Short Communication

Distribution of some Anystid Mites (Acari: Anystidae) in Australia and Indonesia and their Role as Possible Predators of the Cattle Tick, Boophilis microplus (Acari: Ixodidae)

E. HOLM and M.M.H. WALLACE
Division of Entomology, CSIRO, G.P.O. Box 1700, Canberra, A.C.T. 2601 (Australia)
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ABSTRACT


The geographic and habitat distributions of Anystis baccarum (Linné), A. jabanica (Berlese), A. salicinus (Linné) and A. sp. B Walzia australica Womersley and Chaussieria warregense (Hirst) (Acari: Anystidae) in Australia and parts of Indonesia are presented. Laboratory trials showed that A. baccarum will feed upon the larvae of the cattle tick Boophilus microplus, whilst A. jabanica also showed some predatory potential. Walzia australica and C. warregense had no effect on survival of tick larvae.

INTRODUCTION

The cattle tick, Boophilus microplus Canestrini, introduced into Australia from Indonesia in the late 19th century, has spread throughout climatically suitable areas of northern Australia where it causes great financial loss to the cattle industry (Gee, 1959).

Studies have revealed little potential for biological control although several natural enemies have been reported — hymenopterous parasites (Cole, 1965), predatory birds (Sutherst et al., 1978), and ants (Wilkinson, 1970). Also, certain tropical legumes can immobilise ticks (Sutherst et al., 1982).

Each female tick can lay up to 2500 eggs. The pinhead-sized larvae climb up and cluster on tips of grass and low bushes where they wait for passing cattle. During this period the larvae are vulnerable to predators sharing the same habitat, including predatory mites such as the Anystidae.

In 1965 a species of Anystis was imported from France and released in south-
western Australia in an experiment on the biological control of the red-legged earth mite, *Halotydeus destructor* Tucker, and the blue oat mite, *Pentahaleus major* Duges, in pastures (Wallace, 1981). This species had until recently been referred to as *Anystis* sp. A but has since been identified by Meyer and Ueckermann (1987) as *A. salicinus* (L.).

In 1966, adult females were sent to CSIRO laboratories in Queensland where Dr. R.H. Wharton reported (personal communication) that the mites had attacked tick larvae in small laboratory cages. Since then a number of opportunistic surveys and predatory tests have been carried out on a further five species of anystid mites as described below.

**MATERIALS AND METHODS**

Collections were made by sweeping an enamel plate through pasture or high grass near the ground or by beating low branches of shrubs and bushes above the plate (Wallace and Mahon, 1971).

**Surveys**

Details of the 1962–1963 and 1966 surveys have already been published (Wallace and Mahon, 1971) but records of the Anystidae were not included. All visible anystid mites were collected at the time and were subsequently identified from the preserved specimens. Surveys to the northeast of New South Wales and southeast of Queensland (1983), and northern Queensland and the islands of Java, Madura and southern Sulawesi in Indonesia (1984), were conducted to provide data on the geographic and habitat distributions of the Anystidae in the region.

**Predation tests**

All predation tests were carried out in small plastic cages (Wallace and Holm, 1984). For tests in Canberra in December 1982 and January 1983, larvae of *Ixodes holocyclus* Neumann and *Haemophysalis longicornis* Neumann from the south coast of N.S.W. were used, as quarantine restrictions prohibit the transport of cattle tick to Canberra. The larvae were 2 days old when used.

Anystids for experiments in Queensland collected 30 km east of Weipa were used as predators of 10-day-old *B. microplus* larvae, obtained from the Brisbane laboratories.

Anystid mites, later identified as *A. jabanica* (Berlese), were used in tests in Indonesia at Bogor and at Baluran. Tick larvae from cultures at Brisbane, taken to Indonesia in small glass vials, were 10–25 days old when used in the predation tests.