

**Balanoid Barnacles of the Genus *Hexaminius*
(Archaeobalanidae: Elminiinae) from
Mangroves of New South Wales,
including a Description of a New Species.**

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ABSTRACT. *Hexaminius foliorum* n.sp. is described and separated from *H. popeiana* Foster on differences in adult and larval anatomy, supported by differences in cirral activity, copulatory activity and breeding. Structure, function and reproduction in *H. foliorum* are more specialised than in *H. popeiana*. The differences are related adaptively to the occupancy by *H. popeiana* of a variety of hard substrata, but not mangrove leaves, and the confinement of *H. foliorum* to the ephemeral habitat of immersible mangrove leaves. *Hexaminius foliorum* may be a specialised descendant of *H. popeiana*.

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Foster (1982) revised the taxonomy of the high shore estuarine barnacles of New South Wales, hitherto referred to as *Elminius modestus* Darwin (Pope, 1945). The majority of the four-plated specimens were referred by Foster to a new species, *Elminius covertus*. Foster also observed that *E. covertus* is intermingled with a six-plated archaeobalanid which he described and named as *Hexaminius popeiana*. An archaeobalanid subfamily Elminiinae was erected by Foster in recognition of the close relationship between *Hexaminius* and *Elminius*, a concept further supported by Buckeridge (1983) and by Egan & Anderson (1985), who described the larval development of *H. popeiana* and *E. covertus*. The larvae of *E. covertus* are close to but different from those of *E. modestus*. The larvae described by Egan & Anderson (1985) under the name *H. popeiana* are more like those of the *Conopea* group of archaeobalanines, but also share sufficient features in common with the larvae of *Elminius* to lend further weight to the Elminiinae as a distinct subfamily.

During their study of larval development, Egan and Anderson noted that *H. popeiana* were to be

found at their study site (Iron Cove, Port Jackson, NSW) on two distinct surfaces, rocks and the lower leaves of the mangrove *Avicennia marina*. The settlement of this species on mangrove leaves was not mentioned by Foster (1982), nor, indeed has this part of the mangrove surface been recorded as a habitat for other balanomorphs in Australia, although a number of species are known to inhabit mangrove trunks and pneumatophores (Hutchings & Recher, 1982; Achituv, 1984). The observation was therefore of sufficient interest to prompt Egan and Anderson to make parallel studies during 1982–1984 of the seasonal breeding of populations of *H. popeiana* from rocks and mangrove leaves at the Iron Cove site, while utilising the mangrove leaf individuals as a source of nauplii for larval culture. Initially it was assumed that the differences in external appearance between the mangrove leaf and rock populations were a consequence of a greater level of erosion of the rock-dwelling individuals. However, a study of seasonal cycles during 1982–1984 showed that the two populations had different breeding patterns. The mangrove leaf population, as illustrated by Egan & Anderson (1985), bred throughout the year, with