

## THE BOUNTIFUL KIMBERLEY: OFFSHORE CRUSTACEA

At the May 1997 meeting, the President, Kevin Kenneally, apologised for the advertised speaker (Gerry Allen) having been delayed in his return from Indonesia and thanked Di Jones for stepping into the breach at short notice. Di is a coordinator of the new development at the WA Museum and is also Curator of Crustacea. She is a graduate of the University of Birmingham and presented a talk focussed on the crustacea of the offshore islands and reefs.

Di illustrated her talk with excellent slides of the sorts of areas visited; islands, coral reefs, limestone reefs, fringing reefs, sandy cays and even mangroves and lots of mud. There are no names for many of the reefs and islands, and the scientists themselves have named 9 or 10 of them. The Kimberley region is difficult of access and remote and therefore it is expensive to mount field trips using boats. A good skipper, who knows the vagaries of the tides and the rugged coastline is essential. Di never ceases to be amazed at the great numbers and diversity of species she encounters on her field trips. There are new records and new species discovered each time and, on one trip, a diversion was created with the sighting of Humpback whales travelling north to warmer waters to calve.

Di does most of her collecting in the intertidal zone and explained the processes involved in the measuring, identifying, photographing, describing and preserving of each specimen retained. First she described and illustrated the Crustacea found on coral reefs. The mantis shrimps are so named because of the resemblance of the claws to that of the preying mantis. The claws are adapted for seizing and holding prey. Many are highly coloured (e.g. deep red) and may be up to 30 cm long. Alpheid shrimps occur on sea-shores, swamps and mud-flats, and especially in tropical reef waters. These shrimps have one enlarged nipper which is capable of producing a loud and sharp crack, rather like a pistol shot. Hence they are sometimes called 'Pistol' shrimps. There are many small Palaemonid prawns associated with marine hosts such as sea cucumbers, sea anemones, or corals, or in the middle of a crinoid or sea-lily, and being sympathetic colours. *Gnathophyllum* is a palaemonid shrimp associated with coral. It is striped and oddly shaped to merge into its background. The elegant banded Coral Shrimp, *Stenopus hispidus*, has long thin striped legs and long fine antennae, red and white – a stunning creature that is often sold in aquaria shops.

There are 6 species of green Rock Lobsters, genus *Panulirus*, in the north. All are common and widespread throughout the Indo-Pacific region. They are vegetarians so are not attracted to a baited pot.

The Hermit Crabs—the pagurids—are a fascinating group, and are common on outer areas of coral reefs. To be identified, they have to be removed from their shell, which is very difficult, so identification is mainly through colour. Preservatives fade the colour, so the specimens are first frozen so that colours can be recorded before the specimens are preserved. Hermit crabs have beautiful colours, some with blue

legs and red stripes. The abdomen or 'tail' fits inside the shell and the final pair of appendages firmly anchors the body there. One of the largest Hermit Crabs, *Dardanus megistos*, over 30 cm long, is red with blue spots, the bright colours suggesting it may be toxic. This one has featured on many stamps of tropical countries.

*Clibanarius* species are pale coloured and occur on muddy inshore islands where one finds masses of them living in aggregations. When about to mate, they ritualistically "shell swap", moving in and out of shells. The land hermit crab, *Coenobita variabilis* is the one sold as a pet, and has been known to live in captivity for 15 years, fed on lettuce! They are nocturnal, living in the sand dunes at the back of the beach and coming out at night to feed. They only venture into the sea to deposit and disperse their eggs. The Porcellanidae are called half crabs or lobster crabs and are not true crabs. The abdomen is loose and not fully tucked under. They live on corals and under rocks, etc. The Sponge Crab is "furry" and on its back carries a living sponge! It is very primitive with tiny legs for holding the sponge on its back. This is a very good camouflage for its dark pink body.

The calappid crab holds its hands in front of its face, in a shame-faced way. Its heavy, strong claws are modified to eat gastropods. It crushes the shell and digs out the soft animal from inside, and it lives around coral bombies. The Spider Crabs, Decorator Crabs or Seaweed Crabs have complicated hooked hairs on their carapaces/shells. They clip off seaweed and place it on their backs and allow it to grow there for camouflage and for eating. A green *Huenia proteus* was collected by Kevin Kenneally on One Arm Point Reef, beautifully camouflaged with the green coralline seaweed *Halimeda* sp.

Mud Crabs, *Scylla serrata*, are well known and a popular edible delicacy. Very aggressive, they are found in the mangroves and two species are fished commercially. There may be a third species in Queensland. The Swimming Crabs—family Portunidae—are also good eating, especially the Blue Manna *Portunus pelagicus*. Very prevalent in tropical waters, they have bold markings and can be recognised by the back legs being modified into paddles. All are edible, and Aboriginal people sometimes use them as bait. The dark-fingered crabs of the family Xanthiidae live on reefs and have strong, short legs for hanging onto the corals. They are robust, usually pink or red with black claws, and one patterned for camouflage is called a Shawl Crab. Some are poisonous due to ingested dinoflagellates, so never eat a deep red crab with black claws. *Eriphia* has small red eyes, lives on large lumps of coral, and is also toxic.

The beautifully marked Harlequin Crab carries two sea anemones, one in each claw. Why? We don't know. The minuscule Trapezids also live on corals. Allied to the Zanthids are a group of small hairy crabs, the Pilumnidae. On rocky headlands are found Rock Crabs, *Corapsus alsolineatus*, similar to our local common rock crab, *Leptograpsus variegatus*. Some are flat and thin to allow them to slip easily between the rocks. In the mangroves, living a semi-terrestrial existence in deep

burrows, are sesarmid crabs which have gills modified into a lung so that they breathe oxygen through a wet or moist membrane. They have very heavy nippers and construct their burrows with a hood over the top.

The Soldier Crabs, *Mictyris* species, have blue bodies, and swarm like armies on the march. The four species in the Kimberley are fascinating to watch when the tide is out. The bright red Fiddler Crab, *Uca flammea*, is a well known inhabitant of the mangroves, with its huge red claw waving outside its burrow in the mangal mud. Endemic to WA, its eyes are set on long stalks to peer above the mud. The Sand Bubbler, *Scopimera inflata*, produces pseudo-faecal pellets by taking sand into its mouth and spitting out what it can't eat. Bat Crabs—family Cryptochiridae—live inside the coral, as a living coral gall. They are very modified, live in permanent pairs, and don't seem to even move out of the coral.

Di Jones and Garry Morgan have written a book called *Crustacea of Australian Waters*. Published by the WA Museum, it is well recommended for anyone interested in crustacea. Di also has a special interest in barnacles, of which there are 84 different species from the Kimberley, but only 15 of them named. Most barnacles are cryptic. They live on the gills of lobsters, even on corals and sponges etc. The Kimberley marine fauna has more affinities with the Indo-Pacific than anywhere else. Not many species are endemic to the Kimberley. Much more work remains to be done on this frontier for marine biology and we're very lucky to have coral reefs in such a pristine condition. Mauritius and Hong Kong have none of their coral reefs left!

Di answered questions from the floor and, after thanking her for her extremely interesting talk and excellent slides, Kevin Kenneally introduced "Show and Tell" with a hunting boomerang made from *Hakea arborescens* by Davy of One Arm Point, and a lizard created by Paddy Roe of Broome out of a white gum *Corymbia* sp. Kevin also showed a series of Bush Books produced by CALM on aspects of the Kimberley, Birds, Plants, Geology and Landforms by Ian Tyler, the latest one.

*Daphne Choules Edinger*

**Recommended reading list:**

Jones, D.S. & Morgan G.J. (1994). *A Field Guide to the Crustaceans of Australian Waters*, Reed Books, Australia.

Dakin, W.J., Bennet, I. & Pope E. (1952). *Australian Seashores*, Angus & Robertson.

Healy, A. & Yaldwyn, J. (1970). *Australian Crustaceans in Colour*, A.H. & A.W. Reed.