

Survey Report

Kalang River 22nd February 2017

Introduction

Approximately 1 km section of the Kalang River and adjoining tributaries were surveyed by: Rob McCormack, Jonas Bellchambers, Kath Kelly and a large number of other local residents and interested parties on the 22nd February 2017.

Methods

Survey was conducted during daylight hours. The presence of crayfish was assessed by (a) visually observation of both live crayfish & shell remnants, plus identifying burrows (b) physically lifting structures such as rocks and logs (c) excavating burrows by hand (d) capturing specimens by hand (e) baited box traps (f) meat on string (mullet).

Voucher specimens are preserved in 95% ethanol and deposited in the collections of the Australian Crayfish Project (ACP).

Tissue samples from live animals were retained in cell lysis buffer from selected specimens for subsequent DNA analysis, as part of the broader ACP via our collaborative Carnegie Museum of Natural History genetics program. Additionally, tissue samples from live animals were retrained in 100% ethanol for DNA analysis as part of the current ACP-Australian Museum research project which is undertaking a comprehensive phylogeographic analyses of *Euastacus australasiensis* (H. Milne-Edwards, 1837) and *E. spinifer* (Heller, 1865).

Additionally, results of surveys are included in the NSW Bionet (Atlas of NSW Wildlife <http://www.bionet.nsw.gov.au/>)

Results & Discussion

The current state of the knowledge base is that both *Cherax cuspidatus* (Riek, 1969) and *Euastacus dangadi* (Morgan 1997) are known to occur in the Kalang River drainage. Our survey confirmed the presence of *Euastacus dangadi* (ACP Specimens 5902-5906).

Additionally, our survey identified another Giant Spiny Crayfish species occurring in the Kalang River.

ACP Specimen 5910. Decapoda; Parastacidae; *Euastacus* sp (*spinifer*), giant spiny crayfish, male, 651 gram, 107.21 OCL, NSW Australia, Kalang River 30.515466 152.678900, 131 a.s.l, 22-Feb-2017. RB McCormack, JJ Bellchambers, KE Kelly. Habitat - Deep pool in river, course sand, bedrock, rainforest. DNA -yes(leg) (ACP Spec: 5911/12/13). Vouchered – yes.

This species most closely resembles *Euastacus spinifer*. The giant spiny crayfish *Euastacus spinifer* is endemic to New South Wales, with a distribution currently documented as from the Hastings-Wilson River in the north to the Clyde River in the south, a straight line distance

of 550 km (Morgan 1997). The Kalang - Bellingen rivers, represents a straight line range extension of 120 km north and a 24% increase in EOO if this is *E. spinifer*.

Our survey also identified shell remnants from at least four giant spiny crayfish. This is disturbing and represents an unusual mass mortality event. The crayfish remnants were from adult crayfish 10-20 years old, typically these crayfish should live for another 10-20 years. Mortality is a very rare event with adult giant spinies. To have 4 dead in a 1 km section of stream indicates intervention from an unnatural source and requires immediate investigation.

Summary

The survey documents the presence of a previously unknown species of Giant Spiny Crayfish. Although morphologically similar to *E. spinifer*, genetic analysis may indicate a new undescribed species. The significant geographic separation from the main population would typically have led to speciation resulting in a distinct new species.

A new ACP Project (No.: 100083) has been generated to further investigate this new species.



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