

Taxonomic notes on *Cybaeus vignai* Brignoli, 1977 (Araneae, Cybaeidae) and *Dysdera cribrata* Simon, 1882 (Araneae, Dysderidae) from the Italian Maritime Alps

Marco ISAIA
Alberto CHIARLE

Lab. di Ecologia - Ecosistemi terrestri,
Dipartimento di Scienze della Vita e Biologia dei Sistemi,
Università di Torino,
Via Accademia Albertina, 13 - 10123 Torino (Italy)
marco.isaia@unito.it

Published on 27 March 2015

urn:lsid:zoobank.org:pub:C123E632-E3CB-4D61-B075-AE554E6394F5

Isaia M. & Chiarle A. 2015. — Taxonomic notes on *Cybaeus vignai* Brignoli, 1977 (Araneae, Cybaeidae) and *Dysdera cribrata* Simon, 1882 (Araneae, Dysderidae) from the Italian Maritime Alps, in Daugeron C., Deharveng L., Isaia M., Villemant C. & Judson M. (eds), *Mercantour/Alpi Marittime All Taxa Biodiversity Inventory*. *Zoosystema* 37 (1): 45-56. <http://dx.doi.org/10.5252/z2015n1a3>

KEY WORDS

Taxonomy,
spiders,
endemic fauna,
All Taxa Biodiversity
Inventory (ATBI).

ABSTRACT

Based on the examination of material stored in museum collections (including type material) and fresh material collected in the Maritime Alps, partly obtained in the framework of a European All Taxa Biodiversity Inventory, we describe the male of *Cybaeus vignai* Brignoli, 1977 and briefly revise the western Alpine species of *Cybaeus* L. Koch, 1868. We also provide new information about *Dysdera cribrata* Simon, 1882 (Araneae Clerck, 1757; Dysderidae C. L. Koch, 1837), a rare, poorly illustrated species of woodlice spider, apparently endemic to the Western Alps and here recorded for the first time in Italy.

RÉSUMÉ

Notes taxonomiques sur Cybaeus vignai Brignoli, 1977 (Araneae, Cybaeidae) et Dysdera cribrata Simon, 1882 (Araneae, Dysderidae) des Alpes maritimes italiennes.

À partir de l'examen de matériel conservé dans des musées (matériel type compris) et des spécimens frais collectés dans les Alpes occidentales (dont une partie obtenue dans le cadre du premier Inventaire Biologique Généralisé européen), nous décrivons ici le mâle de *Cybaeus vignai* Brignoli, 1977 et faisons une brève révision des espèces de *Cybaeus* des Alpes occidentales. Nous fournissons aussi de nouvelles données concernant *Dysdera cribrata* Simon, 1882 (Araneae Clerck, 1757; Dysderidae C. L. Koch, 1837), une espèce rare et insuffisamment illustrée, apparemment endémique des Alpes occidentales et signalée ici pour la première fois en Italie.

MOTS CLÉS

Taxonomie,
araignées,
faune endémique,
Inventaire Biologique
Généralisé (IBG).

RIASSUNTO

Note tassonomiche su Cybaeus vignai Brignoli, 1977 (Araneae, Cybaeidae) e Dysdera cribrata Simon, 1882 (Araneae, Dysderidae) delle Alpi Marittime Italiane.

Sulla base di materiale raccolto in Alpi Marittime nell'ambito di un Inventario Generalizzato della Biodiversità europeo e grazie all'esame di materiale conservato in collezioni museali, in questo lavoro descriviamo il maschio di *Cybaeus vignai* Brignoli, 1977. Alla luce della nuova descrizione presentiamo una breve revisione delle specie alpine occidentali di *Cybaeus* L. Koch, 1868. In aggiunta viene segnalata *Dysdera cribrata* Simon, 1882 (Araneae Clerck, 1757; Dysderidae C. L. Koch, 1837), specie ad oggi ritenuta endemica del distretto delle Alpi Marittime francesi e segnalata per la prima volta in Italia.

PAROLE CHIAVE

Tassonomia,
ragni,
fauna endemica,
Inventario Generalizzato
della Biodiversità (IBG).

INTRODUCTION

The Maritime Alps are well known for their remarkable biodiversity and high rate of endemism (Minelli *et al.* 2006). The collection of spiders conducted in this region in the framework of a European All Taxa Biodiversity Inventory (2007-2012) recently revealed several species new to science (Hervé & Rol-lard 2009; Hervé *et al.* 2009; Bolzern & Hervé 2010; Frick & Isaia 2012; Bolzern *et al.* 2013) and provided records of rare endemic species that are generally little known and poorly represented in museum collections (Isaia *et al.* 2011; 2015).

The genus *Cybaeus* L. Koch, 1868 includes about a hundred species, mostly Holarctic, with representatives from Europe, China, Korea and, especially, Japan and western North America. In Europe, eleven species are known so far (Platnick 2014), five of which are recorded from the Alpine chain. In his revision of the Alpine species, Maurer (1992) placed three closely related species in the *minor* group, defined by the general resemblance of the male pedipalps. A few years before, Maurer & Thaler (1988: 336) described an unknown male, that was assigned “with great probability” (“*mit grosser Wahrscheinlichkeit*”) to *C. vignai* Brignoli, 1977. The description was based on eleven males from Les Mesces (Vallée des Merveilles, Alpes-Maritimes, France), which were identified as *C. vignai* on the basis of their geographical proximity to the type locality of that species (Certosa di Pesio, Valle Pesio, Italy, approximately 40 km from Les Mesces). In the same work they also reported a record of one female of *C. vignai* from the Turini forest (Le Moulinet, Peïra-Cava village, nearly 40 km south of Les Mesces). A few years later, Maurer himself questioned the identification of the males, leaving the problem open to further studies (Maurer 1992: 159). Later, Isaia *et al.* (2011: 152 fig. 2.93 A, B, C) collected and illustrated one male from the Italian Maritime Alps (Trinità di Entracque, Vernante) that was identified as *C. vignai* after Maurer & Thaler (1988).

Based on the collection of several unknown males of *Cybaeus*, we discuss the validity of the previous identifications and provide a new description of the male of *C. vignai*. Specifically, we argue that the male described by Maurer & Thaler (1988) and later illustrated in Isaia *et al.* (2011) is a misidentification of *C. intermedius* Maurer, 1992. Furthermore, based on the examination of material stored in Museum collections (including type material) and freshly collected material, we briefly revise the western Alpine species of *Cybaeus*.

We also provide new data about *Dysdera cribrata* Simon, 1882 (Araneae, Dysderidae), a rare, poorly illustrated species of woodlice spider, previously known only from the French Maritime Alps and here recorded for the first time in Italy.

MATERIAL AND METHODS

The specimens examined are preserved in 70% ethanol, deposited in the Museo Civico di Scienze Naturali “E. Caffi” di Bergamo (MCSNB), Institut für Zoologie, Innsbruck (Thaler Collection, IZUI), Museum Basel (NHMB), personal collection of Marco Isaia, stored at Life Science and System Biology, University of

Turin (coll. MI), Muséum national d’Histoire naturelle, Paris (MNHN) and the personal collection of Fulvio Gasparo (coll. FG).

For morphological examination and the preparation of drawings, a Leica Stereomicroscope MZ12 (up to 40 × magnification) was used. Measurements were taken from digital pictures made with a Leica DFC320 camera and calculated with the Leica Image Manager software (Leica Microsystems, Deerfield, IL). Drawings were made from photographs, using a graphics tablet.

For clearing the vulva, the dissected epigyne was placed in 5% KOH solution for several minutes and then washed in dilute acetic acid before examination in 70% ethanol. The descriptions of the bulb are given from a ventral view. All measurements are given in millimetres. Legs were measured from the dorsal side.

The nomenclature of morphological structures follows Copley *et al.* (2009) for *Cybaeus vignai* and Deeleman-Reinhold & Deeleman (1988) for *Dysdera cribrata*.

In accordance with the World Spider Catalog (Platnick 2014), for each species we list the reference of the original description of the species, all post-Roewer transfers or synonymies and all taxonomically useful (i.e. illustrated) references.

For toponymy and classification of the different sectors and sub-sectors of the Alps see Marazzi (2005).

ABBREVIATIONS

Anatomical abbreviations

AA	anterior portion of tegular apophysis;
AD	dorsal arch of anterior diverticle;
ADV	anterior diverticle of vulva;
AER	anterior eye row;
ALE	anterior lateral eyes;
AME	anterior median eyes;
AT	epigynal atrium;
BA	bulbus apex;
BS	base of spermatheca;
E	embolus;
HS	head of spermatheca;
PA	posterior portion of tegular apophysis;
PAP	posterior apophysis;
PDV	posterior diverticle of vulva;
PER	posterior eye row;
PLE	posterior lateral eyes;
PME	posterior median eyes;
PMS	posterior membranous sac;
PTA	posterior portion of tegular apophysis;
RPA	retrolateral patellar apophysis;
RTA	retrolateral tibial apophysis;
SS	stalk of spermatheca;
SP	spermatheca;
TB	transverse bar of posterior diverticle;
TR	tegular ridge.

Italian provinces

AO	Aosta;
BG	Bergamo;
BI	Biella;
CO	Como;
CN	Cuneo;
GE	Genova;
NO	Novara;
SV	Savona;
TO	Torino;
TV	Treviso.

SYSTEMATICS

Family CYBAEIDAE Banks, 1892

Genus *Cybaeus* L. Koch, 1868TYPE SPECIES. — *Amaurobius tetricus* C. L. Koch, 1839, by original description.*Cybaeus vignai* Brignoli, 1977
(Figs 1, 2)*Cybaeus vignai* Brignoli, 1977: 32, fig. 11. — Isaia *et al.* (2011): 152, figs 2.93D, E; 2.94 (in part, female only; see *C. intermedius*).

MATERIAL EXAMINED. — **Italy.** Piemonte (CN), Natural Park of Maritime Alps: 1♂, beech forest, Palanfrè, Vernante, 1450 m, 11.VIII-09.IX.2011, leg. A. Chiarle & M. Stassi, pitfall traps (coll. MI); 2♀, 1♀, beech forest, Palanfrè, Vernante, 1500 m, 21.VII-11.VIII.2011, leg. A. Chiarle & M. Stassi, pitfall traps (coll. MI); 7♂, beech forest, Palanfrè, Vernante, 1550 m, 21.VII-11.VIII.2011, leg. A. Chiarle & M. Stassi, pitfall traps (coll. MI); 8♂, 2♀, beech forest, Palanfrè, Vernante, 1600 m, 21.VII-11.VIII.2011, leg. A. Chiarle & M. Stassi, pitfall traps (coll. MI); 1♂, beech forest, Palanfrè, Vernante, 1500 m, 9.IX-13.X.2011, leg. A. Chiarle & M. Stassi, pitfall traps (coll. MI); 2♂, stream bank with *Petasites* in deciduous forest (*Fraxinus*), torrente Busset, Trinità di Entracque, 1000-1200 m, 28.VI-09.VIII.2007, leg. K. Wolf-Schwenninger & H. Schwenninger, pitfall traps (coll. MI); 2♀, cave, Grotta di Tetto Verna, Vernante, 25.VI.2006 and 30.VIII.2006, leg. E. Lana, hand collecting (coll. MI) [in Isaia *et al.* 2011].

DIAGNOSIS. — Males of *C. vignai* can be distinguished from those of other species of *Cybaeus* by the peculiar “curled” posterior portion of the regular apophysis (Fig. 1A [PA], 1C [PA]). The form of the regular apophysis is considered species-specific (Copley *et al.* 2009).

DESCRIPTION OF MALE (FIG. 2)

Measurements (n=1, from Palanfrè): carapace 2.63 long, 1.74 wide. Head region 1.05 wide; PER 0.52 wide. Labium 0.40 wide, 0.29 long. Sternum 1.12 long, 1.16 wide. Opisthosoma 2.23 long, 1.66 wide. Leg measurements as in Table 1.

Eyes

In dorsal view both eye rows slightly recurved. Minimum and maximum diameters: PME: 0.056-0.069; PLE: 0.058-0.067; AME: 0.053-0.063; ALE: 0.069-0.074.

Distances

PME–PME about three times their diameter; PME–AME one and half the diameter of PME; PME–PLE nearly twice the diameter of PME; PME–ALE about the diameter of PME or slightly less; AME–AME about twice their diameter; AME–ALE about half the diameter of ALE. Clypeus height (measured under AME) male: 0.23. Coloration: carapace yellowish to dark reddish. Legs yellowish to brown, coxae dorsally and ventrally lighter than the other segments. Sternum without coloration pattern. Opisthosoma pale yellow to greyish; cardiac mark not pronounced. Additional somatic characters: distal margin

TABLE 1. — Leg measurements (in mm) of *Cybaeus vignai* Brignoli, 1977.

	fe	pa	ti	mt	ta	total
Palp	1.00	0.35	0.31	–	0.98	2.63
I	2.31	0.93	2.21	2.09	1.39	8.93
II	2.17	0.85	1.93	1.93	1.35	8.24
III	2.00	0.82	1.48	1.84	1.23	7.37
IV	2.36	0.80	2.11	2.45	1.46	9.17

TABLE 2. — Leg spination of *C. vignai* Brignoli, 1977 and *C. intermedius* Maurer, 1992. The formula gives the number of spines as follows: dorsal-prolateral-retrolateral-ventral; P indicates that the spine is paired (1p = 2 spines); “+” indicates that a higher number of spines have been occasionally observed at this position.

Leg	Species	fe	pa	ti	mt	ta
Palp	<i>C. vignai</i>	1-0-0-0	1-0-0	1-1-0-0	–	–
	<i>C. intermedius</i>	2-0-0-0	1-0-0	1-1-0-0	–	–
I	<i>C. vignai</i>	2-1-1-0	1-0-0	0-0-0-3p	0-2-0-3p	–
	<i>C. intermedius</i>	2-1-0-0	0-0-0	0-1+-0-2p+1	0-1-0-3p	–
II	<i>C. vignai</i>	3+-0-1-0	0-0-0	0-2-0-3p	1-2-0-3p	–
	<i>C. intermedius</i>	2-1-0-0	0-0-0	0-2-0-2p	0-2-0-3p	–
III	<i>C. vignai</i>	3+-0-0-0	1-0-0	2-2-2-3p	1-3-2-3p	–
	<i>C. intermedius</i>	4+-1-0-0	1-0-0	1+-2-2-3p	3p-2-3-3p	–

of labium straight. Three teeth on promargin of cheliceral fang furrow. Four smaller teeth and three or four denticles on retromargin. Boss on retromargin of cheliceral base. All legs tarsi, metatarsi and tibiae with 8-10 dorsal trichobothria. No trichobothria on patellae, femora and palps. Formulae of leg spination as in Table 2.

Palp (Figs 1A-C)

Anterior retrolateral patellar apophysis (RPA) thumb-like, stout, almost long as the width of the patella, distally rounded. Many peg setae (more than 50) scattered on dorsal and lateral surfaces of patellar apophysis. Retrolateral tibial apophysis (RTA) in form of a process slightly produced anteriorly and extending posteriorly nearly for the entire length of tibia. Tegulum distally developed into a filiform embolus originating at almost 12 o'clock position, distal tip at around 4 o'clock position. Anterior portion of regular apophysis (AA) distally broadly rounded, ending at approximately 2 o'clock position, laterally folded along whole length.

Cybaeus intermedius Maurer, 1992 (Figs 3; 4A)*Cybaeus intermedius* Maurer, 1992: 152, figs 5-8, 14, 31.

Cybaeus vignai (not Brignoli, 1977) – Maurer & Thaler 1988: 334, figs 6-8, 10 (in part: misidentified male). — Isaia *et al.* 2011: 152, figs 2.93A, B, C (in part: misidentified male).

MATERIAL EXAMINED. — **France.** Alpes-Maritimes: 4♂, chestnut wood, Tende, 1102 m, 11.VIII.2007, leg. K. Wolf-Schwenninger, sifting (coll. MI).

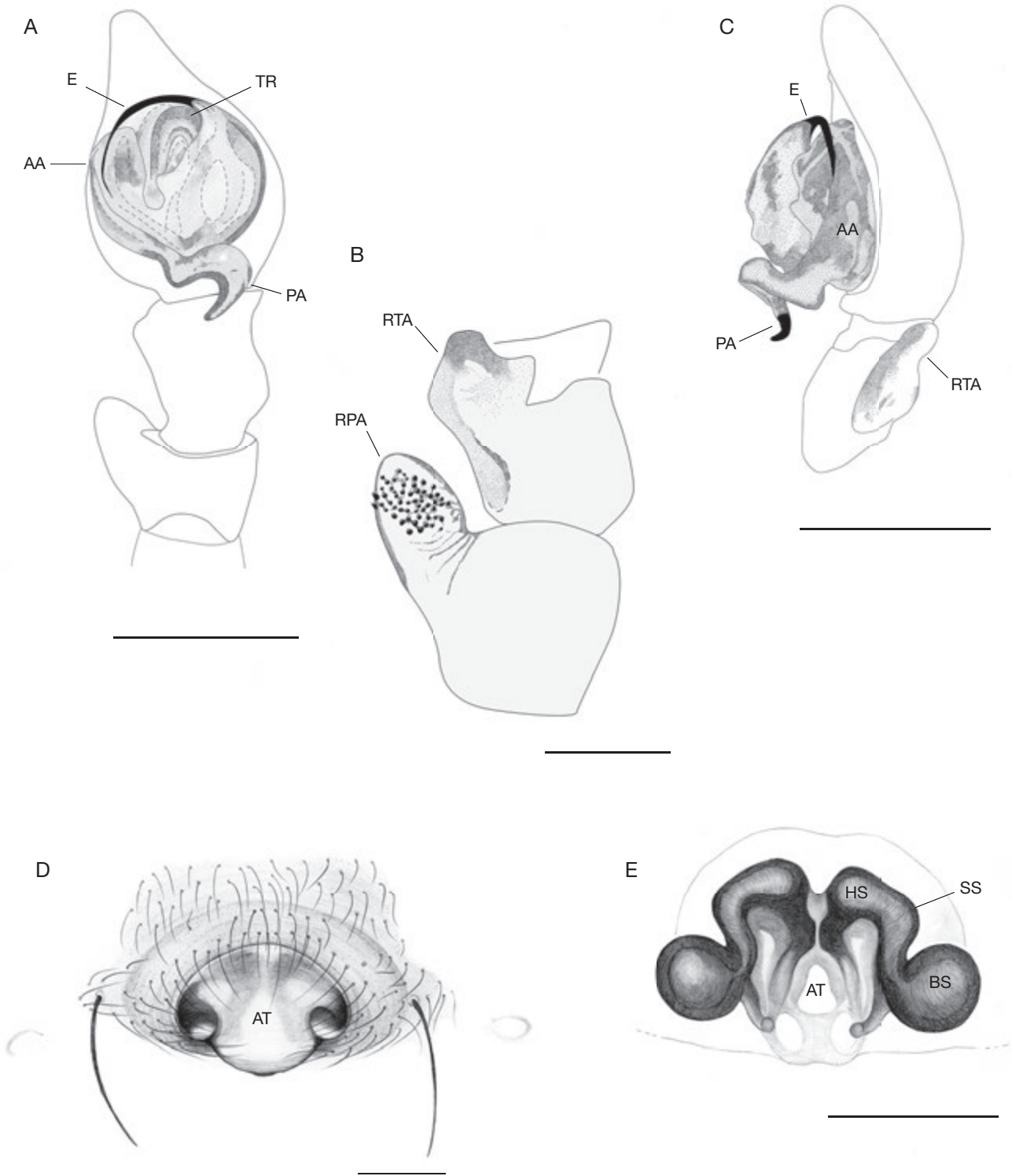


FIG. 1. — *Cybaeus vignai* Brignoli, 1977: **A-C**, male, from Palanfrè: **A**, bulb (ventral view); **B**, patella and tibia (dorsal view); **C**, bulb (retro lateral view); **D, E**, female, Grotta Tetto Verna (modified from Isايا *et al.* 2011): **D**, epigyne (ventral view); **E**, vulva (dorsal view). Abbreviations: see Material & methods. Scale bars: A, C, E, 0.5 mm; B, D, 0.2 mm.

Italy. Piemonte (CN), Natural Park of Maritime Alps: 3♀, deciduous forest with *Fraxinus* and *Acer*, Sant'Anna di Valdieri, 1040 m, 06.X.1972, leg. R. Maurer & K. Thaler (IZUIA7117) [sub *C. montanus* in Maurer (1992)]; 3♀, beech forest, Terme di Valdieri, 06.X.1972, leg. K. Thaler (IZUI) [sub *C. montanus* in Maurer (1992)]; 3♀,

beech forest, Terme di Valdieri, 1400 m, 06.X.1972, leg. Maurer R. & K. Thaler, (IZUI) [sub *C. montanus* in Maurer (1992)]; 1♀, beech forest, Vallone della Meris, Valdieri, 1200-1800 m, 01.VIII-31.VIII.2011, leg. M. Isايا, pitfall traps (coll. MD); 3♂, beech forest, Palanfrè, Vernante, 1500 m, 21.VII-11.VIII.2011, leg. A. Chiarle &

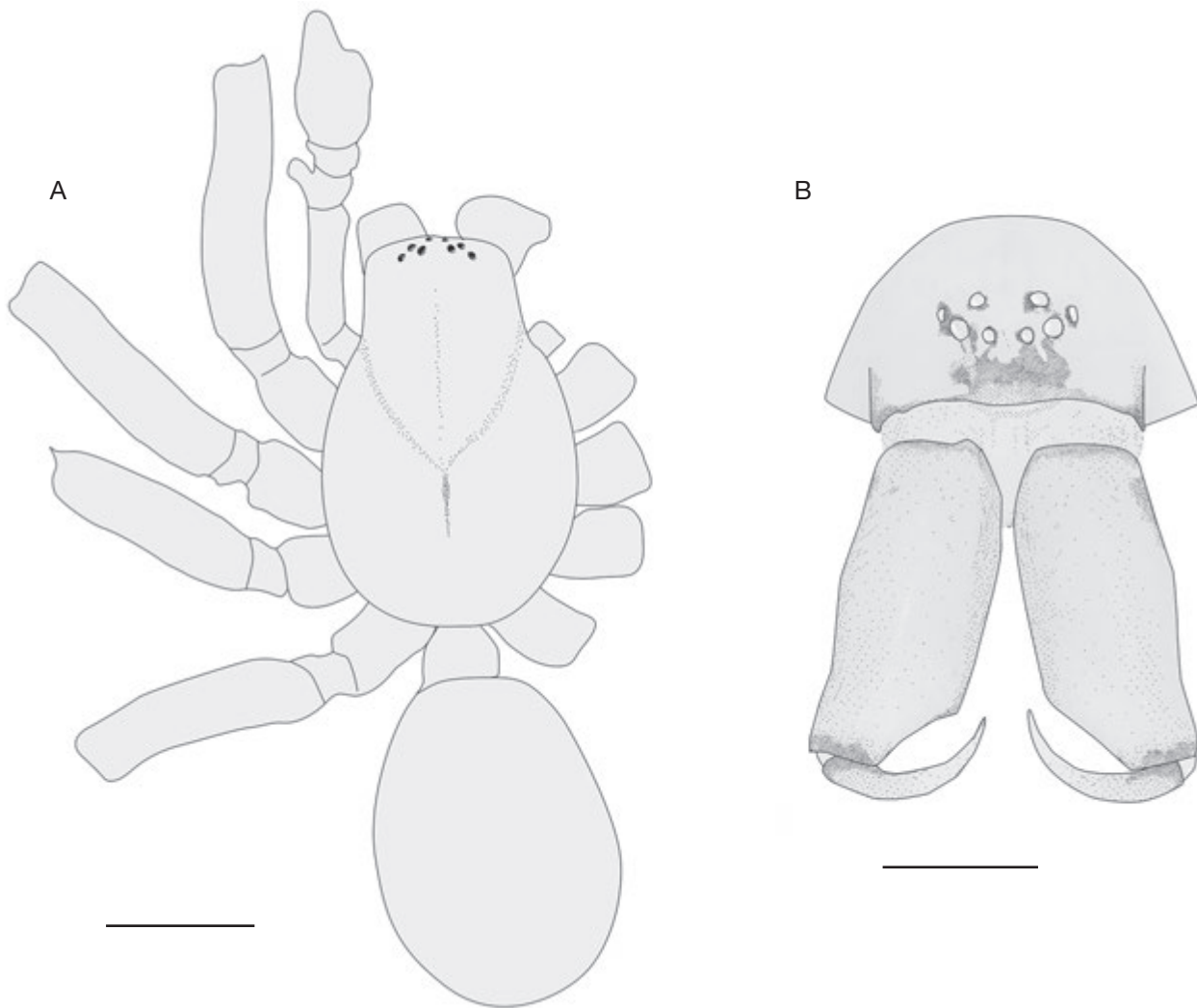


FIG. 2. — *Cybaeus vignai* Brignoli, 1977, male, from Palanfrè: **A**, dorsal view; **B**, prosoma with ocular region and chelicerae, frontal view. Scale bars: A, 1 mm; B, 0.5 mm.

M. Stassi, pitfall traps (coll. MI); 3♀, beech forest, Palanfrè, Vernante, 1500 m, 21.VIII-09.IX.2011, leg. A. Chiarle & M. Stassi, pitfall traps (coll. MI); 1♀, beech forest, Palanfrè, Vernante, 1500 m, 09.IX-13.X.2011, leg. A. Chiarle & M. Stassi, pitfall traps (coll. MI); 1♂, beech forest, Palanfrè, Vernante, 1450 m, 21.VII-11.VIII.2011, leg. A. Chiarle & M. Stassi, pitfall traps (coll. MI); 8♂, beech forest, Palanfrè, Gias del Chiot, Vernante, 1550 m, 29.VI-09.VIII.2007, leg. K. Wolf-Schwenninger & H. Schwenninger, sifting (coll. MI); 9♂, 1♀, beech forest, Palanfrè, Gias del Chiot, Vernante, 1550 m, 10.IX.2008, leg. M. Paschetta, M. Isaia & A. Schönhofer, hand collecting (coll. MI); 1♂, beech forest, Palanfrè, Gias del Chiot, Vernante, 1550 m, 22.VI-19.VII.2009, leg. M. Paschetta & M. Isaia, pitfall traps (coll. MI); 6♂, stream bank with *Petasites* in deciduous forest (*Fraxinus*), Torrente Busset, Trinità di Entracque, 1000-1200 m, 28.VI-09.VIII.2007, leg. K. Wolf-Schwenninger & H. Schwenninger, pitfall traps (coll. MI); beech wood near Trinità di Entracque, 1100 m, 09.VIII.2007, leg. Isaia M., hand collecting (coll. MI) [cited in Isaia *et al.* 2011]; 1♀, Grotticella di Serra di Raie, Sampeyre, 1528 m, 20/09/2013, leg. E. Lana, hand collecting (coll. MI). Piemonte (NO): 1♂, Arona, Lagoni di Mercurago, 07.VII.2010, leg. M. Paschetta & S. Baiocchi, pitfall traps (coll. MI). Piemonte (BI): 1♀, Biella, Oropa, 1100 m, 11.X.1972, leg. K. Thaler (IZUI A7114); 7♂, in *Calluna* shrubs, Valsessera, VII.2009, leg. I. Franco, pitfall traps (coll. MI). Piemonte (TO): 2♀, Giaveno, Forno, 950 m, 09.X.1972, leg. K. Thaler (IZUI A7118) [sub *C. montanus* in Mau-

rer (1992)]; 1♀, Crissolo, 06.XI.1996, leg. D. Vailati (MCSNB). Valle d'Aosta (AO): 17♂, 1♀, Alpine prairies, Gressoney, 10-30.VI.2006 leg. M. Negro, pitfall traps (coll. MI) [cited in Negro *et al.* 2009]; 18♂, 1♀, Lago di Holay, Pont Saint Martin, 790 m, 11-26.VI.2013, leg. M. Negro, pitfall traps (coll. MI). Liguria (GE): 2♂, beech forest, Mezzanego, 1050 m, foresta demaniale Monte Zatta, 26.V-18.VIII.2010, leg. O. Lodovici & P. Pantini, pitfall traps (MCSNB). Liguria (SV): 2♀, Massimino, Monte Giovetti, 700 m, 02.X.1972, leg. K. Thaler (IZUI A7116). Lombardia (BG): 3♀, rocky area, Camerata Cornello, Monte Venturosa, 1850 m, 09.IX-7.X.2009, leg. M. Massaro & W. Zucchelli, pitfall traps (MCSNB).

Cybaeus montanus Maurer, 1992
(Fig. 4B)

C. montanus Maurer, 1992: 151, figs 1-4, 13, 16, 32 (original description of both sexes).

TYPE MATERIAL EXAMINED. — **Holotype**.♂, Switzerland, Tessin: Monte Generoso, Poma, 01.VII.1988, leg. A. Hänggi (NHMB 2530a). **Paratypes** (same locality and collector). 1♀, with holotype (NHMB 2530a); 1♂, 13.VI.1988 (NHMB 2530b); 1♀, 30.X.1988

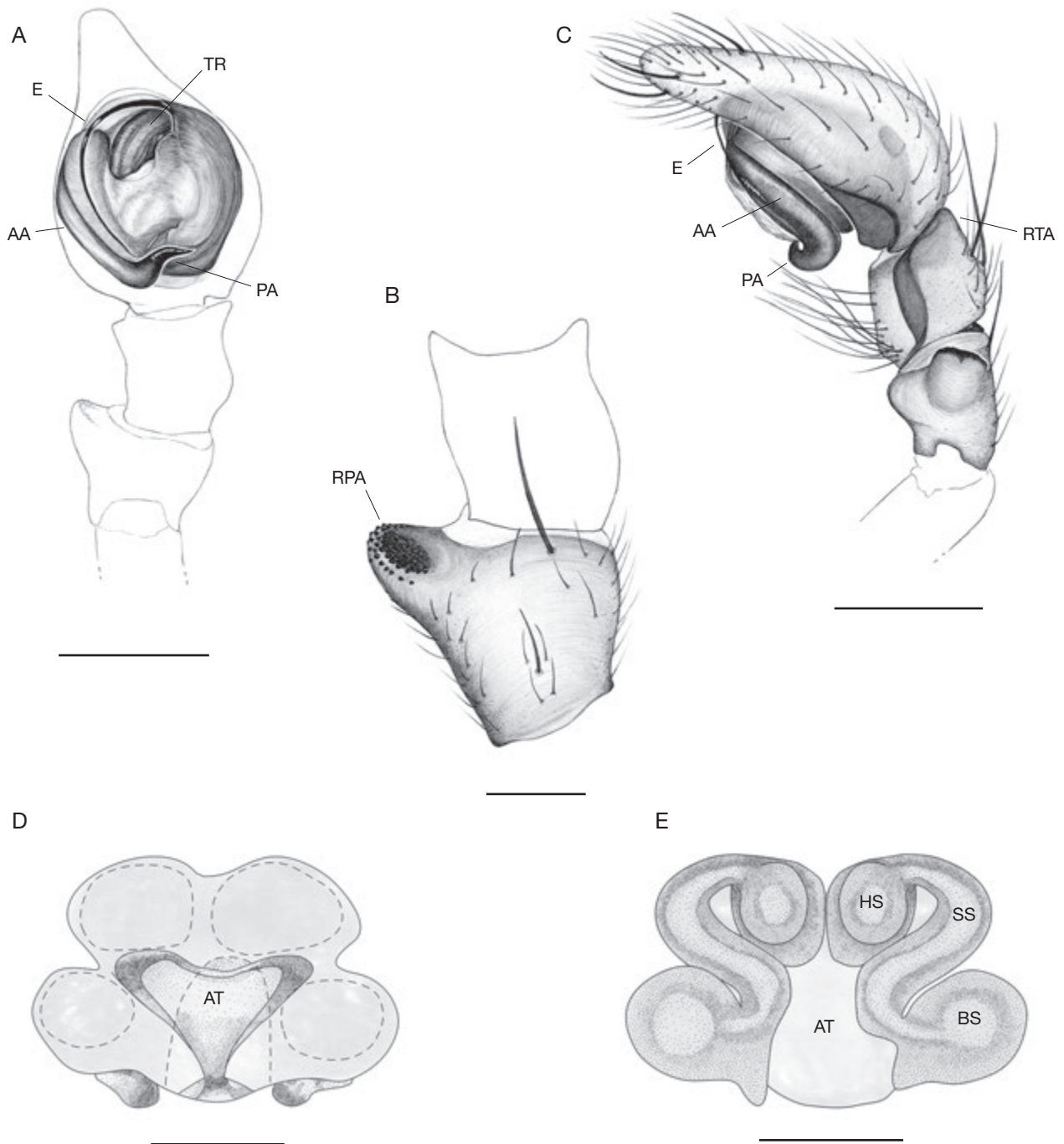


FIG. 3. — *Cybaeus intermedius* Maurer, 1992: **A-C**, male, from Trinità di Entracque (modified from Isaia *et al.* 2011): **A**, bulb ventral view; **B**, patella dorsal view; **C**, bulb retrolateral view; **D-E**, female, from Palanfrè: **D**, epigyne ventral view; **E**, vulva dorsal view. Abbreviations: see Material & methods. Scale bars: A, C, 0.5 mm; B, D, E, 0.2 mm.

(NHMB 2530e); 1♀, 30.X.1988 (NHMB 2530c); 2♂, 19.VI-01.VII.1987 (NHMB 2530f); 3♂, 1987 (precise date not given) (NHMB 2530e); 1♂ Monte Generoso, Arogno, 1.VII.1987.

OTHER MATERIAL EXAMINED. — **Italy**. Lombardia (CO): 2♀, Como, between Erba and Bellagio (IZUI) [cited in Maurer (1992)]; 2♀, Val Taleggiana: Taleggio (IZUI) [cited in Maurer (1992)]. Lombardia (BG): 13♂, 1♀, Camerata Cornello, Monte Venturosa, Alpine prairies, 1950 m, 21.VI-23.VII.2010, leg. M. Massaro & W. Zucchelli, pitfall traps (MCSNB).

Cybaeus minor Chyzer, 1897
(Fig. 4C)

Cybaeus minor Chyzer in Chyzer & Kulczynski, 1897: 153, plate 6, fig. 9. — Loksa 1969: 116, fig. 79C, G. — Brignoli 1978g: 508, figs 76-78. — Polnec 1985: 103, figs 5-7. — Maurer 1992: 151, figs 9-12, 15, 17.

MATERIAL EXAMINED. — **Italy**. Lombardia (BG): 2♂, 1♀, moraine, road to Passo Campelli, Schilpario, 1750 m, 28.VII-18.X.2005, leg.

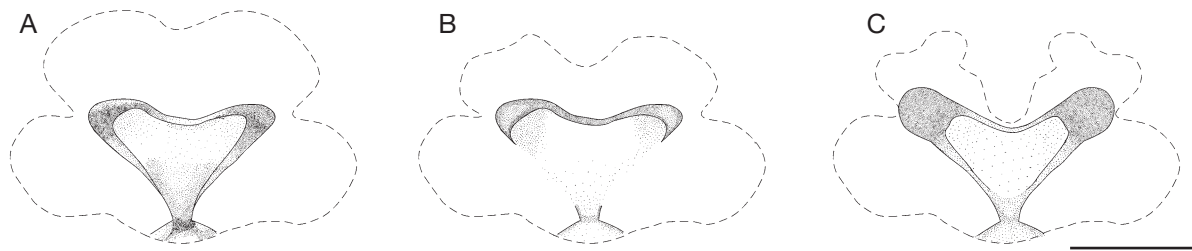


FIG. 4. — Epigynal atrium, ventral view: **A**, *Cybaeus intermedius* Maurer, 1992,, from Trinità di Entracque; **B**, *C. montanus* Maurer, 1992, from Monte Generoso, Poma; **C**, *C. minor* Chyzer, 1897, from Passo Campelli, Schilpario. Scale bar: 0.2 mm.



FIG. 5. — Distributions of *Cybaeus intermedius* Maurer, 1992, *C. montanus* Maurer, 1992, *C. minor* Chyzer, 1897, *C. tetricus* C. L. Koch, 1839 and *C. vignai* Brignoli, 1977. Black symbols refer to literature data, white symbols refer to material examined here.

Museo di Scienze BG (coll. MI). Veneto (TV): 1♀, Monte Grappa, Bassano, 28.IX.1977, leg. K. Thaler (IZUI A7115) [sub *C. intermedius* in Maurer (1992)].

REMARKS

Considering the genital morphology of males and females of the *minor* group, the match between male and female of *C. vignai* suggested by Maurer & Thaler (1988) seems highly questionable. The hypothesis of a misidentification is supported by the co-occurrence of the newly collected males with females of *C. vignai*. Additionally, we found at the same localities females of *C. intermedius* and males corresponding to that illustrated in Maurer & Thaler (1988) as *C. vignai*. When examining material from Maritime Alps and comparing it to *C. intermedius* from different Italian localities, it became clear that the previous “doubtful male” (and part of the males found in our samplings), belongs in reality to *C. intermedius*. The same is the case for the male illustrated in Isaia *et al.* (2011: 92, 152, figs A, B, C) and wrongly attributed to *C. vignai*.

Concerning the identification of females, the borders and the upper vertices of the atrium are the most diagnostic characters allowing the separation of the species. In *C. intermedius* the upper border is thickened at the vertices and the lateral borders are clearly visible. In *C. montanus* the upper vertices are similar to those of *C. intermedius*, but the lateral borders are only weakly visible. In *C. minor* the upper border of the atrium is strongly thickened, the vertices are rounded and the lateral borders are clearly visible (Fig. 4).

Similarly, examination of the females from the Maritime Alps identified as *C. montanus* by in Maurer (1992) revealed that they belong instead to *C. intermedius*. Consequently, it seems reasonable to assume that all previous records of *C. montanus* from the Maritime Alps as well as from the western Alps, including the two females of *C. angustiarum* from the Maritime Alps cited by Brignoli (1977: 30, fig. 6) and cited in Isaia *et al.* (2007), belong to *C. intermedius*. The presence of *C. montanus* in the western Alps is thus not supported anymore.

Concerning *C. minor*, we examined material of this species from Veneto that was wrongly reported in Maurer (1992) as

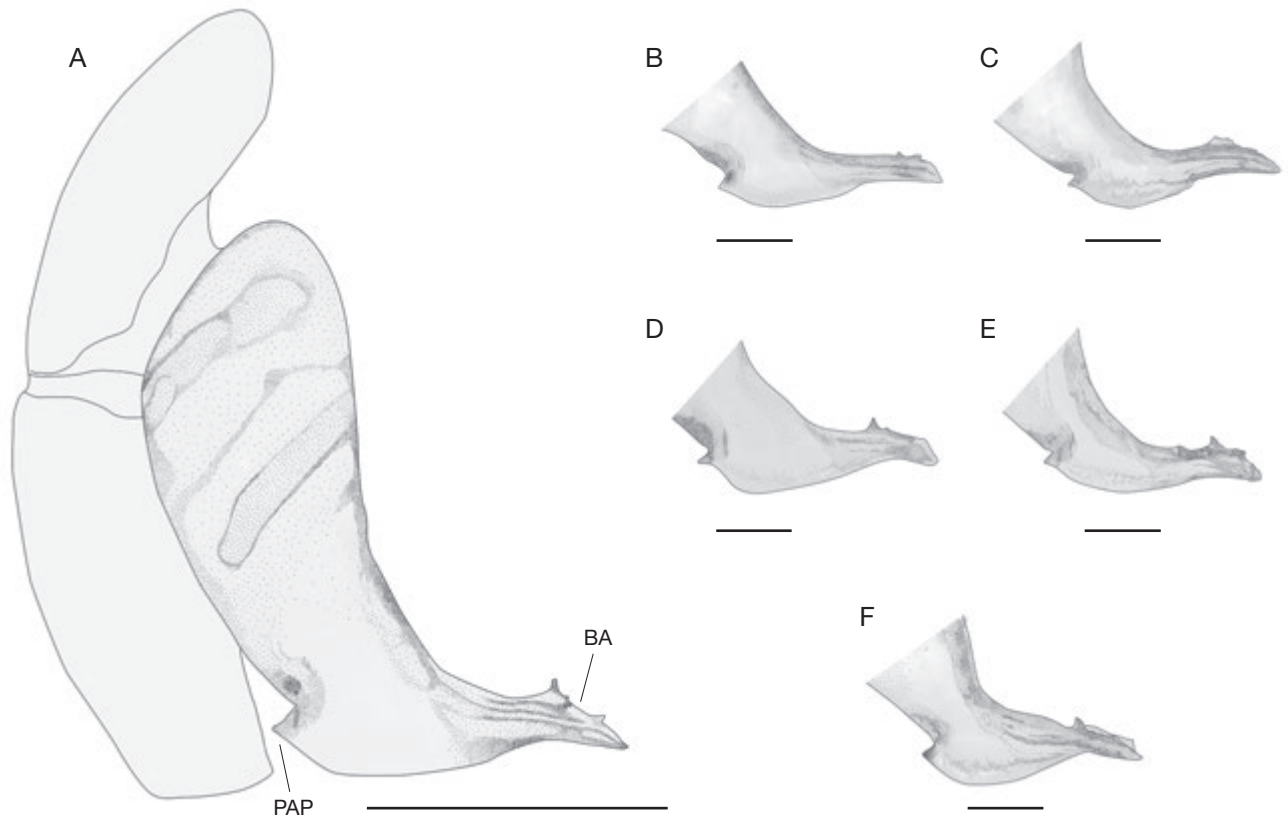


FIG. 6. — *Dysdera cribrata* Simon, 1882, male palp: **A**, bulb, retrolateral view, from Tende; **B-F**, variability of bulb distal segment: **B-C**, from Villars-Colmars; **D**, from Piano del Valasco; **E**, from Tende; **F**, from Forêt de Durbon. Abbreviations: see Material & methods. Scale bars: A, 0.5 mm; B-F, 0.2 mm.

C. intermedius. Hence we question the presence of *C. intermedius* in the eastern Alps.

According to the morphology of the palp and female internal genitalia, *C. vignai* seems more closely related to *C. raymondi* (Simon, 1916) (endemic to French Pyrenees) and *C. tetricus* (C. L. Koch, 1839) (central Europe) than to the species of the *minor* group discussed by Maurer (1992: 153, figs 25-26, 29-30).

In their recent revision of the Nearctic species of *Cybaeus*, Copley *et al.* (2009) groups the Holarctic and Nearctic species in eight species group, which are partially supported by molecular evidence. According to the in-line position of the spermathecal heads in respect to the rest of the vulval ducting, and according to the presence of a relatively large epyginal atrium, the species of the *minor* group, as well as *C. vignai*, are assigned to the *tetricus* group.

DISTRIBUTION (FIG. 5)

Records of *C. vignai* are so far restricted to a few localities in the Italian and French Maritime Alps. Males have been found at two Italian localities (Valle Gesso: Palanfrè and Bousset), while previous records of females are given by Isaia *et al.* (2011) and citations therein (Valle Pesio: Certosa di Pesio; Valle Vermenagna: Vernante), and by Maurer and Thaler (1988) (France: Forêt de Turini: Le Moulinet). According to our interpretation, previous records of males have to be referred to *C. intermedius*. However, it is likely that

the species is more widespread in the SW Alps. According to the new records, the distribution of *C. intermedius* extends from Tessin and Bergamo Prealps, across the western Alps and down to the French and Italian Maritime Alps (where it occurs sympatrically with *C. vignai*), the Ligurian Apennines and, according to Pesarini (2003), down to the Tuscan-Emilian Apennines. *C. intermedius* is here recorded for the first time in France.

According to our findings, *C. montanus* seems to be restricted to the Prealps of Lugano and Bergamo. Records from Veneto (Ballarin *et al.* 2011) and Toscana (Maurer 1992) remain to be verified.

HABITAT AND PHENOLOGY

The three species of *Cybaeus* dealt with here occur predominantly in the litter of broad-leaved forest, especially beech, although *C. vignai*, is also found in caves (Isaia *et al.* 2011). Adults are generally collected in summer.

Family DYSDERIDAE C. L. Koch, 1837

Genus *Dysdera* Latreille, 1804

TYPE SPECIES. — *Aranea erythrina* Walckenaer, 1802, by original designation.

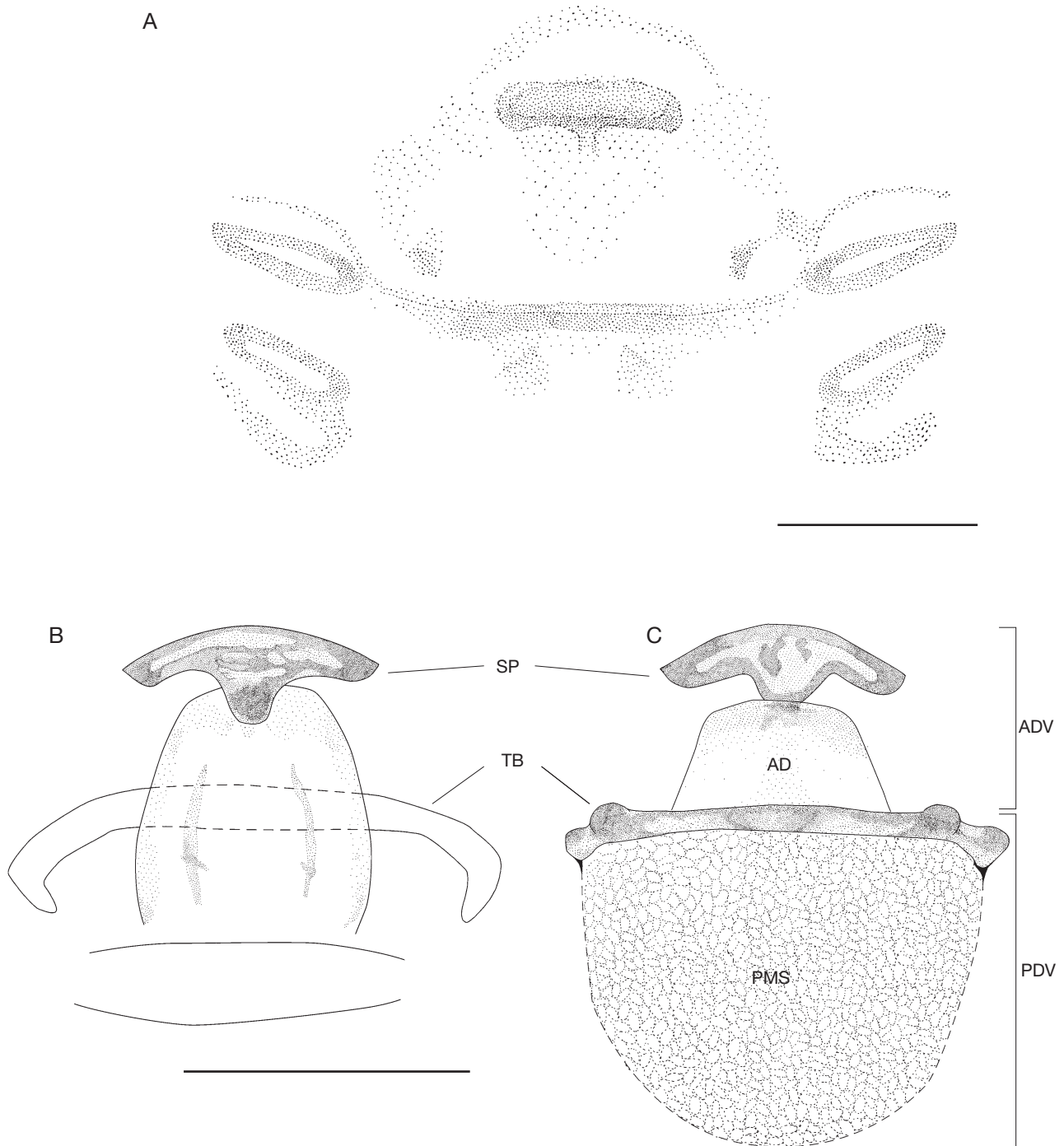


FIG. 7. — *Dysdera cribrata* Simon, 1882, female, from Tende: **A**, epigyne; **B**, vulva ventral view; **C**, vulva dorsal view. Abbreviations: see Material & methods. Scale bars: 0.5 mm.

Dysdera cribrata Simon, 1882
(Figs 6-8)

Dysdera cribrata Simon, 1882: 217. — Simon 1914: 98, 112, fig. 166. — Le Peru 2011: 234, fig. 273.

MATERIAL EXAMINED. — **France**. Hautes-Alpes: 3♀, Forêt de Durbon, 10.VII.1914, leg. and det. R. de Dalmas (MNHN AR5940,

Dalmas number L110). Mixed tube: 9♂, 26♀, “Alpes” and Villars-Colmars, [Alpes-de-Haute-Provence] VII.1914, det. E. Simon (MNHN AR5932, Simon number 4042) [the name of a locality written on the main label has been cancelled and is illegible; a supplementary label in the same tube reads “type series (in part), rev. C. Hervé 30.IX.2009”]. Alpes-Maritimes, Parc national du Mercantour: 1♂, 1♀, Tende, chestnut wood, 30.VI-11.VIII.2007, leg. K. Wolf-Schwenninger, pitfall traps (coll. MI); 4♂, 4♀, Col

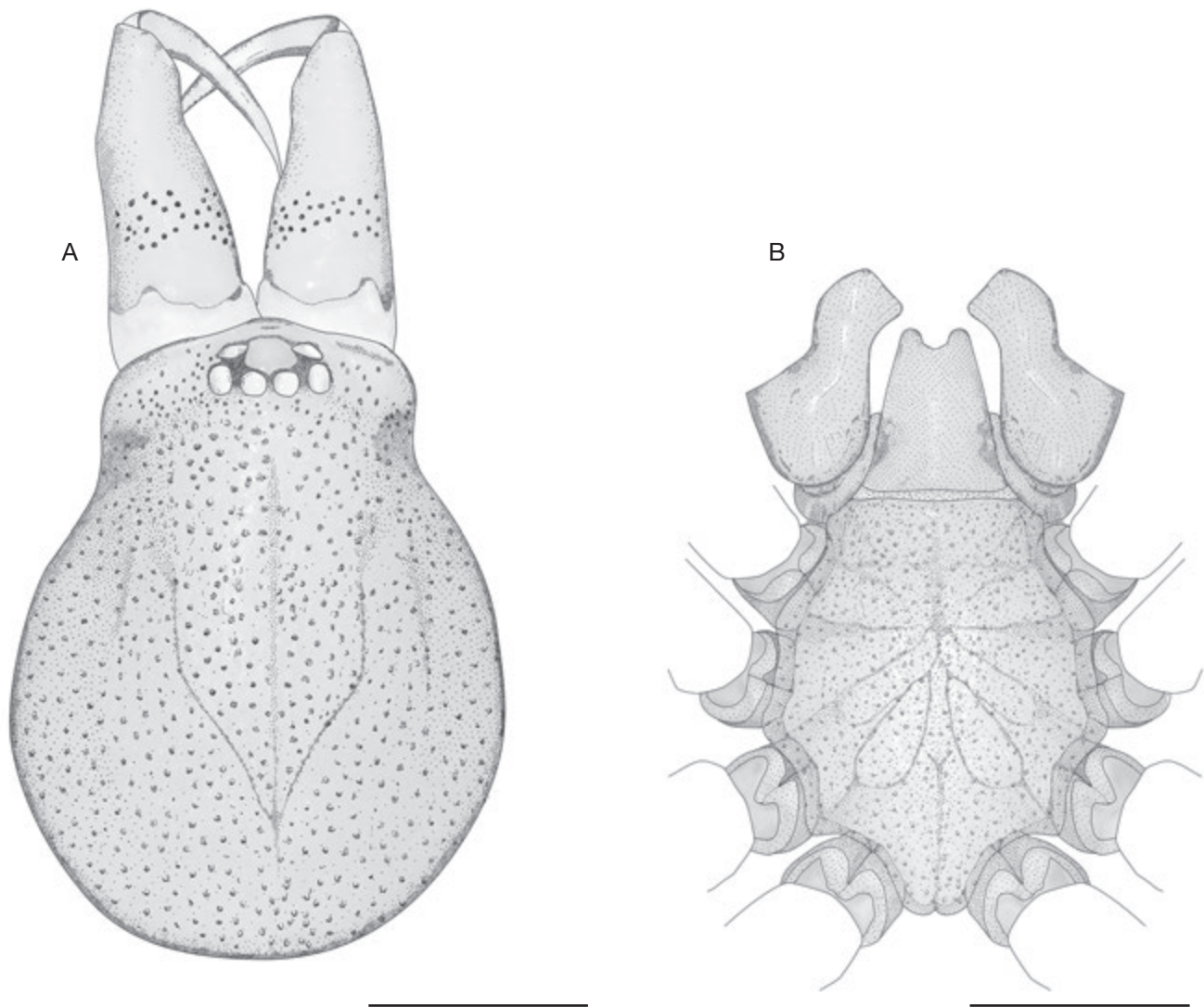


FIG. 8. — *Dysdera cribrata* Simon, 1882, female, from Tende: **A**, prosoma dorsal view; **B**, sternum ventral view. Scale bars: 1 mm.

de Turini, 1600 m, fir wood, 05.IX.1995, leg. F. Gasparo, hand collecting (coll. FG).

Italy. Piemonte (CN): 1♂, Alpine pastures with rocks, Natural Park of Alpi Marittime, Piano del Valasco, Valdieri, 1764 m, 29.VI.2009, leg. M. Isaia, hand collecting (coll. MI); 1♂, stream bank with *Petasites* in deciduous forest (*Fraxinus*), Natural Park of Alpi Marittime, Torrente Busset, Trinita di Entracque, 1200 m, 28.VI.09.VIII.2007, leg. K. Wolf-Schwenninger & H. Schwenninger, pitfall traps (coll. MI); 2♂, under rocks in a sparse larch wood close to the Maira springs, Sorgenti del Maira, Acceglio, 1614 m, 04.VI.2009, leg. M. Isaia, hand collecting (coll. MI); 1♀, Sampéyre, Becetto: Meire Ruà, 1500 m, 02.V-07.VI.1999, leg. G. Gardini, pitfall traps (coll. FG); 1♂, same locality, 20.VI.2001, hand collecting, leg. G. Gardini (coll. FG); 1♀, Sampéyre, Becetto: between Meire Ruà and Pian Ciattiva, 1750 m, 08.X.2007, leg. G. Gardini, sieving in *Vaccinietum* (coll. FG).

REMARKS

Simon (1882) described *Dysdera cribrata* from the Hautes (Savine-Alpes), Alpes-de-Haute-Provence (Digne) and Alpes-Maritimes (“Saint-Martin-Lantosque” [Saint-Martin-Vésubie]

and La Madone des Fenêtres) [la Madone de Fenestre]. Later, in *Les Arachnides de France*, Simon (1914: 97-98) provided an illustration of the male and a brief remark on the habitat preference of this species (“dans la haute montagne”). *D. cribrata* is also reported by Bosmans & De Keer (1985) from the French Pyrenees (Denis 1937: one female from Pic de Cassamanya in Andorra; Tambs-Lyche 1957: unspecified specimen from Banyuls in Eastern Pyrenees). Mcheidze (1964, 1997) (cited in Otto 2014), recorded this species in Abkhasia (Caucasus), but according to Kovblyuk *et al.* (2011) “the record is probably based on a misidentification”. According to R. Bosmans (pers. comm. 2014), the only reliable records of this species are those in Simon (1882, 1914), all of the other records having to be regarded as doubtful.

Thanks to the examination of material stored in the Simon collection at the Muséum national d’Histoire naturelle, Paris, identified by Simon himself, we were able to identify a number of specimens from three Italian localities, collected

either as part of the ATBI (Maritime Alps) or on previous occasions (Cottian Alps). Illustrations of the male genitalia (Fig. 6) and female prosoma, sternum and genitalia are provided (Figs 7, 8), which indicate the variability of the male palp. This species is here recorded for the first time in Italy. It seems to be restricted to western Alpine region.

According to Gasparo (pers. comm. 2014), the structure of the bulb of the males from Col de Turini (France) appears more sinuous than in the males from Becetto (Italy) and there are minor differences in details of the bulb apex. Because the significance of these differences is not clear at present, we assume here that they are due to intraspecific variation.

Acknowledgements

We are grateful to the European Distributed Institute of Taxonomy (EDIT) for supporting fieldwork as part of the All Taxa Biodiversity Inventory + Monitoring Project (ATBI+M). This work also benefitted from the collaboration with the Natural Park of Alpi Marittime, in the framework of the Piano Integrato Transfrontaliero Marittime-Mercantour, funded by Programma Alcotra 2007-2013. We thank the Museo Regionale di Scienze Naturali (MRSN) for financial support. We thank Fulvio Gasparo and Robert Bosmans for precious advice concerning *Dysdera cribrata*, and Paolo Pantini for useful comments on the Italian species of *Cybaeus*. Thanks to Paolo Pantini, Ambros Hänggi, Christine Rollard and Barbara Knoflach-Thaler for the opportunity to examine the material stored at Bergamo, Basel, Paris and Innsbruck Museums. We thank the reviewers that contribute to improve our manuscript.

REFERENCES

- BALLARIN F., PANTINI P. & HANSEN H. 2011. — Catalogo ragionato dei ragni (Arachnida, Araneae) del Veneto. *Memorie del Museo Civico di Storia Naturale di Verona (IIA Serie), Sezione Scienze della Vita* 21: 5-151.
- BOLZERN A. & HERVÉ C. 2010. — A new funnel-web spider species (Araneae: Agelenidae, *Tegenaria*) from Mercantour National Park, France. *Bulletin of the British Arachnological Society* 15: 21-26.
- BOLZERN A., PANTINI P. & ISAIA M. 2013. — Revision of the *Histopona italica* group (Araneae: Agelenidae), with the description of two new species. *Zootaxa* 3640: 23-41.
- BOSMANS R. & DE KEER R. 1985. — *Catalogue des Araignées des Pyrénées. Espèces citées, nouvelles récoltes et bibliographie*. Institut royal des Sciences naturelles de Belgique, Brussels, Documents de Travail no. 23, 68 p.
- BRIGNOLI P. M. 1977. — Ragni d'Italia XXVII. Nuovi dati su Agelenidae, Argyronetidae, Hahniidae, Oxyopidae e Pisauridae cavernicoli ed epigei (Araneae). *Quaderni del Museo di speleologia "V. Rivera"* 4: 3-117.
- BRIGNOLI P. M. 1978. — Ragni di Turchia V. Specie nuove o interessanti, cavernicole ed epigee, di varie famiglie (Araneae). *Revue suisse de zoologie* 85: 461-541.
- CHYZER C. & KULCZYŃSKI W. 1897. — *Araneae hungariae*, Volume 2, Academia Scientiarum Hungaricae, Budapest, 220 p.
- COPLEY C. R., BENNETT R. & PERLMAN S. J. 2009. — Systematics of Nearctic *Cybaeus* (Araneae: Cybaeidae). *Invertebrate Systematics* 23: 367-401.
- DEELEMEN-REINHOLD C. L. & DEELEMEN P. R. 1988. — Révision des Dysderinae (Araneae, Dysderidae), les espèces méditerranéennes occidentales exceptées. *Tijdschrift voor entomologie* 131: 141-269.
- DENIS J. 1937. — A contribution to the knowledge of the spider fauna of the Andorra Valleys. *Proceedings of the Zoological Society of London B* 107: 565-581.
- FRICK H. & ISAIA M. 2012. — Comparative description of the Mediterranean erigonine spider *Diplocephalus guidoi* n. sp. (Araneae, Linyphiidae). *Zootaxa* 3475: 65-68.
- HERVÉ C. & ROLLARD C. 2009. — *Drassodes* species from the Parc national du Mercantour (French Alps), with the description of a new species (Araneae: Gnaphosidae). *Contributions to Natural History* 12: 627-642.
- HERVÉ C., ROBERTS M. J. & MURPHY J. A. 2009. — A taxonomic revision of the genus *Drassodes* Murphy, 2007 (Araneae: Gnaphosidae). *Zootaxa* 2171: 1-28.
- ISAIA M., PANTINI P., BEIKES S. & BADINO G. 2007. — Catalogo ragionato dei ragni (Arachnida, Araneae) del Piemonte e della Lombardia. *Memorie dell'Associazione Naturalistica Piemontese* 9: 1-161.
- ISAIA M., PASCHETTA M., LANA E., PANTINI P., SCHÖNHOFER A. L., CHRISTIAN E. & BADINO G. 2011. — *Subterranean arachnids of the western Italian Alps*. Museo Regionale Scienze Naturali Monografie 47, Torino, xi+325 p.
- ISAIA M., PASCHETTA M. & CHIARLE A. 2015. — Annotated checklist of the spiders (Arachnida, Araneae) of the Site of Community Importance and Special Area of Conservation "Alpi Marittime" (NW Italy), in Dageron C., Deharveng L., Isaia M., Villemant C. & Judson M. (eds), Mercantour/Alpi Marittime All Taxa Biodiversity Inventory. *Zoosystema* 37 (1): 57-114. <http://dx.doi.org/10.5252/z2015n1a4>
- KOVBLYUK M. M., MARUSIK Y. M., PONOMAREV A. V., GNELITSA V. A. & NADOLNY A. A. 2011. — Spiders (Arachnida: Aranei) of Abkhazia. *Arthropoda Selecta* 20: 21-56.
- LE PERU B. 2011. — *The Spiders of Europe, a Synthesis of Data: Volume 1 Atypidae to Theridiidae*. Mémoires de la Société Linnéenne, Lyon 2, 522 p.
- LOKSA I. 1969. — Araneae I. *Fauna Hungariae* 97: 1-133.
- MARAZZI S. 2005. — *Atlante orografico delle Alpi*. SOIUSA. *Suddivisione orografica internazionale unificata del Sistema Alpino* (SOIUSA). Priuli & Verlucca, Torino, 416 p.
- MAURER R. 1992. — Zur Gattung *Cybaeus* im Alpenraum (Araneae: Agelenidae, Cybaeinae) – Beschreibung von *C. montanus* n. sp. und *C. intermedius* n. sp. *Revue suisse de Zoologie* 99: 147-162.
- MAURER, R. & THALER K. 1988. — Über bemerkenswerte Spinnen des Parc National du Mercantour (F) und seiner Umgebung (Arachnida: Araneae). *Revue suisse de zoologie* 95: 329-353.
- MCHEIDZE T. 1964. — [Spiders (Araneina)]. *Zhivotnyi Mir Gruzii. Izd-vo Akademii nauk Gruzinskoi SSR* 2: 48-116 [in Georgian].
- MCHEIDZE T. S. 1997. — [Spiders of Georgia: Systematics, Ecology, Zoogeographic Review]. Tbilisi University, Tbilisi, 390 p. [in Georgian].
- MINELLI A., RUFFO S. & VIGNA TAGLIANTI A. 2006. — The Italian faunal provinces, in RUFFO S. & STOCH F. (eds), *Checklist and Distribution of the Italian Fauna*. Memorie del Museo Civico di Storia Naturale di Verona, 2. serie, Sezione Scienze della Vita 17: 37-39.
- NEGRO M., ISAIA M., PALESTRINI C. & ROLANDO A. 2009. — The impact of forest ski-pistes on diversity of ground-dwelling arthropods and small mammals in the Alps. *Biodiversity and Conservation* 18 (11): 2799-2821.
- OTTO S. 2014. — *Caucasian Spiders. A faunistic database on the spiders of the Caucasus*. Version 1.4. Internet: <http://caucasus-spiders.info/>.
- PESARINI C. 2003. — Araneae, in CERRETTI P., TAGLIAPIETRA A., TISATO T., VANIN S., MASON F. & ZAPPAROLI M. (eds), *Artropodi dell'orizzonte del faggio nell'Appennino settentrionale, Primo Contributo. Conservazione Habitat Invertebrat* 2: 65-69.

- PLATNICK N. I. 2014. — *The World Spider Catalog, version 14.5*. American Museum of Natural History, New York. Available from: <http://research.amnh.org/iz/spiders/catalog> (accessed). <http://dx.doi.org/10.5531/db.iz.0001>.
- POLENEC A. 1985. — Pajki iz gornjega dela selske doline termofilni bukov gozd nad zalim logom, 650 m. *Loski Razgledi* 32: 98-107.
- SIMON E. 1882. — Études arachnologiques. 13^e Mémoire. XX. Descriptions d'espèces et de genres nouveaux de la famille des Dysderidae. *Annales de la Société entomologique de France* (6) 2: 201-240.
- SIMON E. 1914. — *Les arachnides de France*. Tome 6. *Synopsis générale et catalogue des espèces françaises de l'ordre des Araneae; 1^{re} partie*. Volume 6, Roret, Paris, 308 p.
- TAMBS-LYCHE H. 1957. — Spiders from Banyuls. *Vie et Milieu* 8: 111-113.

*Submitted on 6 December 2013;
accepted on 10 June 2014;
published on 27 March 2015.*