Manaaki Whenua
Landcare Research

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Short webinars for environmental policy-makers and practitioners

# Ecosourcing for resilience in a changing climate

The following questions were asked during our live webinar with Peter Heenan but due to time restrictions, we were unable to answer these in the session.

**How will climate change impact on ecosourcing?**
This is an area for future research, especially in regard to matching species as well as their phenotypes and genotypes to future conditions.

**The best place to plant trees are on sheep and beef farms where you don't get any fire risk. Animals have brought in so much biology and created all the soil that holds 80% of the carbon. What are your thoughts on sheep and beef farming as there is a massive area of native bush throughout farms protected by farmers?**
All contributions to indigenous biodiversity are important, including protecting remnants and restoring indigenous vegetation on farms.

**How do we manage native invasives such as karo and karaka in Wellington region that can outcompete locally native species and contribute to local extinctions?**
This is an area for future research as I indicted in the talk. Native plants establishing in novel habitats or outside their distributional range is important to investigate as we don't have too much information. We do refer to this issue in the paper, but don't explicitly discuss cases such as you describe. I've made a note of this issue previously from discussions with Wellington people.

**What is the perceived impact of pest plants, and should more emphasis be put on pest plant eradication regionally?**
Pest plants are clearly a problem. When undertaking restoration plantings as soon as the canopy can be closed the better as this will substantially reduce the impacts of pest plants. Other standard restoration practices such as weed mats and plant guards are also important to use. And yes I agree eradicating pest plants is a very good activity.

**Would you advocate experimenting with introducing species that may not necessarily be endemic to a particular area?**
I wouldn't advocate this, but would be advocating possibly using a better understanding of native species outside of their known distributional range and when used in non-typical habitats. Particularly the role of early successional native species in restoration plantings.

**What research was made into mātauranga Māori to understand knowledge of plant whakapapa in relation to local habitat suitability / survival and plant use?**
Māori emphasise local place as important. Therefore it is important that Māori consider the original vegetation present so their projects can represent what has been lost. Like any other project they also need to consider future climate change impacts.

**For those who are a little hesitant, would it be very safe to consider all of Banks Peninsula as one area.**

Yes, if you as a practitioner are comfortable with that approach. But why would you consider that when there is no evidence from phylogenetics, biogeography etc. that this is necessary. And as long as you have considered having sufficient / suitable seed sources from BP for species diversity and seed numbers.

**What about genetically modified organisms? Will we see the use of these in future?**

Unlikely.

**How far should we go to re-establish conifers? e.g., is it okay to plant kauri in Wellington?**

Why would you want to plant kuri in wellington?

**Apart from Kunzea and Leptospermum, which other species have you analysed the genetic diversity of?**

For a full list of studies and comments see the supplementary material associated with the ecosourcing paper: https://www.tandfonline.com/doi/full/10.1080/0028825X.2023.2210289?src=

**The recommendations are to collect seed "from 50 or more unrelated parent plants" - how do you define "unrelated" and how would you know whether plants are unrelated?**

It will not be known how individuals in a population are related. Being pragmatic, collecting from across the population will minimize collecting closely (e.g. siblings, cousins etc) related individuals.

**Re. your proposed Canterbury ecoregion, and specifically Banks Peninsula, do you have evidence of inbreeding depression being a problem in Peninsula plant species? If not, do you think it is necessary or appropriate to plant species or propagules from outside the Banks Ecological Region on the Peninsula?**

Inbreeding depression is very difficult to study, so that question specifically on Banks Pen. populations is difficult to answer. This question is confusing the overall evidence from multiple sources with a very specific and difficult to study situation. Putting it another way, there is no other evidence from phylogeography or biogeography to treat the Peninsula any different.

**Can the landscape of the 5 major catchments of Christchurch City be considered within one eco-source area zone**

Yes they can.

**Are mycorhizal associations taken into account in ecosourcing decisions?**

Not in the present study, but yes they should be considered.

**How do District Councils rate in ecosourcing to encourage the right type of planting for urban areas?**

They are probably too restrictive as per the traditional local concept of ecosourcing which restricts species diversity and having suitable seed sources.

**IPCC AR6 WGII stated 'In the ocean, marine plants and animals including entire communities have shifted their distributions poleward at an average speed of 59km per decade due to increasing water temperatures.' Is there any data on how much endemic terrestrial ecosystems in Aotearoa are moving latitudes or altitudes?**

I am not aware of any similar studies in NZ terrestrial plants.

**What is your view with creating guidelines for seed collection when some of the largest areas from seed collection are inaccessible to most in DOC reserves**

A collective new way of working together is required. No simple answer sorry. But yes I agree DOC needs to be more helpful.