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A Review of the Zelotine Ground Spider Genus *Setaphis* (Araneae, Gnaphosidae)

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ABSTRACT

The genus *Setaphis* Simon has been thoroughly misconstrued; most of the species currently assigned to the genus are not congeneric with its type species. Numerous species that do belong to *Setaphis* have been described, but have been misplaced in other genera. Twenty taxa are transferred to *Setaphis*: *Camillina mollis* (O. P.-Cambridge) from North Africa, *C. simplex* (Simon) from Tunisia, *C. fuscipes* (Simon) from Algeria and Tunisia, *C. subtilis* (Simon) from Oman, *C. lubrica* (Simon) from India, *C. algerica* Dalmas from Algeria, *C. browni* Tucker and *C. lutea* Tucker from South Africa, *C. berlandi* Denis from Egypt, *C. villiersi* Denis from Nigeria, *C. vivesi* Marinaro from Algeria, *Drassodes oppenheimeri* Tikader and *Nodocion mandae* (Tikader and Gajbe) from India, *Zelotes carmeli* (O. P.-Cambridge) from the Mediterranean region, *Z. brachialis* (Garneri) from

Sardinia, *Z. caporiaccoi* Roewer from North Africa, *Z. spiribulbis* Denis from Morocco, *Z. convolutus* Denis from Yemen, *Z. gomeræ* Schmidt from the Canary Islands, and *Z. stylus* Di Franco from North Africa. Pavesi's synonymy of *S. suavis* (Simon) with *S. parvula* (Lucas) is accepted; eleven other specific names are newly synonymized: *S. brachialis* with *S. carmeli*, *S. vivesi* with *S. algerica*; *S. lubrica*, *S. lutea*, *S. berlandi*, *S. convolutus*, and *S. oppenheimeri* with *S. subtilis*; *S. caporiaccoi* and *S. stylus* with *S. simplex*; *S. mandae* with *S. browni*; and *S. fibulata* (Berland) with *S. atlantica* (Berland). Three new species are described: *S. jocquei* from the Ivory Coast, and *S. walteri* and *S. wunderlichi* from the Canary Islands. The males of *S. villiersi*, *S. mollis*, *S. browni*, and *S. canariensis* are described for the first time.

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INTRODUCTION

The systematics of many groups of spiders is based on distressingly flimsy foundations. As in most other groups of arthropods, numerous species and genera were established by 19th and early 20th century authors, who generally worked in near (or total) isolation from each other, and who relied almost exclusively on the published literature for information on the taxa described by their colleagues. Such a system might have proved feasible had those authors routinely supplied illustrations for each species described, but illustrations are generally lacking in literature of that era. It is not surprising, under these circumstances, that the same taxon was often described more than once, or that the same name was used to refer to entirely different taxa.

We report here on one of the more egregious examples of such confusion. The spiders involved are easily recognizable; they are zelotine gnaphosids (i.e., ground spiders possessing a distinctive metatarsal preening comb) with striking genitalic features in both sexes. Males have a distal, coiled embolus (figs. 1, 2), and females have similarly coiled epigynal ducts (figs. 3, 4). In both sexes, these genitalic features appear to be unambiguously synapomorphic for the group, within the larger context of zelotines in general.

So far as we are aware, the only generic name available for these taxa is *Setaphis* Simon (1893a). The type species of *Setaphis* is *Prothesima suavis* Simon (1878), based on specimens from France and Algeria. In the original description of that species, Simon (1878: 78) indicated that he would have described a new genus for it had not a Mediterranean species currently known as *Zelotes carmeli* (O. P.-Cambridge) seemed intermediate between *P. suavis* and the more typical species now placed in *Zelotes* Gistel. After the description of *Setaphis*, Simon retained *Z. carmeli* in the large genus *Zelotes* (as the only member of one of the three species groups he recognized, group C of Simon, 1914), although he did note that *Z. carmeli* had "grands rapports avec le genre *Setaphis*" (Simon, 1914: 180, footnote). As indicated below, we consider *Z. carmeli* to be a member of *Setaphis*, thus restricting *Zelotes* to

part of Simon's group A (group B now constitutes the genus *Trachyzelotes* Lohmander; see Platnick and Murphy, 1984).

Over intervening and ensuing years, Simon (1893b, 1908), Purcell (1908), Tucker (1923), and Lawrence (1928a, 1928b) added some 15 additional species, mostly from South Africa and Namibia, to *Setaphis*. So far as we have been able to determine, not a single one of those southern African species actually belongs to *Setaphis*. Numerous species that do belong to the genus have been described, including some from southern Africa, but they have all been misplaced in other genera, including *Camillina* Berland, *Drassodes* Westring, *Echemus* Simon, *Liodrassus* Chamberlin, and *Zelotes*.

As in our earlier study on *Trachyzelotes*, we have tried to identify and review here all the described members of this relatively clear-cut group. However, hundreds of zelotine species have been described, from all over the world, and no adequate illustrations have ever been published for many of the available names. It has not been possible for us to examine most of the relevant type material, and we therefore presume that additional names, both older and younger, will eventually be found to apply to many of the taxa treated here. It nevertheless seems worthwhile to present evidence regarding the identity and geographic distribution of the taxa we have been able to examine, and to point out that almost all of the southern African species previously assigned to *Setaphis* must eventually be transferred elsewhere. At this point, we do not know whether those species represent a monophyletic group of their own, or whether there is another generic name available for them.

The history of the species here assigned to *Setaphis* provides ample reason to reject the views of some (mostly north European) workers on the limits of the genus *Zelotes*. Roberts (1995: 110), for example, working only with the extremely limited fauna of zelotines found in Britain and northern Europe, argued that:

The genus [*Zelotes*] has been divided by some workers to form several smaller genera. Whilst able to see the differences which suggest such subdivision, I am not

sure that they outweigh the *similarities* or that the changes are useful taxonomically, although they are useful at a subgeneric level.

But the question here is not a trivial one of what rank to assign groups, but rather what the membership of those groups is to be. Members of the clearly monophyletic group discussed below have been placed by some workers in *Zelotes*, by others in *Camillina*, and by others (such as Denis) in both *Zelotes* and *Camillina* (to say nothing of various misplacements in several other genera). In actuality, these species belong to neither *Zelotes* nor *Camillina*. The misplacements have resulted in a general failure, by previous authors, to recognize the species of *Setaphis* as members of a single monophyletic group. Indeed, in the most extreme case, they have led to a single species being described as a member of both *Zelotes* and *Camillina* (for example, the synonyms of *S. subtilis* described by Denis). The generic concept advocated by Roberts could represent a monophyletic group only if all zelotines, worldwide, were placed in the single genus *Zelotes*, including, for example, those species of *Camillina* that have never been considered members of *Zelotes*. Even under the far more reasonable generic concepts of other workers, *Zelotes* remains a cumbersome huge group within which to investigate species identities and relationships. Placing all zelotines in *Zelotes* would only compound the difficulties.

We thank M. U. Shadab of the American Museum of Natural History for help with illustrations, and each of the collectors and curators listed below for supplying specimens. We especially thank Tony Russell-Smith of Sittingbourne, England, for his most generous donations of African *Setaphis* specimens. Helpful comments on a draft of the manuscript were supplied by F. Di Franco, R. Jocqué, V. Ovtsharenko, and J. Wunderlich. The format of the descriptions and standard abbreviations of morphological terms follow Platnick and Shadab (1975); all measurements are in millimeters.

COLLECTIONS EXAMINED

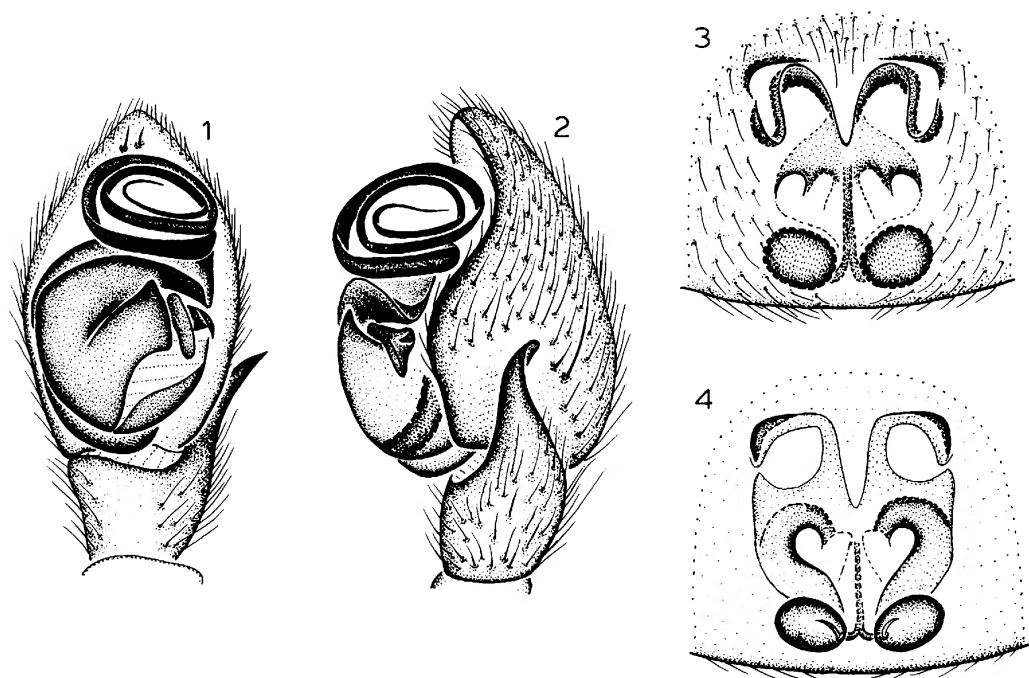
AMNH American Museum of Natural History

- BMNH Natural History Museum, London, P. Hillyard
 CAS California Academy of Sciences, San Francisco, C. Griswold
 CCD C. Deeleman-Reinhold, Ossendrecht, Netherlands
 CDJ D. Jones, Waterlooville, England
 CGS G. Schmidt, Deutsch Evern, Germany
 CHE H. K. El-Hennawy, Cairo, Egypt
 CJW J. Wunderlich, Straubenhardt, Germany
 CPA P. Ashmole, Edinburgh, Scotland
 CRB R. Bosmans, Gent, Belgium
 CRS R. Snazell, Wareham, England
 HDO Hope Department of Entomology, Oxford University, I. Lansbury
 JAM J. A. Murphy
 MHNG Muséum d'Histoire Naturelle de Genève, B. Hauser
 MNHN Muséum National d'Histoire Naturelle, Paris, C. Rollard
 MRAC Musée Royal de l'Afrique Centrale, Tervuren, R. Jocqué
 NCA National Collection of Arachnida, Plant Protection Research Institute, Pretoria, A. Dippenaar-Schoeman
 NMB Naturhistorisches Museum, Basel, A. Hänggi
 NMBL National Museum Bloemfontein, L. Lotz
 NMS Natur-Museum Senckenberg, M. Grasshoff
 NMZ National Museum, Zimbabwe, M. FitzPatrick
 SAM South African Museum, V. Whitehead
 UAF University of Agriculture, Faisalabad, Pakistan, M. Beg
 ZSI Zoological Survey of India, B. Biswas

Setaphis Simon

Setaphis Simon, 1893a: 374 (type species by original designation *Prosthesima suavis* Simon [= *S. parvula* (Lucas)]).

DIAGNOSIS: Specimens of *Setaphis* are easily recognized, as they have the metatarsal preening comb that is characteristic of zelotines, plus a distinctively coiled embolus in males (figs. 1, 2) and similarly coiled epigynal ducts in females (figs. 3, 4).



Figs. 1-4. *Setaphis parvula* (Lucas). 1. Left male palp, ventral view. 2. Same, retrolateral view. 3. Epigynum, ventral view. 4. Same, dorsal view.

DESCRIPTION: Total length 2.6-7.2. Carapace oval in dorsal view, widest at coxae II, slightly invaginated posteriorly, usually light yellow, sometimes darker, with long, erect, black setae along edges of posterior declivity; cephalic area flattened, set off by sloping cephalic grooves; thoracic groove short, longitudinal. From above, anterior eye row recurved, posterior row procurved; from front, both eye rows procurved; AME circular, dark, PME irregularly rectangular, light, ALE and PLE oval, light; PME largest, AME usually smallest; AME separated by roughly their diameter, almost touching ALE; PME almost touching, separated from PLE by roughly their radius; MOQ usually slightly longer than wide, wider in back than in front. Clypeal height equal to AME diameter. Chelicerae usually with four promarginal and three retromarginal teeth. Endites short, rectangular, obliquely depressed, greatly narrowed at palpal insertion; labium broad, rebordered and rounded distally; sternum with strongly rebordered, sinuous margins. Leg formula 4123. Typical leg spination pattern (only surfaces bearing spines listed): femora: I, II d1-1-0,

p0-0-1; III d1-1-0, p0-1-1, r0-1-1; IV d1-1-0, p0-0-1, r0-0-1; patella III r0-1-0; tibiae: III p1-1-1, v2-2-2, r0-1-1; IV p1-0-1, v2-2-2, r1-1-1; metatarsi: II v1-0-0; III p1-2-2, v2-0-0, r1-1-2; IV p1-2-2, v2-2-0, r1-2-1. Legs usually uniformly yellow, sometimes darker or with annulations; tarsi very lightly scopulate, with two dentate claws but no claw tufts; trochanters not notched; metatarsi III and IV with preening comb; distal segments with two rows of long trichobothria. Abdomen usually light brownish-gray dorsally, paler ventrally; males with small, orange anterior scutum; six spinnerets, anteriors elongated, sclerotized, separated at base by their width. Palp with medially situated terminal apophysis, tip of apophysis often overlapping embolar base; median apophysis small, retrolaterally hooked; embolus coiled. Epigynum with anterior margins, midpiece surrounded by median ridges; epigynal ducts highly twisted.

RELATIONSHIPS: The typically enlarged, nearly contiguous posterior median eyes suggest that *Setaphis* is more closely related to *Camillina* and *Drassyllus* than to *Zelotes*.

MISPLACED SPECIES: Simon (1908) described *Setaphis bicolor* on the basis of at least one male and one female from Tripoli, Libya; we have seen only a female syntype (MNHN AR24091), which is not a *Setaphis* and belongs instead to the *Zelotes puritanus* subgroup of species. We have not seen the male, and a formal transfer of this name must therefore await Dr. G. Levy's forthcoming study of this and related species.

So far as we have been able to determine, none of the species from southern Africa that have been assigned to *Setaphis* (for listings, see Roewer, 1955: 440–441 and Bonnet, 1958: 4036–4037) actually belong to the genus, but accurate placement of those taxa must await future revisionary studies of the African gnaphosid fauna.

Setaphis parvula (Lucas)

Figures 1–4

Drassus parvulus Lucas, 1846: 219, pl. 13, figs. 6, 6a–d (male holotype, probably penultimate, from Philippeville, Algeria, depository unknown, not examined).

Melanophora parvula: Simon, 1864: 117.

Prothesima suavis Simon, 1878: 76, pl. 14, fig. 6 (male and female syntypes from Digne, Alpes-de-Haute, France, lost, and from Constantine, Algeria, in MNHN, examined). First synonymized by Pavesi, 1884: 467.

Prothesima parvula: Pavesi, 1884: 467.

Setaphis suavis: Simon, 1893a: 374, 1914: 180, 220.

Setaphis parvula: Simon, 1893a: 374.

Setaphis lucasi Roewer, 1951: 443 (superfluous replacement name for *Drassus parvulus* Lucas).

DIAGNOSIS: This species resembles *S. carmeli* in having the anterior patellae and tibiae enlarged, darkened, and setose, but differs in having a longer embolus (fig. 1) and a sharply angled tip of the retrolateral tibial apophysis (fig. 2) in males, and in having the epigynal ridges reaching almost to the anterior epigynal margin (fig. 3) and anterolaterally expanded epigynal ducts (fig. 4) in females.

MALE: Described by Simon (1878).

FEMALE: Described by Simon (1878).

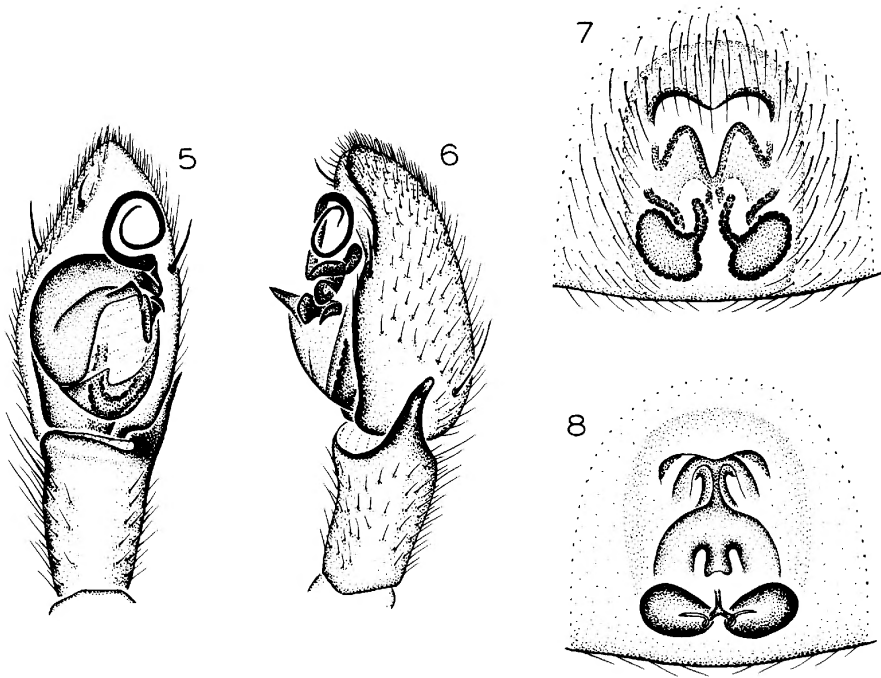
MATERIAL EXAMINED: **Algeria:** Chrea (R. Bosmans, CRB), 1♂; presumably Constantine (MNHN AR1975), 3♂, 1♀ (syntypes); Meftah (R. Bosmans, CRB), 1♂. **France:** *Ariège:* Caussou, May 30, 1991 (J., F. Murphy, JAM),

1♀. *Corse:* 5 km S Corte, May 20, 1989, elev. 350 m, roadside maquis (P. Merrett, JAM), 1♂; Vivario, May 24, 1989, elev. 800 m, stony field (P. Merrett, JAM), 1♀; Vizzavona, May 27, 1989, elev. 1300 m, stony hillside (P. Merrett, JAM), 1♂. **Portugal:** *Faro:* Cape St. Vincent, Apr. 14, 1982 (J., F. Murphy, JAM), 1♀; Monte Gordo, Apr. 13, 1982 (J., F. Murphy, JAM), 1♂, 1♀. **Spain:** *Baleares:* Ibiza: Atalayassa, Apr. 15, 1980, elev. 475 m (J., F. Murphy, JAM), 1♂; Playa d'en Bossa, Apr. 11, 1980 (J., F. Murphy, JAM), 2♀. *Málaga:* Sierra de Mijas, Apr. 7, 1975 (P. D. Hillyard, BMNH), 1♀.

DISTRIBUTION: Known only from the western Mediterranean: Portugal, Spain, France, Algeria, and Tunisia (record of Pavesi, 1884).

SYNONYMY: The type of *Drassus parvulus* Lucas is lost and presumed destroyed, but his detailed color illustration of the body, which clearly shows the enlarged, darkened, and setose anterior patellae and tibiae, closely matches in many details the two males from Algeria recorded above. We thus have little doubt that Lucas had the same species later described by Simon as *Prothesima suavis*. Simon (1878: 78, footnote) acknowledged that *D. parvulus* is "une espèce qui me paraît très-voisine de *suavis*, malheureusement, cette espèce a été décrite et figurée sur un très-jeune individu, ce qui la rendra très-difficile à reconnaître." Although we would ordinarily agree with Simon's judgment that juveniles are unidentifiable, in this case the extraordinarily detailed matching in color pattern and leg modifications allows *D. parvulus* to be identified without hesitation. We therefore agree with Pavesi's (1884) synonymy of *S. suavis*, despite Simon's subsequent argument (1914: 220, footnote) that *D. parvulus* "est une très jeune araignée non reconnaissable spécifiquement."

Roewer's replacement name for this species, *Setaphis lucasi*, was entirely unjustified. *Drassus parvulus* Lucas is only a secondary junior homonym of *Drassus parvulus* (Blackwall), a species originally described in *Clubiona* Latreille and long ago placed in the Dictynidae rather than the Gnaphosidae. The two names were not considered congeneric (by Roewer or anyone else) when Roewer's replacement name was established, and Roewer's name is therefore superfluous.



Figs. 5–8. *Setaphis carmeli* (O. P.-Cambridge). 5. Left male palp, ventral view. 6. Same, retrolateral view. 7. Epigynum, ventral view. 8. Same, dorsal view.

Setaphis carmeli (O. P.-Cambridge),
new combination

Figures 5–8

Melanophora carmeli O. P.-Cambridge, 1872: 248, pl. 16, figs. 29a, b (male syntype from Mount Carmel, Haifa, Israel, in HDO, examined).

Melanophora latipes Canestrini, 1873: 45 (male and female syntypes from Italy, depository unknown, not examined), 1876: 207, pl. 10, figs. 3a, b. First synonymized by Simon, 1892: 81.

Prothesima latipes: Simon, 1878: 75.

Prothesima carmeli: Simon, 1878: 99.

Prothesima brachialis Garneri, 1902: 67 (male holotype from Tortoli, Sardinia, Italy, depository unknown, not examined). NEW SYNONYMY.

Zelotes carmeli: Simon, 1914: 180, 219, figs. 386–388.— Denis, 1952: 123, figs. 21–24.— Jézéquel, 1962: 532, fig. 16.— Marinaro, 1967: 699, fig. 21b.

Zelotes brachialis: Reimoser, 1919: 166.

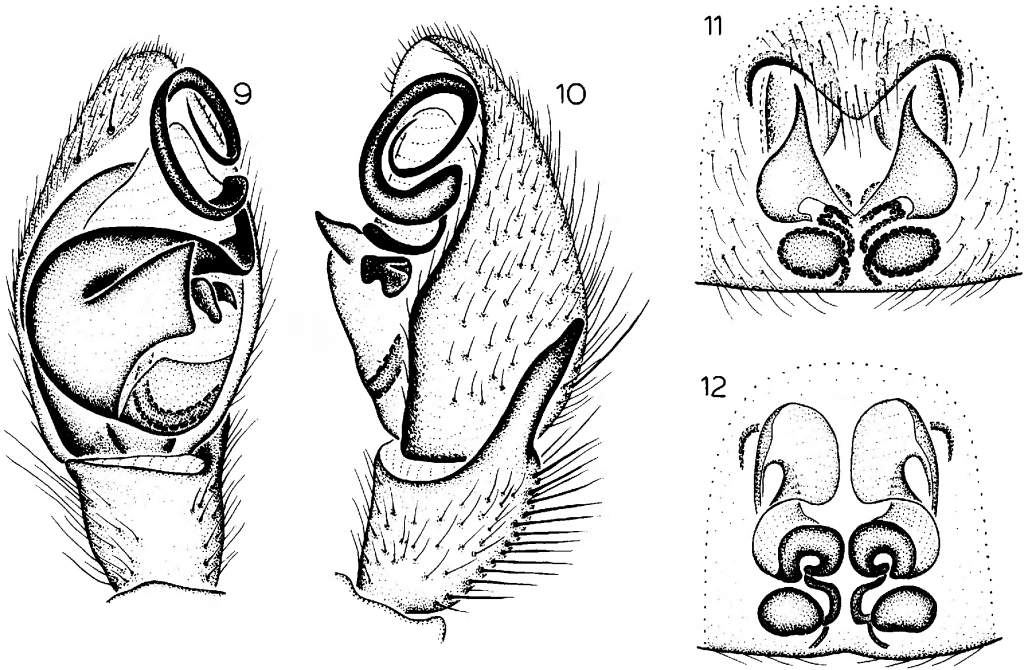
DIAGNOSIS: This distinctive species is easily recognized by its dark coloration, the strong bottle-brushlike scopula found both dorsally and ventrally on tibiae I, the small, triangular terminal apophysis, small embolus, and short, straight retrolateral tibial

apophysis (figs. 5, 6) of males, and the small, m-shaped epigynal ridge and the m-shaped median epigynal ducts (figs. 7, 8) of females.

MALE: Described by O. P.-Cambridge (1872) and more recent authors.

FEMALE: Described by Simon (1914) and more recent authors.

MATERIAL EXAMINED: **Algeria:** no specific locality (R. Bosmans, CRB), 2♂; Baghari Guelma (MNHN AR1994), 2♂, 3♀; El Harrach, Apr. 11, 1983, June 16, 1985 (R. Bosmans, CRB), 2♂; Freneda (R. Bosmans, CRB), 1♂; Meftah (R. Bosmans, CRB), 1♂; Meurdja, June 9, 1983, pitfall trap (CRB), 1♀; Saïda (R. Bosmans, CRB), 1♀. **France:** *Aude:* Port-la-Nouvelle (MNHN AR1995), 1♂. *Corse:* Collo de San Quilico, May 19, 1989, elev. 500 m, stony hillside (J., F. Murphy, JAM), 1♂; Ghisonaccia, May 17, 1989, coastal scrub (J., F. Murphy, JAM), 1♂, 1♀; 15 km N L'île-Rousse, June 1984, pitfall traps (H. G. Müller, MHNG), 6♂. **Israel:** *Haifa:* Mount Carmel, under stone (O. P.-Cambridge, HDO), 1♂ (syntype). **Morocco:** Azrou (R. Bosmans, CRB), 1♀; Ifrane, July 19–25, 1971 (R. Jocqué, MRAC), 1♂; Oued Zem, Mar. 1979 (R.



Figs. 9–12. *Setaphis algerica* (Dalmas). 9. Left male palp, ventral view. 10. Same, retrolateral view. 11. Epigynum, ventral view. 12. Same, dorsal view.

Bosmans, CRB), 1♀; Oukalmeden, Marakesch, May 17, 1975, elev. 2600 m, under stone (B. Malkin, AMNH), 1♂. **Portugal:** Faro: Tavira, Apr. 2, 1988, under stone, edge of river (P. Harvey, JAM), 1♂. **Spain:** Almería: El Playazo, Mar. 27, 1990 (J., F. Murphy, JAM), 1♀; La Serreta, Mar. 24, 1990, elev. 200 m (J., F. Murphy, JAM), 1♀; Sierra de Gador, Apr. 2, 1990 (J., F. Murphy, JAM), 1♀. **Baleares:** Ibiza: C'an Prats, Apr. 13–14, 1980, pine litter (J., F. Murphy, JAM), 1♂. Mallorca: Pollensa, Apr. 11, 1975 (J., F. Murphy, JAM), 1♂. **Cádiz:** no specific locality (R. Snazell, CRS), 1♂. **Jaén:** Cazorla, May. 30, 1979 (C. I. Carter, AMNH), 1♀. **Madrid:** Torrejon de Ardes, 1961 (K. W. Haller, AMNH), 3♂, 3♀. **Tunisia:** Kairouan, 1915 (F. Santschi, MHNG), 1♂.

DISTRIBUTION: Circum-Mediterranean.

SYNONYMY: Garneri's *Prosthesima brachialis* has apparently never been discussed by subsequent authors (indeed, this seems to be the only spider species ever described by Garneri). His suggestion that the taxon is "affine alla *P. suavis* Simon ed alla *P. latipes* Canestr.," his indication that patella and tib-

ia I are "dilatatis et elongatis, rariis pilis conspersis," and his descriptions of the color pattern leave little doubt that he actually had a male of *Setaphis carmeli*.

Setaphis algerica (Dalmas),
new combination
Figures 9–12

Camillina algerica Dalmas, 1922: 83 (one male and ten female syntypes from Oran, Algeria, in MNHN, examined).

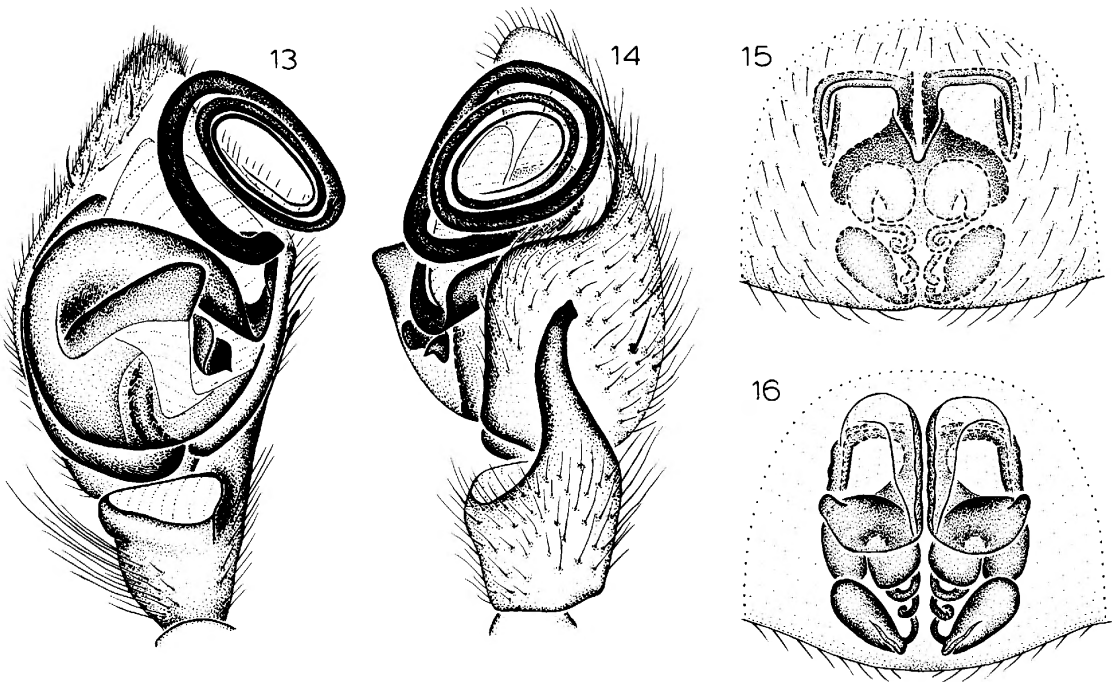
Camillina vivesi Marinaro, 1967: 699, fig. 21a (male holotype from Maillot, Djurdjura, Algeria, depository unknown, not examined). **NEW SYNONYMY.**

DIAGNOSIS: Males can be recognized by the stiff dorsal tibial setae, distally invaginated terminal apophysis base, relatively short embolus, and broad, angular terminal apophysis (figs. 9, 10), females by the v-shaped epigynal midpiece (figs. 11, 12).

MALE: Described by Dalmas (1922).

FEMALE: Described by Dalmas (1922).

MATERIAL EXAMINED: **Algeria:** La Marsa,



Figs. 13–16. *Setaphis fuscipes* (Simon). 13. Left male palp, ventral view. 14. Same, retrolateral view. 15. Epigynum, ventral view. 16. Same, dorsal view.

May 25, 1990 (R. Bosmans, CRB), 1♀; Meurdja, Atlas de Blida, June 19, 1983, pit-fall trap in cedarwood (R. Bosmans, CRB), 1♀; M'Sila (R. Bosmans, CRB), 2♂; Oran (MNHN AR12623), 1♂, 10♀ (syntypes); Ou Tafna (R. Bosmans, CRB), 1♂; Sidi Freni, May 25, 1987 (R. Bosmans, CRB), 2♂, 1♀; Zarifete (R. Bosmans, CRB), 1♂. **Spain:** *Málaga*: Maro, Mar. 23–Apr. 11, 1987 (J., F. Murphy, JAM), 1♂.

SYNONYMY: Marinaro (1967, figs. 19, 20) apparently misidentified a species of *Zelotes* as *Camillina algerica*, and therefore placed what appears to be an actual male of *C. algerica* as a new species, *C. vivesi*. Marinaro's indications—(1) that the male palp of *C. vivesi* is nearly identical to that of *S. carmeli* (except for being slightly more voluminous and having a longer retrolateral tibial apophysis), (2) that the carapace and leg coloration is reddish yellow, and (3) that there is no leg scopula—suggest that his single male belongs to *C. algerica*.

DISTRIBUTION: Known only from Spain and Algeria.

Setaphis fuscipes (Simon),
new combination
Figures 13–16

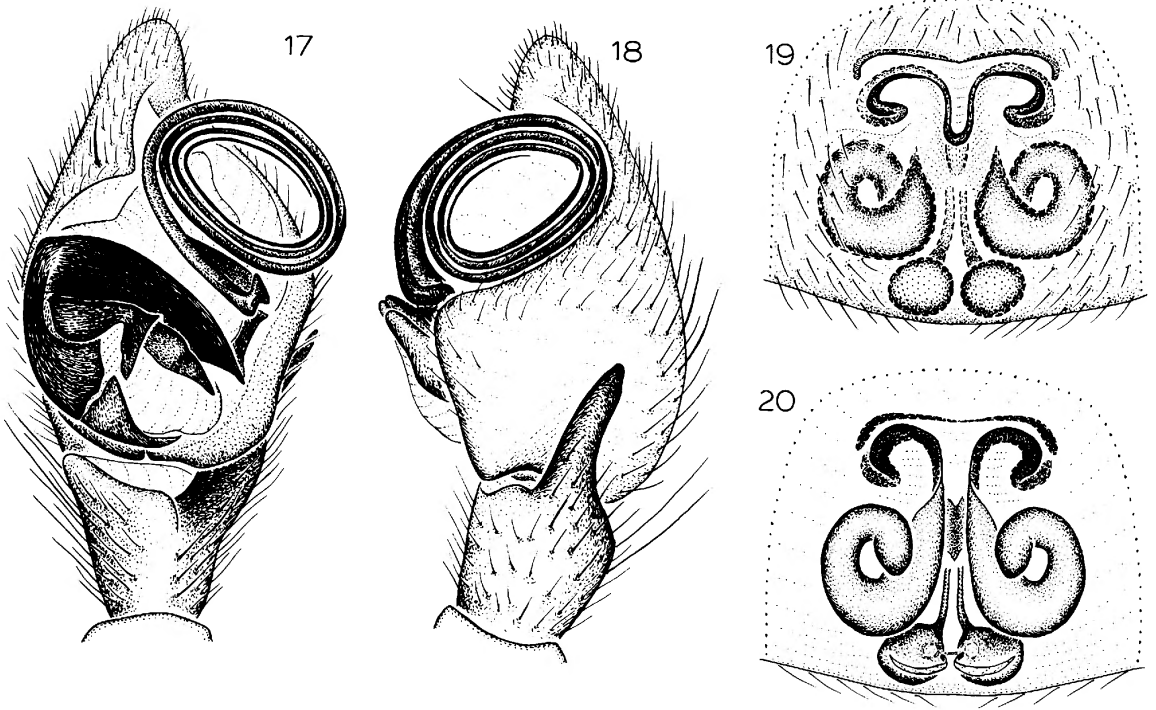
Echemus fuscipes Simon, 1885: 36 (two males and three females, possibly syntypes, from Djerba, Tunisia, in MNHN, examined; this locality was not mentioned in Simon's original description but the specimens were collected by Letourneux and are presumed to be part of the type series). *Camillina fuscipes*: Berland, 1919: 462.

DIAGNOSIS: Males can be recognized by the large embolus and distally truncated retro-lateral tibial apophysis (figs. 13, 14), females by almost diamond-shaped medial epigynal plate, the large epigynum, and the large, rounded median epigynal ducts (figs. 15, 16).

MALE: Described by Simon (1885).

FEMALE: Described by Simon (1885).

MATERIAL EXAMINED: **Algeria:** Abu el Man, Tassili, Apr. 18, 1979 (J. Mertens, CRB), 1♂; Colomb Beahar, Nov. 11–16, 1948 (B. Malkin, AMNH), 1♂; El Golea (Dumont, MNHN AR25666), 1♀. **Tunisia:** Cherichera, 1915 (F. Santschi, MHNG), 5♂, 1♀; Djerba (Letour-



Figs. 17–20. 17, 18. *Setaphis spiribulbis* (Denis). 19, 20. *S. villiersi* (Denis). 17. Left male palp, ventral view. 18. Same, retrolateral view. 19. Epigynum, ventral view. 20. Same, dorsal view.

neux, MNHN AR12483), 2♂, 3♀ (presumed syntypes).

DISTRIBUTION: Known only from Algeria and Tunisia.

Setaphis spiribulbis (Denis),
new combination
Figures 17, 18

Zelotes spiribulbis Denis, 1952: 125, figs. 25, 26 (male holotype from Oued Mellah, Morocco, in MNHN, examined).

DIAGNOSIS: Males resemble those of *S. fuscipes* but have a much broader embolar base, a much narrower terminal apophysis, and a distally straight retrolateral tibial apophysis (figs. 17, 18). The single male palp available has the embolus uncoiled; its appearance in figures 17 and 18 is reconstructed on the basis of the palpal illustration originally supplied by Denis.

MALE: Described by Denis (1952).

FEMALE: Unknown.

MATERIAL EXAMINED: Morocco: Oued

Mellah, May 20, 1951, dunes on schist (Gatetfossé, MNHN AR1856), 1♂ (holotype).

DISTRIBUTION: Known only from the type locality in Morocco.

Setaphis subtilis (Simon),
new combination
Figures 21–24

Mulicymnis subtilis Simon, 1897: 97 (three female syntypes from Masqat, Oman, in MNHN, examined).

Mulicymnis lubrica Simon, 1905: 169 (female holotype from Pondicherry, India, in MNHN, examined). NEW SYNONYMY.

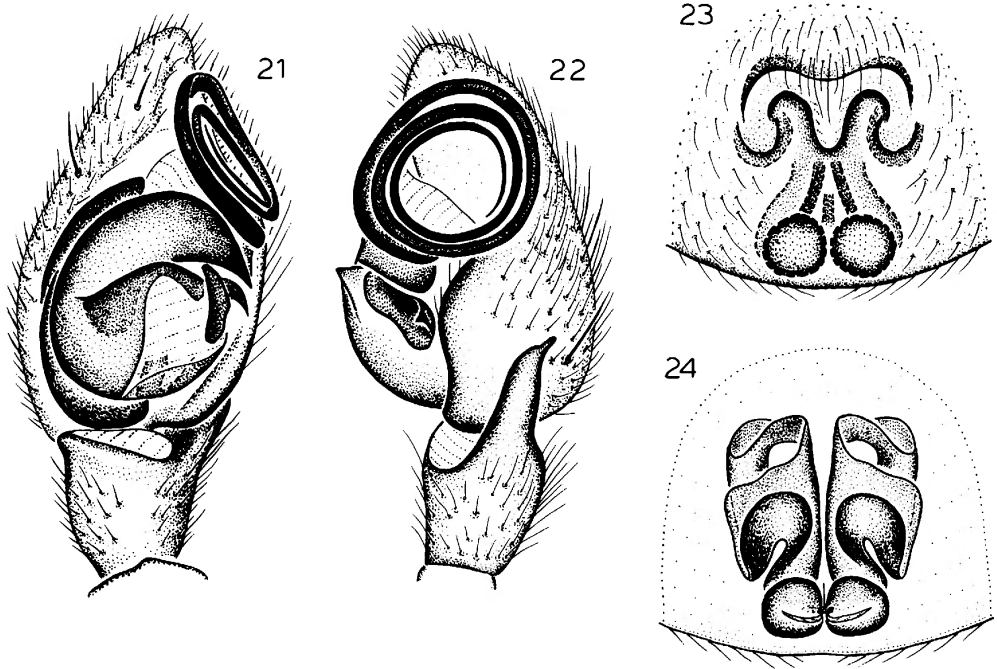
Camillina lubrica: Berland, 1919: 462.

Camillina subtilis: Berland, 1919: 463.

Camillina luteus Tucker, 1923: 343, fig. 60 (female syntype from Hanover, Cape Province, South Africa, in SAM, examined). NEW SYNONYMY.

Camillina berlandi Denis, 1945: 47, fig. 13 (female holotype from Zeitun, near Cairo, Egypt, should be in MNHN, lost). NEW SYNONYMY.

Zelotes convolutus Denis, 1953: 338, figs. 3, 4 (two male syntypes from Wadi Dharh, Yemen, should be in National Museum of Natural History,



Figs. 21–24. *Setaphis subtilis* (Simon). 21. Left male palp, ventral view. 22. Same, retrolateral view. 23. Epigynum, ventral view. 24. Same, dorsal view.

Smithsonian Institution, lost). NEW SYNONYMY.

Camillina lutea: Bonnet, 1956: 944.

Drassodes oppenheimeri Tikader, 1973: 186, figs. 1–5 (two male and two female paratypes from Singur, Hoogly District, West Bengal, India, in ZSI, examined), 1982: 400, fig. 238–243. NEW SYNONYMY.

DIAGNOSIS: This species resembles *S. fuscipes* in having a distally bent retrolateral tibial apophysis (fig. 22), but can be recognized by the invaginated area of unsclerotized cuticle situated at the base of the male terminal apophysis (fig. 21) and by the distinctively shaped median epigynal ridge (fig. 23) and enlarged posterior epigynal ducts (fig. 24) of females.

MALE: Described by Denis (1953) and Tikader (1973).

FEMALE: Described by Simon (1897) and more recent authors.

MATERIAL EXAMINED: **Botswana:** Maxwee, Okavango Delta, Sept. 1975, pitfall trap, grassland (A. Russell-Smith, BMNH), 1♀, Oct. 10, 1975, floodplain grassland (A. Russell-Smith, AMNH), 11♂, May–June 1976, mo-

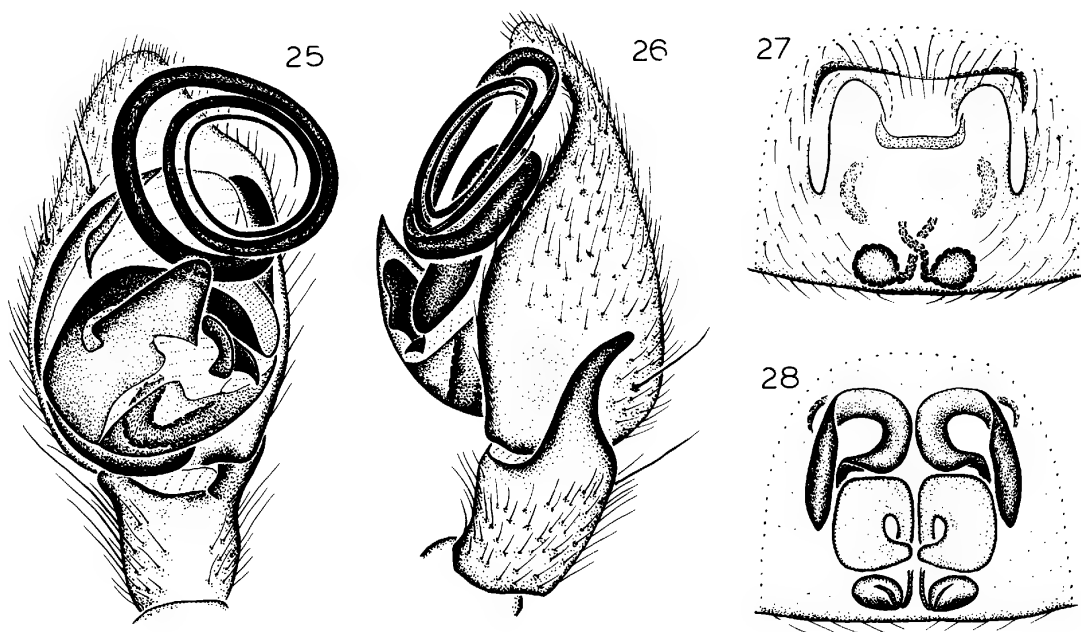
pane woodland (A. Russell-Smith, BMNH), 1♂; Mboma Lagoon, Moremi Reserve, Aug. 23–30, 1977, pitfall trap, short sporobolus grassland (A. Russell-Smith, BMNH), 1♀; Shorobe, Okavango Delta, Sept. 11, 1975, floodplain grassland (A. Russell-Smith, AMNH), 8♀; Thamakane River, Maun, Feb. 1, 1976, grassland (A. Russell-Smith, BMNH), 1♀. **Burkina Faso:** Nord Yatenga, Oahigouya, July–Oct. 1992, pitfall traps (M. N. De Visscher, G. Balança, MRAC), 4♂, 8♀. **Burundi:** Plaine de la Ruzizi, Apr. 1968 (S. Ndani, MRAC), 1♀. **Cameroon:** Galim, Aug. 13–20, 1971 (F. Puylaert, MRAC), 1♀. **Egypt:** no specific locality, July 11, 1991 (H. K. El-Hennawy, CHE), 1♂, 1♀; Ras El-Barr, 10 km N Damietta, Aug. 1991 (H. K. El-Hennawy, CHE), 1♂, Sept. 6, 1982 (H. K. El-Hennawy, CHE), 1♀. **Ethiopia:** Adernossa Ranch, Adami Tulu, June 17, 1982, open acacia woodland on hill (A. Russell-Smith, AMNH), 1♂, 3♀; Axrum, Dec. 13, 1965 (J. L. Cloudsley-Thompson, MRAC), 1♂; NE hotel, Awash National Park, July 10, 1986, under stone, arid grassland (A. Russell-Smith, AMNH), 1♂ (taken with ♀ of *S. villiersi*); W shore, Lake

Langano, Sept. 1, 1988, under stones, cynodon grassland, elev. ca. 1600 m (A. Russell-Smith, AMNH), 1♂, 1♀; Ras Hotel, Awash National Park, Apr. 21–22, 1988, tall grass tussocks, grass with gravel, elev. ca. 1000 m (A. Russell-Smith, AMNH), 3♂, 2♀, June 22, 1988, under heaps of cut grass, elev. ca. 1000 m (A. Russell-Smith, AMNH), 3♂, 4♀, Oct. 6, 1988, under heaps of cut grass, elev. ca. 1000 m (A. Russell-Smith, AMNH), 2♀. **India:** Pondicherry (MNHN AR1642), 1♀ (holotype). **West Bengal:** Singur, Hoogly District, June 6, 1972 (J. R. Oppenheimer, ZSI), 2♂, 2♀ (paratypes). **Ivory Coast:** Barrage Yabra, near Zatta, Nov. 1, 1975 (R. Jocqué, MRAC), 1♂; Gagnoa, Mar. 30, 1995, pitfall traps, upland rice fields (A. Russell-Smith, AMNH), 2♂, 2♀; N Korhogo, Bandama River, May 5, 1980, center riverine forest (J. Everts, MRAC), 1♂, 1♀; Kossou, June 23, 1975, savanna (R. Jocqué, MRAC), 1♀; Toubouba, Aug. 23, 1994, upland rice field (A. Russell-Smith, AMNH), 4♂, 1♀; Warda Headquarters, Bouake, Sept. 12, 1994, pitfall trap, upland rice field (A. Russell-Smith, AMNH), 1♂. **Kenya:** Baringo, Aug. 28, 1972 (J., F. Murphy, JAM), 1♀, July 24–27, 1974 (J., F. Murphy, JAM), 1♂, 1♀; Kilifi, Aug. 18–Sept. 3, 1980, scrub, litter (J., F. Murphy, JAM), 2♀; 11 mi S Maktau, Nov. 2, 1957, elev. 1000 m (E. S. Ross, R. E. Leech, CAS), 1♀. **Mali:** Sikano, Sept. 1971 (G. Peirard, MRAC), 1♀. **Nigeria:** Idanre Hills, Aug. 4, 1974, trilepis mat on granite (A. Russell-Smith, BMNH), 1♂. **North-Western:** Mokwa, Aug. 31, 1974, 14-year savanna regrowth (A. Russell-Smith, BMNH), 2♂. **Western:** Iita, Ibadan, Jan. 26, 1973, fallow bush (A. Russell-Smith, BMNH), 1♂, Feb. 2, 1973 (A. Russell-Smith, BMNH), 2♂, 1♀, May 24, 1973, fallow bush (A. Russell-Smith, AMNH), 3♂, July 24, 1973, cultivated plots (A. Russell-Smith, AMNH), 1♂, 1♀, Dec. 12, 1973 (A. Russell-Smith, BMNH), 2♀, Dec. 27, 1973, cultivated plots (A. Russell-Smith, AMNH), 3♂, Mar. 18, 1974 (A. Russell-Smith, BMNH), 16♂, Mar. 18, 1974, cultivated plots (A. Russell-Smith, AMNH), 1♀. **Oman:** Jebel Shams, Oct. 1976, elev. 3035 m, under rock on summit (P. M. Booth, BMNH), 1♂; Masqat, Oct. 1896 (M. Maindron, MNHN AR1636), 3♀ (syntypes). **Pakistan:** near Attock, Dec. 22, 1961, elev. 300 m (E. S. Ross, D. Q. Cavagnaro, CAS), 1♀; 12 mi NE Ra-

walpindi, Dec. 16, 1961, elev. 650 m (E. S. Ross, D. Q. Cavagnaro, CAS), 1♀. **Rwanda:** 10 km N Ihema fishery, Nov. 19–Dec. 4, 1985 (R. Jocqué, Nsengimana, Michiels, MRAC), 1♂; 50 km N Ihema fishery, near Lake Mihindi, Nov. 23–Dec. 1985 (R. Jocqué, Nsengimana, Michiels, MRAC), 2♂. **Saudi Arabia:** Riyadh, Jan. 11, 1980 (A. S. Talhouk, NMB), 1♀. **Senegal:** 5–10 km S Richard Toll, Aug. 1989, semiarid thornbush (J. Everts, MRAC), 2♀; Sonkorong, Kaymore, June 14, 1994, leaf litter, bush fallow (A. Russell-Smith, AMNH), 2♀. **South Africa:** *Cape Province:* Hanover, Sept.–Nov. 1901 (S. C. Cronwright Schreiner, SAM), 1♀ (syntype); Oudtshoorn, Oct. 29, 1949 (B. Malkin, CAS), 1♀. *Orange Free State:* Florisbad, Nov. 9–23, 1987, pitfall traps (NMBL), 1♂, 1♀. *Transvaal:* Brits, 1984–1985, pitfall traps, cotton (R. Watmough, NCA), 3♂; 10 km N Grasskop, Dec. 19–31, 1985, pitfall trap, grass veld (S., J. Peck, AMNH), 1♀; Groblersdal, Mar. 8, 1982, cotton plant (NCA), 2♂, Nov. 18, 1982, pitfall trap, cotton (NCA), 1♀; Guernsey Farm, 15 km NE Klaserie, Dec. 18–31, 1985, pitfall traps, woodland (S., J. Peck, AMNH), 10♂, 4♀; Oudekraal, Groblersdal, Jan. 10, 1980 (M. S. Greeff, NCA), 1♂, 1♀; Rust De Winter, Mar. 17, 1981, pitfall trap, cotton (NCA), 1♀. **Tanzania:** Mkomazi Game Reserve, 7 km SE Ibaya, Aug. 22–23, 1993, pitfall traps, short grass with bushes, burned (M. Ritchie, R. Makusi, AMNH), 1♂, 2♀. **Thailand:** *Kanchanaburi:* Erawan National Park, Nov. 16, 1987, in cabin at night (C. Deeleman-Reinhold, CCD), 1♂. **Zaire:** *Kivu:* between Kalundu and Kavimvira, June 1961 (R. Kiss, MRAC), 1♀; *Plaine de la Ruindi Bulemba,* June 21, 1972, elev. 1000 m, in termite nest (R. P. M. Lejeune, MRAC), 2♀. **Zimbabwe:** Dyke, Falcon College, Dec. 16, 1984 (NMZ), 1♀; Malene Rest Camp, Matopos National Park, Feb. 9, 1988 (J. Minshull, NMZ), 1♀.

DISTRIBUTION: Widespread in the Old World, from West and South Africa through Ethiopia, Egypt, and the Near East to Pakistan, India, and Thailand.

SYNONYMY: The various redescrptions are easy to understand, given the surprisingly wide distribution of the species, and its placement in so many different genera. Although the types are not available, Denis' illustrations of the epigynum of *Camillina berlandi*



Figs. 25–28. *Setaphis mollis* (O. P.-Cambridge). 25. Left male palp, ventral view. 26. Same, retrolateral view. 27. Epigynum, ventral view. 28. Same, dorsal view.

and the palp of *Zelotes convolutus* leave little doubt that, in both cases, he had this species.

Setaphis villiersi (Denis),
new combination
Figures 19, 20

Camillina villiersi Denis, 1955: 110, fig. 9 (female holotype from Téouar, Niger, in MNHN, examined).

DIAGNOSIS: Females resemble those of *S. subtilis* but have much shorter epigynal ridges (figs. 19, 20).

MALE: Unknown.

FEMALE: Described by Denis (1955).

MATERIAL EXAMINED: **Ethiopia:** NE hotel, Awash National Park, July 10, 1986, under stone, arid grassland (A. Russell-Smith, AMNH), 1♀ (taken with ♂ of *S. subtilis*). **Niger:** Téouar, Aug. 17–22, 1947, elev. 800–900 m (L. Chopard, A. Villiers, MNHN AR1897), 1♀ (holotype).

DISTRIBUTION: Known only from Niger and Ethiopia.

Setaphis mollis (O. P.-Cambridge),
new combination
Figures 25–28

Prothesima mollis O. P.-Cambridge, 1874: 381, pl. 51, fig. 9 (female holotype from Alexandria, Alexandria, Egypt, in HDO, examined).

Echemus mollis: Strand, 1915: 139.

Zelotes mollis: Reimoser, 1919: 169.

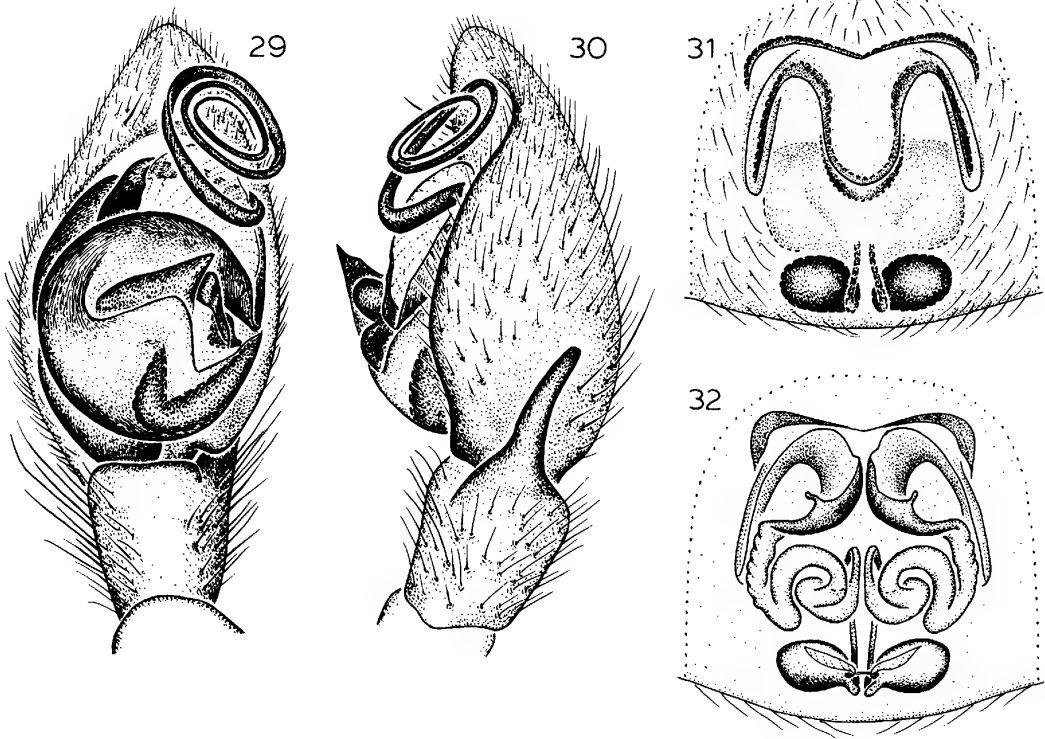
Camillina mollis: Berland, 1919: 462.

DIAGNOSIS: Males of this distinctive species can be recognized by the elongated terminal apophysis (figs. 25, 26), females by the rectangular epigynal midpiece (figs. 27, 28).

MALE: Total length 4.59. Carapace 2.11 long, 1.47 wide. Femur II 1.05 long. Eye sizes and interdistances: AME 0.10, ALE 0.09, PME 0.11, PLE 0.09; AME-AME 0.06, AME-ALE 0.02, PME-PME 0.02, PME-PLE 0.03, ALE-PLE 0.10; MOQ length 0.29, front width 0.25, back width 0.25. Leg spination: femur IV d1-1-1, p0-1-1, r0-1-1. Terminal apophysis elongate, extending beyond distal edge of embolar base (fig. 25); retrolateral tibial apophysis distally curved (fig. 26).

FEMALE: Described by O. P.-Cambridge (1874).

MATERIAL EXAMINED: **Algeria:** Biskra (MNHN AR2919), 1♀ (with male of second genus). **Egypt:** *Alexandria:* Alexandria, Apr. 1864, under stone (O. P.-Cambridge, HDO), 1♀ (holotype), same locality, no date (MNHN



Figs. 29–32. *Setaphis simplex* (Simon). 29. Left male palp, ventral view. 30. Same, retrolateral view. 31. Epigynum, ventral view. 32. Same, dorsal view.

AR1864), 4♂, 22♀. **Libya**: no specific locality (J. A. L. Cooke, HDO), 2♀. **Tunisia**: no specific locality, 1960 (J. A. L. Cooke, HDO), 1♀.

DISTRIBUTION: North Africa.

Setaphis simplex (Simon),
new combination
Figures 29–32

Echemus simplex Simon, 1885: 36 (12 female syntypes from Medjez, Bokhari, and Orleansville, Algeria, and other localities, in MNHN, examined).

Camillina simplex: Berland, 1919: 462.

Zelotes longestylus Caporiacco, 1936: 75, figs. 2–3 (male and female syntypes from Fezzan, Libya, in Museo di Storia Naturale, Firenze, Italy, examined by F. Di Franco). Preoccupied by Simon, 1914.

Zelotes caporiaccoi Roewer, 1951: 443 (replacement name for *Zelotes longestylus* Caporiacco). NEW SYNONYMY.

Zelotes longistylus: Bonnet, 1959: 4933 (invalid emendation).

Zelotes stylus Di Franco, 1994: 214, figs. 1–4

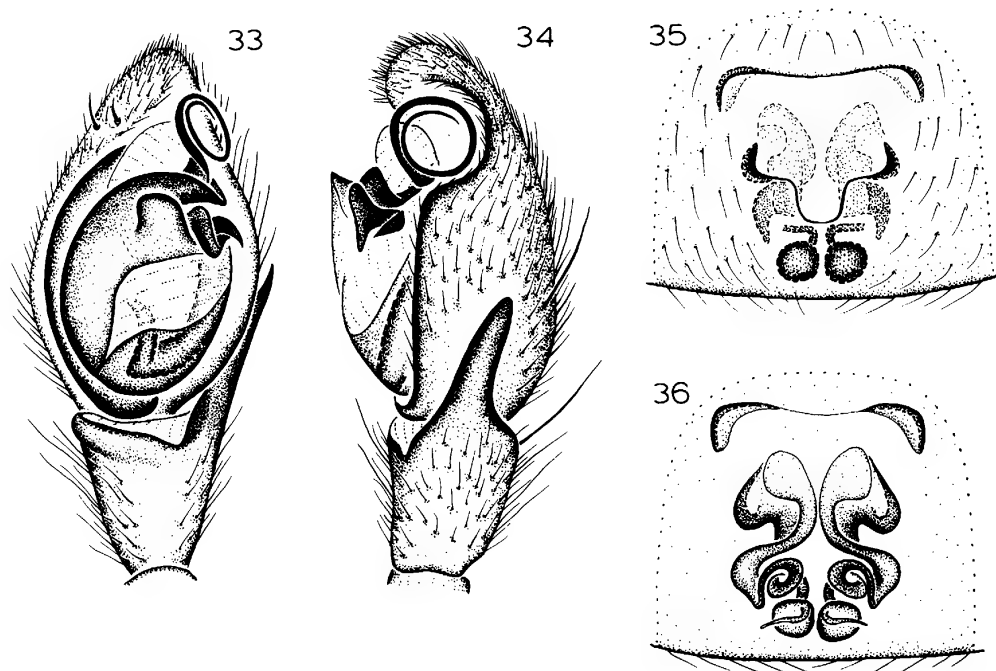
(superfluous replacement name for *Zelotes longestylus* Caporiacco). NEW SYNONYMY.

DIAGNOSIS: Males have a triangular, sharply pointed terminal apophysis, a greatly elongated embolar base, and a straight, narrow retrolateral tibial apophysis (figs. 29, 30). Females resemble those of *S. fuscipes* in the shape of the epigynal midpiece, but have an elaborate m-shaped epigynal ridge (figs. 31, 32). The width of the epigynal midpiece varies considerably; it is sometimes narrower, and sometimes wider, than shown in figure 31.

MALE: Described by Caporiacco (1936) and Di Franco (1994).

FEMALE: Described by Simon (1885), Caporiacco (1936), and Di Franco (1994).

MATERIAL EXAMINED: **Algeria**: Bekkaria, Mar. 2, 1989 (R. Bosmans, CRB), 1♀; Medjez, Bokhari, Orleansville, Kef el Ailhdar (spelling uncertain) (MNHN AR5598), 12♀ (syntypes). **Libya**: no specific locality, 1960 (J. A. L. Cooke, HDO), 1♀. **Morocco**: Melilla (MNHN AR1997), 1♂, 1♀.



Figs. 33–36. *Setaphis browni* (Tucker). 33. Left male palp, ventral view. 34. Same, retrolateral view. 35. Epigynum, ventral view. 36. Same, dorsal view.

DISTRIBUTION: Morocco, Algeria, Tunisia (record of Di Franco, 1994), and Libya.

SYNONYMY: We follow Di Franco's identification of *Zelotes longestylus* Caporiacco; her excellent illustrations clearly show both sexes of *S. simplex* (whereas Caporiacco's figures can only be described as caricatures).

Setaphis browni (Tucker),
new combination

Figures 33–36

Camillina browni Tucker, 1923: 341, fig. 58 (female holotype from Vryburg, Cape of Good Hope, South Africa, should be in South African Museum, lost, according to Dr. V. B. Whitehead).

Liodrassus mandae Tikader and Gajbe, 1977: 20, figs. 4A–D (female holotype from Bherigat, Himachal Pradesh, India, in ZSI, examined).—Tikader, 1982: 384, figs. 208–212. **NEW SYNONYMY.**

Nodocion mandae: Brignoli, 1983: 574.

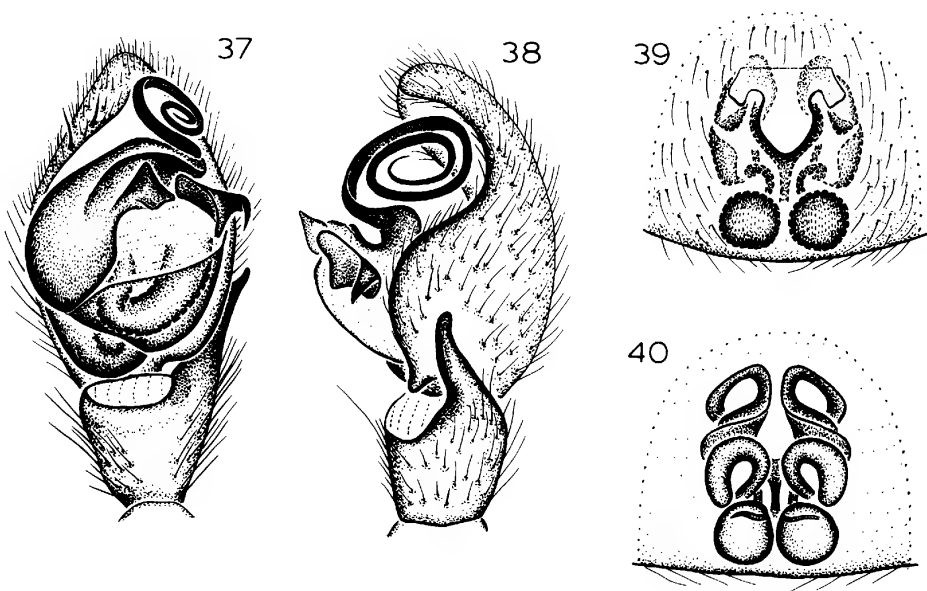
DIAGNOSIS: Males can be recognized by the extremely low, broad terminal apophysis and small, tight, retrolaterally oriented embolar

coil (figs. 33, 34), females by the oddly shaped epigynal midpiece and the extensive postero-lateral epigynal ducts (figs. 35, 36).

MALE: Total length 3.20. Carapace 1.47 long, 1.17 wide. Femur II 1.02 long. Eye sizes and interdistances: AME 0.09, ALE 0.08, PME 0.13, PLE 0.08; AME-AME 0.04, AME-ALE 0.00, PME-PME 0.00, PME-PLE 0.02, ALE-PLE 0.05; MOQ length 0.31, front width 0.23, back width 0.26. Leg spination: femur IV p0-0-0, r0-0-0; tibia IV p0-0-0, 1-0-1; metatarsi: I v2-0-1p; II v2-0-2. Embolus very small, facing retrolaterally (fig. 33); retrolateral tibial apophysis moderately long, straight (fig. 34).

FEMALE: Described by Tucker (1923).

MATERIAL EXAMINED: **Botswana:** Kgale Hill, Gaborone, Jan. 18, 1976, under stones (A. Russell-Smith, BMNH), 3♂, 3♀; Smiti, Okavango Delta, Apr. 4, 1975, mopane woodland (A. Russell-Smith, AMNH), 1♀. **India:** Himachal Pradesh: Bherigat, Bilaspur District, Aug. 1, 1972 (M. Chandra, ZSI), 1♀ (holotype). **Namibia:** 45 km N Okahandja, Prelude Farm, Oct. 16–25, 1987, pitfall trap in ungrazed area (R. Jocqué, MRAC), 1♂. **Pa-**



Figs. 37–40. *Setaphis jocquei*, new species. 37. Left male palp, ventral view. 38. Same, retrolateral view. 39. Epigynum, ventral view. 40. Same, dorsal view.

kistan: *Punjab:* Faisalabad, May 20, 1992, vineyard floor (A. Butt, UAF), 1♂ (also 1♀, only illustrations seen). **South Africa:** *Transvaal:* Dendron, Sept. 1970 (J. Viljoen, NCA, JAM), 8♂, 6♀; Groblersdal, Oudestad, Feb. 28, 1980 (M. Greeff, NCA), 1♂; 15 km NE Klaserie, Guernsey Farm, Dec. 18–31, 1985, woodland, baited yellow pitfall traps (S., J. Peck, AMNH), 2♂. **Zaire:** *Shaba:* Jaslotville, Oct. 1956 (Z. Baey, MRAC), 1♂.

DISTRIBUTION: Southern and central Africa to northern Pakistan and India.

SYNONYMY: The redescription by Tikader and Gajbe was presumably due both to the generic misplacements and the unexpectedly wide distribution of the species, which matches that of *S. subtilis* (although the species may have been introduced into Asia by humans).

Setaphis jocquei, new species

Figures 37–40

TYPES: Male holotype and female allotype from a humid savanna at Kossou, Ivory Coast (July 22–30, 1974; R. Jocqué), deposited in MRAC.

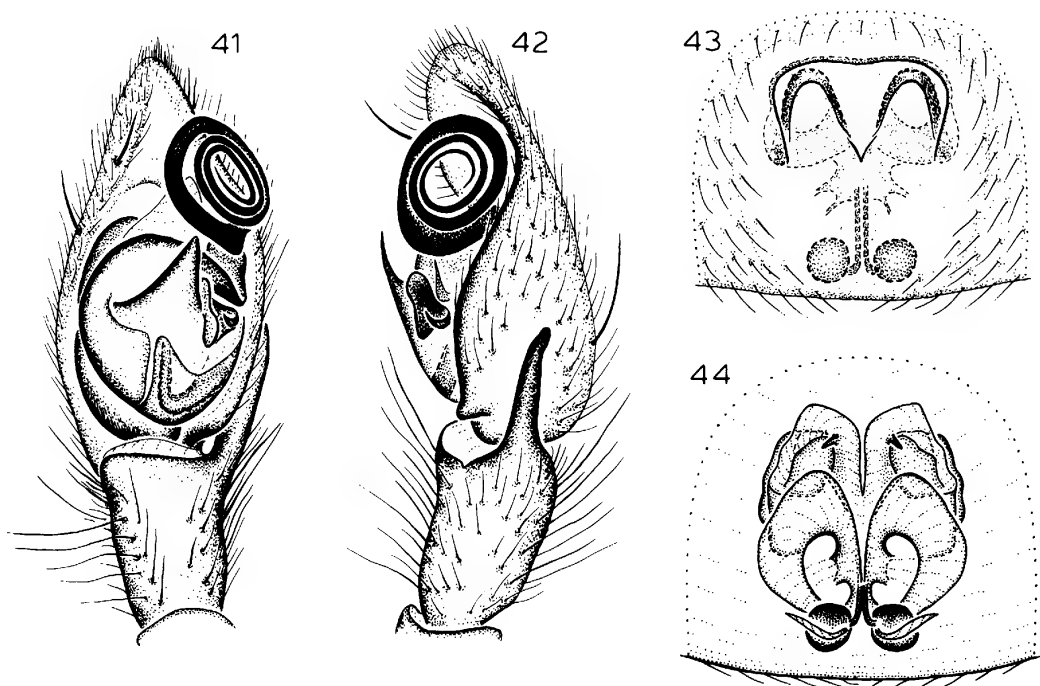
ETYMOLOGY: The specific name is a patronym in honor of the dedicated collector

and distinguished arachnologist, Dr. Rudy Jocqué.

DIAGNOSIS: Males can be recognized by the short, triangular terminal apophysis and strongly hooked median apophysis (figs. 37, 38), females by the u-shaped median epigynal plate and u-shaped median epigynal ridge (figs. 39, 40).

MALE: Total length 2.63. Carapace 1.05 long, 0.75 wide. Femur II 0.68 long. Eye sizes and interdistances: AME 0.06, ALE 0.07, PME 0.08, PLE 0.08; AME-AME 0.02, AME-ALE 0.00, PME-PME 0.01, PME-PLE 0.02, ALE-PLE 0.06; MOQ length 0.23, front width 0.14, back width 0.15. Leg spination: femora: III p0-0-1, r0-0-0; IV r0-0-0; tibiae: III p0-1-1; IV r1-1-0; metatarsi: II v1p-0-0; III p0-2-2, r0-1-2; IV v2-1p-0, r2-1-1. Terminal apophysis small, triangular, median apophysis large, hooked (fig. 37); retrolateral tibial apophysis produced ventrally (fig. 38).

FEMALE: Total length 2.93. Carapace 1.24 long, 0.83 wide. Femur II 0.75 long. Eye sizes and interdistances: AME 0.07, ALE 0.08, PME 0.07, PLE 0.05; AME-AME 0.03, AME-ALE 0.00, PME-PME 0.04, PME-PLE 0.02, ALE-PLE 0.03; MOQ length 0.14, front width 0.16, back width 0.18. Leg spination: femora I, II p0-0-0. Anterior epigynal ridge short,



Figs. 41–44. *Setaphis atlantica* (Berland). 41. Left male palp, ventral view. 42. Same, retrolateral view. 43. Epigynum, ventral view. 44. Same, dorsal view.

not reaching to posterior tip of epigynal mid-piece (fig. 39); posterior epigynal ducts almost circular (fig. 40).

OTHER MATERIAL EXAMINED: Ivory Coast: Kossou, July 22–30, 1974, humid savanna (R. Jocqué, MRAC), 3♂, 1♀, Oct. 10, 1974 (R. Jocqué, MRAC), 1♀, Dec. 1–15, 1974 (R. Jocqué, MRAC), 2♀, Apr. 15–28, 1975 (R. Jocqué, MRAC), 4♂, May 13–25, 1975 (R. Jocqué, MRAC), 4♂, May 23–June 10, 1975 (R. Jocqué, MRAC), 1♂, Aug. 4, 1975 (R. Jocqué, MRAC), 1♀; Warda Headquarters, Bouake, Sept. 12, 1994, pitfall traps, upland rice field (A. Russell-Smith, AMNH), 2♂, 2♀.

DISTRIBUTION: Known only from the Ivory Coast.

Setaphis atlantica (Berland)

Figures 41–44

Camillina atlantica Berland, 1936: 72, figs. 4, 5 (female holotype from Santo Antão, Cape Verde Islands, in MNHN, examined).

Camillina fibulata Berland, 1936: 72, figs. 6–8 (male holotype from Sal Rei, Cape Verde Islands, in MNHN, not available). **NEW SYNONYMY.**

Setaphis atlantica: Schmidt and Krause, 1994: 8.
Setaphis fibulata: Schmidt and Krause, 1994: 8.

DIAGNOSIS: Males can be recognized by the long, narrow terminal apophysis (figs. 41, 42), females by having the median epigynal ridge almost meeting the anterior epigynal margin (figs. 43, 44).

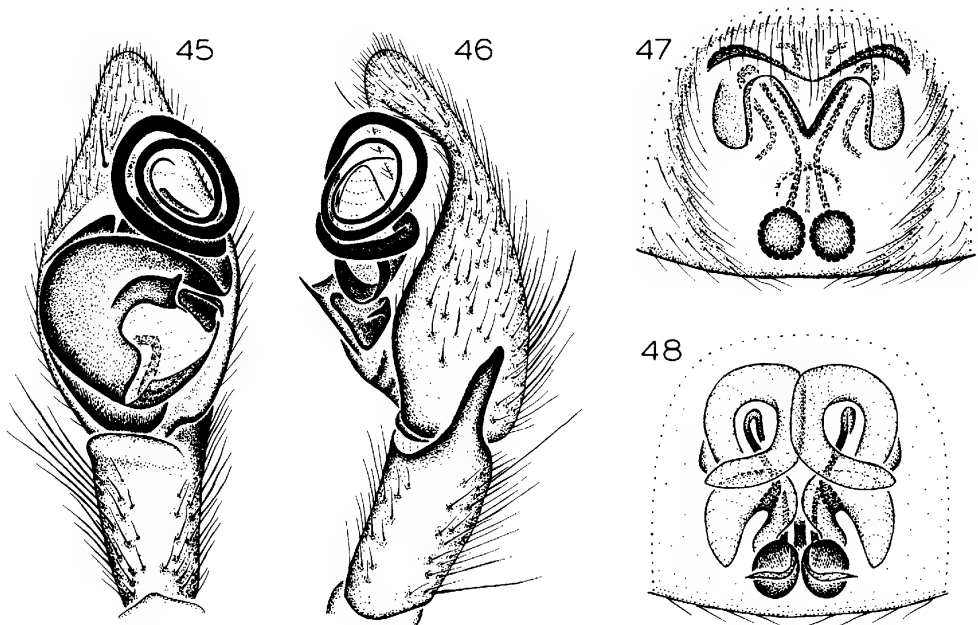
MALE: Described by Berland (1936).

FEMALE: Described by Berland (1936).

MATERIAL EXAMINED: Cape Verde Islands: Ponta do Sol, Santo Antão (MNHN), 1♀ (holotype); São Nicolau, 1958 (L. Pequeno, MRAC), 1♂.

DISTRIBUTION: Known only from the Cape Verde Islands.

SYNONYMY: Berland (1936) thought that *C. fibulata* was probably not the male of *C. atlantica* because it had some abdominal markings not found in that female. However, the male noted above (which fits Berland's palpal illustrations well) lacks those abdominal markings, and we conclude that there is as yet no evidence that more than one species of *Setaphis* occurs in the Cape Verde Islands.



Figs. 45–48. *Setaphis gomerae* (Schmidt). 45. Left male palp, ventral view. 46. Same, retrolateral view. 47. Epigynum, ventral view. 48. Same, dorsal view.

Setaphis gomerae (Schmidt),
new combination
Figures 45–48

Camillina gigas (misidentification): Schmidt, 1973: 362, figs. 4a, b (male only, not female holotype).
Zelotes gomerae Schmidt, 1981: 91, fig. 3 (female holotype from Garajonay, Gomera, Canary Islands, in NMS, examined).
Camillina canariensis (misidentification): Schmidt, 1982: 396.

DIAGNOSIS: Males can be recognized by the short projection restricted to the retrolateral side of the terminal apophysis (figs. 45, 46), females by the small, m-shaped epigynal ridge surrounding narrow, y-shaped ducts (fig. 47) and the sharply recurved posterior epigynal ducts and protuberant, narrow ducts in the pair of anterolateral epigynal excavations (fig. 48).

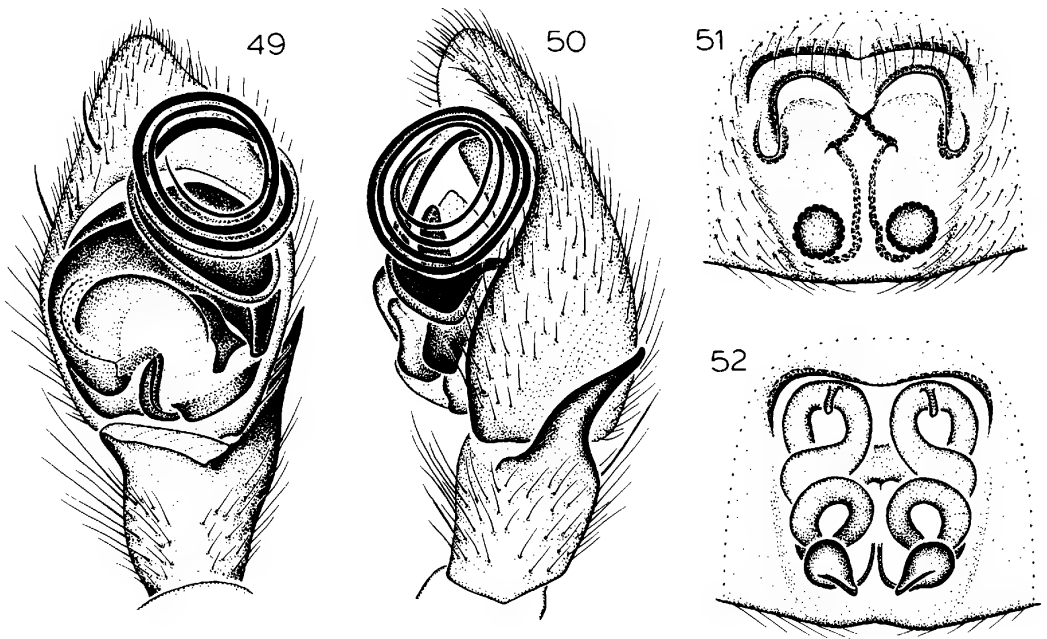
MALE: Described by Schmidt (1973).

FEMALE: Described by Schmidt (1981).

MATERIAL EXAMINED: **Canary Islands:** no specific locality (MNHN AR1630), 3♀. *Gomera:* Garajonay (G. Schmidt, NMS), 1♀ (holotype). *Gran Canaria:* Agaete, Aug., under stone (J. Wunderlich, CJW), 1♀; Barranco Guguy Grande, Aug. 4, 1990, pitfall trap, elev. 300 m (C. Campos, CJW), 1♀; Barranco Me-

rino, Aug. 29, 1990, pitfall trap, elev. 900 m (C. Campos, CJW), 3♀; Parrelillo, Aug. 29, 1990, pitfall trap, elev. 400 m (C. Campos, CJW), 2♀; Pinar Tamadaba, Aug. 22, 1990, pitfall trap, elev. 1200 m (C. Campos, CJW), 1♀; Pique Nublo, Apr. (J. Wunderlich, CJW), 2♂, 1♀. *La Palma:* Barranco Angustias, Feb.–Mar. (J. Wunderlich, CJW), 1♂, 2♀; Mazo, Mar. 18, 1975 (G. Schmidt, NMS), 1♂. *Tenerife:* no specific locality (J. Wunderlich, CJW), 2♂, 1♀, Nov. 1975 (P. Oromi, AMNH), 1♀, Mar. 1990 (D. Knösel, CJW), 3♂, 2♀; Bajamar, Feb. 30, 1974 (B. Malkin, AMNH), 2♂; Cañadas, May, elev. 2000 m (J. Wunderlich, CJW), 1♂; El Escobonal, Dec. 16, 1984 (D. Jones, CDJ), 1♀; Güimar, Dec. 16, 1984 (D. Jones, CDJ), 1♂, 1♀; Masca, Apr., under stones (J. Wunderlich, CJW), 1♂, 1♀; Mercedes forest, Apr.–June (J. Wunderlich, CJW), 1♂; Pinar Peral, Las Cañadas, July 18–Sept. 19, 1984, pitfall traps, elev. 2400 m (C. G. Campos G., CPA), 4♂, 1♀, May 1–July 23, 1985, pitfall traps, elev. 1700 m (C. G. Campos G., CPA), 2♀; Puerto De Santiago, Apr. (J. Wunderlich, CJW), 1♂; N Tijoco de Arriba, Dec. 19, 1984 (D. Jones, JAM), 1♀.

DISTRIBUTION: Known only from the western Canary Islands (Gomera, Gran Canaria, La Palma, and Tenerife).



Figs. 49–52. *Setaphis walteri*, new species. 49. Left male palp, ventral view. 50. Same, retrolateral view. 51. Epigynum, ventral view. 52. Same, dorsal view.

Setaphis walteri, new species

Figures 49–52

Camillina canariensis (misidentification): Schmidt, 1976: 325.

Camillina gigas (misidentification): Schmidt, 1981: 91.

TYPES: Male holotype and female allotype from Jandia, Fuerteventura, Canary Islands (May; J. Wunderlich), deposited in AMNH courtesy of the collector.

ETYMOLOGY: The specific name is a patronym in honor of American Museum Trustee Henry G. Walter, Jr., on the occasion of his 85th birthday.

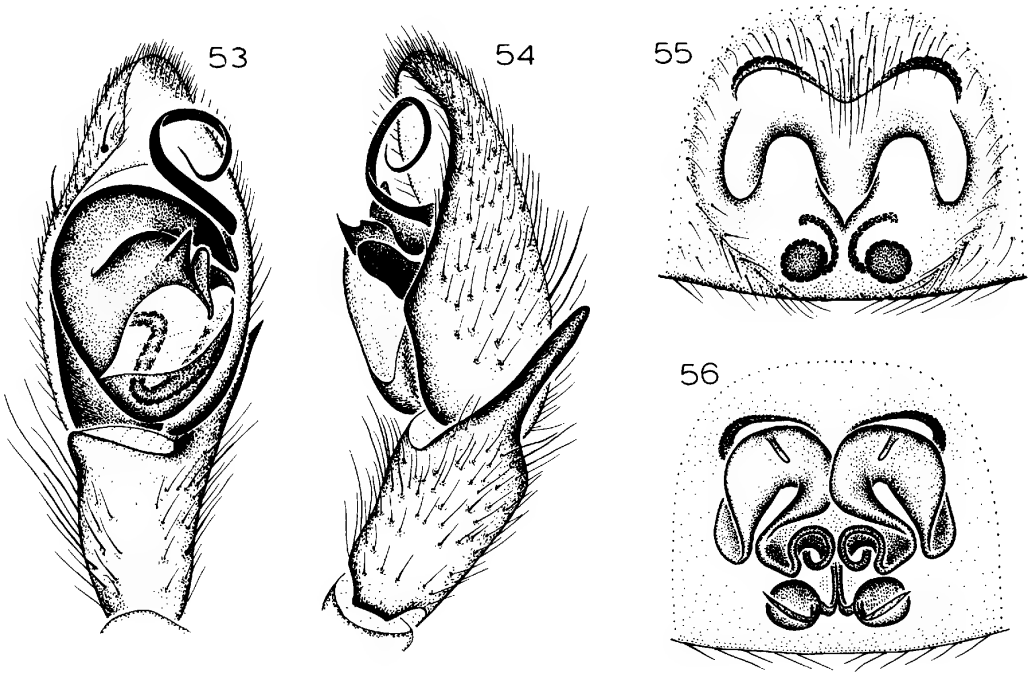
DIAGNOSIS: Males resemble those of *S. gomeræ* but have larger embolar coils, a longer, more distally extended terminal apophysis base, and lack a projection on the retrolateral side of the terminal apophysis (figs. 49, 50); females can be recognized by the diamond-shaped space between the median epigynal ducts (fig. 51) and the posteriorly directed blind extensions situated on the anterior epigynal ducts (fig. 52).

MALE: Total length 5.26. Carapace 2.33 long, 1.54 wide. Femur II 1.50 long. Eye sizes

and interdistances: AME 0.09, ALE 0.11, PME 0.12, PLE 0.11; AME-AME 0.05, AME-ALE 0.02, PME-PME 0.01, PME-PLE 0.04, ALE-PLE 0.06; MOQ length 0.27, front width 0.23, back width 0.26. Leg spination: femora IV p0-1-0, r0-1-1; tibiae: III r1-1-1; IV p1-2-2, v2-2-0; metatarsi: II v1p-0-0; III v2-2-0; IV r1-1-1. Embolus long, strongly coiled, terminal apophysis broad, rounded (fig. 49); retrolateral tibial apophysis displaced dorsally at tip (fig. 50).

FEMALE: Total length 5.64. Carapace 2.74 long, 2.07 wide. Femur II 1.99 long. Eye sizes and interdistances: AME 0.09, ALE 0.13, PME 0.12, PLE 0.12; AME-AME 0.09, AME-ALE 0.03, PME-PME 0.05, PME-PLE 0.05, ALE-PLE 0.08; MOQ length 0.34, front width 0.27, back width 0.29. Leg spination: femora IV p0-1-1, r0-1-1; tibiae: III r1-1-1; IV r2-1-1; metatarsi III v2-2-0. Epigynal ridge situated near anterior epigynal margin (fig. 51); anterior epigynal ducts with posteriorly directed extensions (fig. 52).

OTHER MATERIAL EXAMINED: Canary Islands: Fuerteventura: Jandia, May (J. Wunderlich, CJW), 1♂, 1♀; Puerto del Rosaria, May, under stone (J. Wunderlich, CJW), 1♂;



Figs. 53–56. *Setaphis wunderlichii*, new species. 53. Left male palp, ventral view. 54. Same, retrolateral view. 55. Epigynum, ventral view. 56. Same, dorsal view.

Puerto del Tosken, May (J. Wunderlich, CJW), 1♀; Tarajalejo, June 28, 1973 (G. Schmidt, NMS), 1♂. *Isla de Lobos*: no specific locality, Mar. 1993 (G. Schmidt, CGS), 1♀. *Lanzarote*: Arrecife, near airport, Mar. 22–23, 1974 (B. Malkin, AMNH), 1♀; El Golfo, May, under stone (J. Wunderlich, CJW), 1♀; Femco, May, elev. 400 m (J. Wunderlich, CJW), 1♂.

DISTRIBUTION: Known only from the eastern Canary Islands (Fuerteventura, Isla de Lobos, and Lanzarote).

Setaphis wunderlichii, new species

Figures 53–56

TYPES: Male holotype and female allotype taken under stones at Las Hayas, Gomera, Canary Islands (July; J. Wunderlich), deposited in AMNH courtesy of the collector.

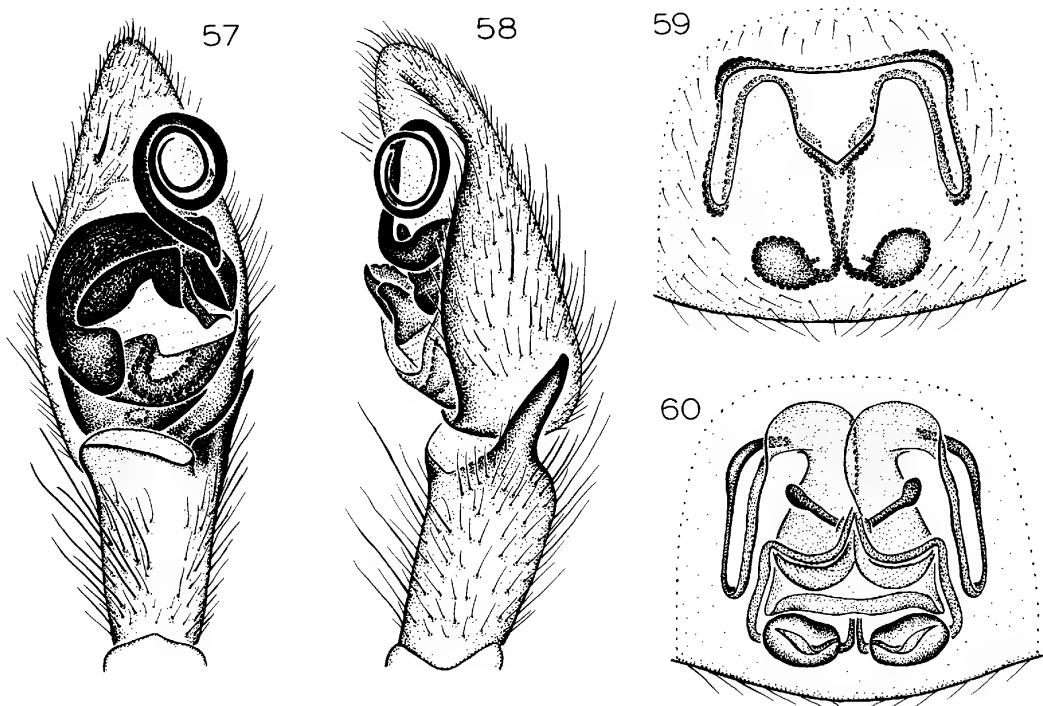
ETYMOLOGY: The specific name is a patronym in honor of the distinguished arachnologist, Jörg Wunderlich, who is the only person to have collected this species.

DIAGNOSIS: Males resemble those of *S. gomerae* but have a much smaller embolus coil (figs. 53, 54); females can be recognized

by the short, recurved median epigynal ducts (fig. 55) and the narrow posterior epigynal ducts (fig. 56).

MALE: Total length 6.24. Carapace 2.74 long, 2.22 wide. Femur II 2.07 long. Eye sizes and interdistances: AME 0.10, ALE 0.11, PME 0.13, PLE 0.13; AME-AME 0.08, AME-ALE 0.02, PME-PME 0.04, PME-PLE 0.06, ALE-PLE 0.09; MOQ length 0.36, front width 0.27, back width 0.29. Leg spination: femora IV p0-1-1, r0-1-1; tibiae: III p2-1-1, r2-1-2; IV p2-1-1, r2-0-2; metatarsi: II v2-1-0; III p2-1-1, v2-2-0, r1-2-2; IV p1-2-1, r1-2-2. Embolus short, forming single coil (fig. 53); retrolateral tibial apophysis moderately long, straight (fig. 54).

FEMALE: Total length 7.14. Carapace 2.63 long, 1.96 wide. Femur II 1.88 long. Eye sizes and interdistances: AME 0.09, ALE 0.12, PME 0.12, PLE 0.13; AME-AME 0.06, AME-ALE 0.01, PME-PME 0.03, PME-PLE 0.05, ALE-PLE 0.07; MOQ length 0.29, front width 0.23, back width 0.27. Leg spination: tibiae: III r2-1-1; IV p2-0-2, r2-1-1; metatarsi: III v2-2-0, r1-2-2; IV r1-2-2. Median epigynal ridge wide (fig. 55); anterior epigynal ducts



Figs. 57–60. *Setaphis canariensis* (Simon). 57. Left male palp, ventral view. 58. Same, retrolateral view. 59. Epigynum, ventral view. 60. Same, dorsal view.

expanded, with posteriorly directed extensions (fig. 56).

OTHER MATERIAL EXAMINED: Canary Islands: *Gomera*: Garajonay, July, under stone (J. Wunderlich, CJW), 1♀; Arure, July (J. Wunderlich, CJW), 1♂; Barranco of Vallehermosa, July, under stone, elev. 700 m (J. Wunderlich, CJW), 1♂; El Cedro, June–July, under stones (J. Wunderlich, CJW), 3♀; Las Hayas, July, under stones (J. Wunderlich, CJW), 1♀. *Hierro*: Las Playas, Aug. 1985, under stone (J. Wunderlich, CJW), 1♀. *La Palma*: Cumbrecita, Aug., under stone (J. Wunderlich, CJW), 1♀.

DISTRIBUTION: Known only from the far western Canary Islands (Gomera, Hierro, and La Palma).

Setaphis canariensis (Simon)

Figures 57–60

Echemus canariensis Simon, 1883: 292, fig. 16 (female holotype from Canary Islands, in MNHN, examined).

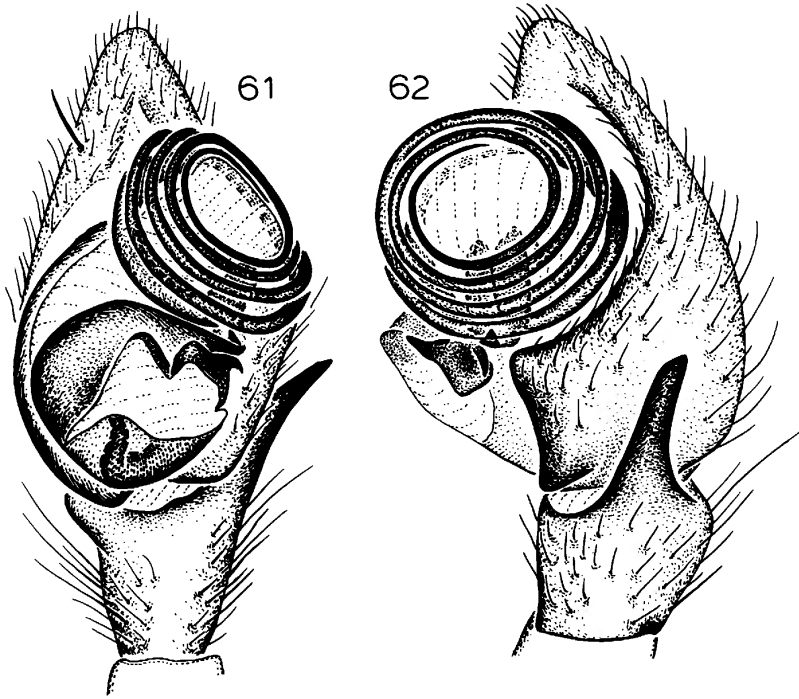
Camillina canariensis: Berland, 1919: 462.

Setaphis canariensis: Schmidt, 1990: 12.

NOTE: Males and females have not been collected together, but are matched here because of their respective similarities to the males and females of *S. wunderlichi*.

DIAGNOSIS: Males resemble those of *S. wunderlichi* in having a relatively small embolar coil, but lack a projection on the retrolateral side of the terminal apophysis (figs. 57, 58); females resemble those of *S. wunderlichi* in having relatively narrow posterior epigynal ducts but have a wider epigynal septum (fig. 59) and distinctive anterolaterally directed blind extensions on the anterior epigynal ducts (fig. 60).

MALE: Total length 5.00. Carapace 2.42 long, 1.99 wide. Femur II 2.03 long. Eye sizes and interdistances: AME 0.09, ALE 0.12, PME 0.13, PLE 0.11; AME-AME 0.06, AME-ALE 0.02, PME-PME 0.02, PME-PLE 0.04, ALE-PLE 0.05; MOQ length 0.25, front width 0.24, back width 0.28. Leg spination: femora IV p1-0-1, r0-1-1; tibiae III r1-1-1; IV r2-0-2. Embolus relatively small, with two complete coils (fig. 57); retrolateral tibial apophysis short (fig. 58).



Figs. 61, 62. *Setaphis villiersi* (Denis), left male palp. 61. Ventral view. 62. Retrolateral view.

FEMALE: Described by Simon (1883).

MATERIAL EXAMINED: **Canary Islands:** no specific locality (Verneau, MNHN AR78), 1♀ (holotype). **Lanzarote:** dunes S Orzola, Dec. 27–28, 1983 (D. Jones, CDJ), 3♂; El Jable, Dec. 26, 1983 (D. Jones, CDJ), 1♂; Femes,

May, elev. 400 m (J. Wunderlich, CJW), 1♂; Haria, May, under stone (J. Wunderlich, CJW), 1♂.

DISTRIBUTION: Known only from Lanzarote (Canary Islands).

ADDENDUM

After this paper had been completed, Moira FitzPatrick (NMZ) made us aware of a splendid series of *Setaphis* specimens from Somalia, belonging to the Museo di Storia Naturale, Firenze, Italy (MSN). As this series, made available to us through the courtesy of Dr. Sarah Mascherini (MSN), includes the first known males of *S. villiersi*, we append a description of them.

DIAGNOSIS: Males resemble those of *S. spiribulbis* in having a highly coiled embolus, but differ in having a much smaller embolar base bearing a distinct retrolateral apophysis (figs. 61, 62).

MALE: Total length 3.87. Carapace 1.62 long, 1.28 wide. Femur II 1.05 long. Eye sizes

and interdistances: AME 0.09, ALE 0.09, PME 0.12, PLE 0.09; AME-AME 0.05, AME-ALE 0.01, PME-PME 0.02, PME-PLE 0.04, ALE-PLE 0.05; MOQ length 0.24, front width 0.23, back width 0.24. Leg spination: tibiae: II v1r-1r-2; IV r2-1-1; metatarsi: I v2-2-0; II v2-1p-0. Terminal apophysis short, embolar base with distinct retrolateral apophysis just below origin of embolar coils (fig. 61); retro-lateral tibial apophysis straight (fig. 62).

MATERIAL EXAMINED: **Somalia:** Sar Uanle, Oct. 22–Nov. 5, 1971 (MSN), 7♀, Nov. 16, 1971 (MSN), 2♂, May 28–June 18, 1973 (MSN), 7♀, June 20–21, 1973 (MSN), 3♂, Oct. 26 (MSN), 1♂.

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