

Did you know the long extendable jaw of the monster in the film Alien is based on the dragonfly? Did you know that an adult male dragonfly will fight to the death to protect its territory? Did you know that they are in decline due to loss of habitat with only 5% of wetlands left in New Zealand? Dragonflies are an ancient order, with fossils from over 325 million years ago. They pre-date many other species including dinosaurs and birds.

We are fortunate that Kari de Koenigswarter and her husband Ruary Mackenzie Dodds come to New Zealand annually from Scotland to visit their family in Wellington. They co-wrote the book "The Dragonfly-Friendly Gardener", a simple guide as to how to attract dragonflies and damselflies to your garden. Ruary also authored "The Dragonfly Diaries", the story of what happened to Ruary after a dragonfly landed on his shirt and how it changed his life. They both helped create the Ashton Water Dragonfly Sanctuary and Dragonfly Centre in Wicken Fen, Cambridgeshire.



The Lancer Dragonfly.

Photo: Ruary Mackenzie Dodds

While in New Zealand, Kari and Ruary have continued to show their love of dragonflies by obtaining a high impact permit to monitor the dragonfly population at the Pencarrow Lakes.

They are now in their 3rd year of monitoring. Kari specialises in their larval stage, and Ruary the adults. Of the 6000 species of dragonflies and damselflies in the world, 14 species can be seen in New Zealand. This is an unusually low number for an area the size of New Zealand, but it is interesting as 8 of them are endemic and can only be seen here. Currently Ruary and Kari have identified 5 endemic species at the Parangarahu Lakes.

Ruary explains that the first thing they did at the lakes was to see what species were present. They have identified 4 species of dragonfly and 2 species of damselfly. It is easy to spot the difference between a dragonfly and a damselfly. When landed, the dragonfly's wings jut straight out from their sides like an aircraft, while the damselfly's wings are folded back together along the abdomen.

A typical dragonfly will spend two to three years under water before emerging and flying as an adult for only about eight weeks, whereas a typical damselfly will be underwater for about a year and then will fly for about four weeks. During the adult stage they mate and lay eggs.

Kari and Ruary have identified the Bush giant dragonfly, New Zealand's largest dragonfly, at the lakes. Its Maori name, kapokapowai, means "water snatcher". The Bush giant is also one of only a few species of dragonfly that burrows into the ground in its larval stage. These burrows are close to sloping muddy seepages, and can go down for as much as 50cm. During the night the larva sits at the top of its burrow and shoots out its extendable jaw to catch prey that wanders in front of it. As adults they eat small insects including cicadas which they catch on the fly. They are preyed on by kingfishers, rats and even wasps. They are an incredibly ancient species, about 127 million years old.

After the initial stocktake of what is at the lakes, Kari and Ruary now visit regularly to see if any new species have arrived, to observe how dragonflies and damselflies behave, and to document any patterns in their lifecycle. Winds are strong at Pencarrow and Ruary and Kari have noticed, for example, how some adult dragonflies select relatively wind-free areas to patrol. Kari also wades in

shallow water looking for exuviae (an exuvia is the final case that larvae leave behind after emergence). Finding an exuvia of a species is important, as it proves that the species is actually breeding on site rather than just visiting.

Kari and Ruary are keen to discover what Bush giant larvae actually do at night, something that hasn't been studied before. They have set up night-filming cameras in the bush and have so far watched over 1025 hours of film. This has been edited into a six-minute film that has been shown publicly in the UK. But they are continuing their night-time film work as they want to see if they can capture a Bush giant actually transforming from larva into adult, a magical natural history moment.

A healthy population of dragonflies and damselflies signifies a healthy wetland, and with so few wetlands left, it is important that this work continues. Kari and Ruary would be pleased to have others help with their monitoring. People can help by learning to identify dragonflies and damselflies generally (Ruary and Kari can help with this) and going out to the lakes to help with observations. If you are interested, email info@miro.org.nz and we will put you in touch.

Parker Jones (MIRO) and Ruary Mackenzie Dodds