

AUSTRALIAN CRUSTACEANS
IN COLOUR

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ANOMURA—Decapods with Reduced Tails

Ghost nippers, lobster kill and half crabs

DECAPOD CRUSTACEANS are conveniently divided into three groups. These are the macrurans or straight-bodied shrimps, prawns and crayfish, the anomurans or 'decapods with reduced tails', and the brachyurans or true crabs, with their miniature abdomens folded forwards under the carapace. The anomurans occupy a rather intermediate position between the other two groups. Their bodies are either crab-like (pl. 32) or shrimp-like (pl. 30) in general shape, and their abdomens variously modified. The latter are either bent more or less beneath the carapace (pl. 31), or spirally-twisted and soft (pl. 35), or, if extended, they are feebly-calcified with a narrow attachment to the carapace (pl. 30).

Shrimp-like anomurans burrow in sand and mud or live in burrow-like cavities in rocks, corals and sponges. They can be distinguished from macrurans by their reduced abdomen, reduced eyes and absence of antennal scale (*f* in fig. 16). Crab-like anomurans are either free-living or commensal rather than burrowing forms, and usually appear superficially eight-legged. They can be distinguished from brachyurans by their long antennae (compare pl. 32 with fig. 46), by the presence of a tail fan and by their habit of holding the slender and reduced fifth pair of legs bent up against the carapace (pl. 31) or tucked away in the gill chambers under the carapace (fig. 37). Brachyurans in contrast have short antennae, no tail fan and fully functional and extended fifth legs. Hermit crabs, the 'typical' anomurans in the minds of most people, have an asymmetrical and spirally-twisted abdomen which

is normally kept hidden away in an empty gastropod shell.

An exceedingly abundant, eastern Australian, shrimp-like anomuran is the ghost nipper, or



Fig. 32. Using 'yabby pump' to obtain *Callinassa australiensis* from estuarine sand flat.



Plate 30. Male ghost nipper, or marine yabby, *Callinassa australiensis*. $\times 1\frac{1}{2}$.



Fig. 33. Southern lobster krill, *Munida subrugosa*, occasionally swarms in Bass Strait, x2.

marine yabby, *Callianassa australiensis* (pl. 30). This pale, pinkish-white creature, about three to four inches in length, is highly sought after by fishermen for bait. It lives in burrows in intertidal, estuarine sand flats and rarely leaves its burrow under normal conditions. The name 'ghost nipper' alludes to the pale, almost translucent appearance of the animal, coupled with the fact that one chela,

or nipper, of the first pair of legs is always asymmetrically enlarged and flattened. This hand becomes very large in adult males and the shape of the curved and gaping fingers is characteristic for this species. In Queensland these *Callianassa* are called 'yabbies', but the word can cause confusion as it is widely used in other states for the smooth freshwater crayfishes of the genus *Cherax* (see preceding chapter). Other names used are bait, burrowing, pink and sand shrimp.

Ghost nippers occur from northern Queensland to Victoria in estuaries or in the lower reaches of coastal rivers. They are most abundant on intertidal sand banks or on mixed sand and mud flats (fig. 55). A permanent burrow is excavated by a *Callianassa* early in its juvenile life and is extended both vertically and into side galleries as the crustacean grows. Burrowing is done with the nippers of the first pair of legs plus the two following pairs of legs. The latter are used to scoop the sand forwards into a 'basket' formed between the nippers and the mouthparts. The sand in this 'basket' may be sifted for organic food through the hairs on the mouth parts or carried to the entrance of the burrow and pushed outside. As the burrow is only a little wider than the animal's body, *Callianassa* is faced with a 'one-way traffic' problem. This is overcome by the excavation of wider chambers at intervals. At these chambers the animal can reverse direction by somersaulting. The burrow of a large *Callianassa* may reach a depth of at least 30 inches and have up to three surface openings. In densely crowded ghost nipper beds there may be up to 800 openings per square yard of surface and adjacent burrows often interconnect.

Surface openings are easily recognised in sand flats, and ghost nippers are dug up or pumped out by fishermen collecting for bait. A manually-operated, commercially-made 'yabby pump' is



shown in figure 32. The open end of the metal tube is placed over a burrow opening and the pump is pushed into the sand. It is then extracted, removing a core of sand and emptied with the plunger. The pump is reinserted into the hole and suction applied with the plunger. Water, sand and ghost nippers are drawn into the pump and can be emptied out at the surface.

Another thalassinid, or shrimp-like anomuran, is the seldom-seen, pink *Laomedea healyi* (frontispiece). This is a deep burrower both in eastern Australian mangrove swamps and in the mud banks of subtidal channels draining such swamps. Note the small eyes, the symmetrically enlarged chelae of the first legs and the longitudinal hingeline along the side of the carapace. The carapace flap below the hingeline covers the gill chamber and is capable of in-and-out movement. This 'panting' assists in the circulation of water within the poorly oxygenated burrow.

Lobster krill of the family Galatheidae are anomurans with elongated, forwardly-extending

nippers and bodies which are longer than wide. But for the abdomen bent forward under the carapace, and for the reduced, hunched up fifth legs, galatheids look superficially like small lobsters. The red, subtidal *Munida subrugosa* (fig. 33) is known from the Bass Strait area and is occasionally found on the bottom in great swarms. It apparently does not have a pelagic juvenile phase as does the closely related southern New Zealand *Munida gregaria*. Swarming galatheids in many parts of the world form a major source of food for large fish, seals and whales. The elegant squat lobster, *Galathea elegans* (pl. 31), is a strikingly-patterned tropical form found commensally associated with reef crinoids. Light longitudinal stripes are characteristic of a number of small crustacean commensals, both carids and galatheids, which live on crinoids.

Another group of anomurans are the crab-like Porcellanidae, commonly called porcelain or half crabs. They have enlarged nippers which extend laterally and then fold forwards on to themselves. Free-living intertidal forms move sideways like crabs and scuttle rapidly under cover when disturbed. A characteristic Barrier Reef species, *Petrolisthes lamarckii*, is shown in plate 32. It is most abundant on beach rock areas under loose coral boulders and ranges widely through the tropical Indian and Pacific Oceans.

The hairy stone crab, *Lomis hirta* (fig. 34), is a crustacean enigma. It is a crab-like anomuran with long antennae, a symmetrical abdomen and the fifth legs hidden from sight. Its relationships are obscure and *Lomis* cannot be classified readily in any anomuran subgroup. It is restricted to southern Australia and ranges from Tasmania to southwestern Australia.

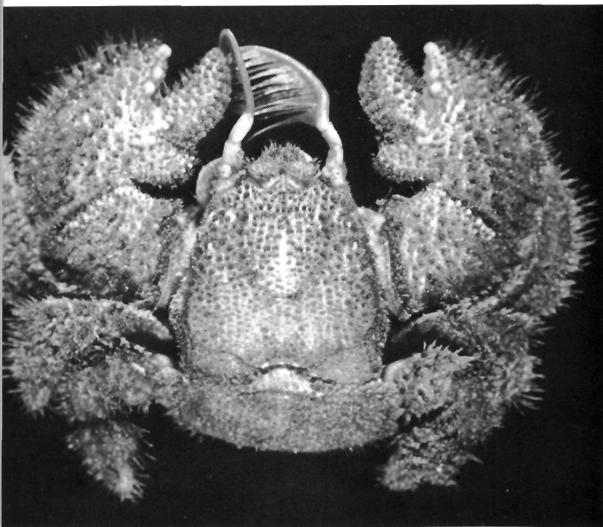


Fig. 34. Hairy stone crab, *Lomis hirta*, an uniquely-Australian, southern, intertidal anomuran, x2.

Plate 32. A tropical half crab, *Petrolisthes lamarckii*, x4. Photo K. Gillett.