 (adult moult April 2001); 1♀ (CTh), 12 km NW of Manakhah, 1500 m [15°05'N, 43°42'E], 28 August 2001; 1♀ 1 subad. ♀ (MHNG), near Rub Uthmah, 1900 m [14°33'N, 44°05'E], 19 August 2002.

Further specimens: 1 subad. ♀ (MHNG), near Hammam Ali, 5 August 2002; 1 subad. ♂ (MHNG), Sanhan, 25 April 2000. All specimens leg. van Harten.

Etymology: Saba, ancient kingdom in South Arabia; noun in apposition.

Diagnosis: *Zoropsis saba* sp. n. clearly differs from its congeners in the anterior part of the tegulum and embolus, and in the epigynum.

Description: Dimensions (in mm, ♂/♀, $n=1/5$): Total length 9.6/8.4–12.0; prosoma length 5.2/4.6–5.8, width 4.1/3.4–4.3; femur I length 5.7/4.0–5.2. General appearance as in its congeners (Fig. 1, ♀). Male tibial crack present (see Griswold, 1993: 23), chelicerae with three retromarginal teeth, distal smallest. Male palp (Figs. 2–4): Tibia short, 2.7 times longer than wide, tibial apophysis spur-like. Cymbium: bristle mat distal (Fig. 2), retrolateral proximal bulge indistinct. Tegulum oval, excavated, anterior border with short thumb-like process pointing retrolaterally (Figs. 3–4: tP), tegular apophysis ventral. Embolus narrow, with longitudinal folds. Epigynum (Figs. 5, 11–12): As wide as long; scape broad, parallel-sided, with narrow stalk and dorsal pit, its base broadly visible alongside anterior half; lateral plates sclerotised with inner margins converging posteriorly, excavated and forming a central depression, pockets close to epigastric furrow with margins concave. Vulva (Fig. 6).

Affinities: Relationships within the Zoropsidae are shown in the cladogram published by Bosselaers (2002). From the characters presented above, *Z. saba* sp. n. stands in the clade *Z. lutea* (Thorell)/*Z. media* Simon/*Z. rufipes* (Lucas), probably close to *Z. lutea*.

Habitat notes: Madinat ash Shirq: valley with semi-permanent stream, with plantations of coffee and citrus, and locally dense border vegetation of grasses and shrubs. Collected from leaf-litter and shrubs,



Fig. 1: *Zoropsis saba* sp. n., adult female (near Hammam Ali, adult moult April 2001).

surrounding a coffee plantation. Hammam Ali: valley with plantations of coffee and citrus. Beaten from shrubs surrounding plantations. Manakhah: at valley bottom below Manakhah pass, some cultivations of gat, coffee and banana, arid slopes sparsely covered with trees and shrubs. Collected from dry leaves at bottom of banana stump. Near Rub Uthmah: mountainside with coffee plantations and many large shade trees. Collected from leaf-litter in coffee plantation.

Distribution: Yemen. Probably the specimens reported by Denis (1953) from "rubbish heaps and vegetation in the King's gardens at Wadi Dharh" near San'a, at 2165 m, 1♂ 2♀, also belong to this species, as the septum of the epigyne of these specimens was "comparatively broader" as usual (Denis, 1953).

***Zoropsis albertisii* Pavesi, 1880** (Fig. 13)

Material examined: TUNISIA: 5♀ (MHNG, NMW, CTh), Hammamet, in garden close to seashore, under bark, 21–28 February 1997, leg. Thaler & Knoflach.

Taxonomy: *Zoropsis albertisii* was described from an immature female and its original description does not include diagnostic details. Therefore, the species was later placed by Simon (1911) as a junior synonym of *Z. spinimana*. However, specimens from Hammamet examined here differ from *Z. spinimana*. They are at least tentatively identified with this forgotten species, which was described from "Is. Galitone", an island close to the Tunisian coast not too far from Hammamet (Pavesi, 1880).

Short description: Chelicerae with three retromarginal teeth. Epigynum (Fig. 13) as wide as long; scape long

and narrow, parallel-sided, its base broadly triangular; lateral plates sclerotised, bulging, inner margins converging posteriorly to mid-line, pockets separated from epigastric furrow with margins concave. Male: Unknown.

Distribution: Tunisia, near seashore, and Le Galite Is.

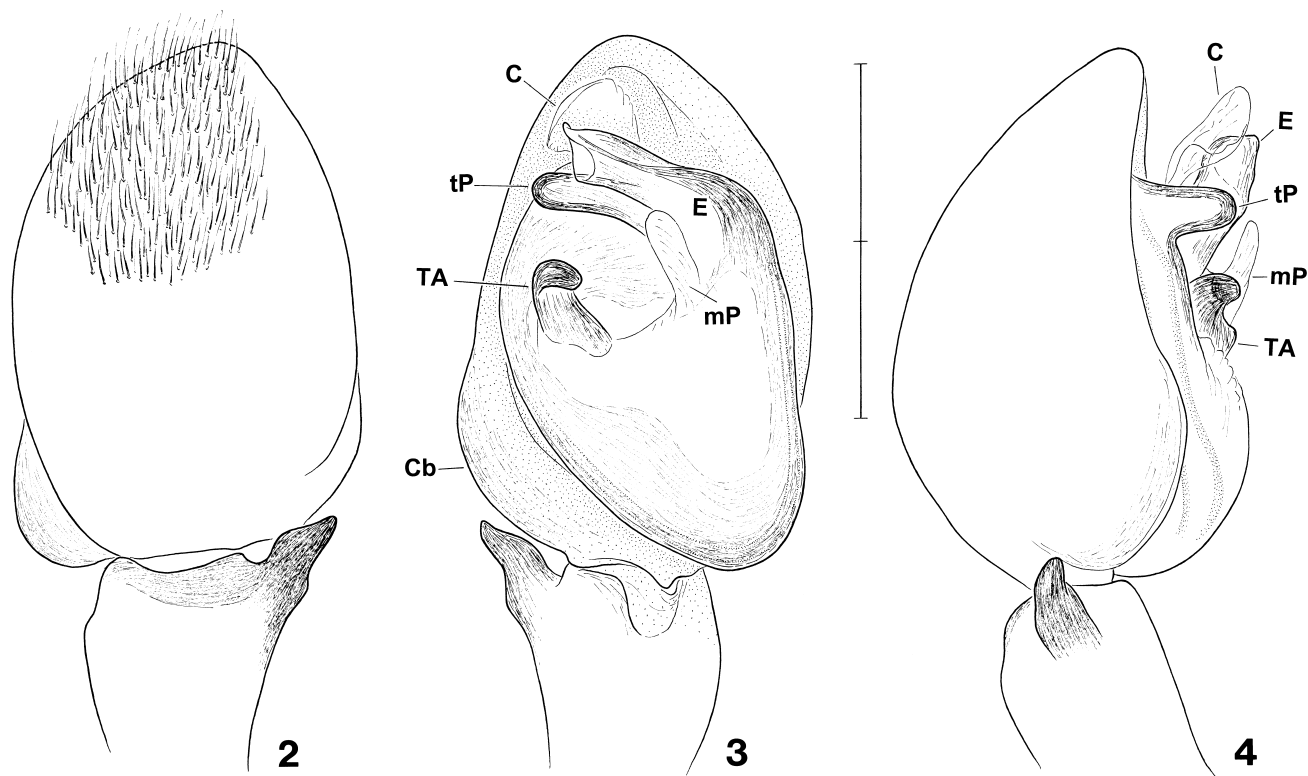
***Zoropsis bilineata* Dahl, 1901** (Fig. 14, and for comparison Fig. 8)

Material examined: SPAIN: Mallorca: 5♀ (CTh), Pollenza, Cueva del Drach, April 1974, leg. Mahnert (see Thaler & Knoflach, 1998).

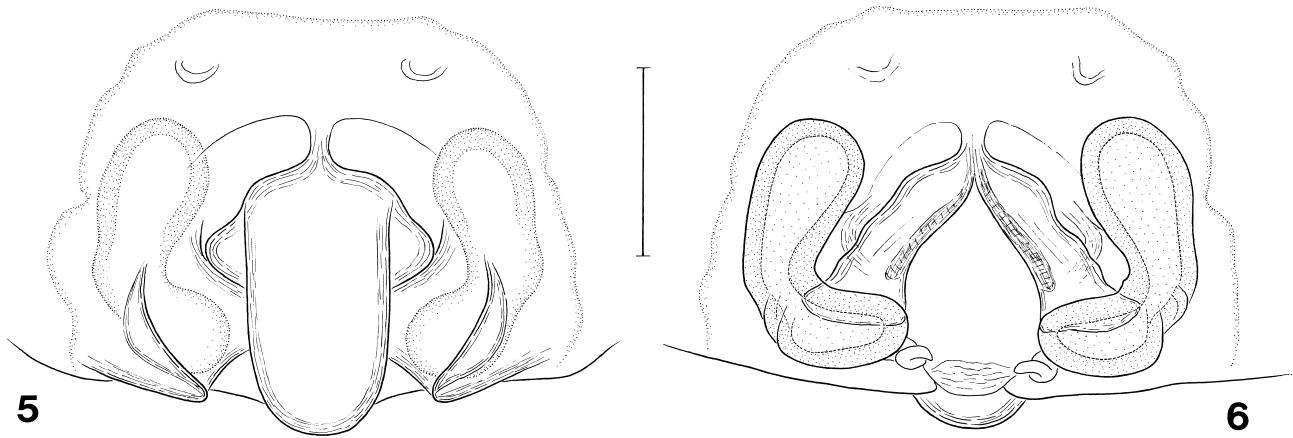
Other material examined: *Zoropsis* *x.* *xylina* Simon, 1909: MOROCCO: 1♀ (MNHN AR 217), Mogador, leg. de la Escalera (Fig. 8). *Z. xyлина viberti* Simon, 1911: ALGERIA: 1♀ (MNHN AR 217), Ain Sefra, leg. Vibert (see Simon, 1911). Both specimens surely belong to the respective type series.

Identification: Wunderlich (1995), Thaler & Knoflach (1998). The epigynum of *Z. xyлина*, another North African species, which is known from the type specimens only, closely resembles *Z. bilineata* (cf. Figs. 8 and 14), see also Lehtinen (1967: 277). Relationships should be re-investigated, preferably from males.

Short description: Chelicerae with three retromarginal teeth. Male palpal tibia short, 2.7 times longer than wide, tibial apophysis spur-like. Cymbium: bristle mat distal, retrolateral proximal bulge present. Tegulum distally protruding, bulging on prolateral proximal side, tegular apophysis ventral. Embolus narrow. Epigynum (Fig. 14) as wide as long; scape long, parallel-sided, its base slightly broader than scape; lateral plates



Figs. 2–4: *Zoropsis saba* sp. n., male (holotype). 2 Cymbium, dorsal; 3 Male palp, ventral; 4 Ditto, retrolateral. C=conductor, Cb=cymbial bulge, E=embolus, mP=membranous tegular process, TA=tegular apophysis, tP=thumb-like tegular process. Scale line=1.0 mm.



Figs. 5–6: *Zoropsis saba* sp. n., female (near Hammam Ali, adult moult April 2001). **5** Epigynum; **6** Vulva. Scale line=0.5 mm.

sclerotised, bulging, inner margins converging posteriorly, pockets separated from epigastric furrow with margins concave; area between scape and lateral plates wide, membranous.

Distribution: North Africa: “probably Alger” (=Algier, Dahl, 1901: 194). Morocco and Algeria (Bosselaers, 2002). Balearic Is., Mallorca (Wunderlich, 1995; Thaler & Knoflach, 1998).

***Zoropsis libanica* Simon, 1884, nomen nudum** (Figs. 7, 9–10)

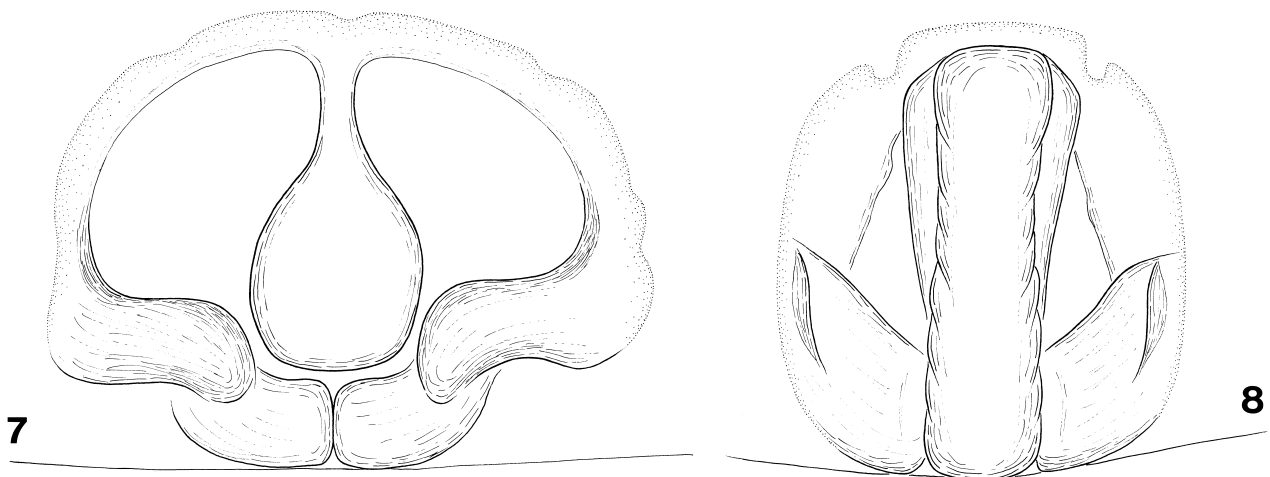
Material examined: “SYRIA”: 1♀ (MNHN B 414, AR 216), leg. C. Br. (=Charles de la Brulerie).

Nomenclatural status: *Zoropsis libanica* was mentioned first by Simon (1884) from Akbés, “au nord d’Antioche (now Antakya, Turkey), dans les montagnes”, among the arachnids collected by “M. l’abbé A. David . . . en 1883”. Simon surely did not intend to propose a new *Zoropsis* species in this paper, as the name *libanica* is not followed by “sp. nov.” like the taxonomic novelties described therein. Apparently no other substantial reference to this name exists in the literature, see also citations in Dahl (1901: 195) and Bonnet (1959: 4992). However, the single specimen still

existing under this name in Simon’s collection even comes from another source, C. Br. being an abbreviation for “Charles de la Brulerie”, another French entomologist, who travelled in Near East countries and forwarded arachnids to Simon (1872, 1877). Possibly Simon postponed the description so as not to compete with the interests of Pickard-Cambridge (1872) in the spiders of this region and later failed to return to the subject. *Zoropsis libanica* must therefore be added to the list of spiders with *nomen nudum* given in Bonnet (1961: 455). The female investigated cannot be assigned to a known species, therefore apparently a further species exists in this genus in the Near East, besides *Z. lutea* and *Akamasia cyprogenia* (Bosselaers, 1997) (see Levy, 1990; Bosselaers, 2002). A formal description of this species from newly collected material will be given by Dr Levy (in litt.).

Short description: Chelicerae with three retromarginal teeth. Epigynum (Figs. 7, 9–10) 1.5 times broader than long; scape spoon-shaped with narrow stalk and distal pit; lateral plates deeply excavated, forming a strong posterior wall with obtuse angle as seen from behind, which separates the pockets from the epigastric furrow. Male: Unknown.

Distribution: Near East.



Figs. 7–8: Epigyna. **7** “*Z. libanica*” Simon (♀ MNHN B 414 AR 216); **8** *Zoropsis x. xylina* Simon (type specimen MNHN AR 217, Morocco: Mogador). Free-hand drawings, without scale.

Zoropsis lutea (Thorell, 1875)

Material examined: GREECE: Crete: 1♀ (NMW), Sitia, near Lastros, 100 m, 29 September 1998; 1♀ (CTh), Georgiopolis, near coast, 31 March 1999. Karpathos: 1♂ (NMW), above Volada, 600 m, among pines, 20 September 2000. Makedonia: 1♀ (CTh), Chalkidiki, Ouranopoli, among pines, 50–200 m, 29 April 2000. All specimens leg. Thaler & Knoflach.

Identification: Levy (1990), Wunderlich (1995), Thaler & Knoflach (1998).

Short description: Chelicerae with three retromarginal teeth. Male: Palpal tibia long, 3.5 times longer than wide, tibial apophysis short. Cymbium: bristle mat large, retrolateral proximal bulge indistinct. Tegulum oval, not protruding, with low ridge on anterior prolateral side, tegular apophysis ventral. Embolus narrow. Female: Epigynum 1.8 times broader than long; scape triangular, arrow-shaped, its sides converging, with narrow stalk; lateral plates closely touching scape, almost flat, pockets close to epigastric furrow with margins concave.

Distribution: East Mediterranean, range extending from the south of the Balkan peninsula, Greece, to Cyprus, Near East, and southern Russia (Bonnet, 1959; Levy, 1990; Thaler & Knoflach, 1998; Bosselaers, 2002).

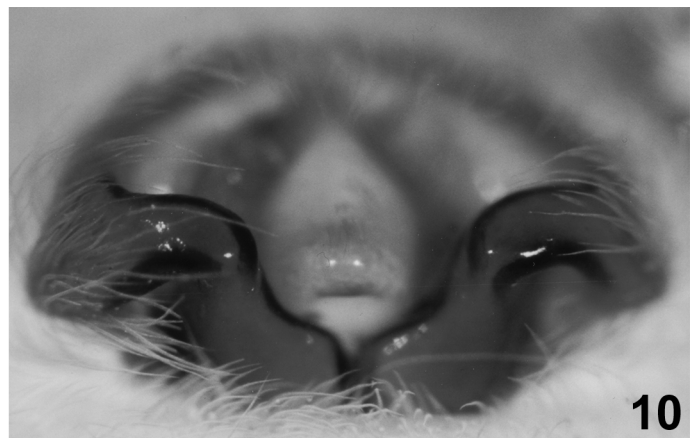
Zoropsis media Simon, 1878 (Fig. 17)

Material examined: FRANCE: 1♂ (AR 206), 2♀ (AR 215), Banyuls; 1♀ (AR 207), Hyères, Var, June 1918; 1♂ 4♀ (AR 209), Bouches du Rhone, November 1913; all MNHN, B 414.

Identification: Barrientos *et al.* (1985: 226, ♂), Levy (1990), Wunderlich (1995), Bosselaers (2002).

Short description: Chelicerae with two retromarginal teeth. Male palpal tibia short, 2.2 times longer than wide, tibial apophysis bifid. Cymbium: bristle mat distal, retrolateral proximal bulge indistinct. Tegulum oval, ventrally excavated, strongly modified near base of embolus, forming a stout column, tegular apophysis articulating at retrolateral border. Embolus narrow, with subterminal flap-like extension on its inner (retrolateral) curve. Epigynum (Fig. 17) 1.8 times broader than long; scape tongue-shaped, its sides largely parallel, with narrow stalk; lateral plates sclerotised, closely touching scape, almost flat, pockets close to epigastric furrow with margins concave.

Distribution: Early authors (Simon, 1914; Bonnet 1959) gave a vast range for this species, extending to “Sud de l’Italie et Algérie”, which should now be corroborated (but see Denis, 1937). The presence of *Z. media* in southern France, from Provence to



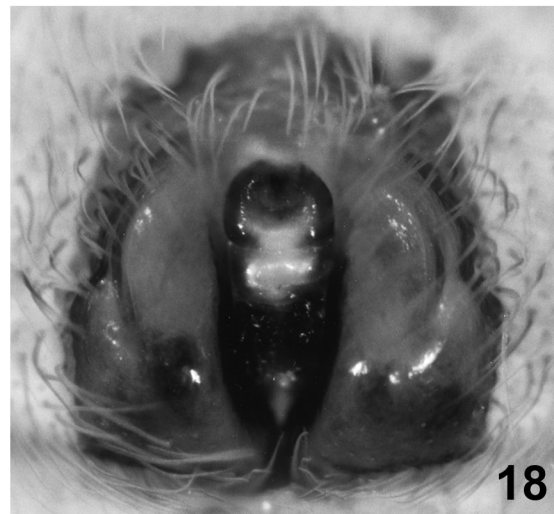
Figs. 9–12: Epigyna. **9–10** “*Zoropsis libanica*” Simon (same specimen as Fig. 7); **11–12** *Z. saba* sp. n. (11=same specimen as in Fig. 5, 12=♀ from Manakhah). **9, 11–12** Ventral (11 cleared in KOH); **10** Aboral.

Pyrénées-Orientales, and in the Iberian peninsula, however, is well documented, by classic material (MNHN) and sparse recent records from north-east Spain (Barrientos *et al.*, 1985; Bosselaers, 2002). It has also been recorded from Portugal and the Azores by Machado (1949).

Zoropsis oertzeni Dahl, 1901 (Fig. 15)

Material examined: ITALY: Liguria: 1♀ (CTh), Castiglione, leg. Zoia, 20 February 1977 (see Thaler & Knoflach, 1998).

Identification: Thaler & Knoflach (1998).



Figs. 13–18: Epigyna, ventral. **13** *Zoropsis albertisii* Pavesi (Tunisia, Hammamet); **14** *Z. bilineata* Dahl (Mallorca: Cueva del Drach; Thaler & Knoflach, 1998); **15** *Z. oertzeni* Dahl (Liguria, leg. Zoia; Thaler & Knoflach, 1998); **16** *Z. spinimana* (Dufour) (Croatia, Rovinj; Thaler & Knoflach, 1998); **17** *Z. media* Simon (France, Bouches du Rhone, Nov. 1913, MNHN); **18** *Zoropsis* sp. (Spain, Malaga), scape probably broken.

Short description: Chelicerae with three retromarginal teeth. Male palpal tibia short, 2 times longer than wide, tibial apophysis spur-like. Cymbium: bristle mat distal, retrolateral proximal bulge strong. Tegulum distally protruding, tegular apophysis ventral. Embolus broad. Epigynum (Fig. 15) wider than long; scape long, parallel-sided, its base much broader than scape; lateral plates converging posteriorly, almost plain, leaving a membranous area to scape in anterior half, pockets separated from epigastric furrow with margins concave.

Distribution: Central to East-Mediterranean. Terra typica is Albania. Recent records have come from Greece, Croatia, Slovenia and Italy (Thaler & Knoflach, 1998; Bosselaers, 2002).

Zoropsis spinimana (Dufour, 1820) (Fig. 16)

Material examined: 9♂ 14♀+15♂ 18♀ (MNHN 413, AR 195, two vials), “Europe mér., Algérie”. MOROCCO: 1♀ (MNHN 414 AR 51), Rabat. CROATIA: 1♀ (CTh), Rovinj, September 1974, leg. E. Thaler (see Thaler & Knoflach, 1998). ITALY: Sardinia: 1♀ (NMW), Lanusei, 700–800 m, 6 June 2003, leg. Thaler & Knoflach. Lombardia: 1♂ (NMW), Gargnano, 25 September 1999, leg. E. Heiss. Veneto: 1♀ (NMW), C. Euganei, Montegrotto, under bark, 1 January 1999, leg. M. Almasbegi. Südtirol/Alto Adige: 1 subad. ♂ (NMW), Bozen/Bolzano, 22 August 1995, leg. B. Bosin; 1♀ (NMW), same locality, 12 February 2002, leg. A. Bosin.

Identification: Wunderlich (1995), Thaler & Knoflach (1998), Griswold & Ubick (2001), Bosselaers (2002, ♂), Marusik & Kovblyuk (2004).

Short description: Chelicerae with three retromarginal teeth. Male palpal tibia short, 2.5 times longer than wide, tibial apophysis spur-like. Cymbium: bristle mat distal, retrolateral proximal bulge strong. Tegulum oval, tegular apophysis ventral. Embolus broad, distally truncate. Female: Epigynum (Fig. 16) as wide as long; scape long, parallel-sided, its base narrow, covered by scape; lateral plates converging posteriorly, membranous area between scape and plates almost 2/3 width of scape, posterior wall low, pockets separated from epigastric furrow with margins parallel, forming almost a right angle at posterior end.

Distribution: Primarily West Mediterranean: Spain, southern France, Corsica, peninsular Italy northwards to southern slopes of the Alps, Sardinia, Sicily, Dalmatia (Thaler & Knoflach, 1998); terra typica: “les montagnes de Gironne en Haute Catalogne” (Simon, 1911). Apparently *Z. spinimana* is now expanding its range as a new invader and has recently been recorded from California (Griswold & Ubick, 2001), Austria (Thaler & Knoflach, 1998, 2002), Switzerland (Hänggi, 2003), and Abkhazia, Caucasus (Marusik & Kovblyuk, 2004).

Its occurrence in North Africa, however, is insufficiently documented and should be re-investigated (but see Denis, 1937). The general opinion about its wide distribution there (Bonnet, 1959) arose from its putative synonym *Dolomedes ocreatus* C. L. Koch, 1841, from “Regenschaft Algier” (see Wagner, 1841; C. L. Koch, 1848), a synonymy stated authoritatively by

Simon (1911, 1914), see also Lehtinen (1967: 276). Surprisingly, at MNHN only one *spinimana* female with exact locality in North Africa could be found, while further nominal species exist in that region: *Z. algirica* (Lucas, 1846), *Z. quedenfeldti* Dahl, 1901, Tanger (Wunderlich, 1995); *Z. triangularis* Dahl, 1901, Tanger; for *Z. albertisii*, *Z. bilineata* and *Z. xylina* see above. Concerning its occurrence in Yemen (Denis, 1953), see *Z. saba* sp. n.

Zoropsis sp. (Fig. 18)

?*Zoropsis spinimanus* (sic): Bacelar, 1929: 250–252 (misidentification; not seen).

Material examined: SPAIN: Andalusia: 1♀ (CTh), near Malaga, 250 m, scape broken (?), 18 February 1983, leg. Thaler.

Taxonomy: This specimen differs clearly from other European species, and probably belongs to a species already recorded by Bacelar (1929) from Portugal. This may be another classic species, which now stands hidden as a synonym of *Z. spinimana*.

Short description: Chelicerae with three retromarginal teeth. Epigynum (Fig. 18): As wide as long; base of scape long, parallel-sided; lateral plates sclerotised, even, almost touching scape without membranous interspace, pockets separated from epigastric furrow. From the single female available the shape of the scape cannot be properly determined: if intact, its scape is present only as a short cup at the anterior end of the base, if lost, the scape may be long and parallel-sided.

Distribution: Iberian peninsula?

Discussion

The species considered here clearly fall into two groups, around *Z. spinimana* and *Z. lutea* respectively, which were already suggested by Lehtinen (1967) and are also shown by the cladogram published by Bosselaers (2002). Another member of the *lutea* group was recently discovered in Middle Asia (Ovtchinnikov & Zonstein, 2001). Distributional and ecological relationships between these species are still obscure. They seem to be rather allopatric, as can be seen from Table 1, taken from the spider lists for Greece, Italy, France and the Iberian peninsula. Sympatric occurrence is indicated mainly between species belonging to different groups, *Z. spinimana* excepted. Despite the lack of records of syntopic existence, even for these species ecological separation cannot be assessed from the evidence available. Furthermore, relationships with North African species remain ambiguous.

	bi.	lu.	me.	oe.	spi.	sp.?
<i>Z. bilineata</i>		–	–	–	–	–
<i>Z. lutea</i>			–	+	–	–
<i>Z. media</i>				–	+	+
<i>Z. oertzeni</i>					+	–
<i>Z. spinimana</i>						+

Table 1: Co-occurrence of *Zoropsis* species in Europe.

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