

NATURAL HISTORY NOTES ON THE HUNTSMAN SPIDER *HOLCONIA IMMANIS* (ARANEAE, HETEROPODIDAE)

Our ecological knowledge of huntsman spiders of the family Heteropodidae is very limited. Even the taxonomy of this family has been worked out poorly. The last complete revision dates back to Hogg (1903). The recently resurrected genus *Holconia* ranges over most of mainland Australia (Hirst 1990), and *Holconia immanis* (Koch) is found in eastern Australia from Queensland to Victoria. *H. immanis* is a large spider: males attain a body length of 30 mm, and females one of 47 mm (Mascord 1970).

New observations of this species were made during a population ecological study of the arboreal gecko *Gehyra variegata* (Duméril & Bibron) (Henle 1990) in Kinchega National Park (32°28'S, 142°20'E), western New South Wales, Australia, from September 1985 to May 1987. Voucher specimens are deposited in the National Insect Collection, Commonwealth Scientific and Industrial Research Organization, Canberra. I thank R. Moran and D. Russell for identification of the spiders.

Gehyra variegata and *H. immanis* were found primarily in black box (*Eucalyptus largiflorens*) riverine woodland on heavy textured cracking clay and in low numbers on a red sand dune covered by hopbush (*Dodonaea attenuata*). In contrast to the abundant gecko, three adult *H. immanis* lived at the huts of Kinchega station in 1986-87. However, several specimens were found on an old brick building at Mt. Wood Station, Sturt National Park. *H. immanis* was not found on river red gum (*E. camaldulensis*) in Kinchega nor at Mt. Wood Station.

Detailed observations on adult females (adults usually determined by size alone: body length > 30 mm) were made in a 150 × 100 m study plot in riverine woodland with 41 widely spaced black box trees. *H. immanis* and *G. variegata* use the same microhabitat. They were found primarily on the trunks of trees or on large branches. The correlation of the number of adult females seen per tree with eight microhabitat variables (height, diameter, number of trunks, leaf area index, number of potential retreat sides, distance to the

next tree, food availability, and number of *G. variegata* seen - see Henle [1990] for details of methods) was tested. None of the product-moment-correlations ($-0.16 \leq r \leq 0.40$) was significant (all $\alpha > 0.05$). However, in another more elevated study site of black box riverine woodland, Henle (1990) found a significant correlation of the number of adult female spiders with tree diameter and a marginally significant correlation with tree height and leaf area index. Thus, in this study site, larger trees tend to harbor more specimens.

Both species are typical sit-and-wait foragers. Adult *H. immanis* seem to have 1-2 preferred ambush sites where most individuals were observed on many consecutive nights up to a period of 6 months. The capture of ten food items was witnessed: 1 Pauropoda, 1 Chilopoda (Fig. 1), 2 Lycosidae, 1 subadult *H. immanis*, 1 Phasmida, 1 Heteroptera, 2 Coleoptera, and 1 Lepidoptera. The size of the prey ranged from approximately 0.75 cm to > 10 cm. One unsuccessful predation attempt on a juvenile *Gehyra variegata* was observed. The gecko was not pursued for more than 2-3 cm.

Active specimens were found in all months between September and May. They were inactive in July and August. The recapture of marked specimens showed that *H. immanis* overwinters as adults as is the case in *Clubiona robusta* (Koch) of South Australia (Austin 1984) but contrasts to spiders of colder climates in the Northern Hemisphere which overwinter mainly as eggs (Turnbull 1973).

In September and November 1986 and January 1987, a mark-recapture study was undertaken in the 150 × 100 m study plot. Adult females (body length > 30 mm) were marked on different legs with two colors of nail paint. The marking was visible at least for three weeks, sometimes for two months, and lasted through hibernation (four months). The mark-recapture data of 10 consecutive days were fitted to the geometric and the Poisson distributions (Caughley 1980). The fit to the Poisson distribution was



Figure 1.—*Holconia immanis* preying upon a large centipede.

poor in all three cases ($\chi^2 > 1.949$; $\alpha < 0.2$) while the geometric distribution fitted the data well ($\chi^2 < 0.218$; $\alpha > 0.5$). Thus, the geometric distribution was used to estimate population size. Confidence intervals (CI) were calculated according to Henle (1983). The estimated number of adult female *H. immanis* was 35 (95%–CI: 26–45), 22 (95%–CI: 14–30), and 19 (95%–CI: 11–27) for September 1986, November 1986, and January 1987, respectively. Thus, there appears to have been considerable mortality of adult females between September and November 1986. The mortality of approximately 50% during four months suggests that adult females live for approximately 4–16 months. Miller & Miller (1991) found a similar yearly survivorship of *Geolycosa turricola* (Treat). Only two of the 47 marked individuals with a size of ≥ 3 cm changed the tree

of original capture and moved 30 m and 15 m within two and three days, respectively.

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Manuscript received 6 March 1992, revised 20 January 1993.