

MATING BEHAVIOUR IN *TRITE AURICOMA*, A NEW ZEALAND JUMPING SPIDER. L. M. Forster

The article on mating behaviour in *Phidippus princeps* by David Hill is of considerable interest to me as is the paper on courtship versatility by Robert Jackson (whom I had the pleasure of meeting while in the States in 1976).

Below is a brief description of mating behaviour in *Trite auricoma*, a species endemic to New Zealand and found almost exclusively in the rolled-up leaves of *Phormium tenax* and *Cordyline* spp. (These plants, also endemic, have some similarity to *Yucca*).

Field observations of this species are all but impossible for these spiders appear to restrict their activities to the inside or underside of the leaves and are seldom seen outside.

T. auricoma is a brown spider lightly clothed with pale yellow hairs with a body length of about 5-7 mm (male) and 7-9 mm (female). In an "open" situation in the laboratory, courtship behaviour is similar in many respects to that described for *Phidippus* spp. The male raises his forelegs high and wide and approaches the female in a zigzag pattern, periodically bending the legs at the femur-patella joint, then lowering the legs to the ground, raising them again etc. The female watches in a slightly crouched position. If she has already mated or is not receptive for other reasons (seasonal perhaps) she may gradually assume a much tighter crouch, raise herself from the ground and bend her legs at much sharper angles. If the male continues to approach she will raise her front legs and palps sideways, extend her chelicerae and fend him off when contact occurs (see Fig. 1).

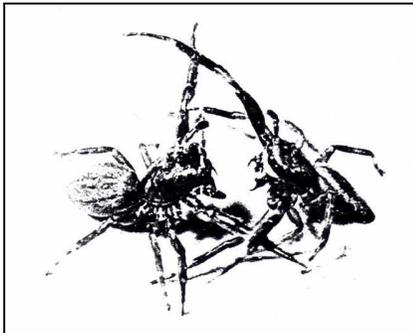


Fig. 1. *Trite auricoma* pair. Unreceptive female rejects a male. Note the extended chelicerae. Female on left, male on right.

However, if the female is known to be receptive, she waits in the previously described manner until the male is about 10 cm away. Then she turns and runs away for about 20-30 cm with the male following her doing a few leg-raises, etc. at the same time. The female then turns and faces the male again, so the male settles down into a more formal and organised approach sequence. This may be repeated many times.

I have observed this performance on about 20 occasions and have timed it from 30-90 minutes. In about 20% of these cases mating eventually occurred and copulation ranged in time from 40 minutes to 2 hours. In one particular instance when this run-follow performance had been in operation for about 1½ hours, with the female running every time the male touched her, I put her back in her plastic container whereupon she immediately returned to her web retreat. On an impulse I put the male into her container and within less than 2 minutes he was in the retreat mating with her.

I repeated this with another pair the next day and the same thing happened. Unfortunately I had no more spiders at the time and have not been able to investigate this any further.

At that time I gave little thought to this behaviour but now wonder if the following interpretation could be put upon it.

Jumping spiders are diurnal and are obliged to hunt outside their retreats. Males and females must come into "contact" on such occasions so perhaps the run-follow performance I have witnessed is a mechanism designed, after recognition, to enable the female to lead the male back to her retreat. Clearly mating in the open, if it takes as long as I have timed it, would be a hazardous procedure. How does the female find her retreat? This might be explained by the presence of polarised light receptors in the AME as suggested by Land (1969) and Eakin and Brandenburger (1971), although it would seem from this spider's life style anyway, that making use of polarised light would be out of the question.

The question is, does this behaviour represent an intermediate form between those species which have quick out-in-the-open, on-the-spot courtship and mating procedures and the dichotomous performances described by Robert Jackson. [According to Jackson, *P. johnsoni* either utilize a visual courtship display in the open, or they mate with the females in their retreats- ed.] Sometime I hope to do some more work on this but in the meantime I would be interested in observations which might confirm or refute this suggestion.

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