

Eco-index



Whakamana | Empower

People in Aotearoa New Zealand value their unique natural environments, but national and regional reporting shows that our ecosystems and native biodiversity are degraded and continuing to decline. Restoring native ecosystems that once cloaked the whenua has many benefits for society, nature, and business. The Eco-index team are providing tools and information to guide land managers in collectively accomplishing large-scale ecosystem restoration.



This research is Active

From left: Wendy Boyce, Saif Khan, Penny Payne, Kiri Joy Wallace, Rachelle Binny, Karen Denyer, Catherine Kirby, Olivia Stead, Monique Hall, John Reid, Corey Ruha, Jay Whitehead, Kevan Cote.
Absent: Nathaniel Calhoun.

Overview Te Tirohanga Whānui

The Eco-index programme is developing fresh solutions to answer the important questions about reversing biodiversity decline in Aotearoa New Zealand with the goal of boosting efforts and coordination for protecting, restoring and connecting native ecosystems.

Questions such as:

- How much is being done to help conserve or restore biodiversity in Aotearoa NZ?
- Which biodiversity actions should be prioritised by land managers and catchment groups?
- What is the impact of the work we're undertaking to reverse biodiversity decline?

Visit the Eco-index website by clicking here:



Research Area Summary Te Whakarāpopototanga Kaupapa

2121 National Biodiversity Vision

This vision underpins our kaupapa and is helping to guide and inspire our partners. Developed from an analysis of the vision statements and goals of organisations interested in native biodiversity of Aotearoa New Zealand, the National Biodiversity Vision addresses the key elements required to reverse biodiversity decline by 2121: Protected, Restored, Connected by 2121.

Ecosystem Targets

In November 2023, Eco-index Ecosystem Targets will be available for every catchment in Aotearoa New Zealand. These targets were developed using spatial analysis of pre-human and current ecosystem extent with a minimum 15% land cover goal for each ecosystem type in each catchment. The targets will help land managers with prioritisation of ecological restoration actions and bring attention to what could be possible for native ecosystems in Aotearoa New Zealand. [Read more here.](#)

Ecosystem Remote Sensing

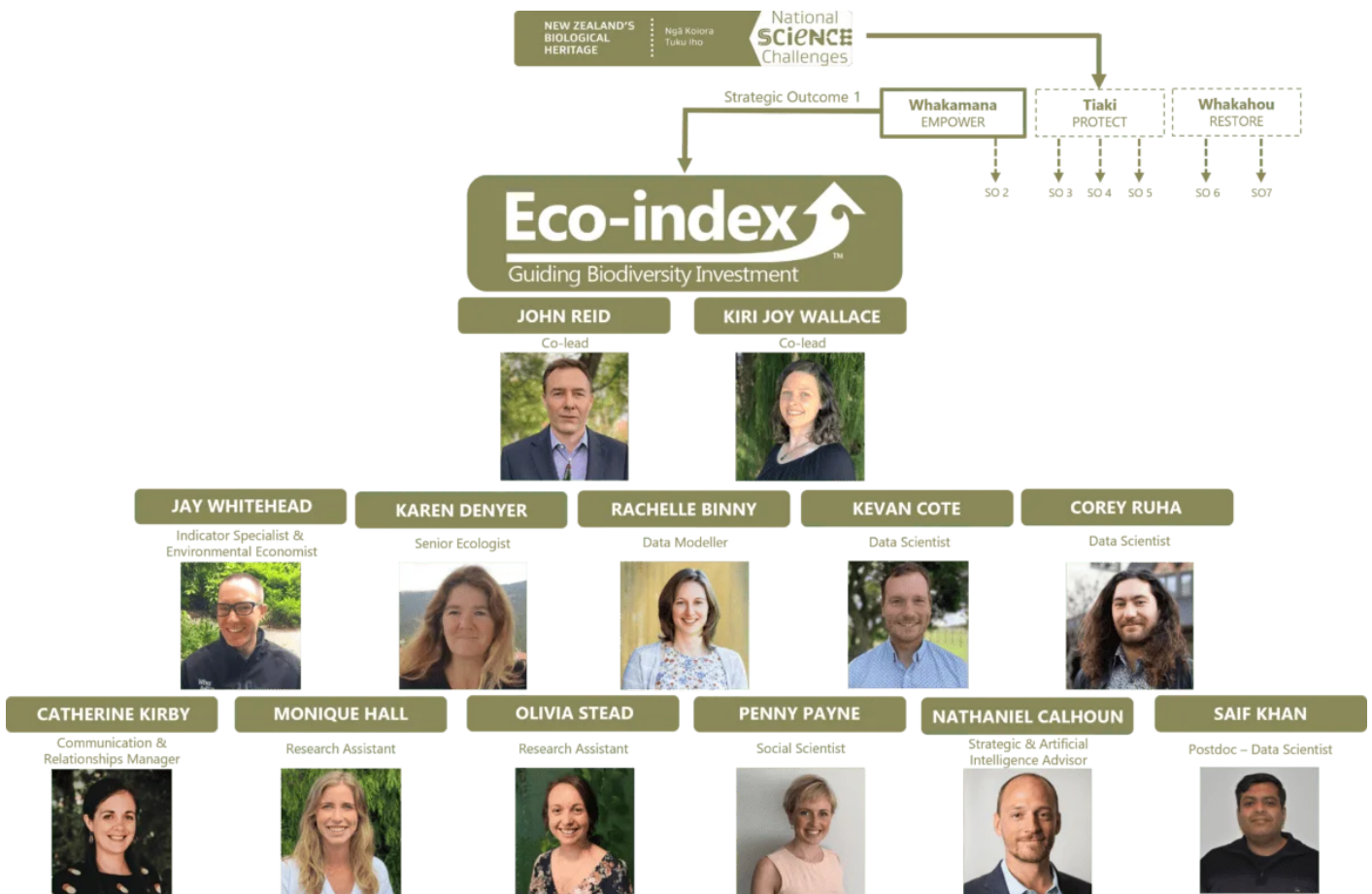
We are harnessing the latest approaches in machine learning and AI to develop remote sensing ecosystem detectors that will improve our understanding of where native ecosystems are across the country and how they are changing over time. [Read more here.](#)

Restoration Investment

Another important piece of the biodiversity puzzle is understanding how much catchment-focussed ecosystem restoration will cost. We are developing methods for costing the many elements of restoration projects for different regions of the country so that projects can be appropriately funded.

Impact Modelling

Land managers are faced with many different ecosystem restoration options, e.g. fencing, pest control and planting. We are using mathematical modelling to understand the best bang-for-buck investment options that create long-lasting biodiversity benefits on the ground.



Co-leads Ngā kaiārahi ngātahi



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- Catherine Kirby; Entelea Scicom Ltd
- Nathaniel Calhoun; Code Innovation
- Olivia Stead; University of Waikato
- Kevan Cote; Moose Engineering & Design
- Karen Denyer; Independent
- Md Saiful Khan; University of Canterbury
- Corey Ruha – Te Arawa; Independent
- Rachelle Binny; Manaaki Whenua – Landcare Research

- Monique Hall; University of Waikato
- Penny Payne; University of Waikato

Research Partners Ngā hoa pātui rangahau

- [University of Waikato](#)
- [University of Canterbury](#)
- [Geospatial Research Institute](#)
- [New Zealand Merino Ltd](#)
- [Dairy NZ](#)
- [Te Urunga o Kea – Te Arawa Climate Change Working Group](#)
- [The a2 Milk Company](#)
- [Stats NZ](#)
- [Manaaki Whenua – Landcare Research](#)
- [Ministry for the Environment](#)
- [Department of Conservation](#)
- [Jobs for Nature](#)
- [Taiao: Time-Evolving Data Science and Artificial Intelligence for Advanced Open Environmental Science](#)

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