

Project: 100012

Protecting the Endemic Coastal Lake Crayfish of the Myall and Tuggerah Lakes

Introduction

A new species of freshwater crayfish has been discovered behind the coastal sand dunes in Myall Lakes National Park in NSW. This unnamed species of crayfish is of the genus *Gramastacus* and is most unusual in that, aside from being an entirely new species, the only other species of *Gramastacus* in Australia is found in the Grampian Ranges - some 1000 km away in inland Victoria. At this time its distribution is primarily known from a few isolated creeks and swamps along the 5 km stretch of coastal dune country between the Myall Lakes and the ocean. The Myall species is located in the National Park and ideally situated for conservation and preservation. Another population of *Gramastacus* (perhaps a distinct species) has also been located in one small remnant population on the coastal strip between Tuggerah Lakes and the ocean. This Tuggerah colony covers an area of approximately one hectare and is drastically impacted by urban development and human intervention. The future for this population is bleak but other undiscovered populations in that region may be more secure. Unfortunately this species is NSW's and possibly Australia's lowest lowland crayfish habitat, at 0.5 – 4 m height above sea level. It could be the first species in Australia to be lost to sea level rises due to climate change as all known populations are close to the ocean at near sea level heights.

Aims

The aims of this project are to gather information on the biology and ecology of this newly discovered coastal crayfish species, in order to protect and conserve it into the future. We need to ascertain its distribution and habitat requirements within the Myall and Tuggerah Lakes Wetlands. Its population structure and life history also needs to be studied. A full description of this new species would need to be completed and the species named. It is expected that this species would then be included on the IUCN listing as an endangered or vulnerable species. Myall Lakes National Park will likely provide an important refuge for the preservation and conservation of this coastal crayfish and management strategies would be recommended to help achieve this outcome.

Research Outline

Research would be conducted by a team of researchers with the support of local community volunteers.

Project Manager and Survey Team Leader is Robert B McCormack.

Research Team Leader would be Dr Jason Coughran.

We intend to:

- Survey the whole Myall Lakes and Tuggerah Lakes region to identify the actual distribution of these vulnerable coastal crayfish.
- Identify sensitive coastal habitats, waterways, wetlands that need protection or restoration.
- Develop planning and management strategies re management of polluting activities such as storm water and waste to protect the coastal environment.
- Estimate population density and size for each colony and examine population structure.
- Undertake genetic analysis to elucidate any significant management units or species boundaries.

- Complete a morphological examination and submit a scientific description for publication, officially naming and describing the species so that it can be properly recognized under management plans and conservation schedules.
- Undertake habitat and life cycle studies.
- Ascertain the species conservation status and recommend listing.

Comment.

The project would last a full 12 months to close the life cycle requirements of this new species. This research project would involve a large group of researchers/contributors including:

Australian Aquatic Biological Pty Limited. Robert B McCormack (Survey Team Leader) would lead the survey teams in both regions.

Croaking Environment Resources. Dr Jason Coughran (Research Team Leader) would be the chief taxonomist for this project.

Dr Pierre Horwitz, Edith Cowan University (WA) Pierre did the original work on this species and will work with us to complete the description in a joint paper.

Southern Cross University. An Honors student from SCU would conduct the life cycle research.

National Parks & Wildlife. Will assist with information and access through all locked gates and entry into general prohibited areas.

Carnegie Museum. Dr James W Fetzner is the chief Geneticist for the project and would conduct all the genetic work and reports.

Community volunteers. A large number of volunteers from a diverse group of people including local schools, aboriginal groups, environmental & conservation groups will all assist in the extensive surveys of their local areas. Indications are that well over 200 community volunteers will participate.

DECC scientific permit has been applied for with no issues of concern to date.

NSW DPI scientific Permit (P05/0077-3-0) has been issued.

Wyong Shire Council is very supportive of the project and will work closely with us on the project, especially interested in the distribution/population mapping to include in their local environmental and catchment management plans, etc.

Great Lakes Council is very supportive and will assist with the project to help the effective protection, conservation and preservation of the species and its wetland environment.

For Further Information

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