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SHORT COMMUNICATION

ZOROPSIDAE: A SPIDER FAMILY NEWLY INTRODUCED TO THE USA (ARANEAE, ENTELEGYNAE, LYCOSOIDEA)

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ABSTRACT. The spider family Zoropsidae is newly recorded for the USA, bringing the total to 68 families. *Zoropsis spinimana* (Dufour 1820), native to the Mediterranean region, has been established in the San Francisco Bay area since at least 1995. The identification and phylogenetic position of this species are provided.

Keywords: Spiders, exotic, introduction, Zoropsidae, Lycosoidea

Zoropsis spinimana (Dufour 1820) has been encountered several times over the past five years in the San Francisco Bay region of California. This remarkable species was first brought to the attention of Marge Moody of the California State Department of Agriculture (CDFA) who sent specimens to us at the California Academy of Sciences (CAS) for identification. An additional specimen was sent to us by Rick Vetter of the University of California, Riverside (UCR). Both males and females have been encountered, and specimens have been taken both in houses and in nurseries. Records are from the winter and spring (December through May) and early fall (September and October). The presence of this species in at least five cities in two counties suggests that *Zoropsis spinimana* (Dufour) has been introduced to and established in the San Francisco Bay area of central California. According to one informant, the spiders were found ''high on interior walls or ceilings.'' A captive female made no web for prey capture. When that female produced an egg sac in April she surrounded the sac with a wall of cribellate silk; cribellate silk was carded with mobile leg IV (Eberhard & Pereira 1993). Captive spiders were not aggressive and may not be considered dangerous, though there are possible cases of evenomization in France attributed to this species (Emerit & Bonaric 1995).

Zoropsidae contains two genera: *Takeoa* Lehtinen 1967 and *Zoropsis* Simon 1878 (Platnick 1993). The family was previously known from the Palearctic region with records from the Canary Islands on the west, and east through the circum-Mediterranean region and the Balkans to China, Japan and Korea (Roewer 1954:1284; Brignoli 1983: 591; Platnick 1989:504, 1993:587; 1997:611). *Zoropsis spinimana* has been reported from the circum-Mediterranean (Wunderlich 1994).

Zoropsis has been represented in two recent phylogenetic studies. In a study of the Lycosoidea and their kin, Griswold (1993) confirmed the monophyly of a Zoropsidae including *Zoropsis* and *Takeoa*. In that study, zoropsid synapomorphies were a membranous process on the papal tegulum (in addition to the conductor and median apophysis) (Fig. 2) and shallowly notched trochanters. Griswold et al. (1999) found that *Zoropsis, Acanthoctenus* and *Psechrus* exemplify a monophyletic Lycosoidea (in part) defined by the synapomorphic presence of claw tufts, grate-shaped tapetum in the indirect eyes (with homoplasy in Stiphidiidae), and the presence of a minor ampullate gland spigot nubbin on the posterior median spinnerets.

Zoropsis spinimana is easily recognized. It keys to Tengellidae in Roth's (1993) *Spider Genera of North America*; p. 37: couplet 5, Section III (eight-eyed spiders), Group I (cribellates). It differs from spiders placed in Roth's 'Tengellidae' (in his paper represented only by *Zorocrates*, which is now placed in Zorocratidae) by having the body patterned (Fig. 1) rather than unicolorous, having the posterior eye row strongly recurved (Fig. 1) rather than straight to weakly procurved, having 6–7 pairs of spines beneath tibia I (Fig. 1) rather than 4–5

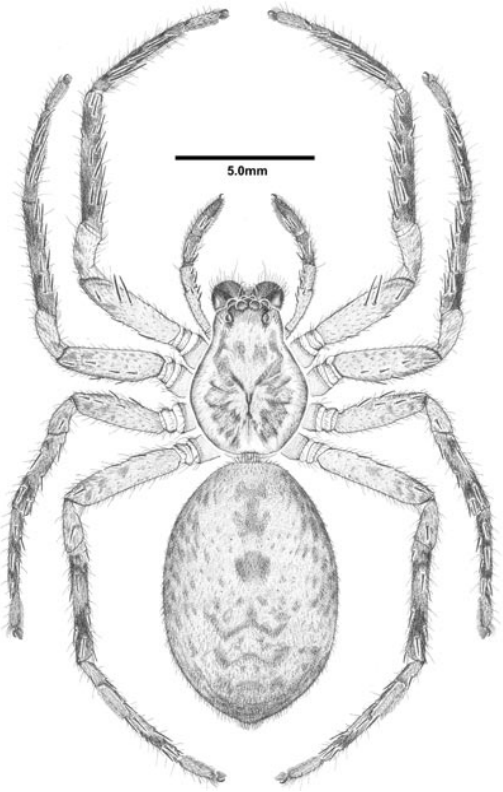

Figure 1.—Dorsal view of female *Zoropsis spinimana* (Dufour) from Sunnyvale, California.

pairs, and lacking the inferior tarsal claw from all tarsi (Griswold 1993, fig. 6) rather than retaining the inferior claw on tarsus I. Like other cribellate members of the Lycosoidea and their kin, *Zoropsis* has an oval calamistrum on metatarsus IV of females and juveniles (Fig. 1; Griswold 1993, fig. 1). The male palpus has a short, blunt embolus, hyaline conductor, hooked median apophysis and an additional, membranous process that cradles the embolus (Figs. 2, 5). The epigynum (Fig. 3) is unusual in having a central, digitiform scape, which is hollow (Fig. 4) and reminiscent of some araneids and some species of the South African lycosoid genus *Phanotea* Simon 1896 (Griswold 1994, figs. 79, 80).

This discovery adds another spider family to the list for the USA. Roth (1993) lists only 59 spider families occurring in the USA, but he maintains broad limits for several families now subdivided (Platnick 1993) including Agelenidae (which also includes Cybaeidae), Clubionidae (also including Corinnidae, Liocranidae, and Miturgidae), Linyphiidae (also includes Pimoidae), and Amaurobiidae (also includes Titanoecidae). Additionally, *Metaltella* is now placed in the Amphinectidae (Davies 1998; Griswold et al. 1999), *Zorocrates* in the Zorocratidae (Griswold et al. 1999), and *Liocranoides* and relatives in the Tengellidae (Platnick 1999). The addition of Zoropsidae increases the known spider fauna of the USA to 68 families.

Marge Moody of the California State Department of Agriculture (CDFA) sent the first specimens to

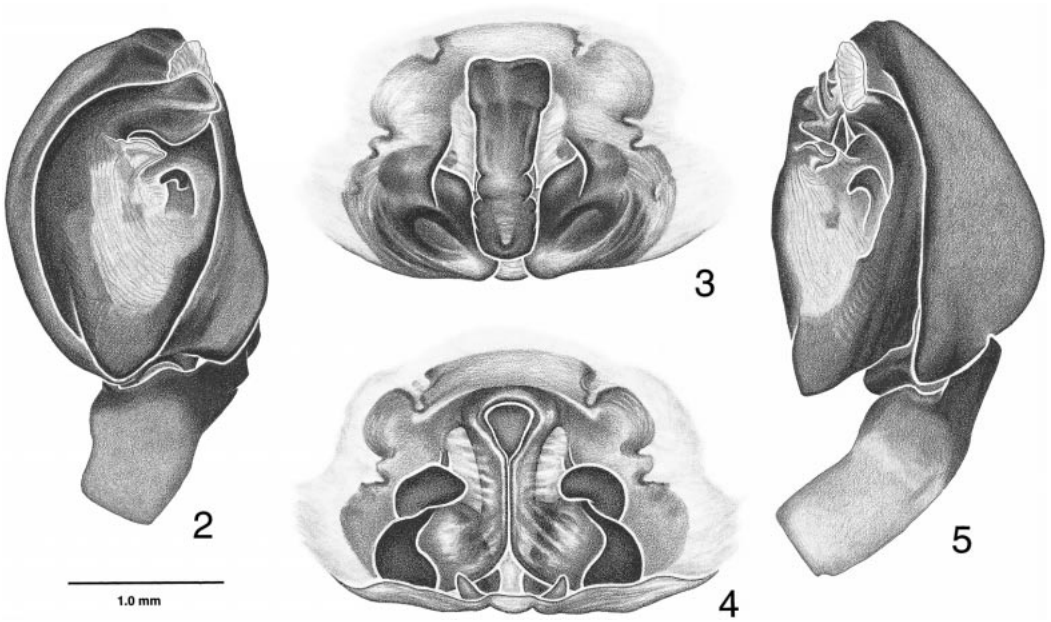

Figure 2–5.—Genitalia of *Zoropsis spinimana* (Dufour) from Sunnyvale, California. 2, Left male pedipalpus, ventral; 3, Epigynum, ventral; 4, Vulva, dorsal; 5, Left male pedipalpus, retrolateral.

us for determination. The habitus illustration and those of the male pedipalpus are by Michelle Schwengel. Her work was supported by the California Academy of Sciences through the Fellows' Artist Intern Program. The illustrations of the female epigynum and vulva are by Jenny Speckels, who was supported by the Exline-Frizzell Fund of the CAS Department of Entomology.

MATERIAL EXAMINED. CALIFORNIA: *Alameda County:* Oakland, SE side of Lake Merrit, in house, 24 September 1997, K. Lundstrom, 1♀, CAS. *Santa Clara County:* Cupertino, inside house, 21 October 1996, M. Beauregard, 1♂, CAS (CDFA #1174531). Sunnyvale, inside house, January–March 1999, V. Romano, 1♂1♀, CAS, (CDFA #993770). In house, 2 January 1998, J. Ward, 1♂, UCR; 3 February 1998, M. Murray, 1 penultimate ♂, CDFA (#1019167). Found in house, 12 February 1996, M. Beauregard, 1♂, CAS (CDFA #1019036). 27 April 1998, M. Nachand, 1♀, CDFA (#1174929). In house, 11 October 1995, M. Beauregard, 1♀, CAS (CDFA #1019033); 12 October 1995, M. Murray, 1♀, CAS (CDFA #1141353). In house, 22 October 1992, M. Beauregard, 1♀, CDFA (#750348). Santa Clara, 31 December 1997, M. Murray, 1♀, CDFA (#1019023). San Jose, in nursery, 1 April 1999, M. Murray, 1♀, CDFA (#1162149).

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