1985. The Journal of Arachnology 13:395

ADHESIVE TECHNIQUE FOR CAPTURE OF BURROW-DWELLING SPIDERS

The suitability of *Geolycosa* spp. for field studies has been recognized and exploited in investigations of demography, wasp predation, activity patterns, metabolism and thermoregulation (Humphreys 1974, 1975a, 1975b, 1978; Gwynne 1979; McQueen 1978, 1979, 1980, 1983; McQueen and Culik 1981). Adult spiders of this group inhabit tubular burrows which extend straight down 20-40 cm, terminating in a slightly enlarged side chamber at the bottom. Humphreys (1974) employed traps to capture *G. godeffroyi* (L. Koch), but noted less than 100% success in all populations studied. McQueen (1978) experimented with numerous capture techniques for *G. domifex* (Hancock) ((= *G. missouriensis* (Wallace 1942)) and resorted to use of a medical otoscope for monitoring burrow occupants.

During an experimental field study of *Geolycosa rafaelana* (Ch.), I developed a technique for capture of adults without damage to the spider or its burrow. The capture device employed adhesive strips cut from the inner surface of Raid Roach Traps (© 1980, S. C. Johnson and Son, Inc.). The adhesive was wrapped around the end of a paper clip, which was suspended into the burrow with string. A termite or ant was placed on the adhesive as bait, stimulating the spider to grasp with its chelicerae, and thereby becoming firmly embedded in the adhesive. Following extraction from the burrow, the spider was released by brushing a drop of corn cooking oil against the adhesive surface.

This technique was used to capture more than 150 adult spiders for marking and release during a two year period. Capture success was 100% except during April-May, when females bearing egg cases were unreceptive to capture, and would actively extrude the device from their burrows. Commercial adhesive for trapping insects (Tangle-Trap) was found to be too thin for effectively embedding the spider's chelicerae. Passive traps employing adhesive strips placed within the burrow entrance succeeded in snaring some individuals by one or more legs, but leg loss (and resultant escape of spider) occurred when the strip was removed from the burrow.

This study was supported in part by a grant from Sigma Xi, The Scientific Research Society, and was conducted within an area designated for the purposes of a National Science Foundation Long Term Ecological Research project at a Chihuahuan Desert site near Las Cruces, New Mexico, USA. I thank Walter G. Whitford and Walt Conley for advice and aid, Vince Roth and G. B. Edwards for reviews of the manuscript, and June Peyton for manuscript typing.

LITERATURE CITED

Gwynne, D. J. 1979. Nesting biology of the spider wasps (Hymenoptera; Pompilidae) which prey on burrowing wolf spiders (Araneae: Lycosidae, *Geolycosa*). J. Nat. Hist., 13:681-692.

Humphreys, W. F. 1974. Behavioral thermoregulation in a wolf spider. Nature, 251:502-503.

Humphreys, W. F. 1975a. The food consumption of a wolf spider, *Geolycosa godeffroyi* (Araneae: Lycosidae), in the Australian Capital Territory. Oecologia, 18:343-358.

Humphreys, W. F. 1975b. The influence of burrowing and thermoregulatory behavior on the water relations of *Geolycosa godeffroyi* (Araneae: Lycosidae), an Australian wolf spider. Oecologia, 21:291-311.

Humphreys, W. F. 1978. The thermal biology of *Geolycosa godeffroyi* and other burrow inhabiting Lycosidae (Araneae) in Australia. Oecologia 31:319-347.

McQueen, D. J. 1978. Field studies of growth, reproduction, and mortality in the burrowing wolf spider *Geolycosa domifex* (Hancock). Canadian J. Zool., 56:2037-2049.

McQueen, D. J. 1979. Interactions between the pompilid wasp *Anoplius relativus* (Fox) and the burrowing wolf spider *Geolycosa domifex* (Hancock). Canadian J. Zool., 57:542-550.

McQueen, D. J. 1980. Active respiration rates for the burrowing spider *Geolycosa domifex* (Hancock). Canadian J. Zool., 58:1066-1074.

McQueen, D. J. 1983. Mortality patterns for a population of burrowing wolf spiders, *Geolycosa domifex* (Hancock), living in southern Ontario. Canadian J. Zool., 61: 2758-2767.

McQueen, D. J. and B. Culik. 1981. Field and laboratory activity patterns in the burrowing wolf spider *Geolycosa domifex* (Hancock). Canadian J. Zool., 59:1263-1271.

Wallace, H. K. 1942. A revision of the burrowing spiders of the genus *Geolycosa* (Araneae, Lycosidae). Amer. Midl. Nat., 27:1-62.

Manuscript received October 1984, revised January 1985.

Marsha Reeves Conley, Department of Biology and Department of Mathematics, New Mexico State University, Las Cruces, NM 88003.