THE JOINT FORCES OF CSIRO & SCION

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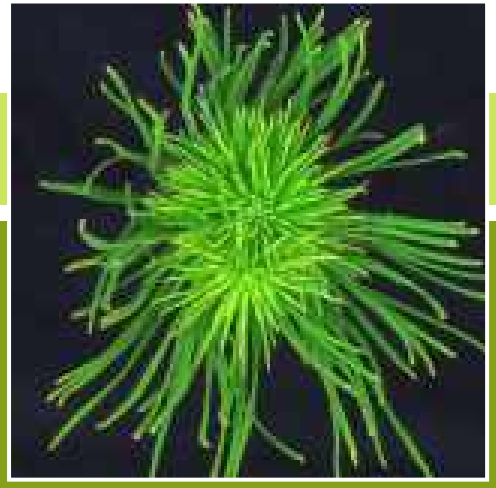
Presented by Charlie Low, based on work by Landcare and MAF



Ensis Genetics

NZ regulations for exotic plants

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NZ history of plant introductions

- New Zealands major export industries are based on exotic plants and animals
- Using exotic plants and animals gets good market acceptance overseas and conserves native flora

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Introductions to NZ

- 25,000 species since 1769
- This is 10% of the world's plants
- More naturalised exotics than natives (2,100 more)
- It is hard to find native plants in some cities

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It is still happening

- A new naturalised species every 39 days
- 270 species naturalised between 1988 and 2000

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The cost

- 500 species are weeds
- 200 species controlled under leglislation
- $40 m per year preventing introduction and spread
- $60 m per year lost agriculture and forestry production
- Much environmental damage

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What is in store?

- Few naturalised species have reached their potential range and abundance
- Long-lived species have lag phases of 10-100s of years
- Woody species especially will increase

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Kiwi fruit, rare in 1988, but common now

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How do new species arrive?

- 3% arrived accidentally
- 96% introduced for horticulture, mainly urban
- 60% new naturalisations are sold in an average of 6 wholesale outlets

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Buddleja davidii

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Overseas weediness of new naturalisations

- 36% do not occur (as weeds) in other countries
- 64% naturalised in other countries
- 52% new naturalisations are weeds overseas
- These occur on an average of 8 weed lists

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People spread weeds

- Settlements are important sources of weeds
- How important?
- What processes dominate?
- How can we manage the processes?

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Landcare studies

- Recent naturalisations near Auckland city
- Northland forest reserves near settlements

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Collections of new naturalisations

- 44% were beside purposely planted adults
- 54% were from juveniles up to 50 metres away

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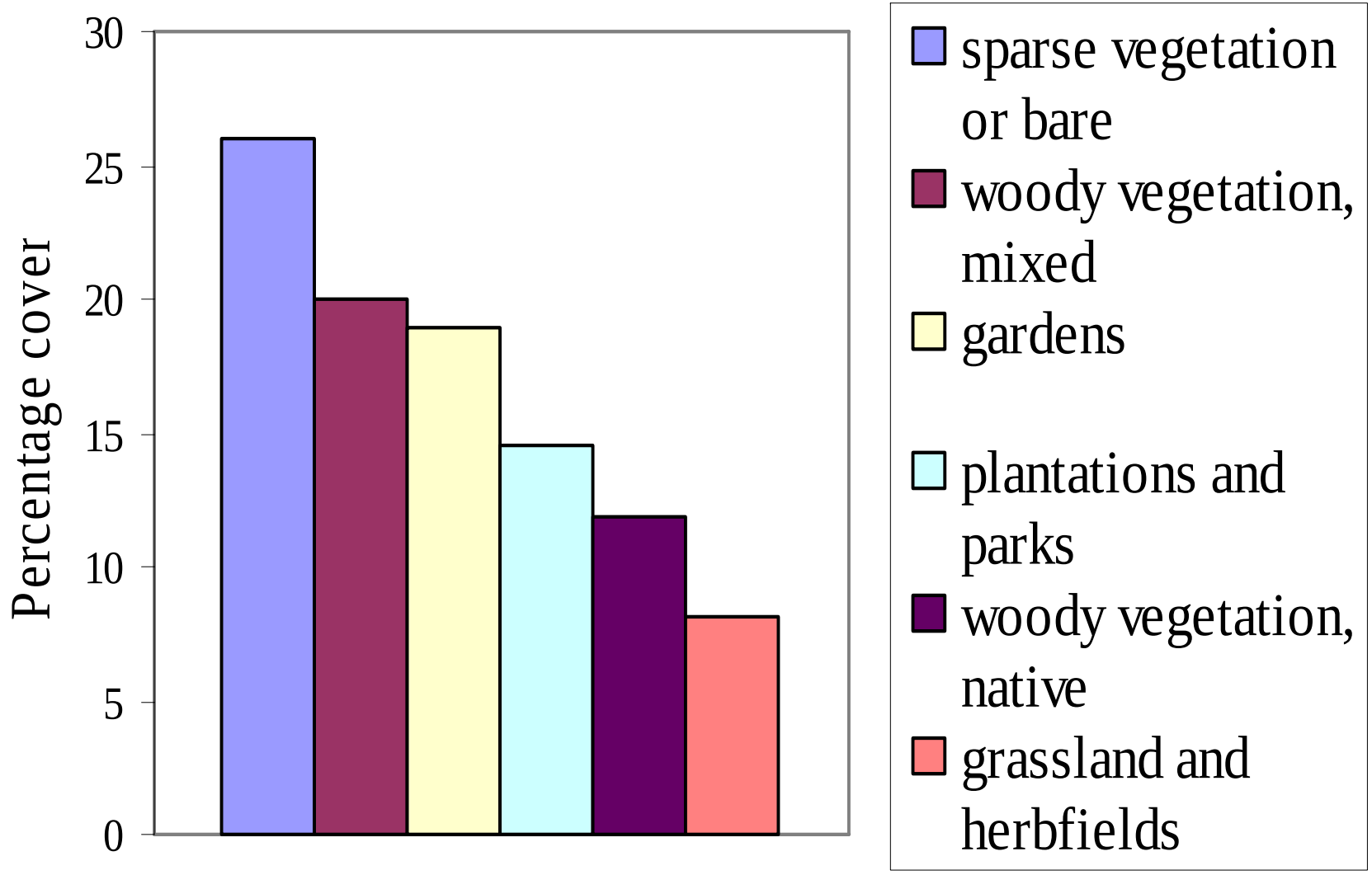
Where we found new naturalizations



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Northland coast

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Weed numbers in coastal forests

- 185 naturalised species found
- > 125 species also found in settlements
- 20 of the 30 Northland forest weeds
- 57 of the 160 DoC weeds
- 32 of 88 National Surveillance plant pests

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Weed history lessons

- Weeds are a function of human population density
- Weeds now come mostly from horticulture
- Weeds are increasingly long lived trees and vines

NZ Legislation

- Biosecurity Act
- Conservation Act
- Fisheries Act
- Wildlife Act
- Wild animals control act
- Resource Management act

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Biosecurity Act

- A world first in 1993, mainly looking at protecting NZ biological systems
- Systems to protect agriculture, etc. had been in place since 1960

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International agreements

- Convention on Biological Diversity
- Convention on the Law of the Sea
- International Union for the Conservation of Nature
- International Plant Protection Convention

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More International agreements

- Agreement on the application of Sanitary and Phytosanitary Measures (SPS agreement)
- World Trade Organisation
- Food and Agriculture Organisation FAO has document repository

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Identifying logical steps

- FAO documents outline steps
- Pathways – ways for weeds etc. to enter
- Barriers – systems to prevent entry
- History of weediness in other countries – Global Invasive Species database, lists from other countries
- Identify windows for control

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Weed Lists

- Lists of known weeds in other countries have been shown to predict weed status well
- These are an important benefit of joining international agreements and form a basis for any countries weed list
- A local survey of invasive exotics may find plants not on other weed lists, so everyone needs their own

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White lists

- Permitted species for forestry or aquaculture, with regulations for their use
- Species not on white lists or weed lists should be treated with caution
  - In New Zealand it is now extremely difficult to legally import species not on other lists. Hopefully this will be revised

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System efficacy

- Doing a good job
- But still not 100%
- Dynamic approach allowing for rule changes when deficiencies occur

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Summary

- Introduced plants are major components of the New Zealand economy
- However, a significant proportion have become invasive and are impacting negatively on economy
- The number of invasive plant species is increasing
- The cost of control is significant and increasing

Prevention is far cheaper than control

New Zealand has introduced measures to control the importation and use of potentially invasive exotic plants

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Conclusions

- It took a long time to set up the New Zealand rules and longer for the rules to be effective
- Brazil has the greatest biodiversity of plant species in the world. Far more species than New Zealand, so they need at least as much care.