

**Courtship behaviour of Smith's tiger spider *Poecilotheria smithi*
(Arachnida: Theraphosidae) in the wild**

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The reproductive behaviour of Mygalomorph spiders in the wild is scarce, due to their nocturnal and cryptic habits. The current study describes and interprets the courtship behaviour exhibited by Smith's tiger spider *Poecilotheria smithi* in the wild. Behavioural observations were conducted in the area of Ranamure (GPS coordinates are 7°24'0" N and 80°48'0" E) in the Knuckles region of Sri Lanka. Observations began at 19.45 hours and continued until the behaviour was over. The same mating couple was observed throughout the observation period, which lasted for four consecutive days from 10th November 2013 to 14th November 2013. We selected scan sampling as the sampling rule and instantaneous sampling as the recording rule, mating behaviour was observed following Martin and Bateson 1993. Behavioural transitions were calculated in one of the two ways depending on whether the transition occurred only once during the reproduction. An ethogram of 20 behavioural acts was compiled. The courtship behaviour (pedipalp drumming, leg drumming, push-up and shaking) was divided into three distinct patterns; orientation, persuasion and copulation. Adult males perform courtship movements, when they locate a female's burrow probably in order to avoid female aggression. Females displayed typical behaviour of a burrowing tarantula, making rapid bouts of tapping vigorously with the first pair of legs and palps. The mating position observed was typical of mygalomorphs, in which the female raises her body up and opens her fangs, while the male uses the legs to hold the female up and finally begin a series of attempts at palpal insertion. The dorsal flexion was observed during mating and the number of successful matings in open arenas suggests that copulation would take place outside the burrow. Males appear to use chemical and/or tactile cues from the females silk around the burrow during short-range searching behaviour. We did not observe sexual cannibalism during the courtship behaviour of these spiders.

Key words: Mygalomorph spiders, *Poecilotheria smithi*, Courtship behaviour, instantaneous sampling

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