

**BEFORE THE CANTERBURY REGIONAL COUNCIL**

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***IN THE MATTER OF:*** the Resource Management Act 1991

**AND**

***IN THE MATTER OF:*** a submission on the Proposed  
Canterbury Land and Water Regional  
Plan variation 1

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**EVIDENCE OF DR NICHOLAS REX DUNN  
FOR DIRECTOR-GENERAL OF CONSERVATION**

Dated 28 August 2014

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## STATEMENT OF EVIDENCE OF NICHOLAS REX DUNN

### INTRODUCTION

- 1 My full name is Dr Nicholas Rex Dunn.
- 2 I am appearing on behalf of the Director-General of Conservation, who has made a submission on the Proposed Canterbury Land and Water Regional Plan variation1(pCLWRP v1). I am employed by the Department of Conservation (DOC) as a Freshwater Science Advisor in the Freshwater Section of the Science & Capability Group. I have held this role since the start of September 2012. Prior to that I was employed as a Technical Support Officer Freshwater in the Canterbury Conservancy since December 2010.
- 3 I hold a Bachelor of Science (Earth Sciences) degree from the University of Waikato where I majored in hydrology and soil science, and a Master of Science (Environmental Science) (First Class Honours) degree from the University of Canterbury, majoring in freshwater ecology and hydrology. I also hold a Doctor of Philosophy degree from the University of Otago.
- 4 Since 2003 I have been a Partner, with Dr Leanne O'Brien, in Ichthyo-niche, a research consultancy specialising in native galaxiid fishes and their habitats, particularly Canterbury mudfish. Dr O'Brien's PhD thesis focused on the conservation ecology of Canterbury mudfish (*Neochanna burrowsius*). Dr O'Brien and I have co-authored a number of publications and reports detailing Canterbury mudfish, their habitats, and conservation management.
- 5 I have read the Environment Court's Code of Conduct for Expert Witnesses, and I agree to comply with it. My qualifications as an expert are set out above. I confirm that the issues addressed in this brief of evidence are within my area of expertise.
- 6 I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

## SCOPE OF EVIDENCE

- 7 The Department in regard to rule 11.1.31, sought the relief that it be prohibited to dam the tributaries of the Waianiwaniwa River in addition to the main stem, to protect sub-populations of Canterbury mudfish (*Neochanna burrowsius*). My evidence explains the reasoning as to why this relief was sought.

11.4.31 Prohibit in-stream damming of the full flow on the main stem of the Selwyn River/Waikirikiri and the Waiāniwaniwa River above its confluence with the Selwyn River/Waikirikiri.

## CANTERBURY MUDFISH (*Neochanna burrowsius*)

- 8 Canterbury mudfish under the New Zealand Threat Classification System (Townsend et al. 2008) has the threat ranking of Threatened – Nationally Critical, based on the criteria that irrespective of size or number of subpopulations it has a very high (>70%) ongoing or predicted decline (Goodman et al. 2014).
- 9 Furthermore, Canterbury mudfish has the qualifiers of Conservation Dependant, Range Restricted, and Sparse. Conservation Dependant means ‘the taxon is likely to move to a higher threat category if current management ceases’ (Townsend et al. 2008, p 28). The next highest threat classification is Extinct. Range Restricted means ‘taxa confined to specific substrates, habitats or geographic areas of less than 1000 km<sup>2</sup>’ (Townsend et al. 2008, p 29). Sparse means ‘taxa that occur within typically small and widely scattered populations’ (Townsend et al. 2008, p 30).
- 10 Canterbury mudfish are known to occur in sixteen river catchments from the south bank of the Ashley River to the south bank of the Waitaki River (NZFFD; O’Brien & Dunn 2007a).

- 11 The total habitat area of Canterbury mudfish was estimated by O'Brien & Dunn (2012) as 24 ha across 69 then known habitat fragments. Of this habitat area only 1.5 ha has some form of legal protection.
- 12 It is also important to recognise that a further 30 local populations were considered to have gone extinct since they were first recorded.
- 13 Habitat loss is considered the greatest threat to the long term persistence of Canterbury mudfish (DOC 2003). The habitats of Canterbury mudfish were summarised by O'Brien & Dunn (2007b) as still or very slow-flowing, meandering, swampy streams with deep pools, seepage streams, spring streams, scour holes and stockwater races. The diverse range of habitats in which Canterbury mudfish are now found may be, in part, a consequence of the removal of the once extensive wetlands that covered the Canterbury Plains which has forced mudfish to occupy whatever habitat remains that they can tolerate (O'Brien & Dunn 2007b).

#### **CANTERBURY MUDFISH IN THE SELWYN RIVER CATCHMENT**

- 14 The Selwyn River catchment contains 27% of known (extinct and extant) Canterbury mudfish habitat fragments (O'Brien & Dunn 2012). In this sense the Selwyn catchment can be considered of high importance for this species.
- 15 Ten Canterbury mudfish habitat fragments are recognised in the Waianiwaniwa River catchment above Homebush Road in both the main stem and tributary streams totally an estimated 1.8 and 2 ha of habitat respectively (O'Brien & Dunn 2012).
- 16 O'Brien & Dunn (2012) ranked the status of subpopulations based on abundance and population structure data. These analyses showed that Waianiwaniwa tributary populations are ranked similarly to the main stem population.

17 Thus, Waianiwaniwa River tributaries should be afforded the same level of protection, i.e. prohibition from damming, as the main stem. This is required as these tributaries may be viewed as desirable, for smaller scale water storage options, than that previously proposed on the main stem.

## REFERENCES

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