

A Review of Conservation Outcomes from Mainland Islands *Progress Report*

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What's the review about?

- Build on Saunders 2000 review of DOC Mainland Islands
 - focus on conservation outcomes
 - over a decade's worth of data
 - assess progress towards stated biodiversity goals
- Make recommendations for future
 - especially monitoring



DOC “Mainland Islands”

- Six sites
 - established in 1995 – 97
- Learning sites for conservation management
 - 5 have non-treatment sites
- DOC flagship biodiversity recovery sites
 - high profile nationally
 - community involvement

Trounson Kauri Park

Northern Te Urewera

Boundary Stream

Paengaroa

Rotoiti







Hurunui



Visions & Goals

- **Trounson** — *“To restore ecological processes and components of a kauri forest ecosystem...”*
- **Northern Te Urewera** — *“...to acknowledge and nurture the mauri of the Northern te Urewera ecosystem”*
- **Boundary Stream** — *“...will be restored, by careful nurturing and enhancement, to the vibrant indigenous ecosystem it once was.”*
- **Paengaroa** — *“To restore and enhance the outstanding biodiversity of...”*
- **Rotoiti Nature Recovery Project** — *“Restoration of a beech forest community with emphasis on the honeydew cycle”*
- **Hurunui** — *“To protect the beech forest ecosystems of the....”*

Pest animals controlled at DOC Mainland Islands

Trounson	
Northern Te Urewera	
Boundary Stream	
Paengaroa	
Rotoiti	
Hurunui	

Numbers of monitoring techniques employed at DOC Mainland Islands 1996 - 2007

Birds	52
Pests (all)	37
Vegetation	32
Invertebrates	16
Herp's	7
Bats	2
Fish	1
Other	6
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Total	153



Photo Courtesy D. Fastier



Photo: DOC

Result Monitoring Possums at Trounson

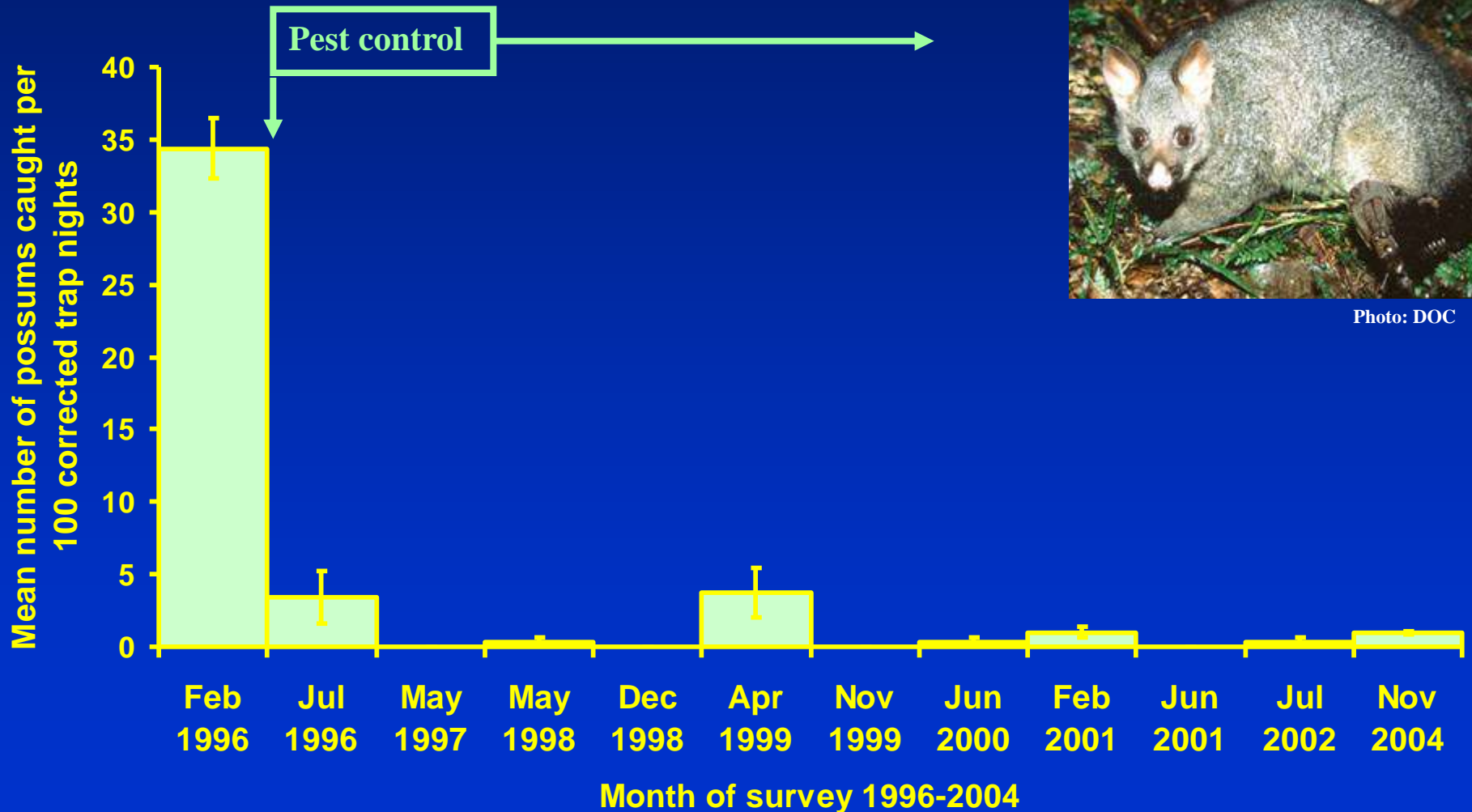
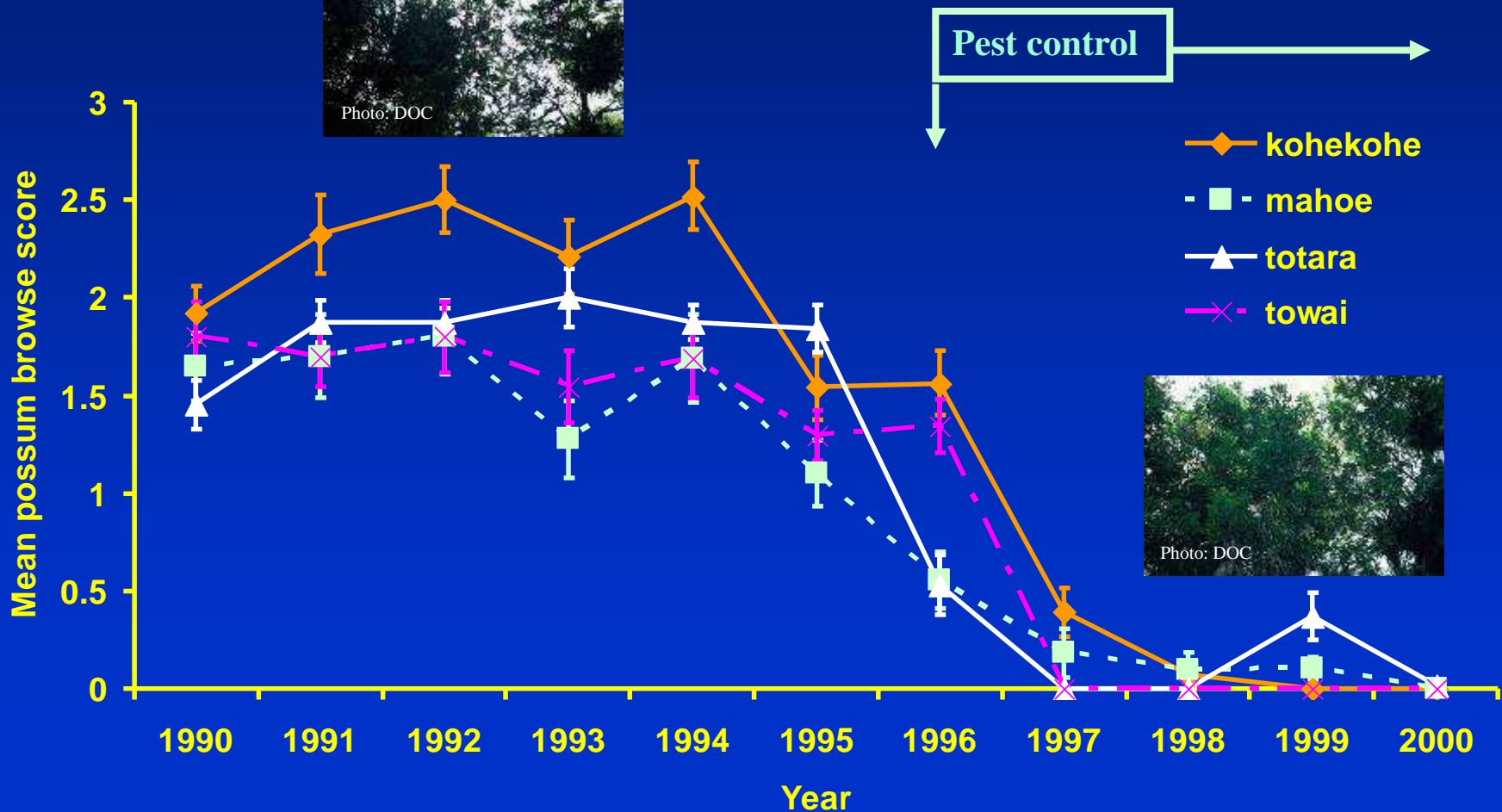
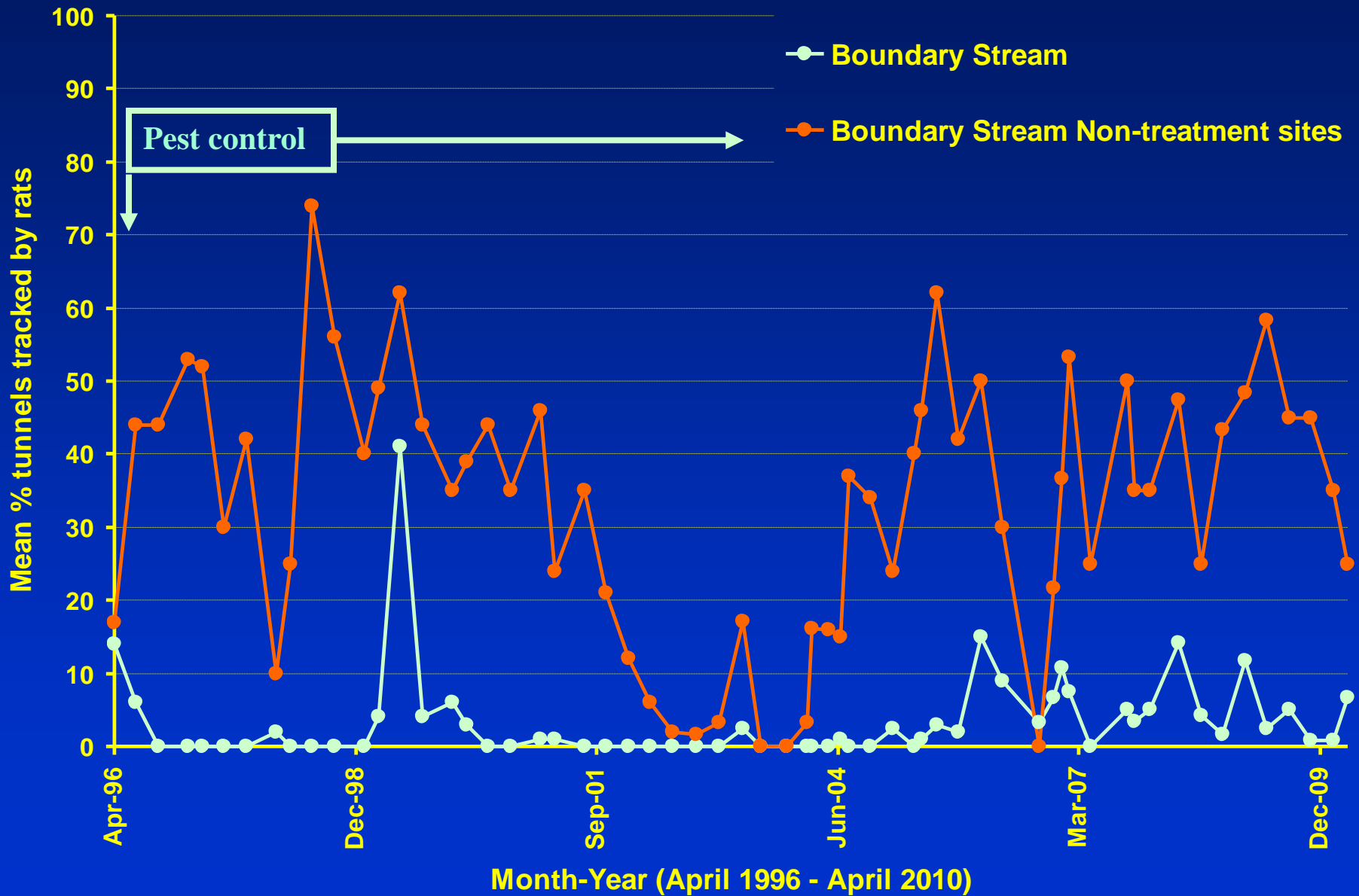


Photo: DOC

Outcomes for some forest trees - foliar browse indices at Trounson



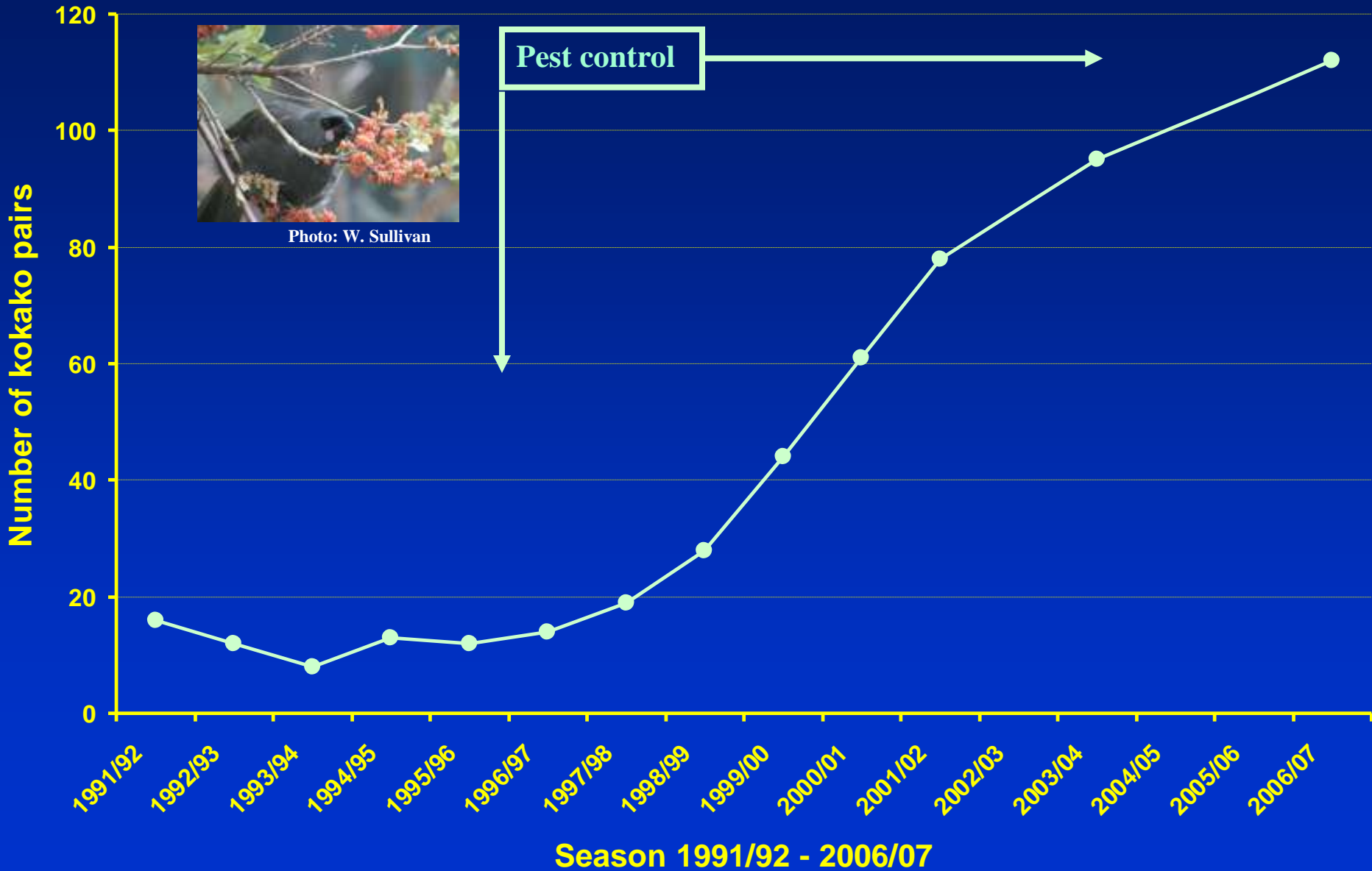
Result Monitoring - Ship rats at Boundary Stream



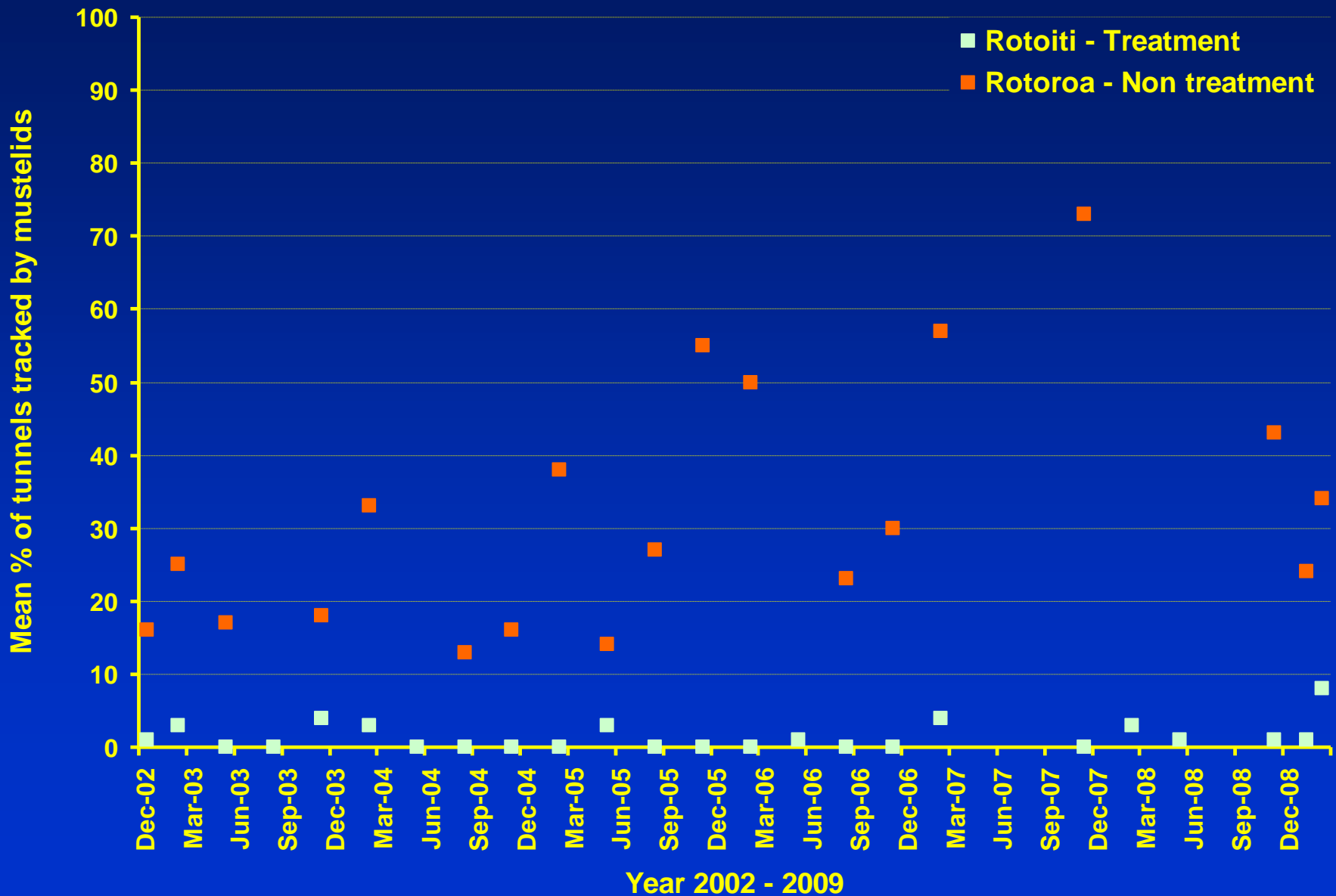
Kokako at Otamatuna Northern Te Urewera



Photo: W. Sullivan



Result Monitoring – Mustelids at Rotoiti



Annual NI Brown Kiwi Chick Survival

- ~ 95% die without intervention – mostly due to stoat predation
- ~ 19% of chicks need to survive to a safe weight i.e. 1000g
 - ~ 29% Trounson
 - 1996 – 2008
 - ~ 39% at Boundary Stream
 - 1999 – 2010
 - ~ 25% at Northern Te Urewera
 - 2000 – 2010

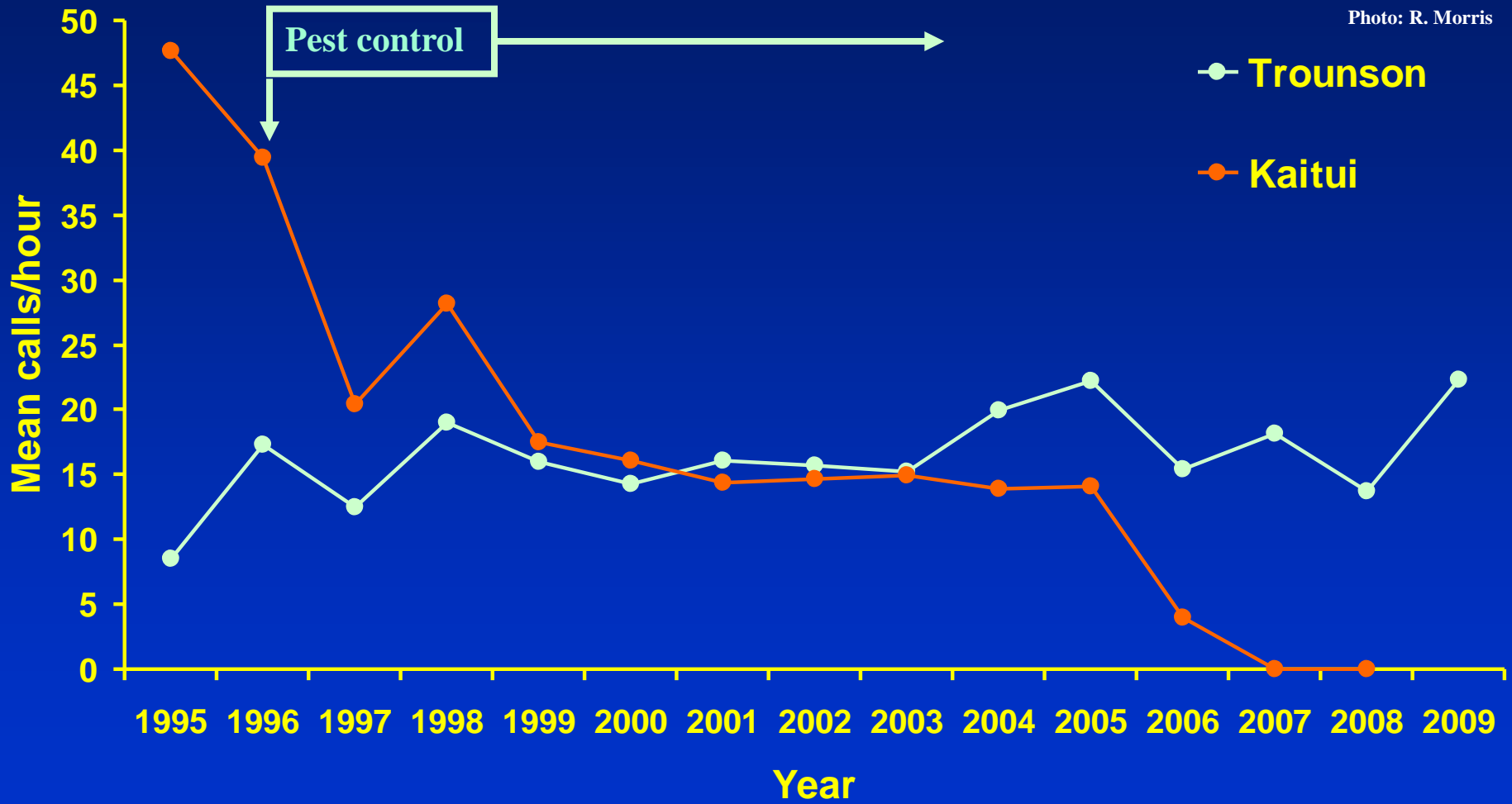


Photo: DOC

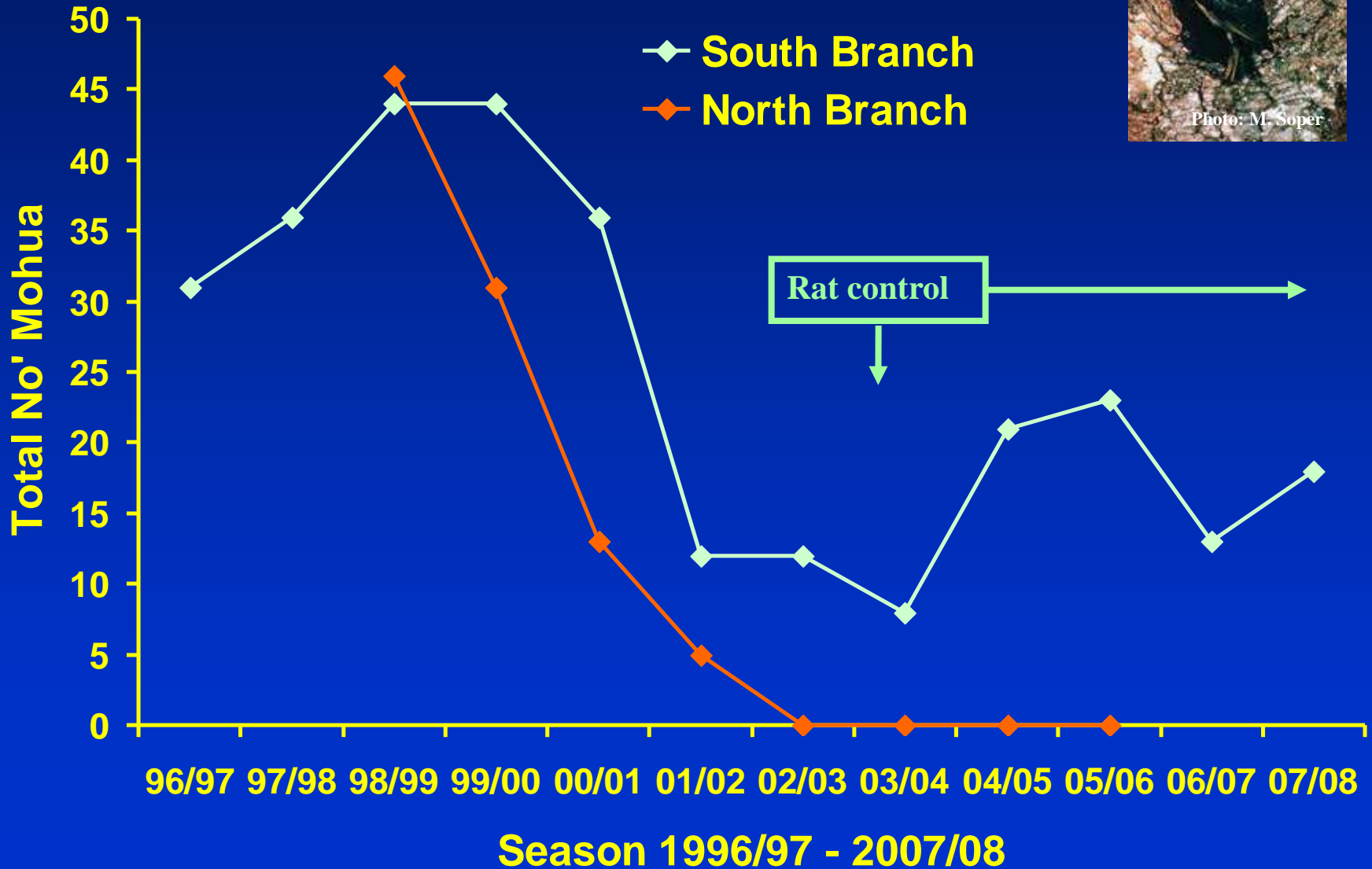
Kiwi Call Counts at Trounson



Photo: R. Morris



Mohua – South Branch Hurunui



What have the Mainland Islands achieved since 1996?

- Pest mammal control has (*for the most part*) been reasonably successful
- Some native birds and plants have done very well
- Some bird translocations have been successful
- What about restoring the ecosystem?



Photo Courtesy D. Fastier



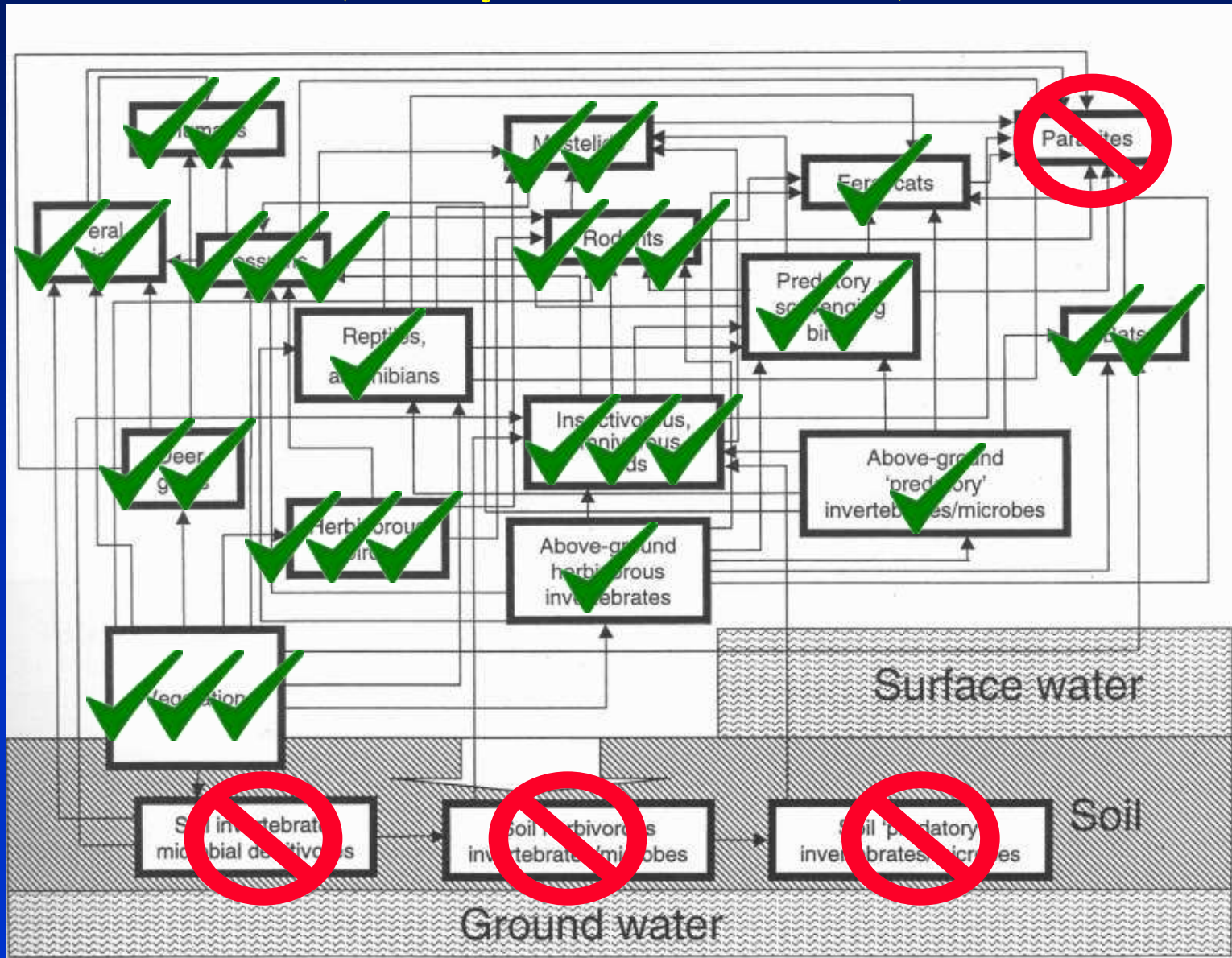
Photo: D. Graham

Ecological Integrity (Lee *et al.* 2005)

- Indigenous dominance
 - “...*ecosystems that contain and are shaped by indigenous plant and animal species...*” Exotic species can be present but shouldn’t disrupt or threaten indigenous ecosystem processes or dominance.
- Species occupancy
 - High level of representation by extant indigenous plants and animals that could potentially be present.
- Environmental representation
 - “...*refers to the abiotic aspects of ecosystems...derived from data layers based on climate, soils and geology...*” NHMS process will look after that

NZ Forest food web - unmanaged state

(courtesy Innes & Barker 1999)



Biomass of animals – Orongorongo Valley

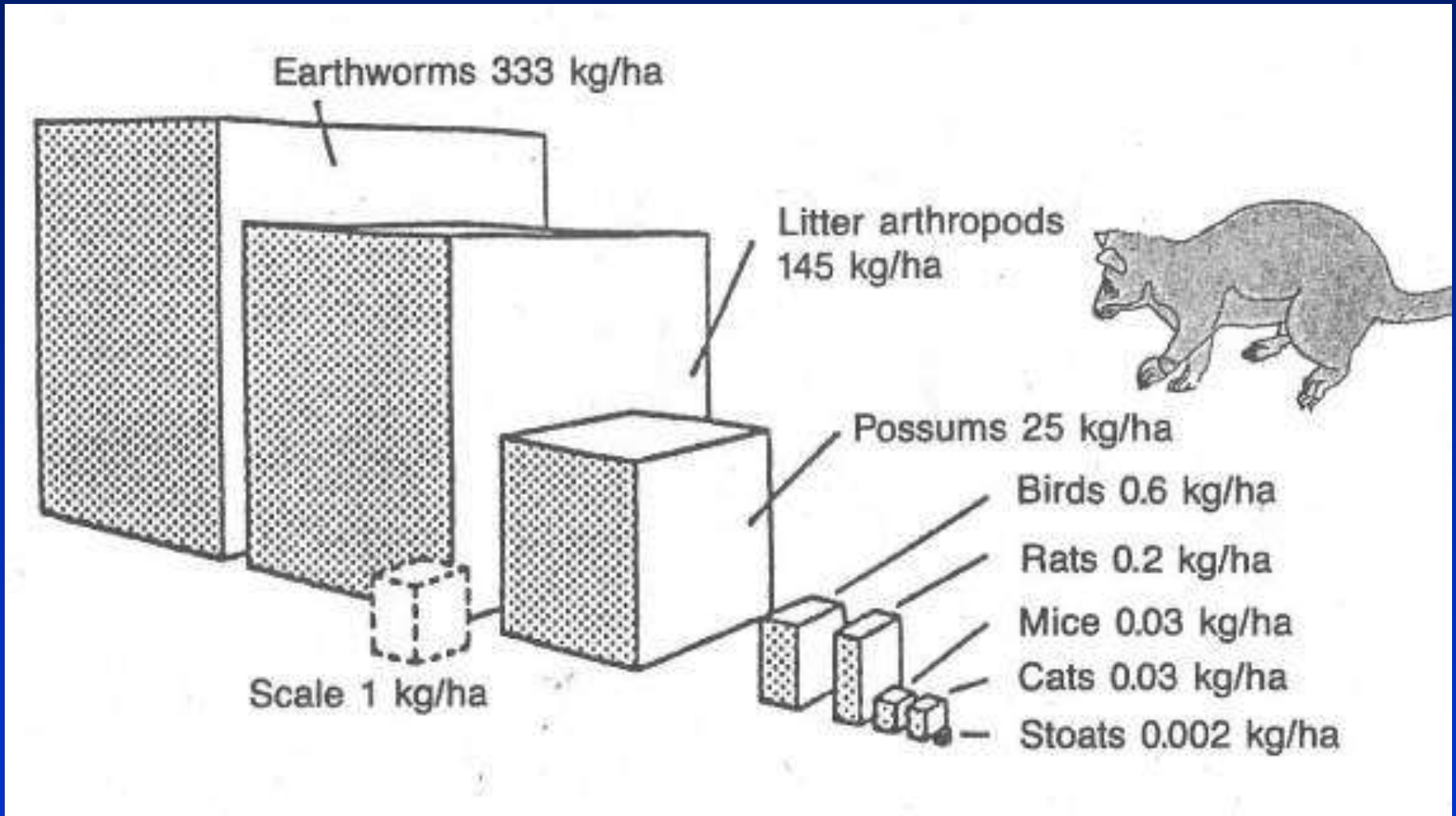
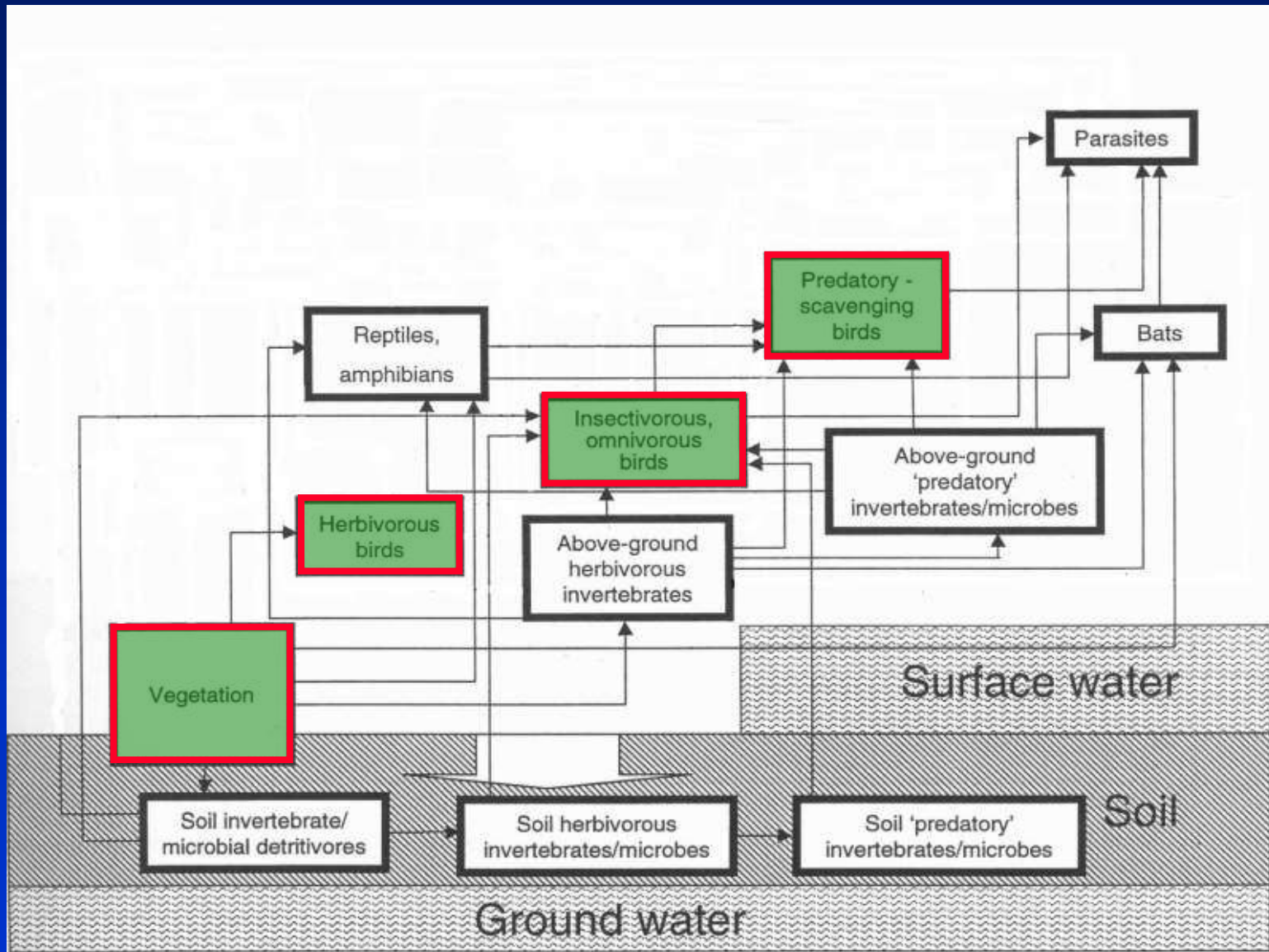
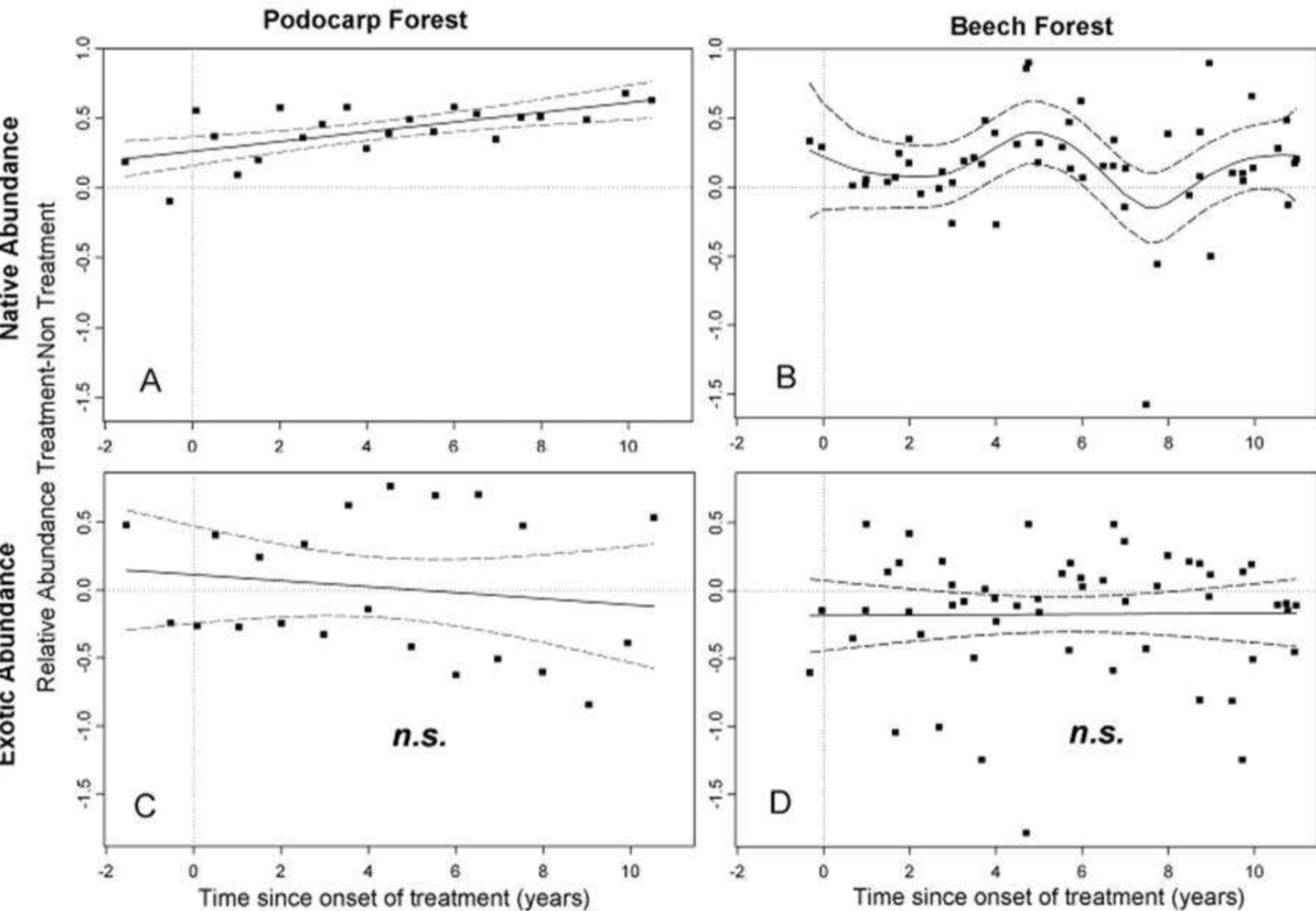


Illustration from "A Living New Zealand Forest" by R. Brockie 1992

NZ Forest food web - managed state

(courtesy Innes & Barker 1999 and Burns *et al.* 2007)

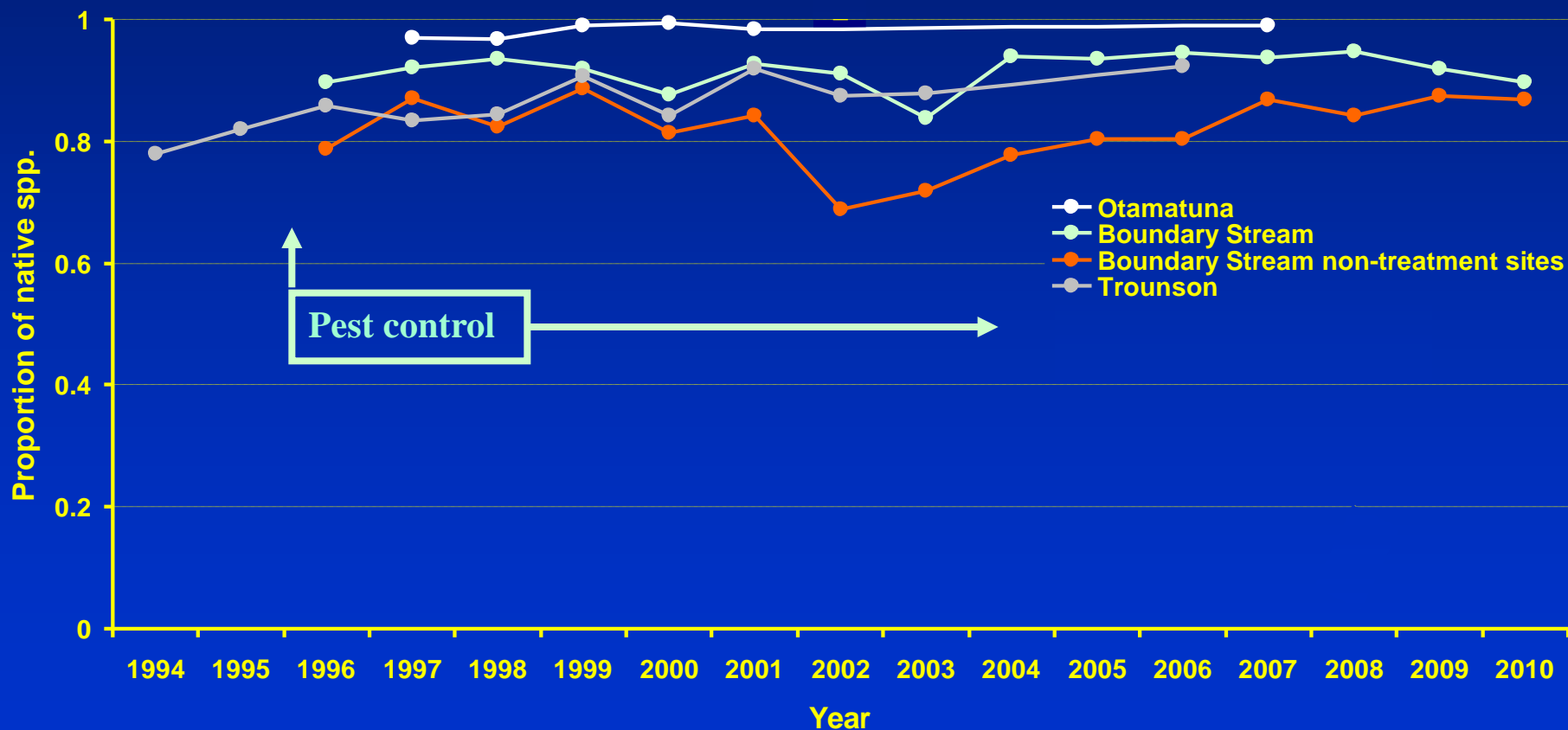




Graphs courtesy of J. Innes *et al* 2010

Indigenous Dominance

5 minute bird counts: Trounson, Northern Te Urewera & Boundary Stream



Species Occupancy at a site - birds?

- Boundary Stream
 - 12 native *spp.* (in 5 min count list)
 - ☺ Robin, Kokako & Kiwi
 - ≠ Saddleback
- Rotoiti
 - 19 native *spp.* (in 5 min count list)
 - ☺ Great spotted kiwi
- Trounson
 - 11 native *spp.* (in 5 min count list)
 - ≠ Robin, Kokako & Pateke
- Some species unlikely
 - e.g. Kakapo, Takahe or Little spotted kiwi



Photo Courtesy D. Fastier



Photo: DOC Boundary Stream

Species Occupancy within a site - mistletoe?

- Northern Te Urewera
 - 1997-2000 ~ 3 fold increase in host plant occupancy
- Boundary Stream
 - 1996-2004 ~ 10 fold increase
- Paengaroa
 - prior to possum control it was difficult to find plants
 - 100s of plants are now visible
- Rotoiti
 - 1997 – 2003 known plants went from 34 to >300



Photo: DOC



Photo Courtesy D. Fastier

Summary

- Conservation Outcomes
 - lots of things have been monitored at these sites
 - pest mammal control has been reasonably successful
 - some native birds and plants have done very well
 - some bird translocations have been successful
- Ecosystem Restoration
 - assess the DOC Mainland Islands performance against the three elements of ecological integrity outlined by Lee *et al.* 2005

