

NOTES ON THE COPULATORY POSTURES OF SALTICID SPIDERS. Robert R. Jackson

Gerhardt and Kaestner (1937) devised a classification of the copulatory postures of spiders that has gained general acceptance. The salticids adopt Posture No. 2. In this posture the male and female face opposite directions, the male's ventral surface is against the female's dorsal, and the palpal organs are applied one at a time, the right palp to the right copulatory orifice of the female and the left palp to the left orifice. I have found only one account in the literature (for references see Jackson 1977) of salticids copulating in a different posture.

Apparently many salticids copulate both inside and outside their nests (Jackson 1978). Snetsinger (1955) reported that two North American species, *Phidippus audax* and *P. clarus* [as *P. rimator*: ed.'s note] routinely assume a ventral-to-ventral position when copulating inside nests. Curiously, there has been hardly any comment in the literature concerning this unexpected finding. Although Snetsinger did not describe the copulation of these species taking place outside the nests, this has been observed by other researchers (*P. audax*: Bailey 1968, Taylor and Peck 1974, Jackson unpublished observations; *P. clarus*: Kaston, 1936), and only Posture No. 2 occurred. This suggests that salticids might adopt different copulatory postures depending on whether they mate inside or outside their nests.

In a study of *Phidippus johnsoni* (Jackson 1976), ca. 400 copulations were observed, with nearly equal numbers inside and outside the nests. A posture other than No. 2 occurred only once. While the pair were copulating outside the nest, the female became momentarily active and caused the male to slide off. However, his palpal organ remained engaged for another 2 min., during which time his hematodocha continued to pulsate. During this period he lay on his sagittal plane ca. 45° to the sagittal plane of the female and only his palp in contact with the female. When the female became active again disengagement occurred, and the male remounted and resumed copulation in Posture No. 2. Although this seems to have been an aberrant copulation for this species, it does suggest that postures other than No. 2 are feasible for salticids. However it provides no corroboration of Snetsinger's observations.

In my study, as in most studies of salticid mating, the spiders interacted in simple laboratory environments. However when I observed 15 copulations in terraria with vegetation present, two were unusual. (1) The female stood on a leaf with a small stem passing diagonally across her carapace. After the male mounted, the female's abdomen rotated and the male applied his palp with the stem between his ventral abdomen and the female's carapace. (2) The pair began copulating on a stem, but the female fell and remained suspended by her dragline. The male remained mounted (Posture No. 2) with his palp engaged for another 40 sec. and his hematodocha pulsating. No dragline from the male was evident. When the female became active, the pair separated, both the male and female climbed the dragline back to the stem, and the female departed.

These observations suggest that more effort should be made to observe salticids mating under natural conditions. For example, although copulation while suspended from draglines may be rare in *P. johnsoni*, it is the routine procedure in some Oxyopidae (Gerhardt 1933, Whitcomb and Eason 1965), raising the question of whether it might occur routinely in some of the more arboreal species of salticids. Some species of salticids hang suspended from tree branches by draglines at night (Eberhard 1974, Carroll 1977, Jackson, unpublished observations from North America and New Zealand), and it might be especially fruitful to investigate the mating behaviour of these more closely.

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