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OBSERVATIONS ON PARENTAL CARE IN THE FAMILY ARADIDAE (HETEROPTERA).

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ABSTRACT

New observations of maternal care by *Neuroctenus simplex* and *N. elongatus* are reported.

Most Aradidae are thought to be mycetophagous and are typically found in leaf litter, on or under fallen limbs, on polypore fungi, or under bark. Literature on aradids found in unusual habitats or thought not to be mycetophagous is reviewed by Kormilev and Froeschner (1987). Aradids of temperate regions, including those reported here, are typically found under loose bark of dead trees where they may aggregate in large numbers (Lee and Pendergrast 1977, McClure 1932, Myers 1921, Usinger and Matsuda 1959).

Parental care has been reported for *Neuroctenus pseudonymus* Bergroth (McClure 1932), *Brachyrhynchus membranaceus* (Fabricius) (Takahashi 1934), and may occur in *Ctenoneurus hochstetteri* (Mayr) (Myers 1921). Takahashi (1934) found an adult female of *B. membranaceus* standing over young nymphs, while McClure (1932) saw an adult (perhaps a male) of *N. pseudonymus* guarding the eggs and young. Observations reported here provide further evidence of maternal care in Aradidae.

Myers (1926) observed first and second instars of *Ctenoneurus hochstetteri* on the backs of adults in New Zealand, but it is not clear whether this was an instance of parental care or an accidental occurrence in a highly gregarious species. Takahashi (1934) collected two adult females and four nymphs of *Brachyrhynchus membranaceus* in Taiwan and observed the bugs over a 19 day period (12-31 August) until all had died. He observed nymphs underneath and on top of an adult female in a glass vial with some bark, but did not make any observations in the field. He makes no mention of the female guarding eggs, only guarding nymphs.

McClure (1932) suggests the occurrence of paternal care rather than maternal care in *N. pseudonymus*. Although paternal care is known in a few Heteroptera (Ralston 1977, Ridley 1978, Smith 1980), most notably in the Belostomatidae, maternal care is by far more typical (Bequaert 1935, Hussey 1934, Odhiambo 1959, Tallamy and Denno 1981, Wilson 1971).

McClure (1932) observed a female of *N. pseudonymus* leaving her eggs. Subsequently, another adult, which was darker in coloration, moved over the eggs where it remained until two days after the nymphs had emerged, over two weeks later. He stated that the second adult was "probably the male."

On 21 March 1985, an adult female of *Neuroctenus simplex* (Uhler) was observed over 28 eggs under the bark of a dead water oak (*Quercus nigra*) in Brazos County, Texas. On 16 April, a second female was observed standing over 13 eggs under the bark of an unidentified species of dead oak tree. The latter female, eggs, and other specimens of *N.*

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simplex were taken back to the laboratory for observation. The bugs were maintained at 21-24 C (photoperiod not controlled) in petri plates (ca. 9 cm diam., 2 cm depth) covered on the bottom with a disc of filter paper. Oak wood, bark, and moist cotton were also provided.

By 21 April, some of the eggs had hatched and the female was now standing over eggs, eggshells and first instar nymphs. At the same time, she was observed mating.

On 25 April, the female again mated while standing over the eggs and first instar nymphs. By 26 April, all eggs had hatched and about half of the nymphs were second instars. The exact number of nymphs in each stage was not determined since intrusion might have caused the female to abandon her eggs. She remained over the nymphs until 28 April. All but two nymphs had molted to the second instar by this time, and only two nymphs remained on the now unguarded cluster of eggshells. She was again observed mating on 29 April, but was no longer near the eggshells or young nymphs.

The adult female was always motionless when standing over the eggs and nymphs, and was never observed guarding nymphs away from the hatched eggs.

An adult female of *Neuroctenus elongatus* Osborn was observed standing over a mass of eggs under the bark of a dead mesquite tree (*Prosopis glandulosa*) in Kenedy County, Texas, 22 March, 1986.

In both my own observations and those of McClure (1932), the young nymphs remained on the egg mass and under the guarding adult, while Takahashi (1934) observed nymphs underneath and on top of an adult female aradid.

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Voucher specimens from this study are deposited in the SJT and Texas A&M University Entomology Department collections.

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