

TADPOLE SHRIMPS – *Lepidurus apus viridus* by Kaye Proudley

I received this small article from a good friend recently and it sparked my interest in finding out more, so I share here with you (below Alison's article in black) what I found out

'A Puddle of Life' by Alison Kuiter

Recently, I observed several herons feasting in a puddle in a cow paddock near the Turf Farm and since there were no tadpoles yet, assumed they were eating frogs. When I looked closely at a photo of a Great White Egret with something in its beak (see photo below), I zoomed in to find it had a small crustacean. So I trawled the pond with a net and caught some Tadpole Shrimps.

There are two species of Triops in Australia, the one that occurs here in the south-east, is *Lepidurus apus viridis*. These little aquatic bugs occur most commonly in freshwater habitats that periodically dry up. The small eggs can survive long periods of dry and hatch a couple of weeks after their depression fills with rainwater. They have a segmented body covered with a thin shield-like carapace, a segmented abdomen, two long tails and lots of small legs. They have two small eyes at the front of the carapace, making them look just like a tadpole.

The Tadpole Shrimps eat all sorts of debris in the water and breed quickly in case their waterhole dries up. Water birds feast on the 2 cm long shrimps needing to eat quite a few to satisfy their hunger.



Photo by Alison Kuiter

Tadpole Shrimps occur in a wide range of geological deposits going way back to the Carboniferous period and beyond, and with little morphological change in the past 250 million years, has led to them being described as living fossils. However research reveals that living species are much younger than the fossils they resemble which calls into question the term "living fossil." The term "living fossil" also makes one think of a species that has stopped evolving, which is not true of our Tadpole Shrimp.

There are two species of Shield or Tadpole Shrimps found in Australia. In the north, a species called Triops is found, *photo below*.



Triops australiensis by Stijn Ghesquiere from Wikimedia Commons

In the southeast of Australia there is the Triops species as well as an extra species called Lepidurus. (See Alison's photo on page 1.) These latter have only been found in winter and spring and in at least one species, their eggs seem to need to undergo dessication in order to hatch. Tadpole Shrimps only live a short time – one record-breaking female in the USA lived for only 100 days.

Tadpole Shrimps' bodies are a crustacean wonder to behold - for apart from the carapace or shield on their back which is only attached at the front and can be lifted clear of their bodies, and after which they get one of their common names, they have segmented bodies, up to seventy segments, the first eleven (forming the thorax) bearing a set of leaf-like appendages or 'legs' - some of which are beaten back and forth to propel the animal through the water, others carrying ovisacs, but most of them being used to breath! Many of the rear-most segments are leg-less and form a long and mobile tail.

Imagine your legs being your lungs, your ovaries **and** your locomotive means!!

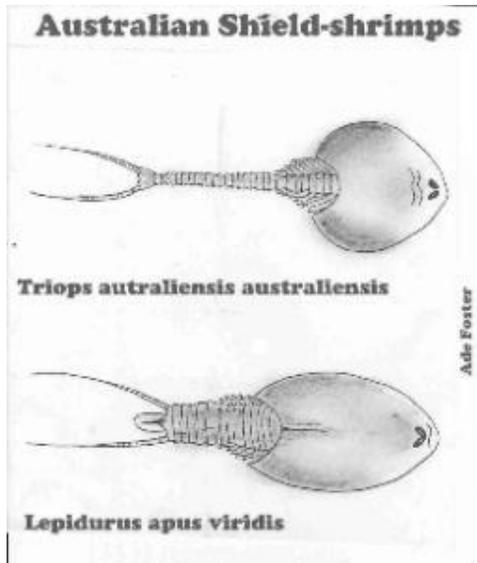
They eat by filter feeding, taking up small particles from the waters around them and preying on small animals.

Lepidurus apus viridis are found the world over except for the Antarctic, Arctic and marine or salty habitats. They are found in stagnant shallow water in pools sometimes only a few square feet in area.

The spring rains form these pools in gravel pits or clay mud-holes or even sometimes in the temporary and very small holes formed by the hooves of stock animals. The sudden appearance of shield shrimps is due to the rapid development of the "winter" or "resting" eggs. It is known that some eggs laid hatch straight away whilst others form *oocytes and stay in the soil after the pool dries up and will finish growing and hatch next time the pool forms, staying viable for up to ten years or more without water. Their rate of growth must be very great, for before the turn of the 19th century it was said (of collecting full-grown specimens of the allied genus *Apus*) they were collected "certainly not more than two weeks after a fall of rain." These shrimps are able to grow to adult size in less than three weeks.

*Oocytes are a large and complex female germ cell, in other words, an immature ovum or egg cell.

It has been said also of Tadpole Shrimps that they were much more common in the youth of some of the writers I have based this article on.
Could this be a product of the environment, or that, as we get older, *we just don't have as much time to play in puddles?*



Comparison of the two Australian species by Ade Foster from the Internet.

For a look at an Australian site that sells shrimp eggs -

<http://www.billabongbugs.com/>

Or for an American site that sells them too - www.tadpoleshrimp.info/