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Drassodes species from the Parc national du Mercantour (French Alps), with the description of a new species (Araneae: Gnaphosidae)

Christophe Hervé & Christine Rollard

ABSTRACT

Contrib. Nat. Hist. 12: 627–642.

During a survey of the spider fauna of the Parc national du Mercantour (southern French Alps), four species of *Drassodes* WESTRING, 1851 (sensu stricto) were discovered. *Drassodes thaleri* HERVÉ sp. nov., is described and placed in the newly defined *pubescens*-species-group, which also includes *D. pubescens* (THORELL, 1856) and *D. fugax* (SIMON, 1878). *D. lapidosus inermis* (SIMON, 1878) is revalidated, elevated to species rank and redescribed. A lectotype is designated for *D. difficilis* (SIMON, 1878). New records are given for *D. cupreus* (BLACKWALL, 1834), *D. pubescens* and *D. inermis*.

Keywords: taxonomy, spiders, Gnaphosidae, *Drassodes*, new species, France, Alps, Parc national du Mercantour.

Introduction

Within Gnaphosidae, *Drassodes* WESTRING, 1851 is a very large genus, second only to *Zelotes* GISTEL, 1848. In the catalogue of Platnick (2009), 173 species and subspecies are listed from around the world; 59 of them are known from the western Palaearctic (Canard 2005). As noted by Platnick & Shadab (1976), many species of this genus are currently misplaced, particularly those described under *Drassus* WALCKENAER, 1805, which were automatically transferred to *Drassodes* when *Drassus* was synonymized with *Gnaphosa* LATREILLE, 1804 (Simon 1893: 340). The genus *Drassodes*, originally described for one species ("*Drassus lapidicola*"), then became a wastebasket taxon, including the majority of the species previously described in the family Gnaphosidae. To reflect the resultant morphological heterogeneity in somatic and genitalic characteristics, Simon (1893, 1914) divided *Drassodes* into species-groups,

four of which concern the French fauna: the *lapidosus*-group, the *rhodanicus*-group, the *signifer*-group and the *hypocrita*-group. The species of the latter two groups are now placed in the genera *Haplodrassus* CHAMBERLIN, 1922 and *Drassodex* MURPHY, 2007, respectively (Murphy 2007, Hervé & al. 2009). The present paper deals only with species of Simon's first group, corresponding to *Drassodes* *sensu stricto*.

Around 15 species and subspecies of *Drassodes* are present in France. Some of these are common and well known in Europe or the Palaearctic, while others are only known from the western Mediterranean or from southern France (Canard 2005, Le Peru 2006). Between 2004 and 2006, we surveyed the spider fauna of the Parc national du Mercantour, situated in the southern part of the French Alps, near the Mediterranean. The spider biodiversity of this area is interesting for several reasons: its geographical position, between four major climatic influences (Alpine, Ligurian, Mediterranean and Provencal), providing a large range of habitats; the relatively poor knowledge of the French Alpine fauna; and the high number of endemic species in other groups of animals and plants. Since the publication of Simon's synopsis of the French spider fauna, between 1914 and 1937, very few records have been published for the Alpes Maritimes. Concerning the park, only Berland (1935) and Maurer & Thaler (1988) published about spiders collected by them. The latter paper is particularly interesting, concentrating on some little known (and partly endemic) spiders, and including the description of a new species of Linyphiidae.

The new survey of the spider fauna of the Parc national du Mercantour produced several *Drassodes* species, but several taxonomic problems became apparent during the examination of the material. The aim of this study is to clarify the identities of some new or little known species of *Drassodes*.

Material and Methods

Most of the specimens were collected by hand in the Parc national du Mercantour (PNM). The park is divided into two administrative zones, a central zone (CZ) delimited as a protected area, and a peripheral zone (PZ). Specimens of *Drassodes* were found under stones at moderate to high altitudes, from the end of spring (June) to the beginning of autumn (September). The other material examined comes from the Simon collection in the Muséum national d'Histoire naturelle, Paris, France (MNHN) and the Maurer collection in the Naturhistorisches Museum, Basel, Switzerland (NMB). All the material collected by us in the park is deposited in MNHN. Epigynes were cleaned in dilute potassium hydroxide and cleared in lactic acid.

Other abbreviations:

AR	Araignées (standard prefix for the spider collection in the MNHN)
ARM	ARaignées Mercantour (collectors' prefix for the Mercantour spiders, now deposited in the MNHN)
RTA	retrolateral tibial apophysis
d	dorsal
p	prolateral
r	retrolateral
v	ventral

For each leg segment armed with spines, the sequence of spines in notations is basal-median-apical (e.g. tibiae III v1p-1p(2)-2 means that tibiae III possess one basal prolateral, one medial prolateral (or two) and two apical ventral spines). All measurements are in mm.

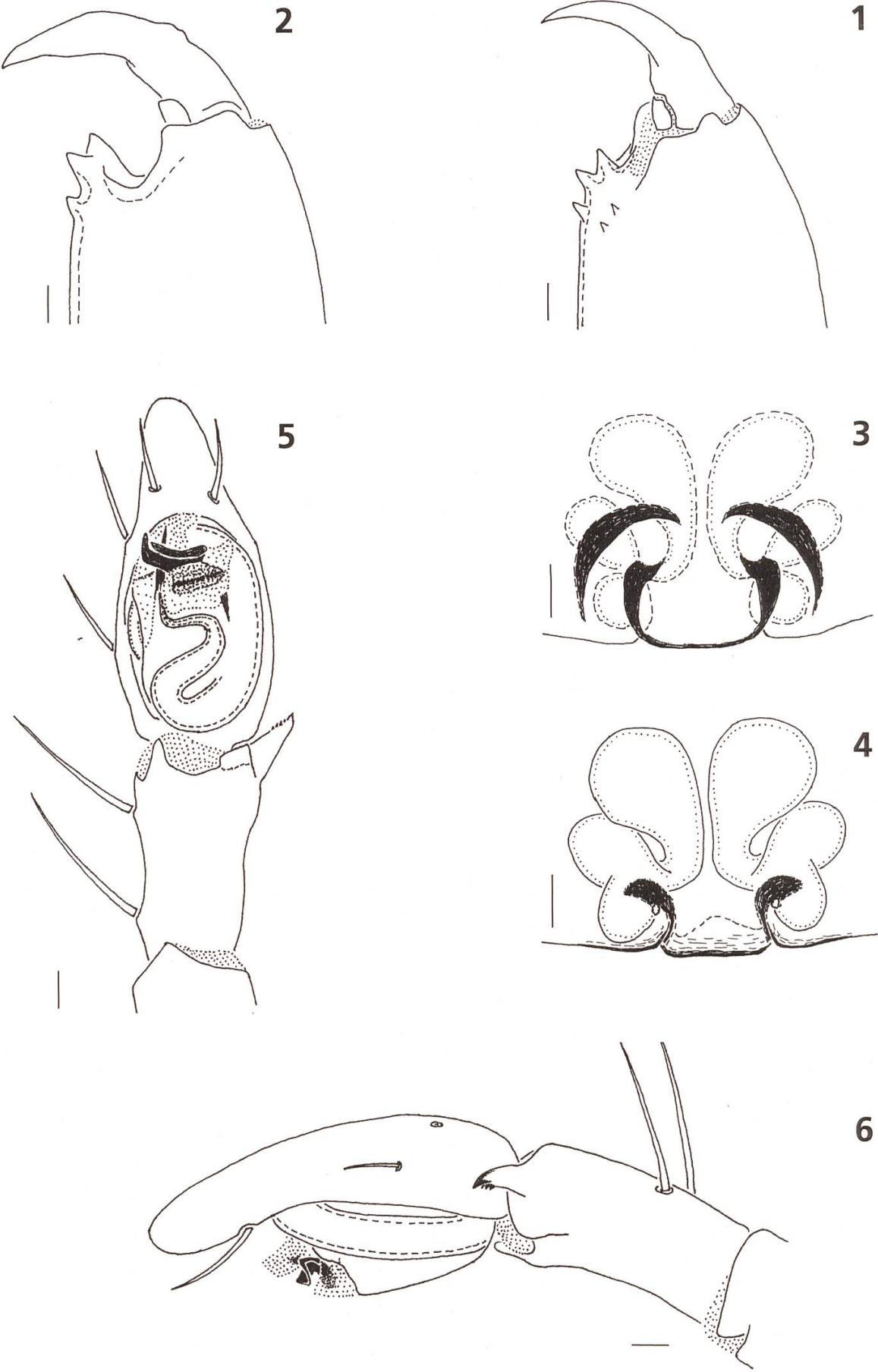
Records and Descriptions

Drassodes cupreus (BLACKWALL, 1834)

See Platnick (2009) for synonymies.

Material examined: France, Alpes-Maritimes, PNM: Casterino (PZ), Baisse de Peïrefique, 2050 m, 8 July 1983, larch forest, 1 ♀ and 1 ♂, leg. R. Maurer (no. 172/173, NMB); Col de Turini (PZ), about 1500 m, 10 July 1983, fir forest, 1 ♂, leg. R. Maurer (no. 175, NMB); Vallon de Sestrière (CZ), 2050 m, 28 June 2005, stone-drain in larch forest, 1 ♀, leg. C. Hervé (ARM104); Saint-Etienne-de-Tinée (PZ), La Tinée river, 1140 m, 29 June 2005, under stones along river, 3 ♀, leg. C. Hervé (ARM109 & ARM110); Camp des Fourches (CZ), 2280 m, 1 July 2005, rocky debris in alpine meadow, 1 ♀, leg. C. Hervé (ARM116).

Taxonomy: Recently, Bolzern & Hänggi (2006) provided evidence indicating the impossibility of using current somatic and genitalic characters to distinguish *Drassodes lapidosus* (WALCKENAER, 1802) from *Drassodes cupreus*. Nevertheless, they did not follow the opinion of Grimm (1985), who synonymized *D. cupreus* with *D. lapidosus*. In a revision of the genus *Drassodes* in the Urals, Esyunin & Tuneva (2001) did not assign their specimens to one or the other species, referring them to just the *cupreus*-form. All the material examined here is assigned to *D. cupreus* (only the male no. 175 might be *D. lapidosus*, sensu Roberts 1995), according to the opinion of Thaler (1981), who considered that *D. cupreus* is more often found at high altitudes than *D. lapidosus*.



Figs. 1-6. *Drassodes pubescens* (THORELL, 1856). – 1: left female chelicera, ventral view; – 2: left male chelicera, ventral view; – 3: epigyne; – 4: spermathecae; – 5: left male palp, ventral view; – 6: left male palp, retro-lateral view. Specimen male from France (AR9349), female from Mercantour park (ARM075). Scale lines 0.1 mm.

***Drassodes pubescens* (THORELL, 1856) (Figs. 1–6)**

See Platnick (2009) for synonymies.

Material examined : France, Alpes-Maritimes, PNM, Massif de l'Authion (CZ), 17 June 2005: Basse de Tueis, 1900 m, alpine meadow, under stones, 2 ♀, leg. C. Hervé (ARM075); Milles Fourches, 2000 m, alpine meadow with larch trees, under stone, 1 ♀, leg. C. Hervé (ARM077).

Diagnosis: *D. pubescens* is easily distinguished from other species of the newly described *pubescens*-group (see below under *D. thaleri* sp. nov.) by his cheliceral dentition, with the medium and apical teeth partly fused and raised on a common base, forming a deep notch between them and the fang base (more attenuated in females than in males, Figs. 1–2), the bifid median apophysis of the bulb and the rectangular epigynal midpiece, about two times longer than broad, closely surrounded by lateral pouches, which are strongly curved and convergent anteriorly.

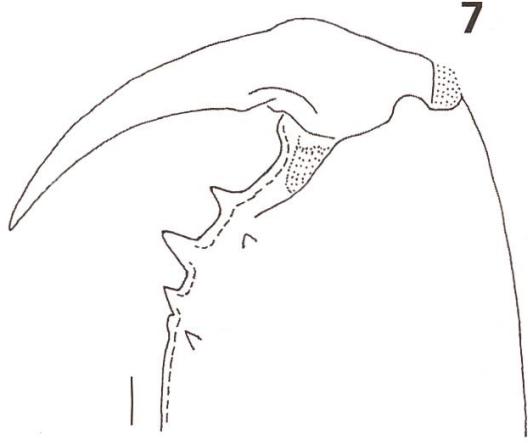
***Drassodes thaleri* HERVÉ sp. nov. (Figs. 7–12)**

Drassodes difficilis; Simon (1914): 130 (misidentification, in part: footnote 1)

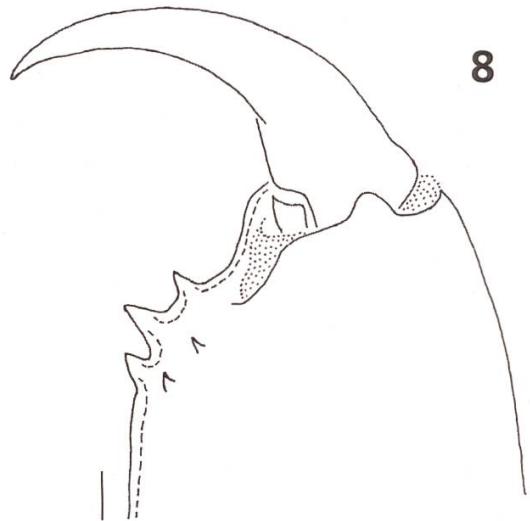
Type material: Holotype male and 5 paratype females, France, Alpes-Maritimes, PNM (CZ), Vallée des Merveilles, Basse de Valmasque, 2330 m, 15 June 2005, scree, leg. C. Hervé, (ARM069).

Other material examined: France: no specific locality, 2 ♀, labelled "épigyne anormal", Simon collection no. 23884 (det. *D. difficilis* by Simon) (AR9346).

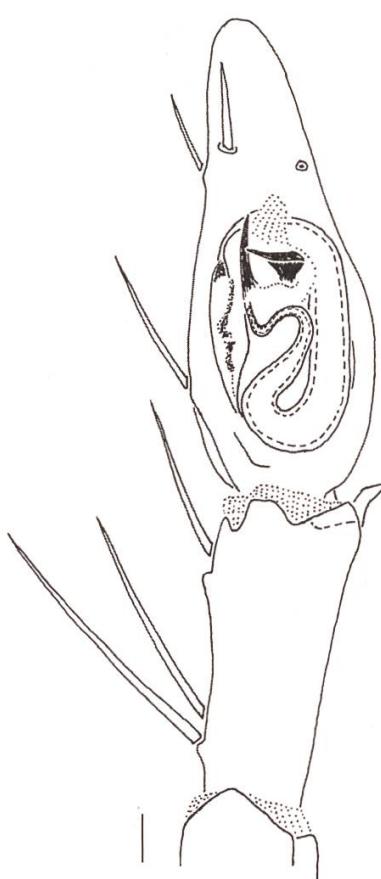
Alpes-de-Haute-Provence, PNM (CZ): Lac d'Allos and Col de Valgelaye, July 1914, 1 ♀ and 4 ♂, Simon collection no. 24759 (det. *D. difficilis* by Simon) (AR9350), 28 ♀ and 1 ♂, Simon collection no. 24758 (det. *D. villosus* by Simon) (AR9053); Lac d'Allos, 1 ♀ and 1 ♂, leg. L. Fage (det. *D. villosus* by Fage) (AR9058); Caserne de Restefond, 2560 m, 14 Aug. 2004, alpine meadow, under stone, 1 ♂, leg. C. Hervé (ARM024); Lac des Garrets, 2680 m, 17 Aug. 2004, matrix outcrop, 1 ♂, leg. C. Hervé (ARM035); Col de la Cayolle, L'Eschillon, 2350 m, 2 July 2005, scree, 1 ♀, leg. C. Hervé (ARM121); La Tellière, 1410 m, 4 July 2005, matrix outcrop, 7 ♀ and 1 ♂, leg. C. Hervé (ARM124); L'Enchastraye, 2385 m, 5 July 2005, scree with vegetation, 7 ♀ and 1 ♂, leg. C. Hervé (ARM132); La Tellière, 1965 m, 9 Sept. 2005, stone-drain, 1 ♂, leg. C. Hervé (ARM141).



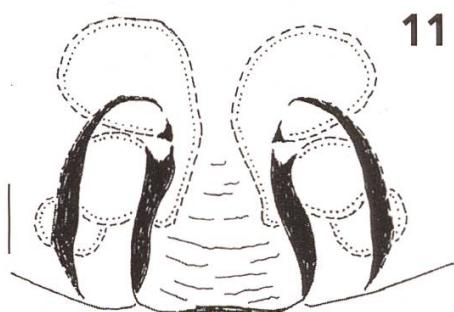
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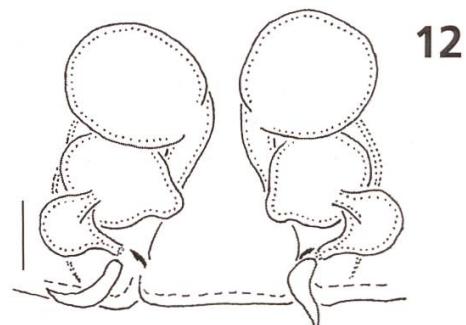
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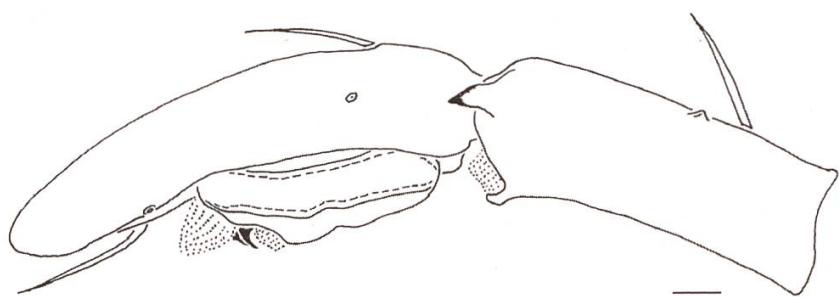
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Figs. 7–12. *Drassodes thaleri* HERVÉ sp. nov. – 7: left male chelicera, ventral view; – 8: left female chelicera, ventral view; – 9: left male palp, ventral view; – 10: left male palp, retrolateral view; – 11: epigyne; – 12: spermathecae. Holotype male and paratype female from Mercantour park (ARM069). Scale lines 0.1 mm.

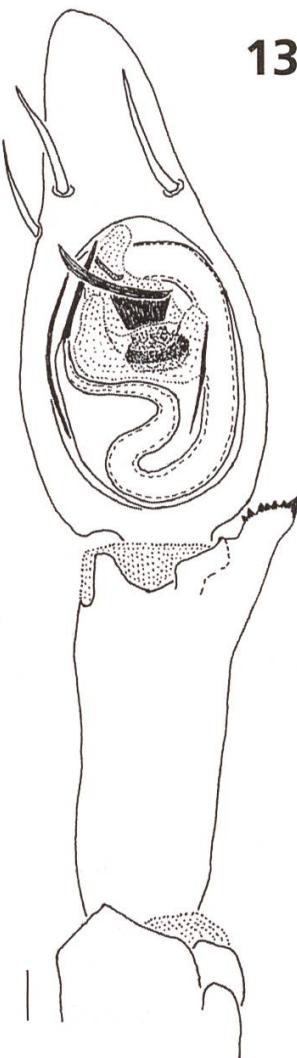
Alpes-Maritimes, PNM: La Madone de Fenestre (PZ), 15 Sept. 1915, 1 ♀, Dalmas collection no. M612 (det. *D. villosus* by Dalmas) (AR9055); Casterino (PZ), Basse de Peïrefique, 2050 m, 8 July 1983, larch forest, under stones, 2 ♀, leg. R. Maurer (no. 172/173, NMB); Vallée des Merveilles (CZ), Lac Mouton, 2190 m, 10 Aug. 2004, scree, 4 ♀ and 2 ♂, leg. C. Hervé (ARM002); Lac Autier (CZ), 2280 m, 12 Aug. 2004, alpine meadow, under stones, 3 ♀, leg. C. Hervé (ARM015); Vallon de Mollières (CZ), 720 m, 13 Aug. 2004, pine forest, under stone, 1 ♂, leg. C. Hervé (ARM021); Col de La Lombarde (PZ), 2210 m, 13 Aug. 2004, wet scree, 2 ♀, leg. C. Hervé (ARM022); Le Boréon (CZ), Chalet Vidron, 1750 m, 23 June 2005, stone-drain with vegetation, 1 ♀, leg. C. Hervé (ARM094); Vallon de la Braisse (CZ), La Braissaraisse, 2370 m, 27 June 2005, rocky debris, 3 ♀, leg. C. Hervé (ARM098); Vallon de Sagnas (CZ), 2270 m, 28 June 2005, alpine grassland, under stones, 1 ♀ and 1 ♂, leg. C. Hervé (ARM103); Vallon de Gialorgues (CZ), Lac de Gialorgues, 2390 m, 30 June 2005, scree with vegetation, 2 ♀, leg. C. Hervé (ARM113); Salso Moréno (CZ), Vallon de la Gipière, 2135 m, 1 July 2005, dry river-bed, 1 ♂, leg. C. Hervé (ARM115); Camp des Fourches (CZ), 2280 m, 1 July 2005, alpine grassland with *Festuca* sp., under stone, 1 ♀, leg. C. Hervé (ARM116).

Comparative material examined: *D. fugax* (SIMON, 1878), 30 ♀ and 5 ♂, probably syntypes, Alps and Spain, no specific locality, Simon collection no. 2074 (AR9198). *D. pubescens*, 50 ♀ and 9 ♂, France, no specific locality, Simon collection no. 2016 (AR9349).

Etymology: The specific epithet is a patronym in honour of the late Prof. Konrad Thaler, University of Innsbruck, Austria, who made an immense contribution to the knowledge of the arachnological fauna of the Alps.

Description:

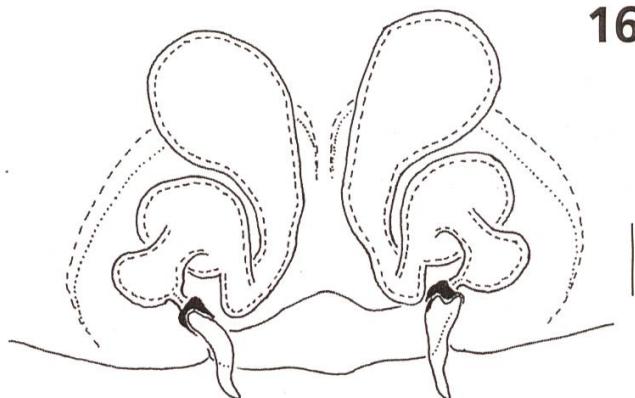
Male (Holotype): Total length 10.01. Carapace 4.13 long, 2.79 wide. Tibiae IV 3.27 long. Carapace yellow-brown, with a very weak brown edging, darker towards the distal end of the cephalic region. Sternum pale brown with dark margins. Abdomen pale grey-brown with six darker inconspicuous grey marks. Chelicerae brown, with two small retromarginal denticles, often widely separated, and three promarginal teeth, medium largest and much nearer basal one (Fig. 7). Palpal femur with one dorsomedial spine and three dorsodistal spines, often a fourth in retrolateral position. Spination of the palpal tibia and cymbium as in Figs. 9–10. RTA short, sharp-pointed and not denticulated. Embolus short, slightly curved and thick at the base. Median apophysis of the bulb broad, transverse, keeled and pointed toward the embolus, reaching it scarcely (Fig. 9). Leg formula 4123. Tarsi I–IV and metatarsi I–II with scopula hairs ventrally. Typical leg spination pattern: femora: I d1-1-0, p0-0-1; II d1-1-



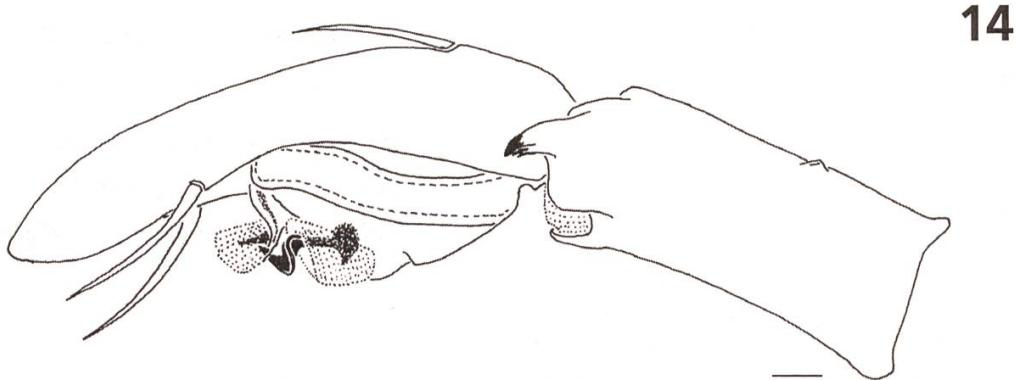
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Figs. 13–16. *Drassodes fugax* (SIMON, 1878). – 13: left male palp, ventral view; – 14: left male palp, retrolateral view; – 15: epigyne; – 16: spermathecae. Specimens male and female from Alps and Spain (AR9198). Scale lines 0.1 mm.

0, p0-1-1; III, IV d1-1-1, p0-1-1, r0-1-1; tibiae: I, II v0-1p-0; III d1-0-0, p1-1-1, v1p-2(1p)-2, r0(1)-1-1; IV d1-1-0, p1-1-1, v2-2-2, r1-1-1; metatarsi: I, II v1p-0-0; III p1-2-2, v2-2-2, r2(1)-2(1)-2; IV p1-2-2, v2-2-2, r2-2-2.

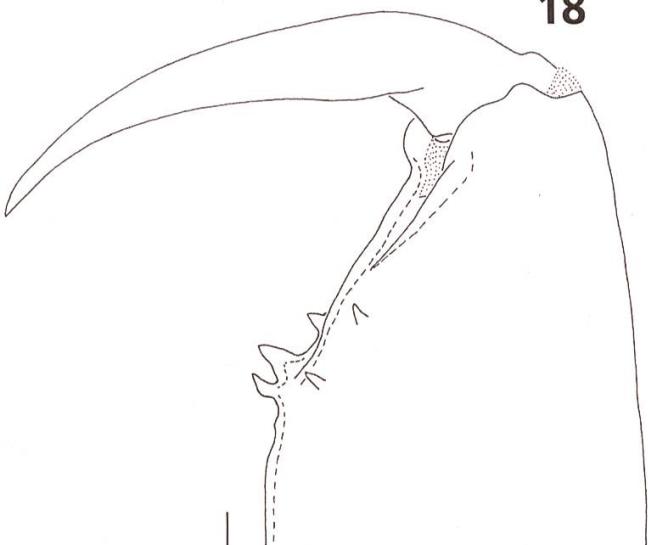
Female (5 paratypes): Total length 10.77–13.27. Carapace 4.28–5.01 long, 3.13–3.56 wide. Tibiae IV 3.08–3.7 long. Females similar to males except the two small retromarginal denticles of the chelicerae which are much less separated (Fig. 8). Epigyne with weakly curved lateral pouches, reaching the epigastric furrow, converging anteriorly but widely separated. Epigynal midpiece well isolated from the lateral pouches, a little longer than wide, trapezoidal (Fig. 11). Trilobed spermathecae (Fig. 12). Typical leg spination pattern: femora: I d1-1-0, p0-0-1; II d1-1-0, p0-1-1; III, IV d1-1-1, p0-1-1, r0-1-1; tibiae: I, II v0-1p-0; III d1-0-0, p1-1-1, v1p-1p-2, r0-1-1 or 1-1-1; IV d1-1-0, p1-1-1, v2-2-2, r1-1-1; metatarsi: I, II v1p-0-0; III p1-2-2, v2-2-2, r2(1)-2(1)-2; IV p1-2-2, v2-2-2, r2-2-2.

Diagnosis: *D. thaleri* sp. nov. is closely related to *D. pubescens* and *D. fugax*, with which it forms a distinct group in *Drassodes*, here named the *pubescens*-group. This group can be defined by the particular shape of the median apophysis of the bulb, which is broad, transverse, keeled and pointed towards the embolus (Figs. 5, 9, 13), the shape of the lateral pouches surrounding the epigynal midpiece, which are long, fairly curved and convergent anteriorly, and the trilobed spermathecae (Figs. 4, 12, 16). *D. thaleri* sp. nov. can be distinguished from the other species of the group by the very short undivided tip of the median apophysis (bifid in *D. pubescens*, long in *D. fugax*) (Fig. 9), the absence of denticulations on the RTA (denticulated RTA in *D. pubescens* and *D. fugax*) (Figs. 9–10), the trapezoidal shape of the epigynal midpiece (rectangular in *D. pubescens* and anchor-shaped in *D. fugax*) and the slightly convergent lateral pouches of the epigyne (strongly curved and convergent in *D. pubescens* and *D. fugax*) (Fig. 11).

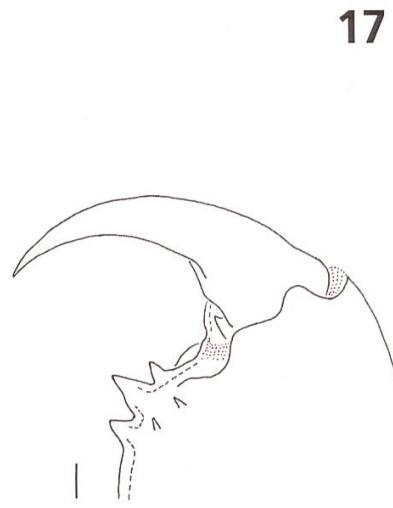
Remarks: Many specimens belonging to this species were already present in the MNHN spider collections, but they had all been misidentified as either *D. difficilis* or *D. villosus*. For example, the females in vial AR9346 had been identified as abnormal specimens of *D. difficilis* by Simon (1914: 130, footnote 1).

D. caspius PONOMAREV & TSVETKOV, 2006, described from Kazakhstan, clearly belongs to the *pubescens*-group: the median apophysis of the bulb and the cheliceral dentition of the male, the shapes of the midpiece and the lateral pouches of the epigyne, and the apparently trilobed spermathecae, are very similar to that observed in *D. pubescens* (cf. figs. 9–11 in Ponomarev & Tsvetkov 2006). *D. cupa* TUNEVA, 2005, also described from Kazakhstan, might belong to this species group, according to the shape of the median apophysis of the bulb (cf. figs. 1–3 in Tuneva 2005).

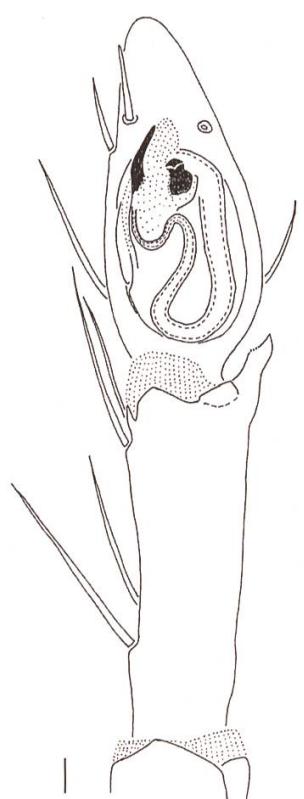
Habitat: This species is common at high altitudes of the southwestern French Alps, often above 2000 m. Nevertheless, it was also found it in a pine forest at 720 m in the present survey. It occurs in typical Alpine habitats, such



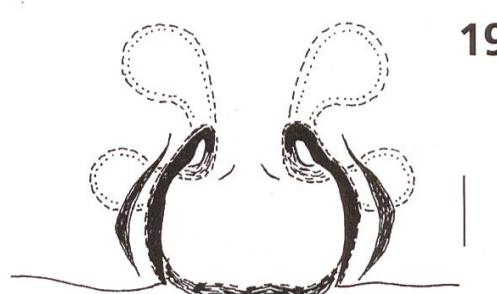
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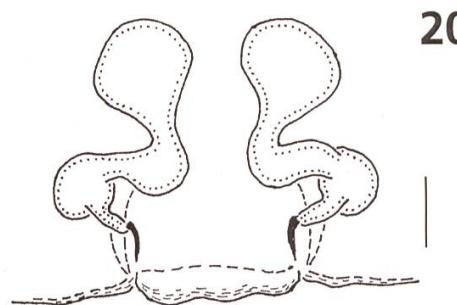
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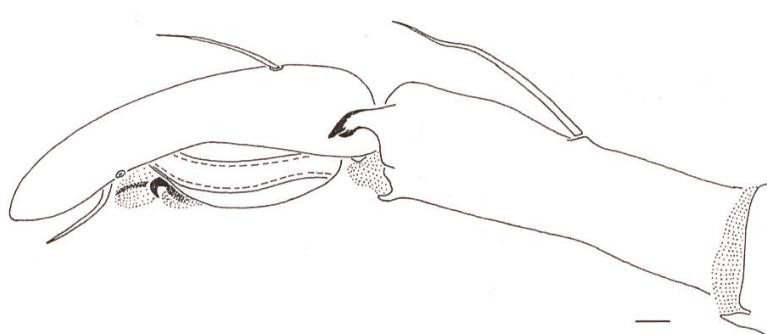
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Figs. 17–22. *Drassodes inermis* (SIMON, 1878): – 17: left female chelicera, ventral view; – 18: left male chelicera, ventral view; – 19: epigyne; – 20: spermathecae; – 21: left male palp, ventral view; – 22: left male palp, retrolateral view. Specimens male and female from Mercantour park (ARM075). Scale lines 0.1 mm.

as screes, stone-drains, matrix outcrops, meadows and grasslands, in all cases being found under stones or rocks.

Distribution: All the material examined comes from the southwestern French Alps. An examination of collections from other countries bordering the Alps might extend the range of this species.

***Drassodes inermis* (SIMON, 1878), new rank (Figs. 17–22)**

Drassus lapidosus inermis SIMON, 1878; Simon (1878): 103, 109, male.

Drassus difficilis; Simon (1878): 105, 110, female (misidentification).

Drassodes villosus; Simon (1914): 125, 207, fig. 197, male (misidentification, in part).

Drassodes difficilis; Simon (1914): 130, 206, fig. 211, female (misidentification).

Type material: Probable syntypes of *D. lapidosus inermis* (SIMON, 1878): 5 ♂, France, Alpes-de-Haute-Provence, Simon collection no. 2012 (AR9044).

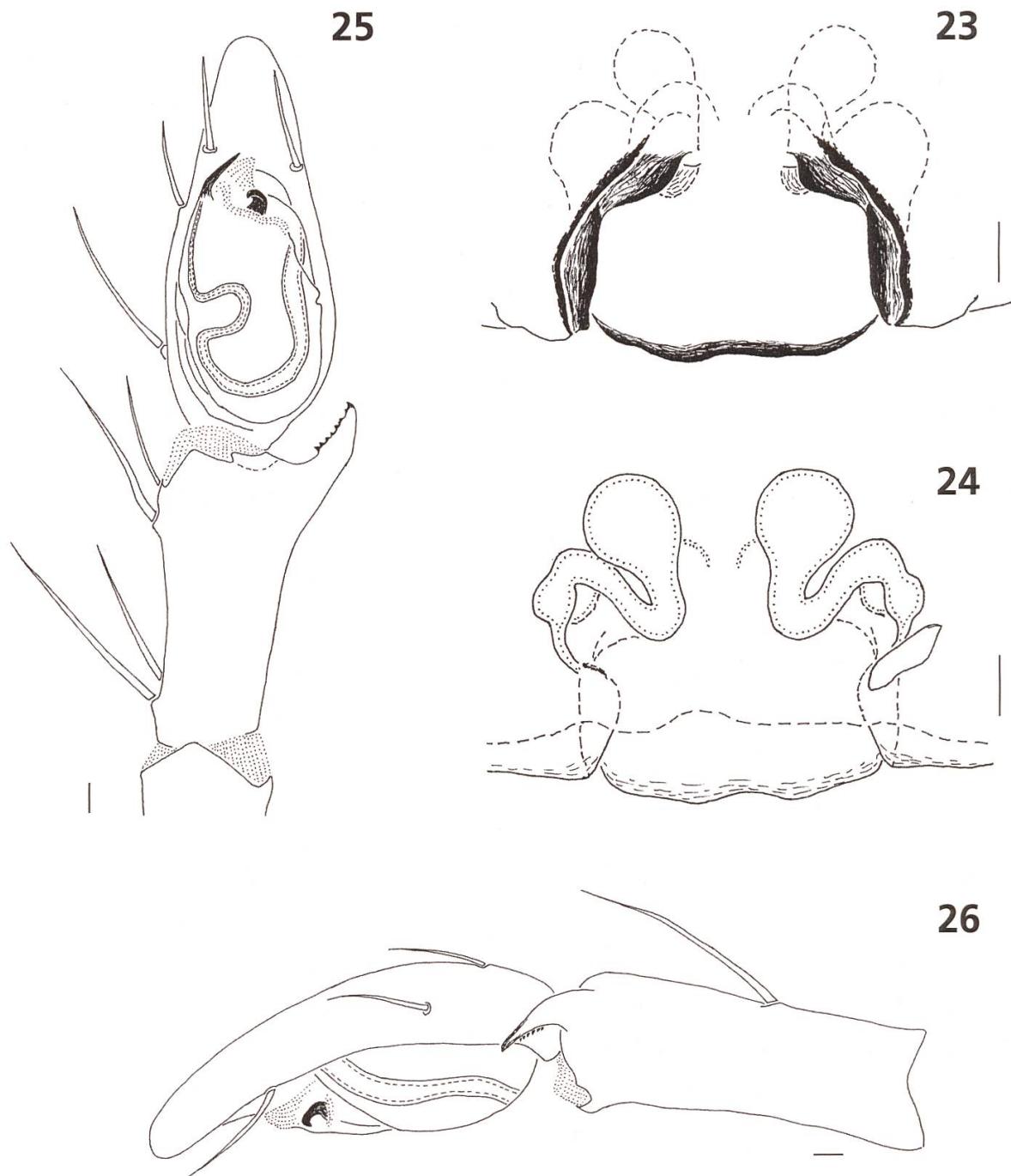
Other material examined: France: Alps, no specific locality, 1 ♂, Simon collection no. 2017 (det. *D. villosus* by Simon) (AR9046).

Alpes-de-Haute-Provence, PNM (CZ), Lac d'Allos and Col de Valgelaye, July 1914, 2 ♂, Simon collection no. 24758 (det. *D. villosus* by Simon) (AR9053), 1 ♀, Simon collection no. 24759 (det. *D. difficilis* by Simon) (AR9350).

Alpes-Maritimes, PNM: Beuil (PZ), Mont Pommier, 2 ♂, leg. C. Fagniez, Simon collection no. 25711 (det. *D. villosus* by Simon) (AR9057); Massif de l'Authion (CZ): Le Plan Caval, 1925 m, 11 Aug. 2004, alpine meadow, under stone, 1 ♀, leg. C. Hervé (ARM014), Baisse de Tueis, 1900 m, 17 June 2005, alpine meadow, under stones, 2 ♀ and 7 ♂, leg. C. Hervé (ARM075).

Comparative material examined: *D. villosus* (THORELL, 1856): 1 ♂, Norway, Konsberg, 15 Sept. 1899, Strand collection no. 442 (AR9049); 1 ♀, Norway, Aal, 1898, Strand collection no. 427 (AR9056). *D. difficilis* (SIMON, 1878), 6 ♀ and 2 ♂, probably syntypes, Alps, no specific locality, Simon collection no. 2021 (AR9348).

Remarks: During a preliminary examination of the material collected in the park, it was difficult to associate these specimens with a specific name. Although the females correspond well with previous descriptions of *D. difficilis* (Simon 1878, 1914) and the presumed female types of that species, the males do not agree with either the published descriptions or the male type material in the same vial (AR9348). Instead, these males correspond better to the presumed type material of *D. lapidosus inermis*.



Figs. 23–26. *Drassodes villosus* (THORELL, 1856). – 23: epigyne; – 24: spermathecae; – 25: left male palp, ventral view; – 26: left male palp, retrolateral view. Specimens male and female from Norway (AR9049 and AR9056). Scale lines 0.1 mm.

D. lapidosus inermis was described by Simon (1878) on the basis of male specimens only. This subspecies was later synonymised with *D. villosus* by Simon (1914: 207). Examination of the presumed type material of *D. lapidosus inermis* (MNHN AR9044) showed that these specimens are very similar to males of *D. villosus*, which explains why Simon synonymised them. However, there are differences in the shape of the RTA and in the structure of the bulb (Figs. 21–22, 25–26), which justify the recognition of *D. inermis* as a separate species.

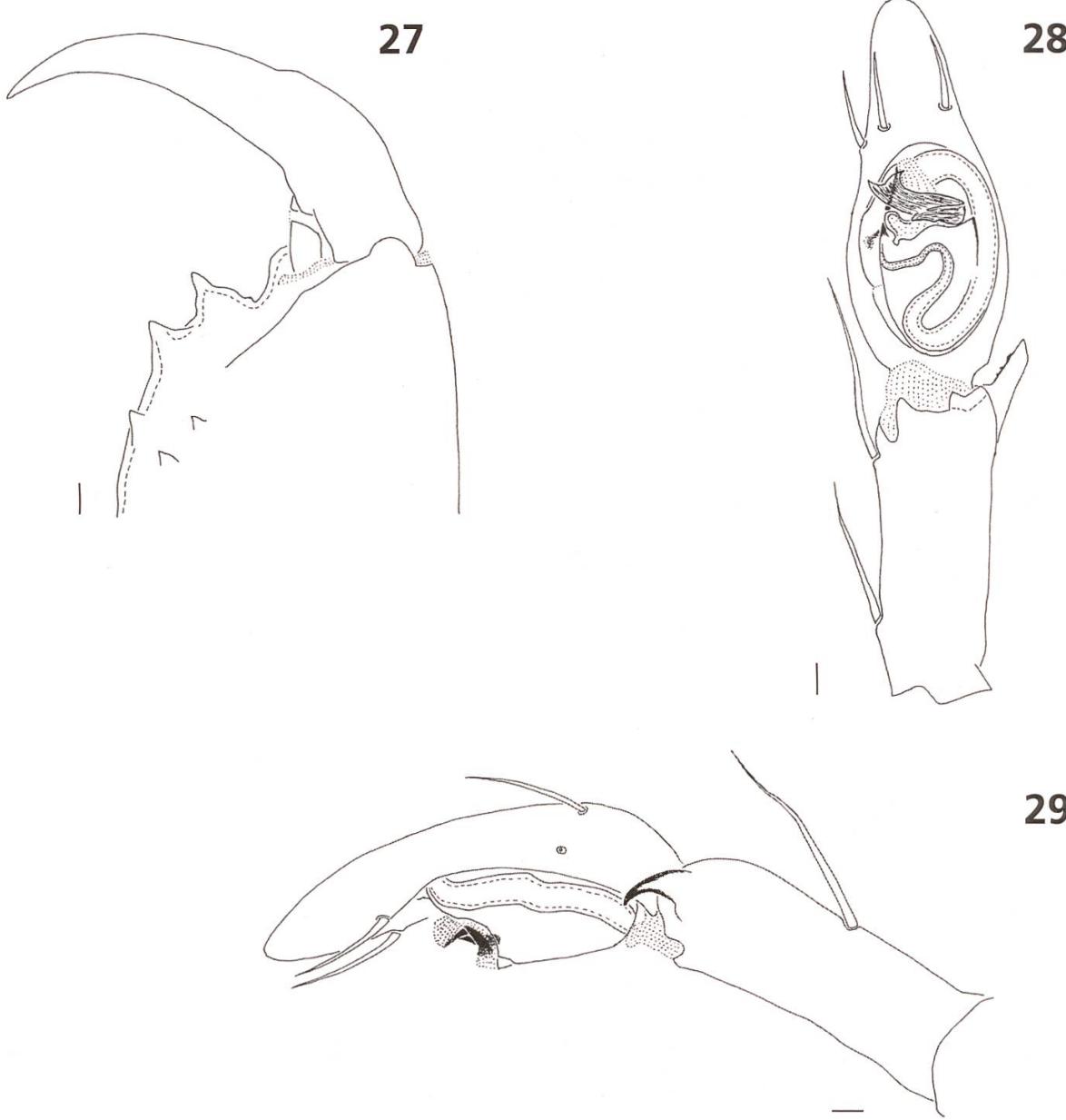
Examination of presumed type material of *D. difficilis* (AR9348) showed that the female genitalia are very similar to those of *D. villosus*, the only differences being in the size of the epigynal midpiece and the shape of the vulva (Figs. 19–20, 23–24), whereas the male genitalia have a median apophysis, somewhat similar to the *pubescens*-group, but not keeled (Fig. 28).

We therefore have two possibilities for matching the female of *D. difficilis*: it can either be associated with the male of *D. difficilis* (as in vial AR9348), or with the male of *D. lapidosus inermis* (as in our sample ARM075). The latter possibility is preferred here, considering that this combination between male and female is very similar to that observed in *D. villosus*. Thus, only the male syntypes of *D. difficilis* are considered to belong to this species and the true female of *D. difficilis* remains unknown. In the interests of nomenclatural stability, we therefore designate one of the males (AR9348) as lectotype of *D. difficilis*.

Redescription:

Male (7 specimens examined): Total length 7.69–12.21. Carapace 3.46–5.19 long, 2.64–3.89 wide. Tibiae IV 2.98–3.75 long. Males similar to females except in the following characteristics: chelicerae long, brown, with two retromarginal denticles and three promarginal teeth, apical one a little more isolated and smallest (Fig. 18). Spination of the palpal tibia and cymbium as in Figs. 21–22. In ventral view, RTA is fairly long, bevelled, with only few minute denticulations on the internal side (Fig. 21). In retrolateral view, the RTA is regularly curved, only denticulated under the tip (Fig. 22). Embolus fairly strong at the base and curved towards the median axis of the cymbium. Seminal duct strongly arched, the loop almost reaching the base of the median apophysis. Median apophysis short and hook-like (Fig. 21). Typical leg spination pattern: femora: I d1-1-0, p0-0-1; II d1-1-0, p0-1-1; III, IV d1-1-1, p0-1-1, r0-1-1; tibiae: I, II v0-1p-0; III d1-0-0, p1-1-1, v1p-1p(2)-2, r1(0)-1-1; IV d1-1-0, p1-1-1, v2(1p)-2-2, r1-1-1; metatarsi: I, II v1p-0-0; III p1-2-2, v2-2-2, r1-2-2; IV p1-2-2, v2-2-2, r2-2-2.

Female (9 specimens examined): Total length 9.81–13.17. Carapace 3.85–5.34 long, 2.64–3.80 wide. Tibiae IV 2.93–3.85 long. Carapace yellow brown, with grey edging, darker in cephalic region, which is covered with thin white hairs, as the sides of thoracic region. Abdomen with satiny grey coloration, six inconspicuous dark grey marks and traces of a darker cardiac mark anteriorly and chevrons posteriorly. Sternum yellow with brown margins. Chelicerae brown, with two small retromarginal denticles and three promarginal teeth (medium largest, basal smallest) (Fig. 17). Palpal femur with one dorsomedial spine and three dorsodistal spines. Epigynal midpiece rectangular, bounded anteriorly



Figs. 27–29. *Drassodes difficilis* (SIMON, 1878). – 27: left male chelicera, ventral view; – 28: left male palp, ventral view; – 29: left male palp, retrolateral view. Specimen male from Alps (AR9348). Scale lines 0.1 mm.

by two small depressions and laterally by thin and slightly curved pouches, almost reaching the epigastric furrow (Fig. 19). Spermathecae with two distinct lobes, the basal smaller than the distal, connected by a short right-angled duct (Fig. 20). Leg formula 4123. Tarsi I–IV and metatarsi I–II with scopula hairs ventrally. Typical leg spination pattern: femora: I d1-1-0, p0-0-1; II d1-1-0, p0-1-1; III, IV d1-1-1, p0-1-1, r0-1-1; tibiae: I, II v0-1p-0; III d1-0-0, p1-1-1, v1p-1p(2)-2, r0-1-1 or 1-1-1; IV d1-1-0, p1-1-1, v1p(2)-2-2, r1-1-1; metatarsi: I, II v1p-0-0; III p1-2-2, v2-2-2, r2-2-2; IV p1-2-2, v2-2-2, r2-2-2.

Diagnosis: *D. inermis* seems to be closely related to *D. villosus*, based on the shape of the external and internal female genitalia. However, *D. inermis*

can be distinguished by a clearly smaller epigynal midpiece than that of *D. villosus* (Figs. 19, 23) and a distinct lobe in the lateral right-angled duct of the spermathecae (*D. villosus* has a hairpin-like duct, swollen just before the copulatory orifice) (Figs. 20, 24). The RTA of the *D. inermis* male is less diverging and denticulate than in *D. villosus* (in which it is strongly diverging and has the whole of the internal side denticulate) (Figs. 21–22, 25–26) and the loop of the seminal duct is directed towards the median apophysis of the bulb (versus directed towards the retrolateral side of the bulb in *D. villosus*) (Figs. 21, 25).

Habitat: Very little information is available concerning the habitat of this Alpine species. During the present survey it was only found under stones in meadows.

Distribution: Because this species was long considered a synonym of *D. villosus*, its true distribution remains poorly understood. Most of the material examined comes from the southwestern French Alps, but we have also seen specimens from southeastern France (Var: Mont Aigoual; Vaucluse: Mont Ventoux). Previous records of *D. villosus* from the northwestern Mediterranean basin need to be verified.

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