Forest Biosecurity – lessons for KiwiNet?

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21 August 2017

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Purpose

- Explain forest biosecurity
- Lessons to KiwiNet

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Forest Industry Quiz

- **What's the main plantation species?**
- **What's the main export? To where?**
- **Who owns the forests? – name one owner**

Most New Zealand "industrial" forests now have overseas owners: TIMOs, REITS, Funds, Companies and Family Offices. New entrants include Chinese companies. International forest bids in 2015 have continued to stun observers. Why NZ?

Invested (Selection)	Invested (Selection)
Global Forest Partners	Sumitomo Foresty
GMO RR	Ernslaw One
Rayonier	Samling
Greenheart (New Forest)	Monte Capital
HTRG	Juken NZ
Phaunos Timber Fund	Ngai Tahu Property
Blakely Pacific	Wenita
New Forests	Sunchang Corp
NZ Forestry Co.	NZ Redwood Co.
Corisol	Forest Enterprises

All other 0.57%

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Forest Biosecurity Surveillance

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Why Forest Biosecurity Surveillance?

Primary Objectives

1.Protect forests - detection

2.Protect trade - assurance

3.Investor confidence

Log trade

Mt Pine Beetle BC

Painted Apple Moth

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Forest Health Surveillance History

- **Started in 1956 - NZFS**
- **Focus on insects**
- **Dothi confirmed 1964**
- **Late 60's a shift to early detection**

FHS History cont'd

- **Early 70's Port Environs survey**
- **Aerial assessment developed**
- **1979 Review – high risk areas and greater aerial survey**
- **1982 - aerial survey routine**

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FHS History cont'd

- **Mid 1980's – "modern" FHS established**
- **Aerial and ground**
- **Diagnostics**
- **Forest Health database**
- **1987 - NZFS disappeared**

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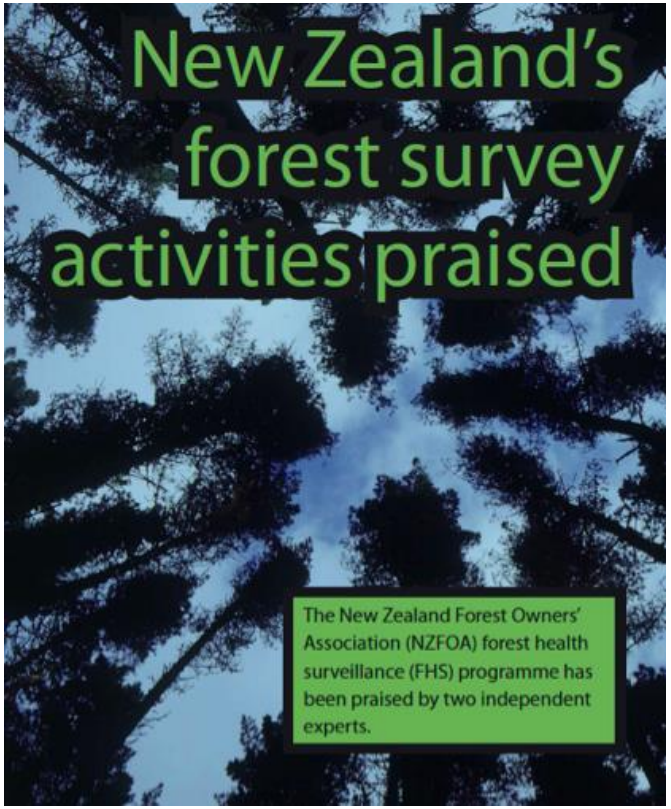
FHS History cont'd

- **1987 – industry takes over**
- **1989 - The Carter Model (1989) – Risk-based intensity**
- **1995 – Scion research**
- **Detection probability possible**

FHS History cont'd

- **2000 –contestable - FHPS**
- **2007 – international review (best in world)**
- **2013 – redesign opportunity – log levy 1/1/14**



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FHS - Specs

- **Aerial survey**
- **Drive through survey**
- **Investigative Health Plots (IHPS)**
- **Diagnostics**

Minimum Plotting frequency targets	
Size of Forest (Ha)	**No. of IHP's**
0-200	1
201 -500	2
501 – 1,000	3
>1,000	3/1,000 Ha

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FHS – High Risk Forest Sites

- **High-use forests**
- **Super-skids etc**
- **Picnic sites**

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Past success

- **Eradications - dothistroma (in Southland), white spotted tussock moth, painted apple moth, fall webworm**
- **Supported market access to USA**
- **International acclaim**

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MPI – High Risk Site Surveillance

Objectives:

- Effective detection of pests
- Pest free status claims
- Monitor pest distribution

Asian Gypsy Moth

Transitional facility

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FHS + HRSS


Bay Of Plenty
FHS covers forests
Rangiwaea Island
The Mount
Mount Drury Reserve
Mount Maunganui
HRSS surveys outside forests
Fergusson Park
Levers Rd
Matua
Kulim Park
Ngatai Rd
Otumoetai
Chapel St
Marine Park
Marsh St
Tolaara St
Macville Park
Ocean Beach Rd
Hewletts Rd
2
Mt Maunganui Golf Course
Concord Ave
Girven Rd

Drivers for change – new FBS

Log levy 1 Jan 2014

- **FHS to expand to 100%**
- **Redesign with MPI**

GIA

- **Partnership – Govt/industry**
- **Shared decision-making/cost**
- **Readiness 50/50**

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The new Forest Biosecurity Surveillance

Same objectives:

- Protect forests
- Safe trade
- Investor confidence

Diagnostics/database

More risk-based

- Expect more high risk plots
- Less intensive survey in remote areas

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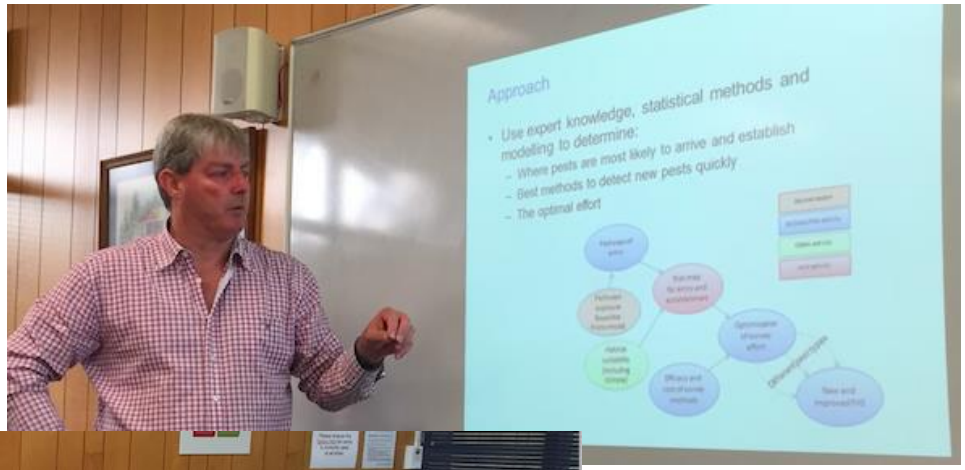
Developing the new FBS



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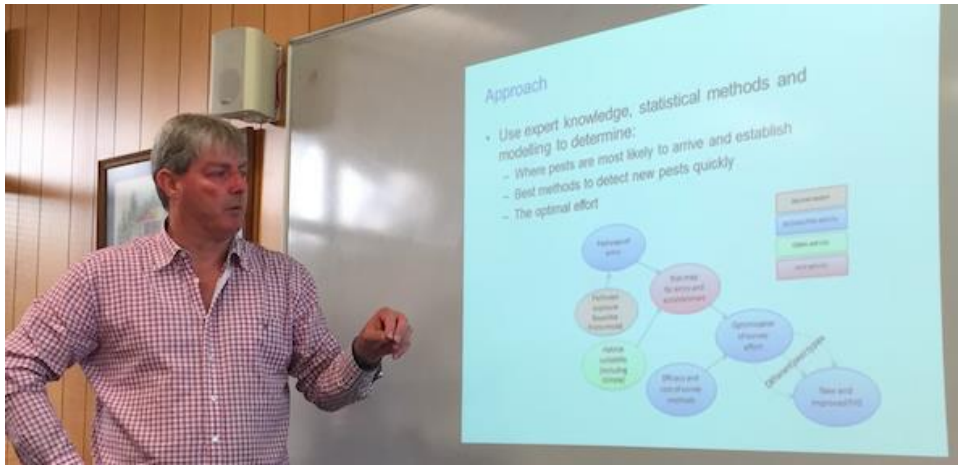
Key players

- **FOA**
- **MPI**
- **Scion**
- **CEBRA**
- **AgResearch/B3**
- **BayesNet Intelligence**
- **SPS**



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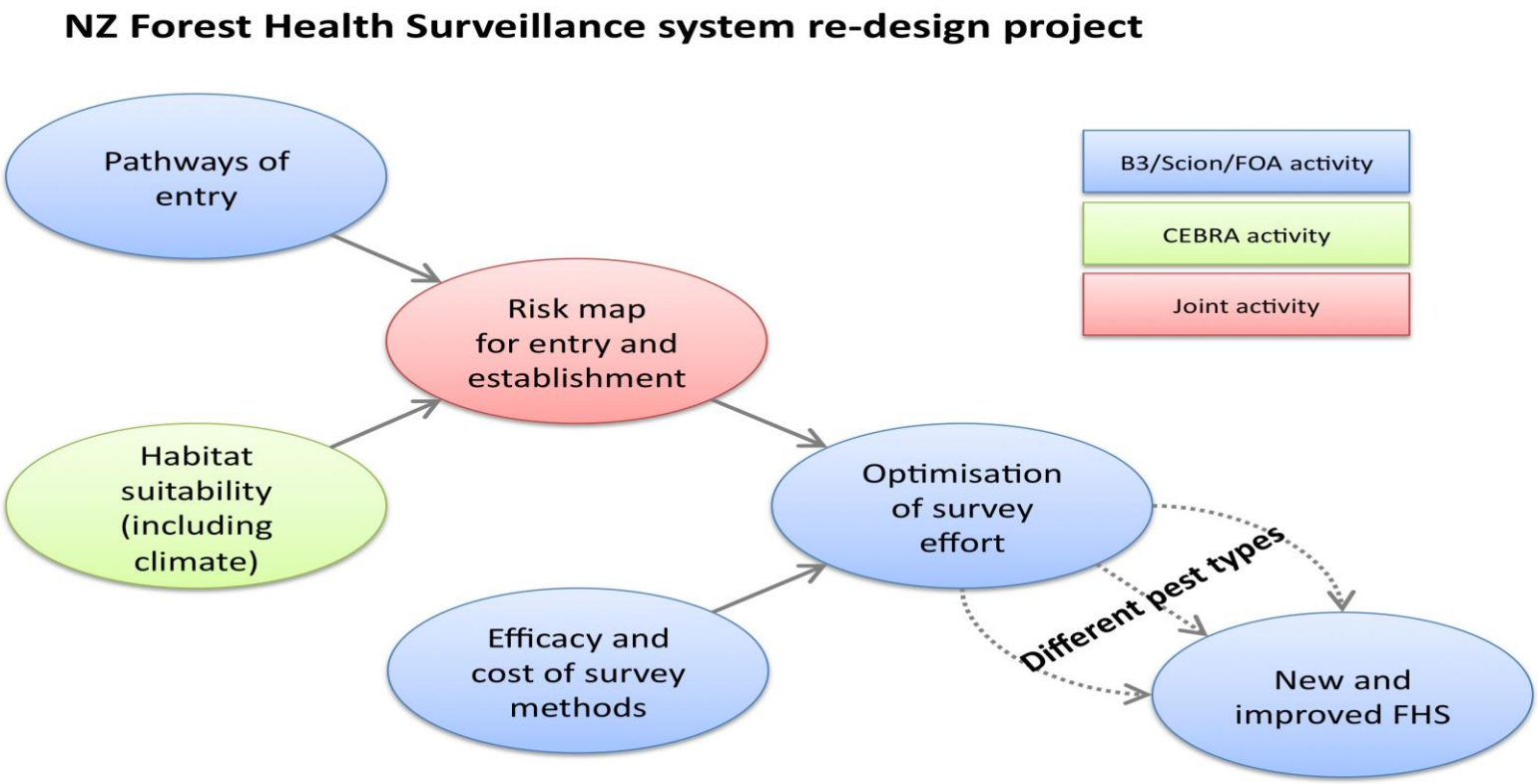
The plan – developed June 2014



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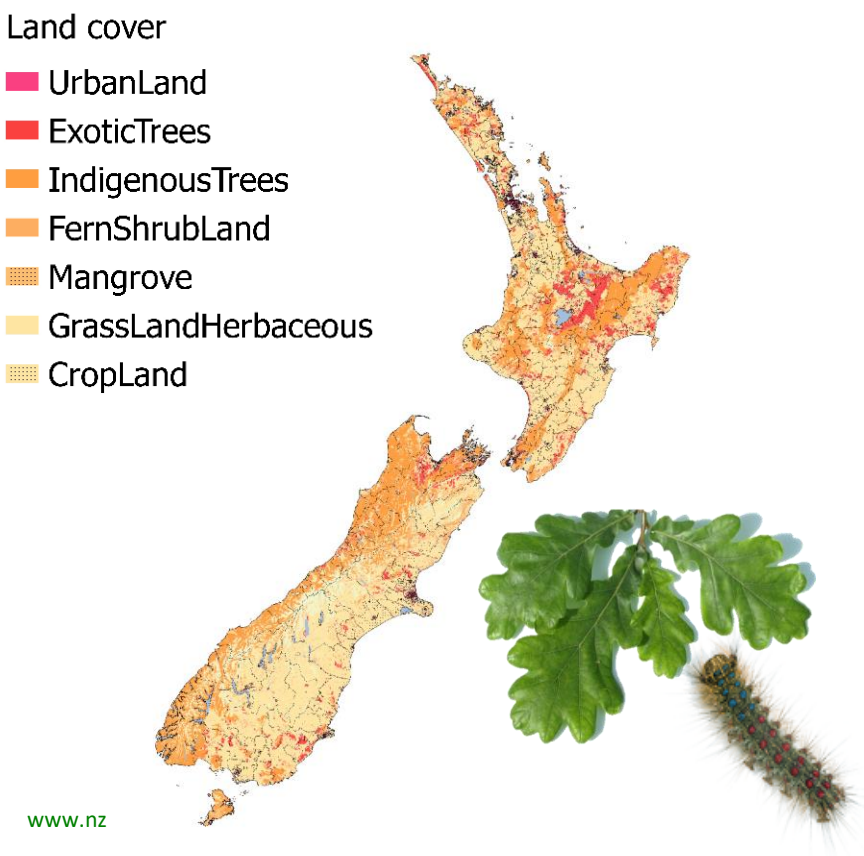
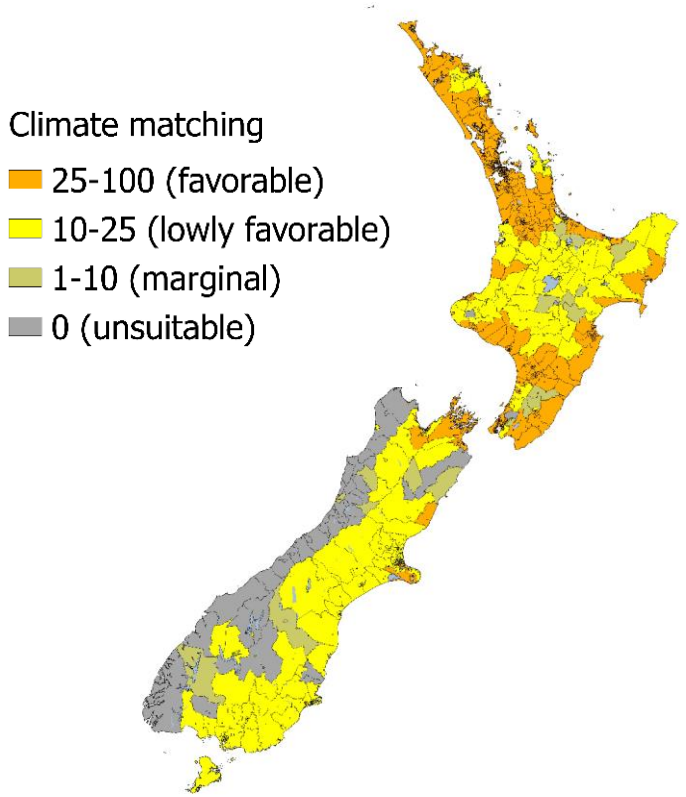
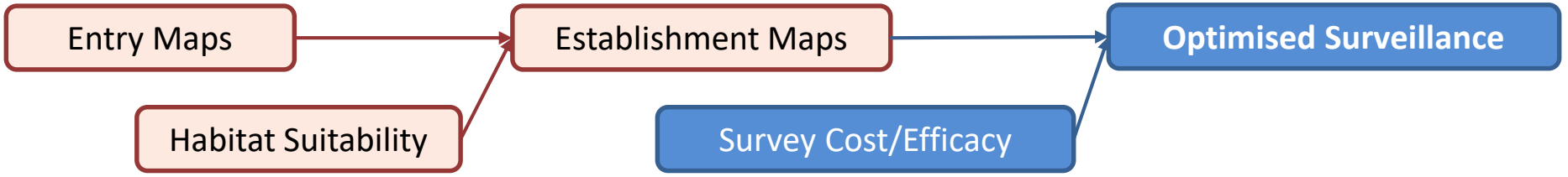
Entry Maps → Establishment Maps

Habitat Suitability

- **"Filtering" for habitat suitability**

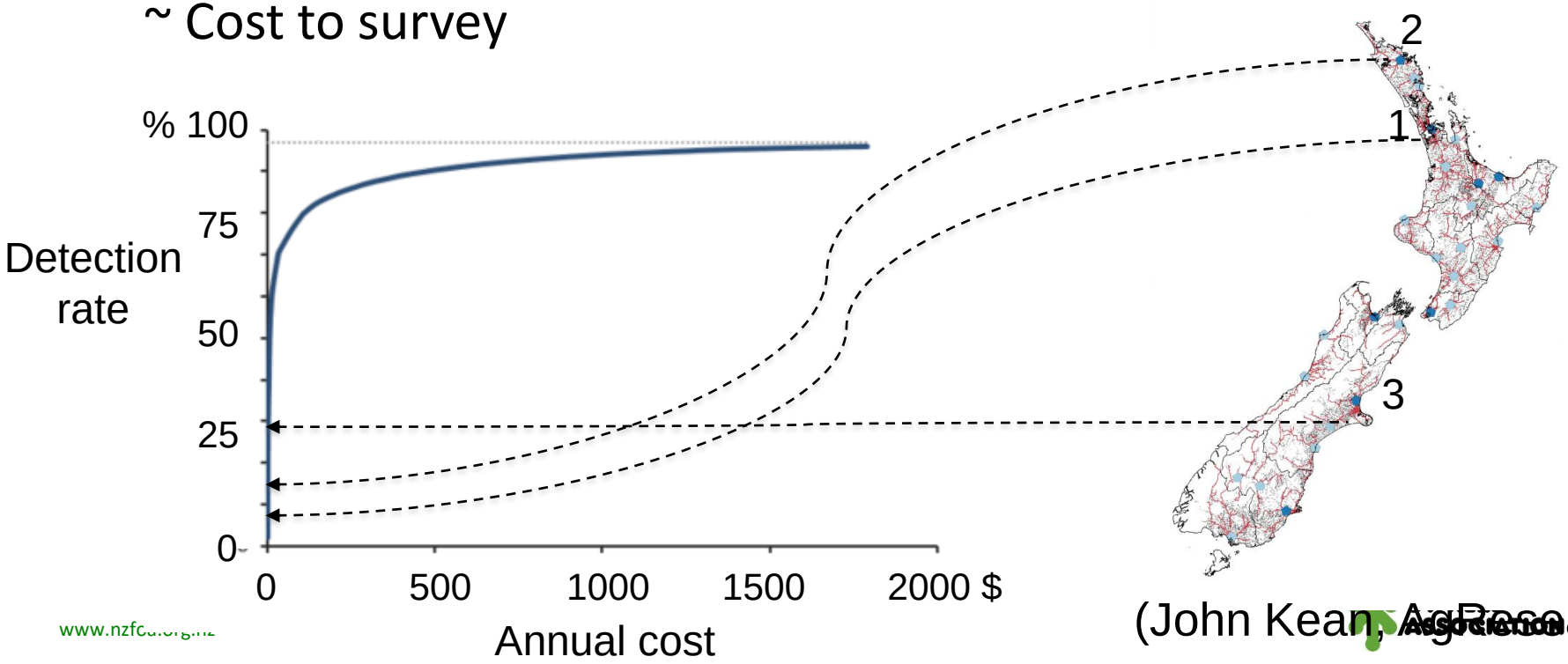




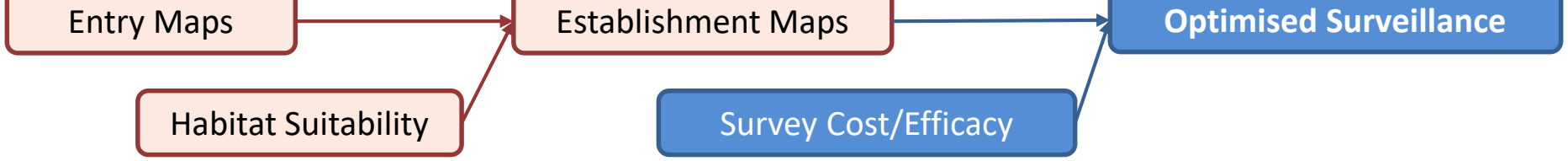


Optimisation = How to best allocate survey effort ?

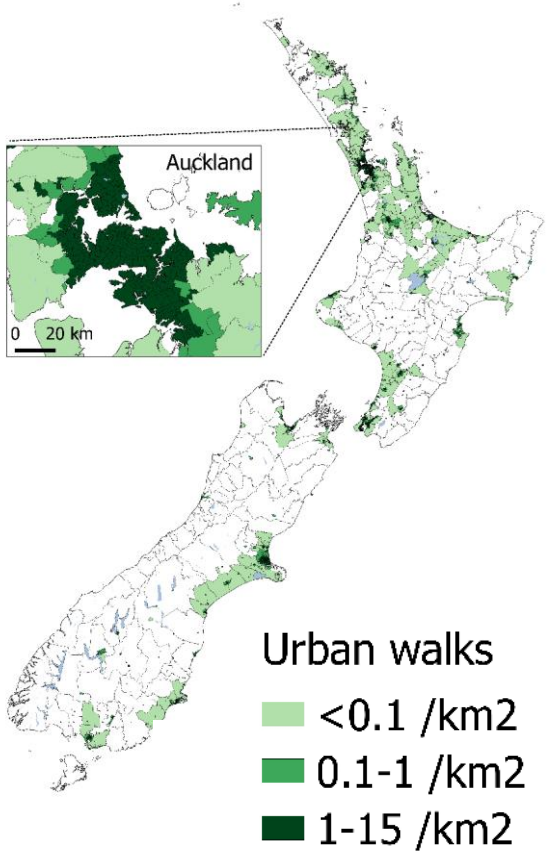
- Based on a Benefit-Cost principle
  - ~ Probability of establishment + Survey Efficacy
  - ~ Cost to survey

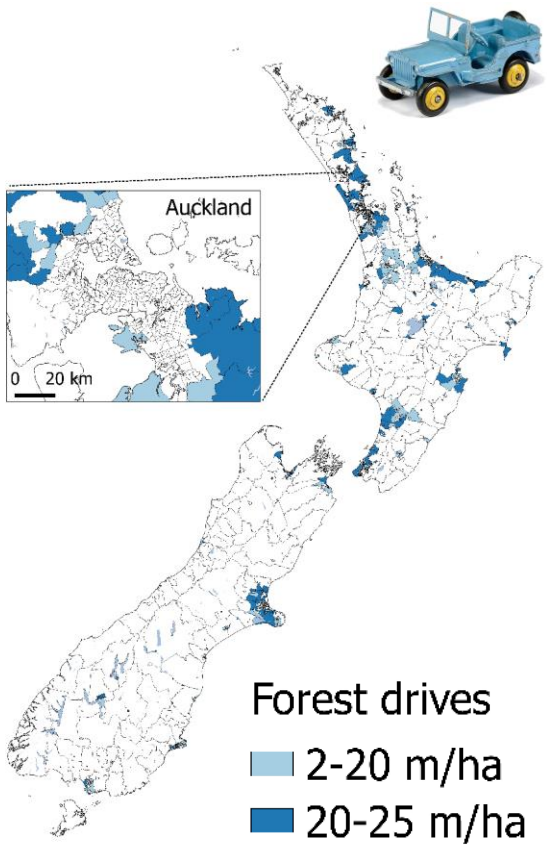


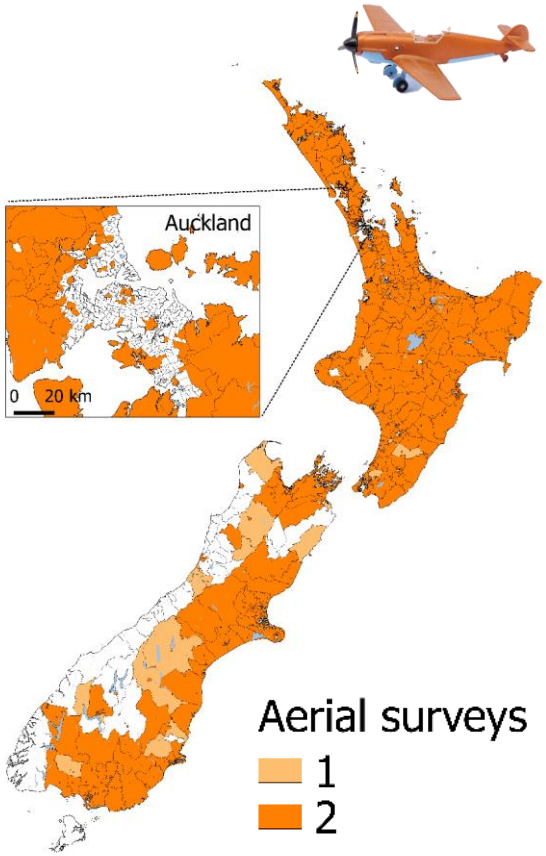
(John Kean, AgResearch

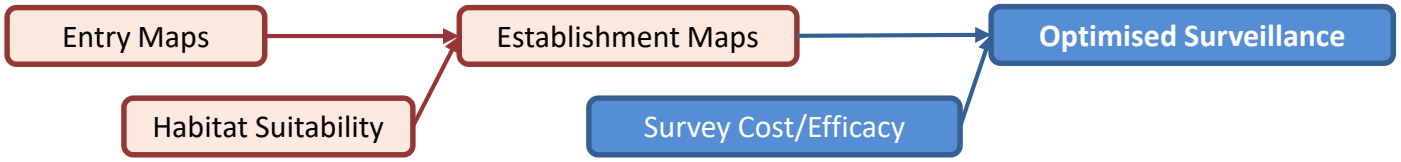


Results: where to allocate effort









Results:

- **Model allocates 18% effort to forests**
- **82% effort to find new forest pests in urban areas before they spread**
- **Urban plots have forestry focus**
- **Allocating 30% of total funds to lower risk areas**
  - Find t[illegible]

What are our unknown unknowns?

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Situation as of August 2017

- **Testing model – three locations**
- **Optimisation**
- **Tender**
- **Implement 1 Jan 2018**
- **Copied KiwiNet and set up PineNet**

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PineNet – surveillance + response

FOA/FBC Overall Liaison

Scion
Technical Support

Northland

Central NI (3)

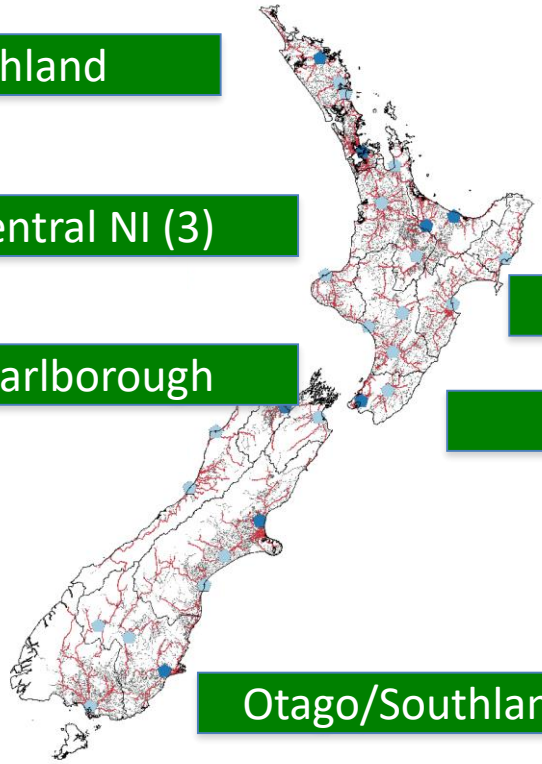
Eastland

Hawkes Bay

Marlborough

Southern NI

Otago/Southland



Readiness:

- Awareness
- Training
- Network

The purpose of PineNet is primarily to have a system in place that can rapidly identify key people and resources that are available for deployment in the event of a biosecurity incursion.

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What makes forestry more prepared for a crisis than kiwifruit?

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Forest Biosecurity Science

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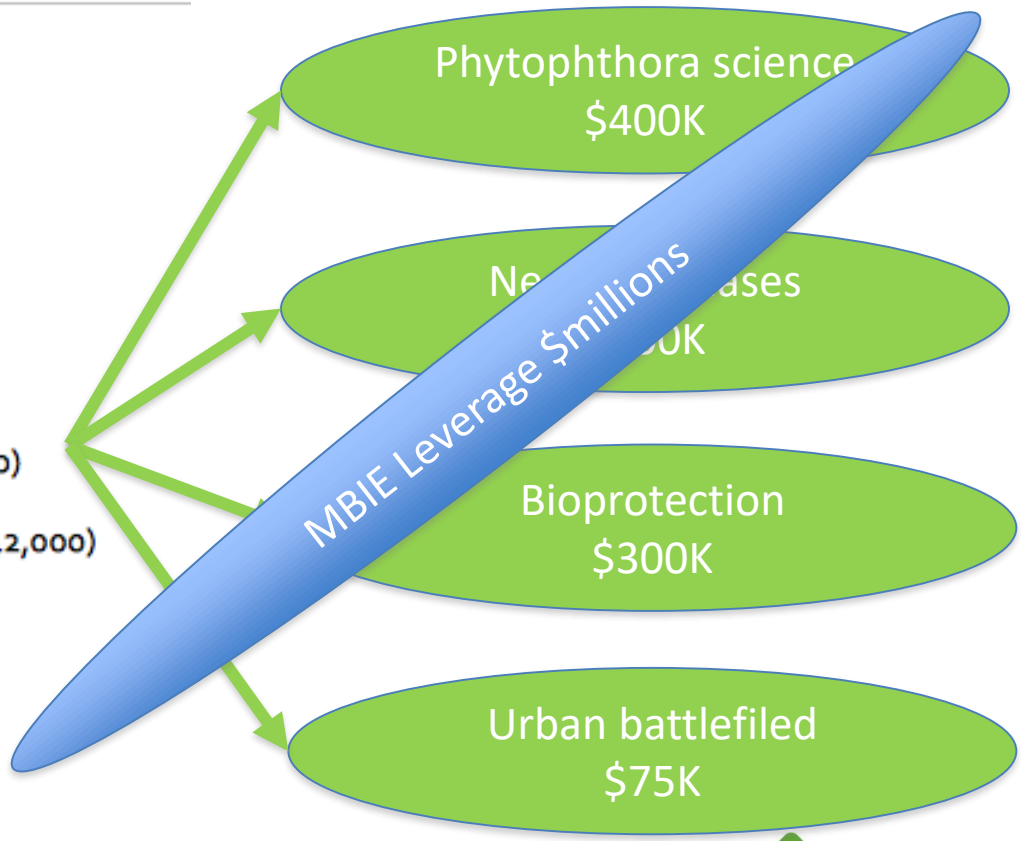
FOA R&D 2017 (>$1M on biosecurity)

Work Programme Costs ($8,566,320)

- Fire ($128,000)
- Forest Biosecurity ($1,090,000)
- Forest Resource & Environment ($312,000)
- Health Safety and Training ($997,000)
- Promotion ($737,000)
- Research Science & Technology ($5,175,320)
- Small & Medium Enterprise Committee ($42,000)
- Transportation & Logistics ($85,000)



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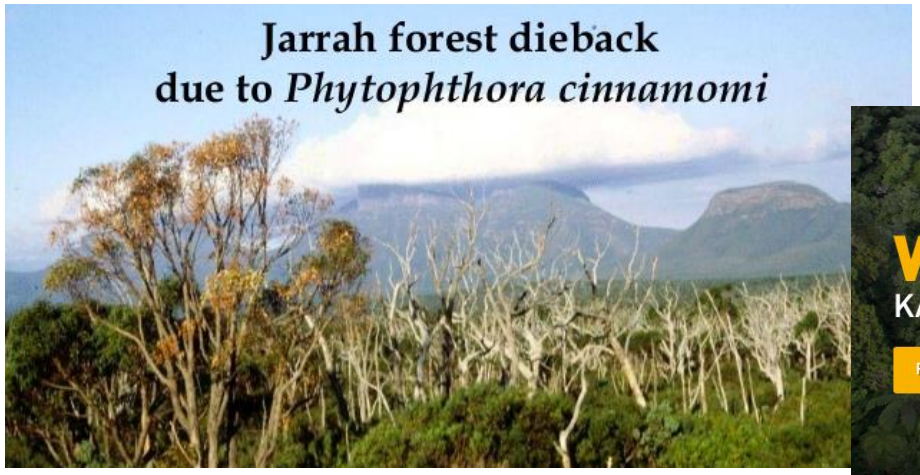
Phytophthora paranoia



Original Article

Widespread *Phytophthora* infestations in European nurseries put forest, semi-natural and horticultural ecosystems at high risk of Phytophthora diseases

T. Jung ✉ · L. Orlikowski · B. Henricot · P. Abad-Campos · A. G. Aday

View issue TOC
Volume 46, Issue 2
April 2016

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New Phytophthora on radiata

P pinifolia hit Chile i… DFP (ID = trade ban)

P pluvi… NZ in 2008 = RNC

These were unknown unknowns?

And sometimes it is just perception!

Chile pine ban

South Korea fears outbreak of killer fungus in plantations

The NPQS, under the Ministry for Food, Agriculture, Forestry and Fisheries, said that in the case of planks and logs that had no bark, imports would be permitted if the wood had undergone a heat or chemical decontamination process that was verified in export documents.

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Research results (urgent and intensive!)

- **Pluvialis the cause of RNC**
- **Logs aren't carrying phytophthora**

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Lessons for KiwiNet

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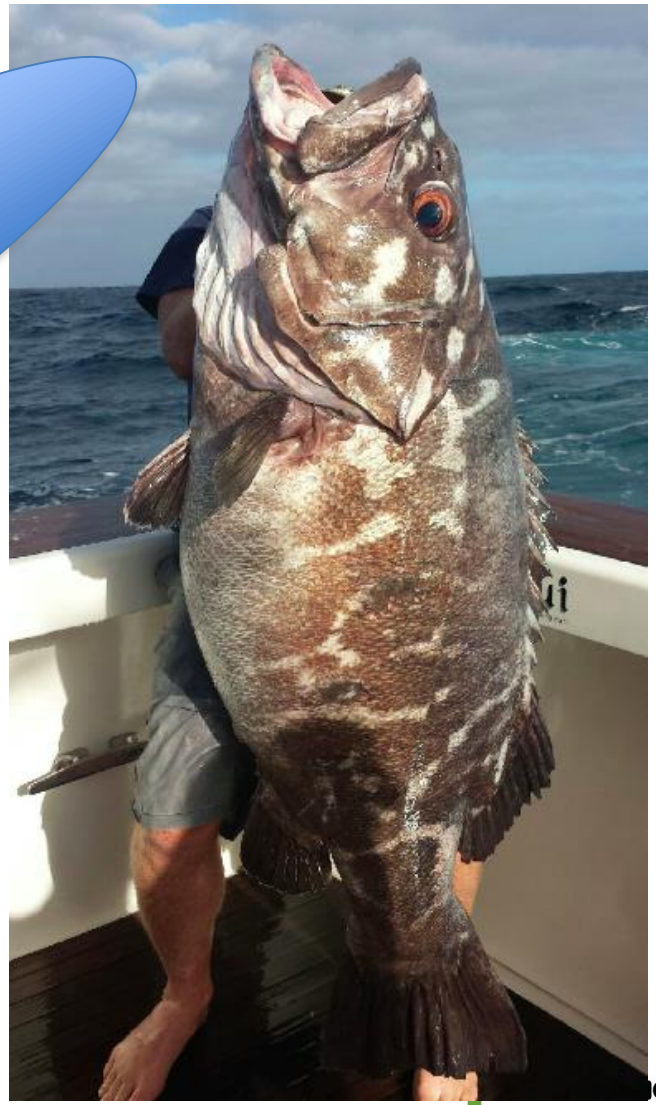
Expect the unexpected

Last two decades:

- **White spotted tussock m**
- **Painte m**
- **ebworm**
- **Asian gypsy moth**
- **RNC - P pluvialis**

Only AGM expected



Lessons for KiwiNet

- **The Kiwi Fruit industry knew about PSA <2010**
- **It was not unexpect**
- **Industry not pr**
- **What's nex**
- **BMSB? ystis?**
- **Sor else?**
- **yrophthora?**

What are your unknown unknowns?

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Opportunities to share

- **Readiness**
- **Tools**
- **Networks**
- **Expertise**
- **Knowledge**
- **Science**

Pre-PSA forestry was alone – since 1956!

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Thanks
SURTEES
BUILT TO FISH