

Co-designing an online tool for on-farm biodiversity assessment

A PROOF-OF-CONCEPT



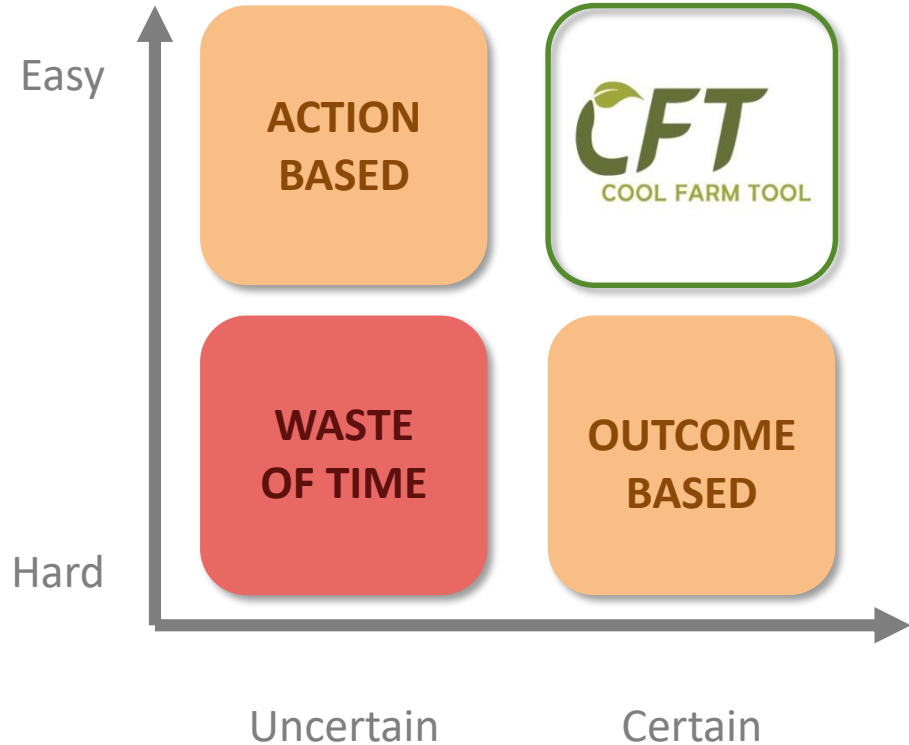
Manaaki Whenua
Landcare Research



Conservation
Evidence
Evidence to improve practice



ADDRESSING THE CHALLENGES OF MEASURING BIODIVERSITY



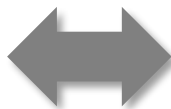
BIODIVERSITY TOOL MEETS MULTIPLE NEEDS...



*How nature-friendly
are my farm actions?*



*What actions
should I do next?*



Access market &
meet consumers'
expectations



Help tell the NZ
biodiversity story



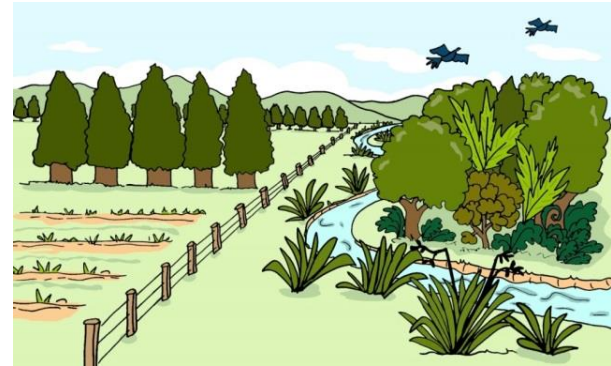
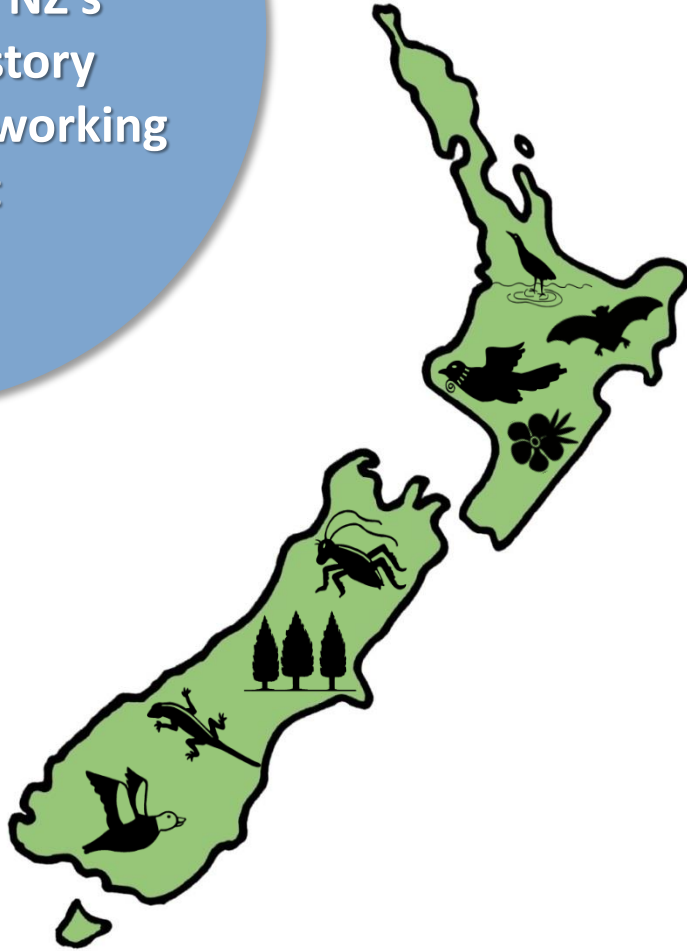
Meet my industry's
reporting
requirements



Submit my farm
environment plan



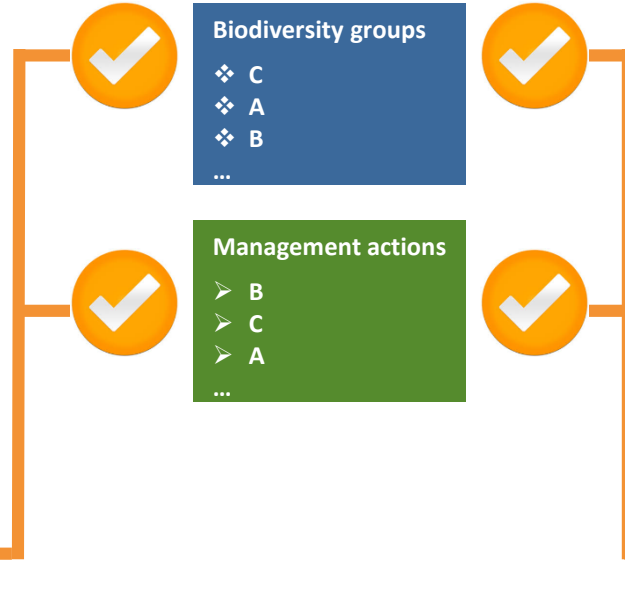
Ability to tell NZ's
biodiversity story
& how NZ is working
to enhance it





A staff member from Dairy NZ was also involved

ABILITY TO TELL NZ'S BIODIVERSITY STORY



200+ farmers, growers & other interested parties

* Our online prioritisation exercise drew on the experience of individuals from certain organisations; the results reflect those responses, rather than the policy or perspective of their organisation.



**NATIVE BUSH
PLANTS**

1

6

WETLAND BIRDS



**NATIVE WETLAND &
AQUATIC PLANTS**

2

7

SOIL LIFE



**NATIVE GRASSLAND
PLANTS**

3

8

BENEFICIAL INSECTS



**NATIVE FOREST
BIRDS**

4

9

**NATIVE AQUATIC
ANIMALS**



**NATIVE BIRDS OF
OPEN HABITATS**

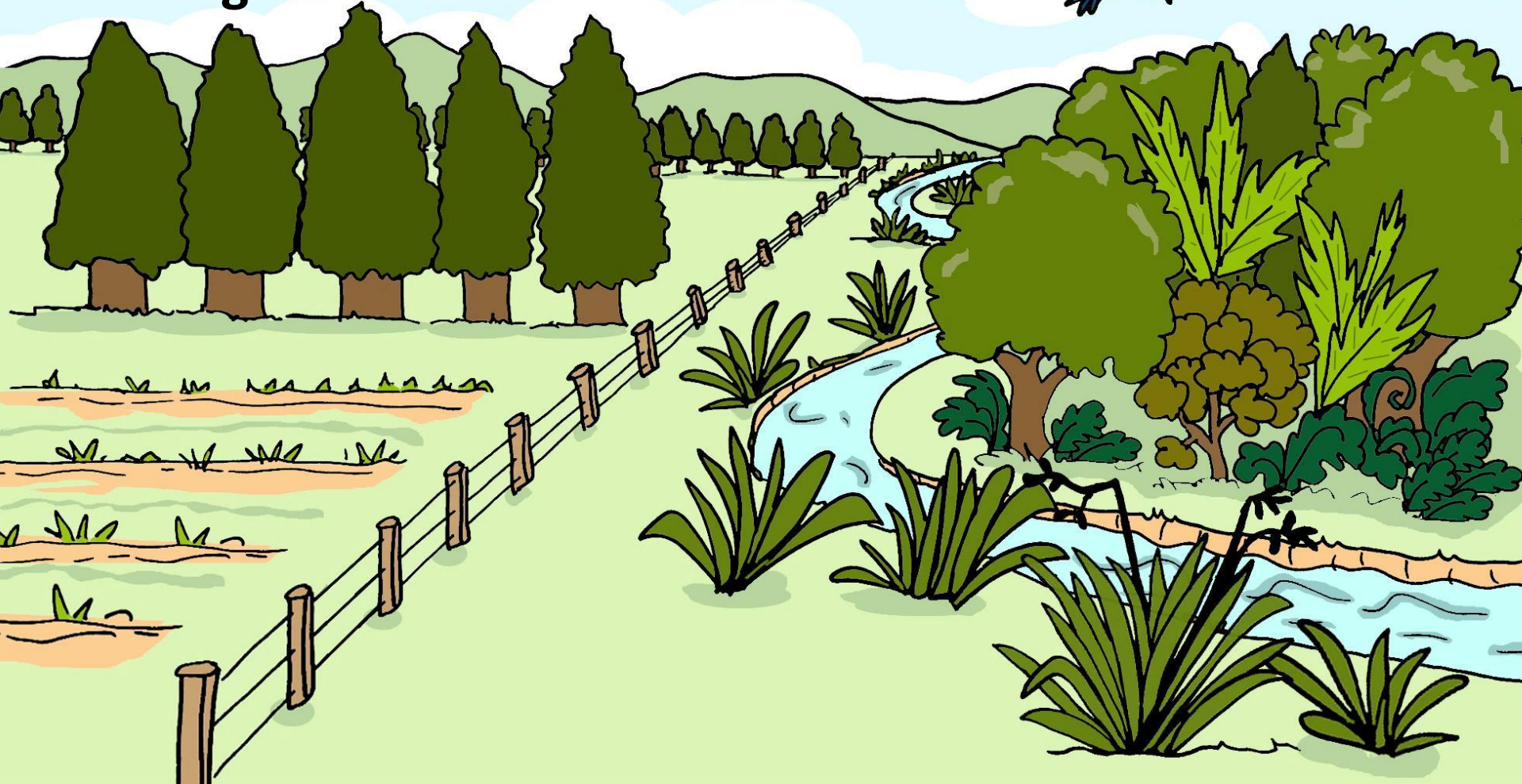
5

10

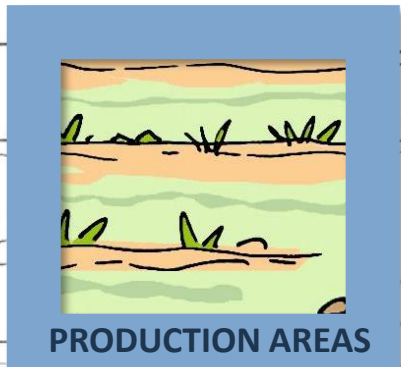
**LIVESTOCK, CROP
& VARIETY**



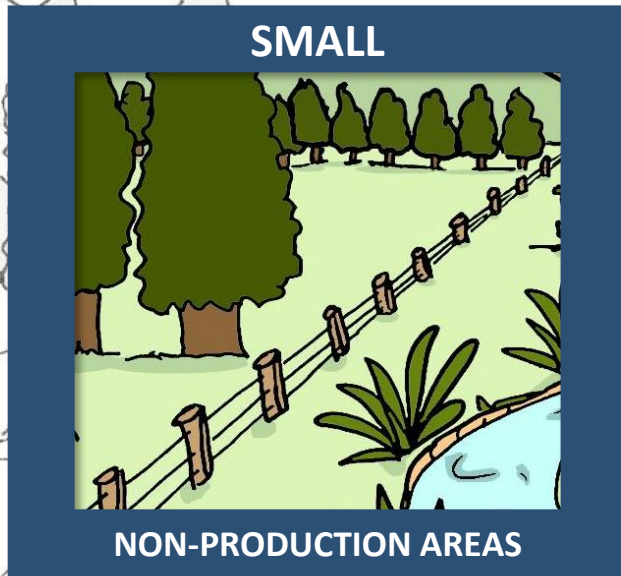
35 management actions of interest



35 management actions of interest



37% OF ACTIONS



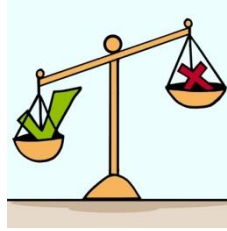
31% OF ACTIONS



31% OF ACTIONS

NZ-relevant biodiversity
performance scores

**SPECIALIST
JUDGEMENT**



**LATEST SCIENTIFIC
RESEARCH**





10 SPECIALISTS ON PANEL FOR JUDGEMENT SCORES



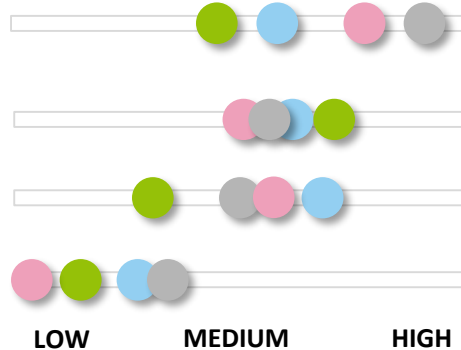
Specialists from University of Canterbury and Massey University also participated in the assessment.



INDIVIDUAL JUDGEMENT-BASED BIODIVERSITY SCORES



INDIVIDUAL SCORES



For target biodiversity group

1. How **beneficial** is action?
2. How **harmful** is action?
3. How **certain** are you about your answers to questions 1 & 2?



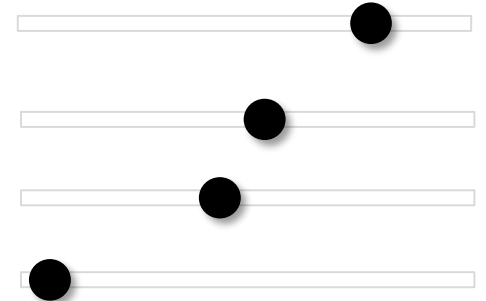
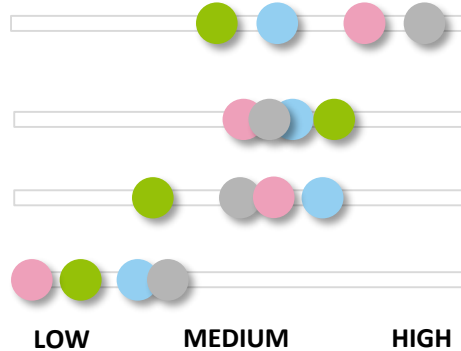
CONSENSUS ON JUDGEMENT-BASED BIODIVERSITY SCORES



INDIVIDUAL SCORES



CONSENSUS SCORES



UNLIKELY
UNKNOWN
INEFFECTIVE
HARMFUL

LIKELY
BENEFICIAL

BENEFICIAL



JUDGEMENT-BASED BIODIVERSITY SCORES SUMMARY

43 ACTIONS × 11 BIODIVERSITY GROUPS = 473 CASES

7%

Unknown

56%

Unlikely beneficial
Ineffective or harmful

20%

Likely beneficial

17%

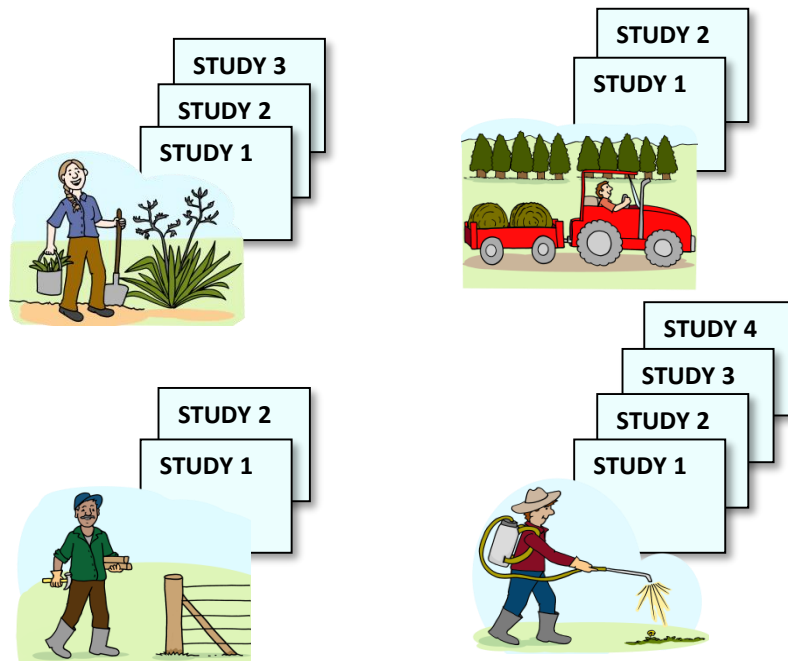
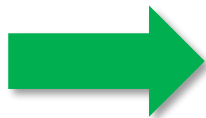
Beneficial



GATHER BEST-AVAILABLE SCIENTIFIC EVIDENCE FOR EACH ACTION



**Conservation
Evidence**
Evidence to improve practice



Demonstrate process for a subset of actions



'Think global, act local'

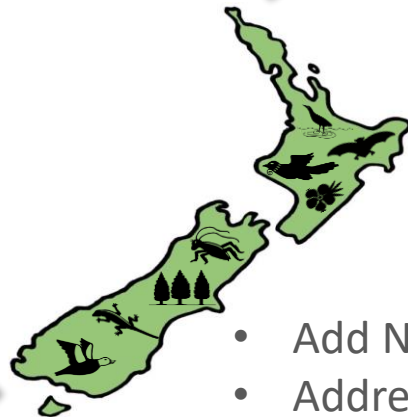
ConservationEvidence

Evidence to improve practice

 Amphibian Conservation 129 Actions	 Bat Conservation 78 Actions	 Bee Conservation 59 Actions
 Bird Conservation 455 Actions	 Control of Freshwater Invasive Species 139 Actions	 Farmland Conservation 119 Actions

Capitalise on:

- Existing global database
- Evidence evaluation protocols
- Opportunity to build NZ capability



- Add NZ scores & evidence
- Address key evidence gaps (global reviews & local research)

DESIGN A MANAGEMENT CHECKLIST THAT ALLOWS US TO TELL NZ'S BIODIVERSITY STORY



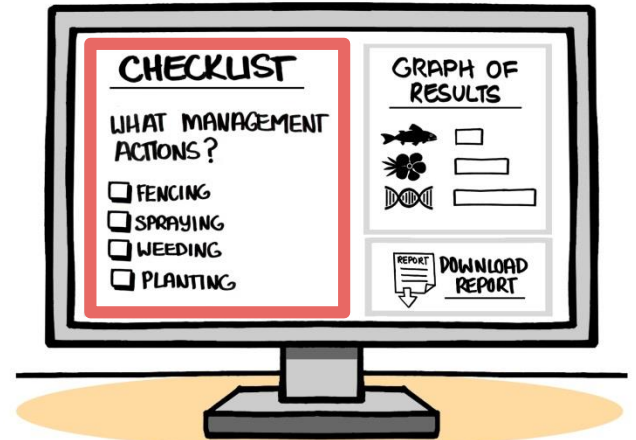
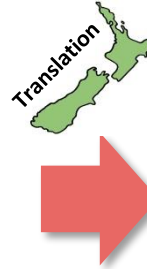
Online surveys & prioritisation exercise



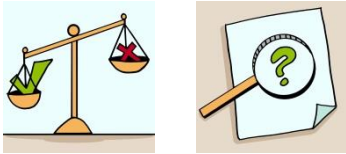
Ability to tell NZ's biodiversity story

- Biodiversity groups
- ❖ C
 - ❖ A
 - ❖ B
 - ...

- Management actions
- B
 - C
 - A
 - ...



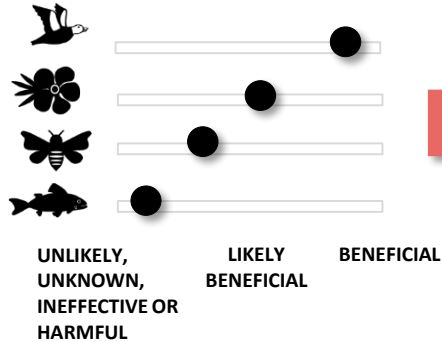
USE SPECIALIST-EVALUATED SCORES TO REPORT EXPECTED BIODIVERSITY PERFORMANCE



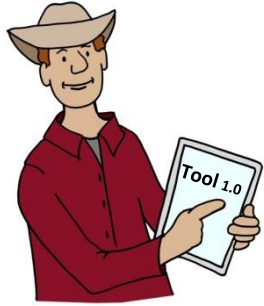
Specialist judgement
& latest research



*How nature friendly
are my farm actions?*



DELIVER A TOOL THAT IS USEFUL AND EASY TO USE



Stakeholders test
& recommend
improvements



Proof of
concept



Recommended
next steps

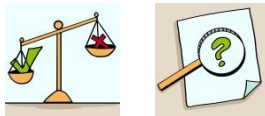
Lessons learnt

Ensure uptake by delivering tools that are useful & relevant



Ability to tell NZ's biodiversity story & how NZ is working to enhance it

Provide cost-effective solutions to evidence complacency



Scores biodiversity performance based on the latest research and expert judgement

Narrow the gap between practice & performance



Easy to evaluate how friendly farm actions are for different kinds of biodiversity

CHALLENGE

TOOL FEATURE

OUTCOMES

BY-PRODUCTS

Stakeholders co-design a tool that incorporates what matters to them

NZ specialists work together to ensure best use of global scientific evidence

Stakeholders empowered to make informed decisions

Understand & alignment with stakeholder values

Overcome evidence barriers & identify key knowledge gaps

Ensure tool governance meets user needs



THANKS! ...

LEARN MORE

www.nzdashboard.org.nz/biodiversity-assessment-tool.html

TEST OUR TOOL

landcare.shinyapps.io/BiodivPrototype/

CONTACT US

macleodc@landcareresearch.co.nz

