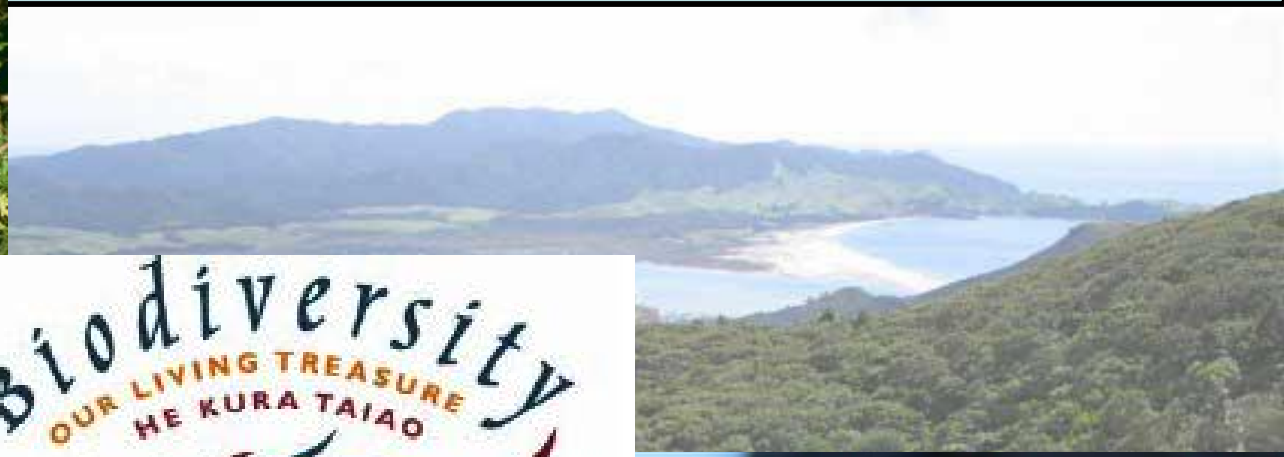
Kiwis counting kiwis:

Biodiversity monitoring on private land in New Zealand



Biodiversity
OUR LIVING TREASURE
HE KURA TAIAO

Jacki Byrd & Dr. Murray Williams.
Victoria University Wellington.

Research Objective

What biodiversity monitoring will measure the effectiveness of public funding towards the protection and enhancement of biodiversity on private land in New Zealand?

5 year review NZ Biodiversity Strategy

HAVE WE TURNED THE TIDE OF BIODIVERSITY LOSS?

- Lack of quantifiable and time-linked targets
- Need agreed key national environmental indicators and monitoring for terrestrial ecosystems.

*"Individual success stories are easy to point to but **patchy monitoring and reporting systems make it difficult to assess what overall difference is being made"***

(Green and Clarkson, 2005)

Question 2.

Are there are a core group of biodiversity monitoring methods suitable for landowners to measure the success of their conservation actions and to measure improvements to biodiversity on their land?

12 case studies

19 monitoring landowners

31 methods

9 criteria

Question 4.

What biodiversity information do landowners need in order to make decisions about management on their land?

Question 5.

What social resources do landowners need to support their monitoring?

	Case study	Status	Voluntary or paid	Number of monitors
1	Far North	Independent contractor	Partially funded	1
2	Northland	Landowners	Voluntary	2
		Landowner	Fully funded	1
3	Southwest Auckland	Independent contractor	Fully funded	1
4	Southeast Auckland	Landowners	Voluntary	2
5	Great Barrier Island	Employees	Fully funded	4
		Landowners & Trustees	Voluntary	3
6	Coromandel north	Community group employees	Fully funded	8
		Landowners	Voluntary	10
		Overseas visitors	Voluntary	75
		Students	Voluntary	50
7	Coromandel south	Landowners	Voluntary	2
8	East Coast	Government employees	Fully funded	2
9	Wairarapa	Community group	Voluntary	5
10	Kapiti Coast	Community group employee	Fully funded	1
		Community group	Voluntary	9
11	Banks Peninsula east	Landowners	Voluntary	2
12	Banks Peninsula west	Landowners	Voluntary	3
		Community members	Voluntary	5

National Priority Environments

Case study	National Priority Environments	Vegetation, habitat or species present
Coromandel north	1 = protect indigenous vegetation associated with land environments, that have 20 % or less remaining in indigenous cover. 2 = protect indigenous vegetation associated with sand dunes and wetlands; 4 = protect habitats of acutely and chronically threatened indigenous species	1 – coastal lowlands. 2 – wetland & sand dunes 4 - kiwi, kereru, kaka, Archey's frog, Coromandel striped gecko, giant kokopu. (Moehau stag beetle, gahnia weevil?).

Monitoring methods

Q.2 Are there a core group of biodiversity monitoring methods suitable for landowners to measure the success of their conservation actions and to measure improvements to biodiversity on their land?

5 min bird counts	10
trap catch record	10
tracking tunnels	7
vegetation plots	6
photo points	6
kiwi call counts	5
insect pit fall trapping	5

Monitoring methods

control site	4
base line monitoring	4
weta motels	4
pre & post pest control	4
possum residual trap catch	3
foliar browse index	2
wax tags	2
FORMAK site assessments	2
wetland bird survey	2
seedling plots	2
fresh water invertebrates	2
lizard monitoring	2
bait take	2
plant survival	2

Monitoring methods

stream fish survey	1
frog survey	1
mud fish	1
kiwi population structure	1
kokako nest success	1
penguin nest success	1
robin nest success	1
water levels	1
water quality	1
adaptive management	1

Suitability criteria

1. Relevant to & measure progress towards biodiversity goals.
2. Measure results & biodiversity outcomes of conservation work.
3. Help landowners to make land management decisions
4. Designed to answer questions to improve best practice.
5. Are practical, non-technical and manageable
6. Are consistent across the country
7. Integrate & inform the needs of many stakeholders
8. Have sound but simple statistical properties
9. Easily applied and appreciated by landowners.

9 core methods for landowners

- 5 min bird counts
- Iconic species population counts
- Baseline monitoring
- Tracking tunnels
- Kiwi call counts
- Photo points
- FORMAK site assessments
- Trap catch records
- Bait take

Decision making

Q4 What biodiversity information do landowners need in order to make decisions about management on their land?

Coromandel north

Used tracking tunnels to assess pest numbers following rat control. Now see they have a mouse problem so have made decisions about how to deal with this.

Decision making

Q4 What biodiversity information do landowners need in order to make decisions about management on their land?

East Coast

Monitoring results presented to landowners to get agreement to continue with intensive pest control on their land. RTC and pellet lines used to determine where possum and goat control is needed each year.

Decision making

Q4 What biodiversity information do landowners need in order to make decisions about management on their land?

Banks Peninsula east

Penguin nest success declined in areas of rank grass, possibly due to increased pest habitat, so decision made to return stock and shorten grass. Will see if penguin nest success increases again with this management.

Decision making

Q4 What biodiversity information do landowners need in order to make decisions about management on their land?

75% of landowners used their data to inform decision making

- To use resources more efficiently
- Planning future works
- Improve pest control programmes

Generally weak use of monitoring for management decisions

Good use of data to inform others in their communities.

Monitoring Success Factors

Q.5 Under what social conditions does monitoring occur?

Support systems

- Work together
- Get practical support
- Get rewards

Monitoring methods

– make monitoring relevant

– iconic species,

– make monitoring multi-purpose

Monitoring Success Factors

Support systems

- **Work together**
- Get practical support
- Get rewards

"I don't think I would have done monitoring by myself. I may have started, but I don't think I would have kept it up"

Monitoring Success Factors

Support systems

- Work together
- **Get practical support**
- Get rewards

"My mentor gave me a push and said 'you can do it'. When we started recording birds together I realised I did know what I was doing. It gave me the confidence I needed".

Monitoring Success Factors

Support systems

- Work together
- Get practical support
- **Get rewards**

"Success is a very comforting thing, it's the payback for all my hard work. That's what the monitoring gives me"

Monitoring Success Factors

"We only carry out two monitoring methods, it's enough to show progress towards our main goal"

- **Monitoring methods**
  - **make monitoring relevant**
  - **iconic species,**
  - **make monitoring multi-purpose**

Monitoring Success Factors

"We get tremendous support from the landowners around here because they hear kiwi on their land, it's a real buzz for them"

- **Monitoring methods**
  - **make monitoring relevant**
  - **iconic species,**
  - **make monitoring multi-purpose**

Monitoring Success Factors

"The monitoring results were clear. We have to do something different next time or we'll get the same result"

- **Monitoring methods**
  - **make monitoring relevant**
  - **iconic species,**
  - **make monitoring multi-purpose**

Conclusions

Q2. Are there are a core group of biodiversity monitoring methods suitable for landowners to measure the success of their conservation actions and to measure improvements to biodiversity on their land?

9 methods best fit the 9 criteria for measuring the effectiveness of a monitoring method.

Measuring experiments and experience can lead to best practice

A consistent group of methods will reduce confusion and aid comparisons

Monitoring is not essential. It depends on the site, goals and history of the project.

Conclusions

Q4. What biodiversity information do landowners need to make decisions about management on their land?

Practical & simple methods that:

- Are designed to answer specific questions
- Measure results & outcomes
- Will improve best practice

Conclusions

Q5. What social resources do landowners need to support their monitoring?

Factors for success and participation in monitoring

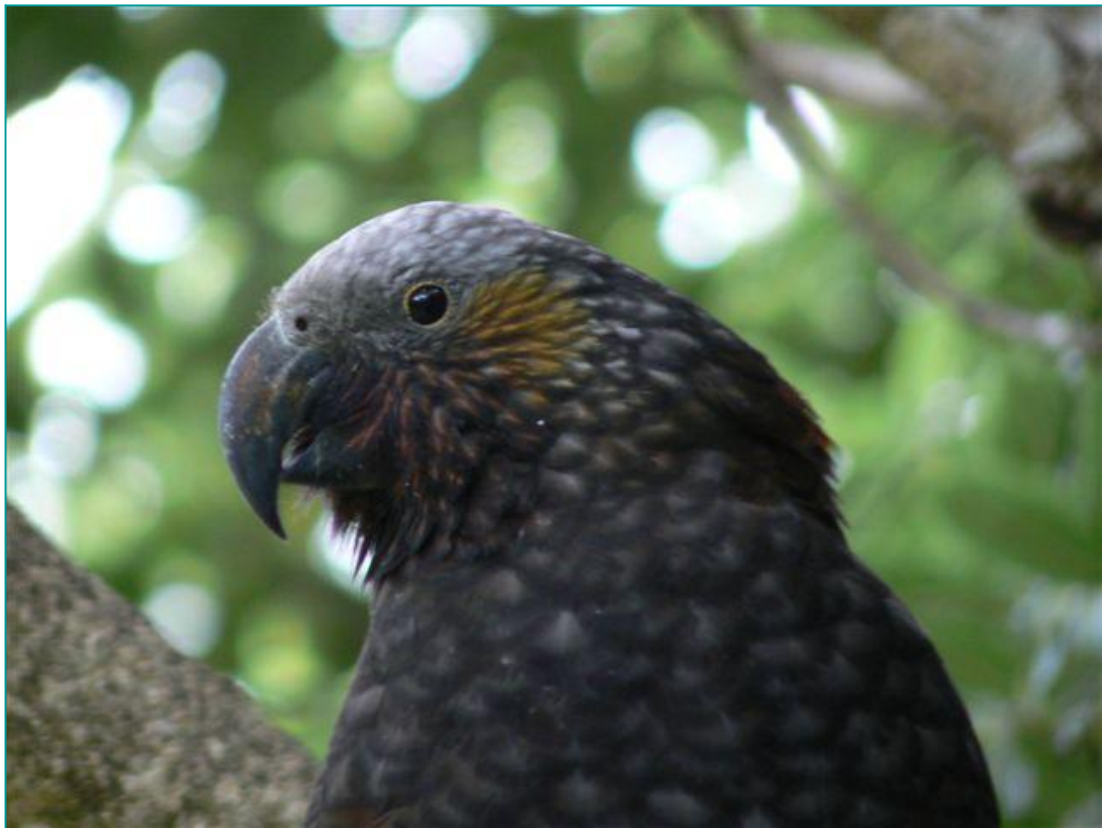
- Have great support systems & build confidence
- Use really appropriate monitoring methods
- Rewards

Involve landowners in research and development

- Around 4,000 projects currently running

Thanks Landowners

Landowners are supporting some of the 668 of our acutely and chronically threatened species & deserve all the support they can get.



Thanks!

Land owners & monitors,
Funding agency staff,
Other professionals

NZ Federation of Graduate Women
(Wellington Branch)
Sarah Anne Rhodes Fellowship
Robert C Bruce Trust

Dr. Murray Williams

Benefits of monitoring

- Learning from experience leads to improved understanding, efficiencies and adaptive management

- Measure the success of the conservation efforts towards goals

- Success breads motivation

Barriers to monitoring

Lack of time

Lack of technical support

Physically hard

Lack of skills

Choosing methods

Data variability / waiting for trends

No data or lack of change

Weather

Lack of labour

Observer bias

Data privacy

Lack of funds

Quantify policy goals

- Quantify international, national & local biodiversity goals
- Defining them as measurable, time referenced outcomes that can be assessed with monitoring.
- Support and resource landowners to be part of the team that collects biodiversity data for these reports.

Make monitoring consistent

- Choose & confirm core national indicators that can meet the needs of many users.
- Advertise & promote standard, consistent national monitoring methods throughout the country.
- Encourage landowners to use a core group of monitoring methods to maximise data comparisons.

Support landowners

- Resource landowners to overcome barriers to monitoring by providing social supports
- Promote the use of existing monitoring tools which suit non-professionals.
- Use national funds to train landowners to carry out biodiversity outcome monitoring

Research and monitor

- Engage professionals to work with landowners
- Maximise the benefits of monitoring as a decision making tool
- Develop best practice conservation methods through adaptive management practices.