

# UNDERSTANDING BIODIVERSITY IN THE CONTEXT OF REGENERATIVE AGRICULTURE

Melanie Davidson<sup>1</sup>, Maria Minor<sup>2</sup>, Jacqui Todd<sup>1</sup>, David Norton<sup>3</sup>, Francisco D'Elia<sup>4</sup>

<sup>1</sup>Plant & Food Research, <sup>2</sup>Massey University, <sup>3</sup>Canterbury University, <sup>4</sup>Biodiverse Labs (USA)

## Knowledge gaps:

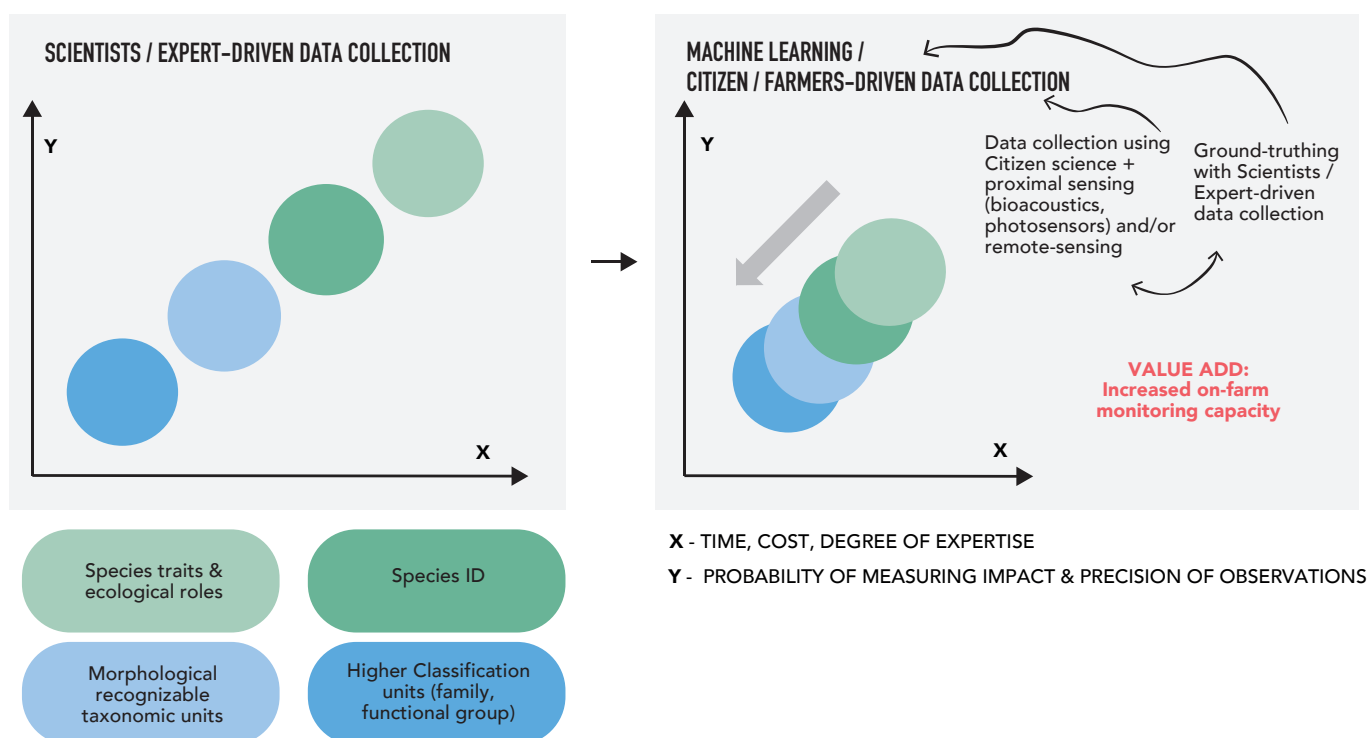
- 1) Does RA increase both native and total biodiversity outcomes? If so, what are the linkages between practices and biodiversity outcomes in different contexts (e.g. ecoclimatic regions)
- 2) What landscape configurations of RA farming systems promote native biodiversity and ecosystem resilience?
- 3) Can changes in bioindicators of native biodiversity (e.g. birds) be used to predict ecosystem health in New Zealand?
- 4) What are the opportunities for upscaling NZ's biodiversity monitoring capability, in collaboration with RA farmers / growers?

## Assessing biodiversity at scale in the context of RA:

- ▶ Precise and scalable biodiversity measurements are resource-intensive. Costs can be decreased by collaborating with farmers, co-developing sensing & machine learning methodologies to automate species identification (1).
- ▶ Landscape configuration is key to native biodiversity and ecosystem resilience. It can be assessed from space with ground-truthing (2).
- ▶ Biodiversity data can be analyzed in terms of bioindicators of ecosystem functions / services (e.g. nematodes / earthworms are indicators of soil health) and / or in terms of whole of systems response to changes (3).

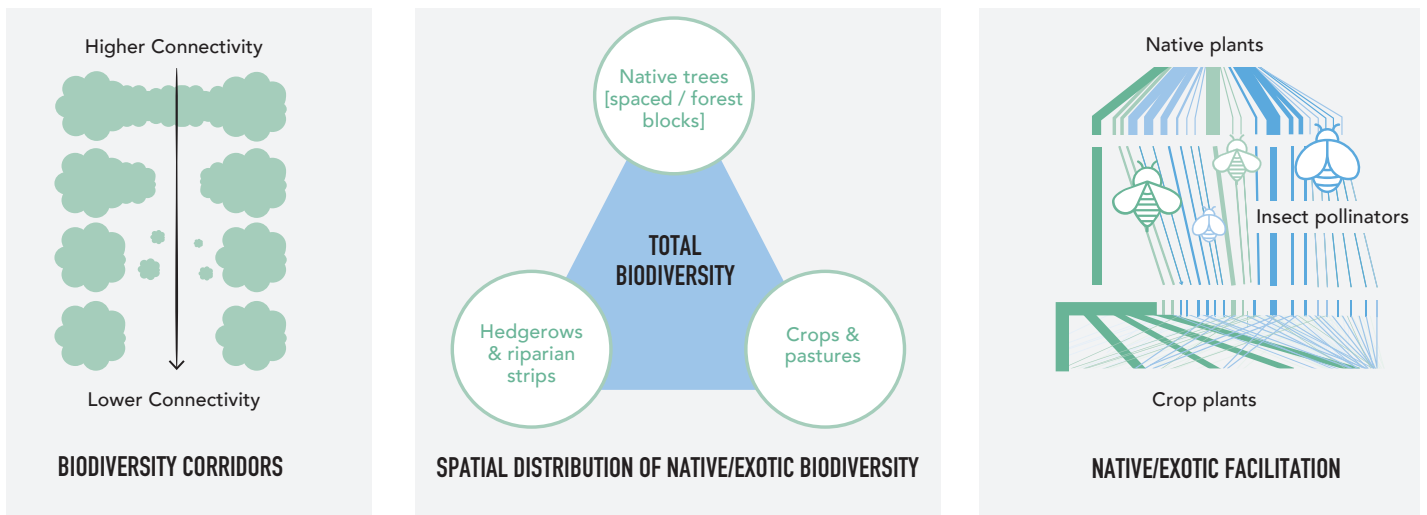
## Measuring diversity & abundance

1

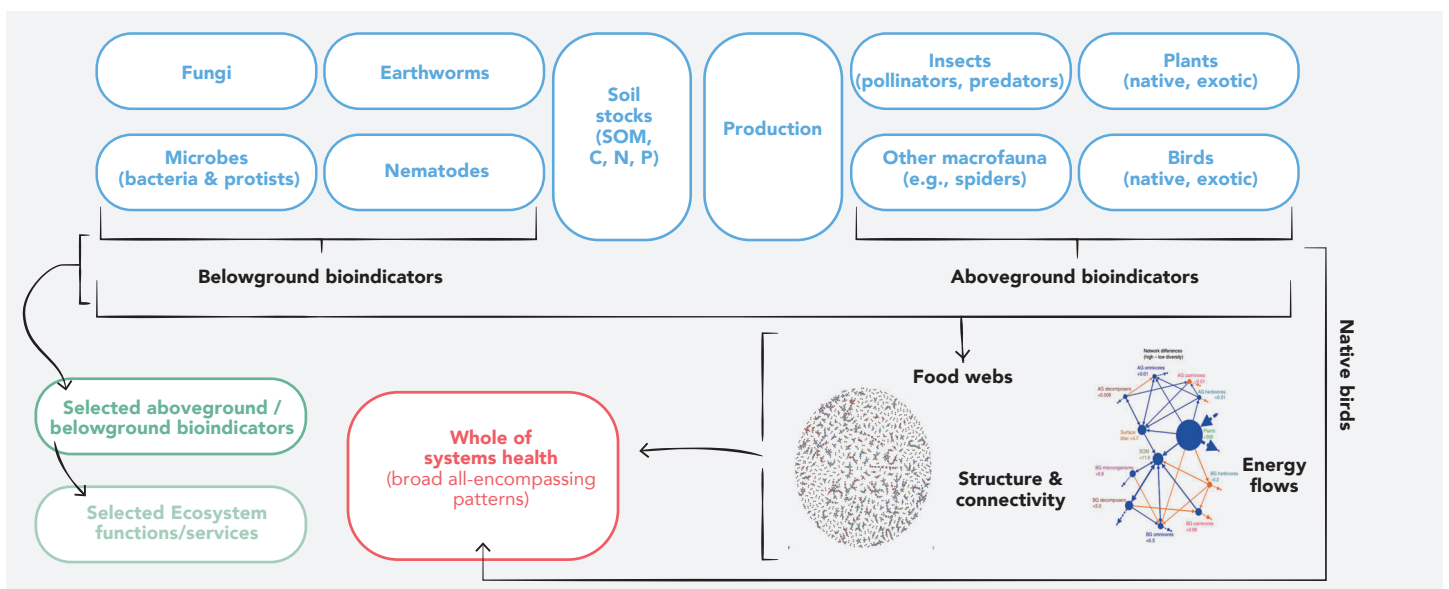


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## Assessing Landscape configuration



## Interpreting data



## Sources:

- Davidson M, Minor M, Todd J 2021. Terrestrial macrofauna invertebrates as indicators of agricultural impacts. Manaaki Whenua – Landcare Research Contract Report LC3954-16 for Our Land and Water National Science Challenge & The NEXT Foundation.
- Norton D, 2021. Native biodiversity and regenerative agriculture. Manaaki Whenua – Landcare Research Contract Report LC3954-17 for Our Land and Water National Science Challenge & The NEXT Foundation.
- [www.bioverselabs.com](http://www.bioverselabs.com)