SPIDER CRABS OF THE FAMILY HYMENOSOMATIDAE (CRUSTACEA; BRACHYURA) WITH PARTICULAR REFERENCE TO AUSTRALIAN SPECIES: SYSTEMATICS AND BIOLOGY

J. S. LUCAS
Zoology Department
James Cook University
Townsville, Queensland 4811

SUMMARY

The family Hymenosomatidae is revised as a result of discovering a large range of species in Australia. Three new genera and seven new species are described from the Australasian region. The genera *Rhynchoplax* Stimpson, *Neorhynchoplax* Sakai and *Cyclohombronia* Melrose are relegated to junior synonomy of *Halicarcinus* White, *Elamenopsis* A. Milne Edwards and *Hymenosoma* Desmarest, respectively. *Trigonoplax* H. Milne Edwards, treated by some authors as a subgenus of *Elamena* H. Milne Edwards, is given generic status on the basis of crab and larval morphology. The family now consists of ten genera and sixty-four species; seven genera, including all multispecific genera, and twenty-two species occur in Australia. An annotated key to all genera and species is provided. Diagnostic features for hymenosomatid larvae are given and larval morphology is considered in resolving several taxonomic problems. Absence of a megalopa larva is a notable family feature. Data on the life-cycles, reproduction, behaviour and ecology of hymenosomatids are reviewed. Fecundity is limited by the small sizes of these crabs and some females show morphological adaptations to increase shallow coastal waters and there has been a number of independent invasions of low fecundity by increasing larval survival. The majority of hymenosomatid species occur in shallow coastal waters and there have been a number of independent invasions of low salinity habitats. Twenty-four species, from six genera, occur in fresh and brackish water. Hymenosomatids reach high densities in some habitats and frequently occur in fish gut contents at various localities: they may play significant roles in some food webs. Most hymenosomatid species occur in the tropical and sub-tropical shelf waters of the Indo-West Pacific region and adjacent inland waters. Because they are inconspicuous, geographical distributions of many species are poorly known; the Indo-Malayan Region, which is central to their distribution, is particularly poorly collected.

CONTENTS

Records of The Australian Museum, 1980, **Vol. 33 No. 4,** 148-247, Figures 1-10.

INTRODUCTION

The family Hymenosomatidae consists of small to very small spider crabs (maximum carapace width 3-26 mm), which occur mainly in the Indo-West Pacific region. Major revisions of the family have been undertaken by Kemp (1917), Tesch (1918) and Sakai (1938). Each of these authors was disadvantaged by having access to a limited range of hymenosomatid species and the taxonomy of the family is unstable at the generic level. Kemp (1917) had mainly Indian species and a number of genera were not represented in his material. Tesch (1918) examined five species in the Leyden and Amsterdam Museums and two species from the "Siboga" expedition. Sakai (1938) had access to six Japanese species. There was a further major study of hymenosomatid taxonomy by Melrose (nee Gordon) (1975), which was limited to New Zealand hymenosomatids, consisting of fourteen species in four genera. Melrose (1975) was based on a thesis, Gordon (1966), part of which was published as keys to New Zealand Hymenosomatidae (Melrose, 1968). This study by Melrose clarified the confused literature on New Zealand species and was particularly helpful in considering the Australian hymenosomatids.

In contrast to the substantial, though confused, literature on New Zealand hymenosomatids, knowledge of the Australian species has suffered most from neglect. There has been only one attempt at a comprehensive survey of Australian species: