

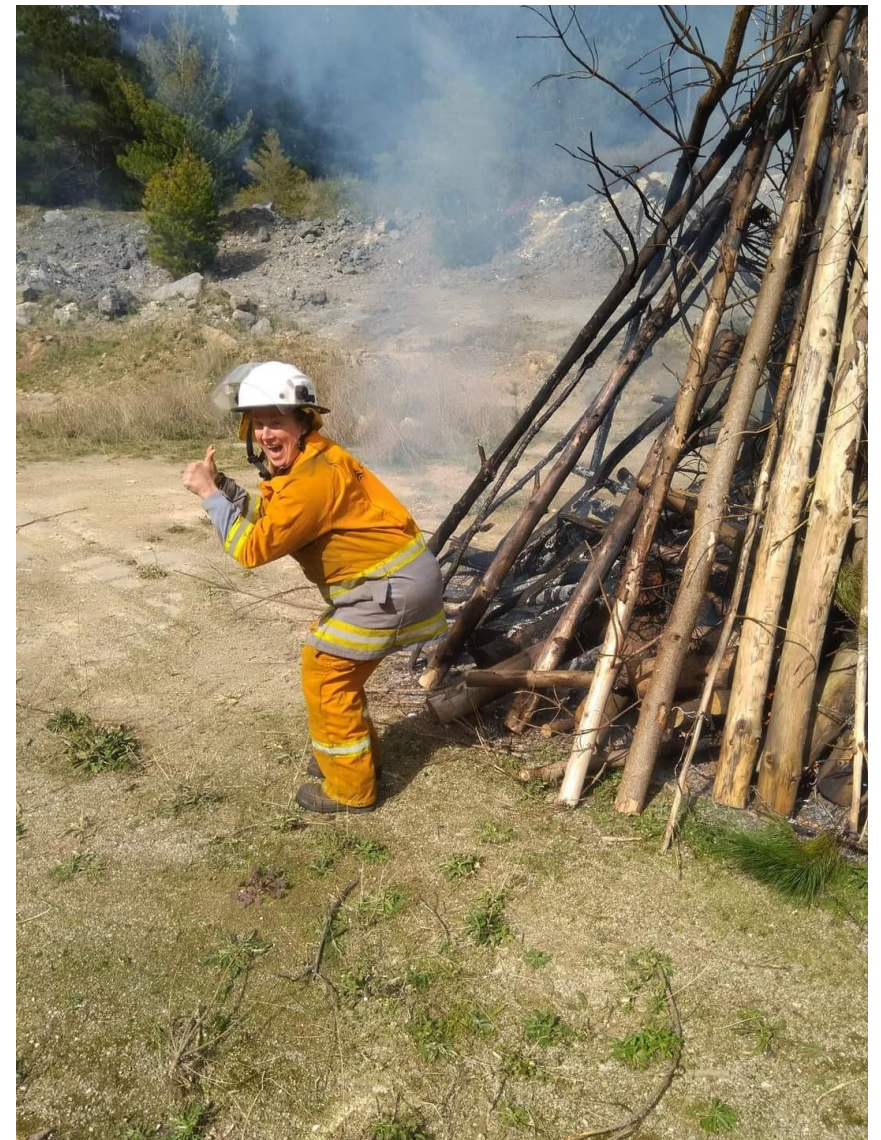
An aerial photograph of a vast, dense forest. The trees are mostly green, with some taller, darker trees visible in the distance. The sky is a clear, pale blue. The text is overlaid on the center of the image.

# Forest Health Surveillance

Why bother?



# Danielle Wiseman Industry Plantation Management Group Coordinator







What is Forest Health Surveillance?





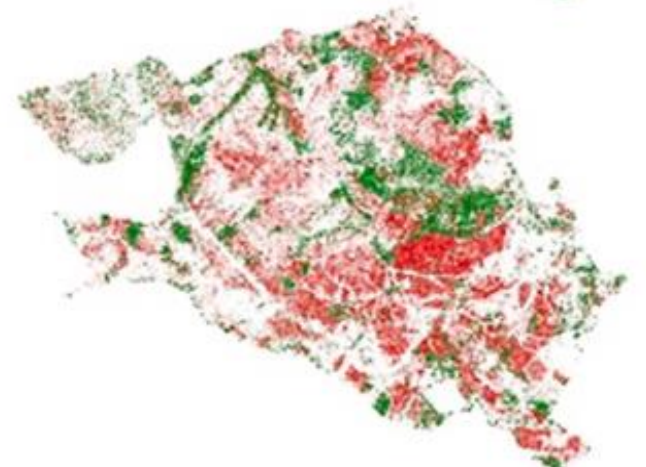
**2009**



**2016**



**2022**



From Lucas et al. Individual tree detection and crown delineation in the Harz National Park from 2009 to 2022 using mask R-CNN and aerial imagery 2024



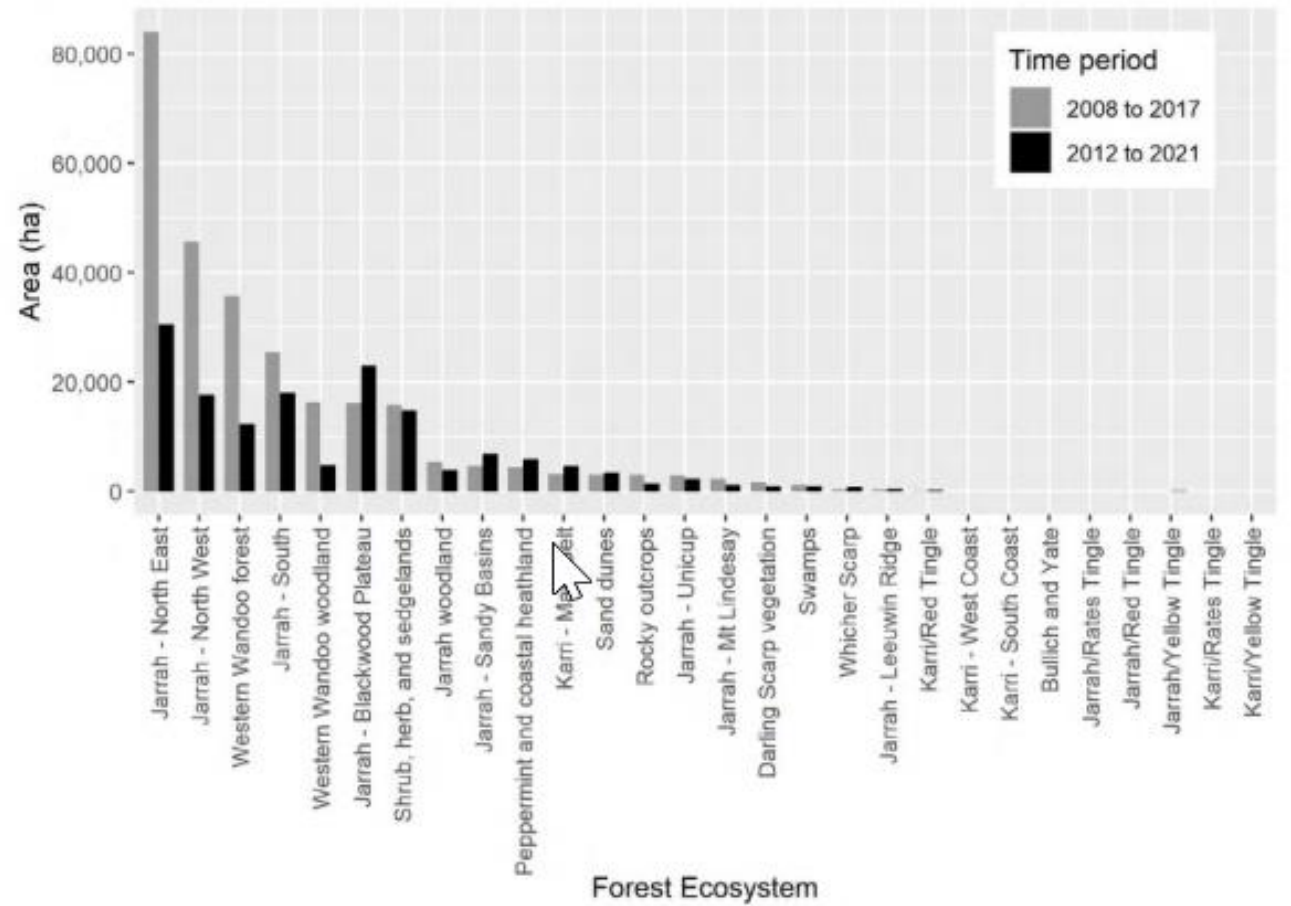
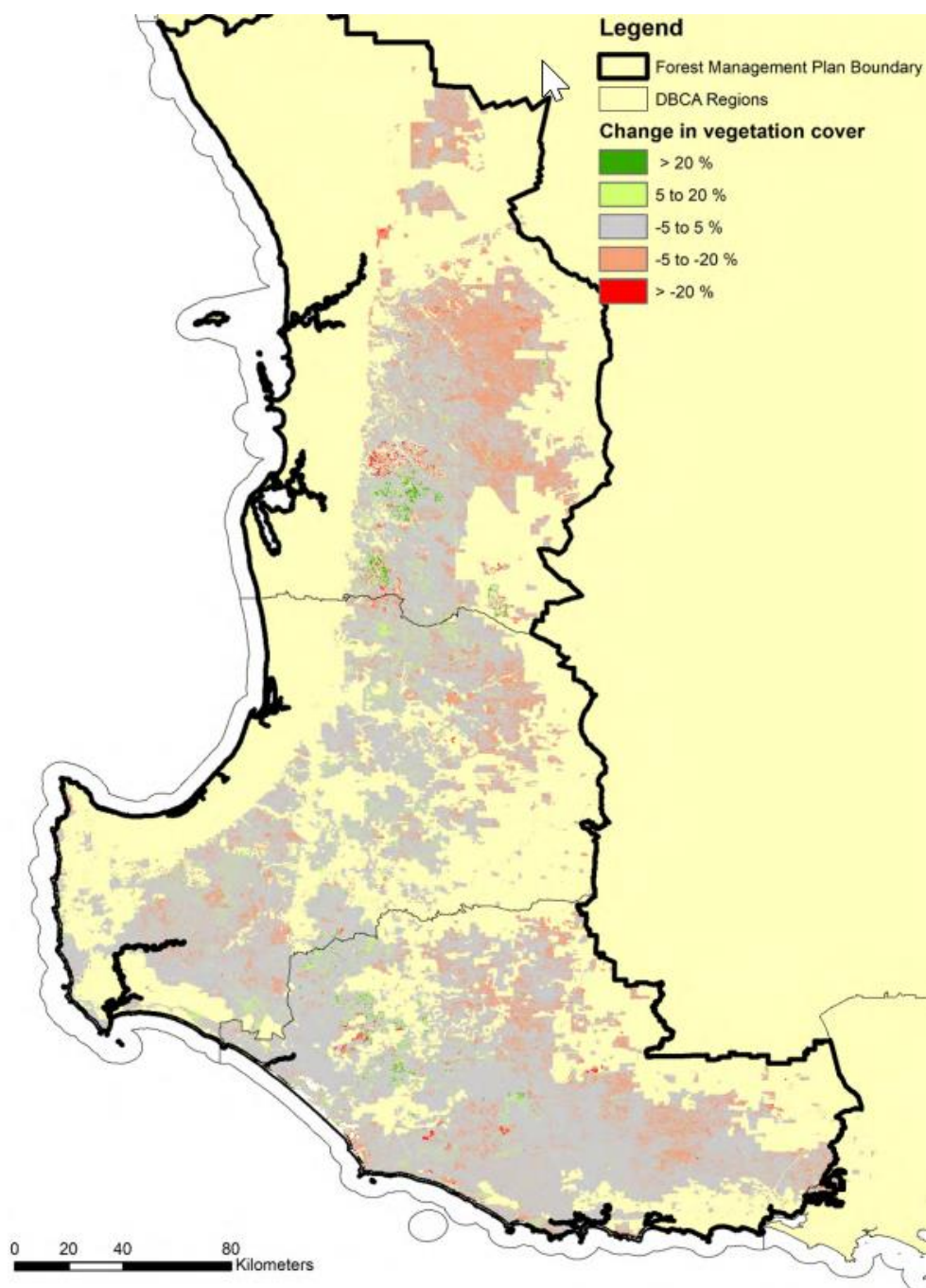
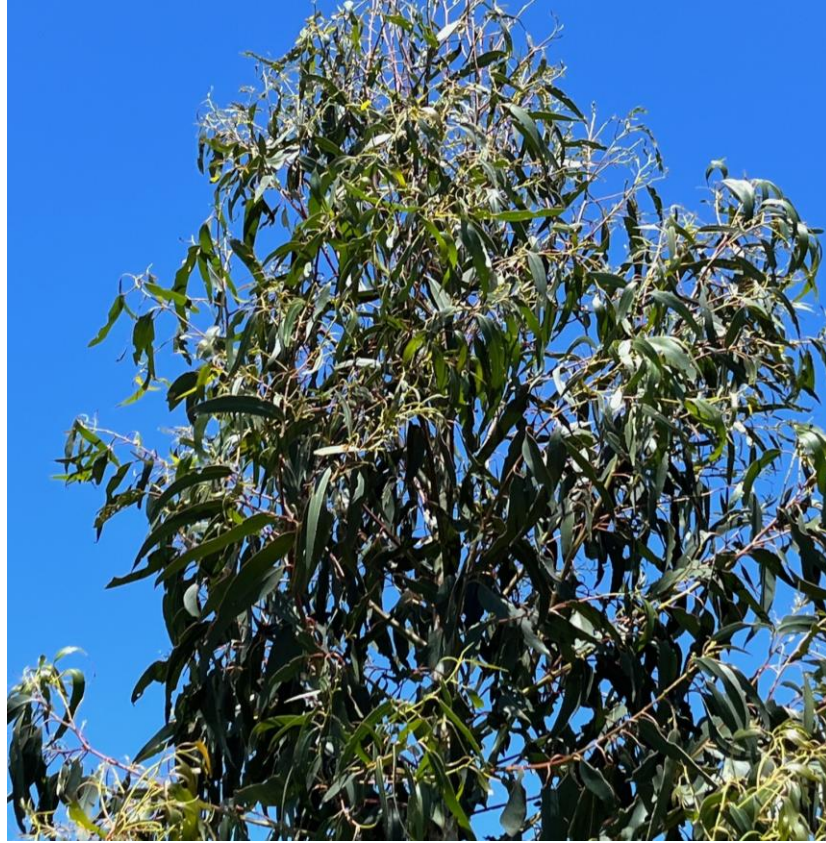


Figure 3. Area of forest with observed declining trend in vegetation cover during 2008-2017 and 2012-2021.

From the Forest Management Plan 2014-2023 End of term audit DBCA, 2024

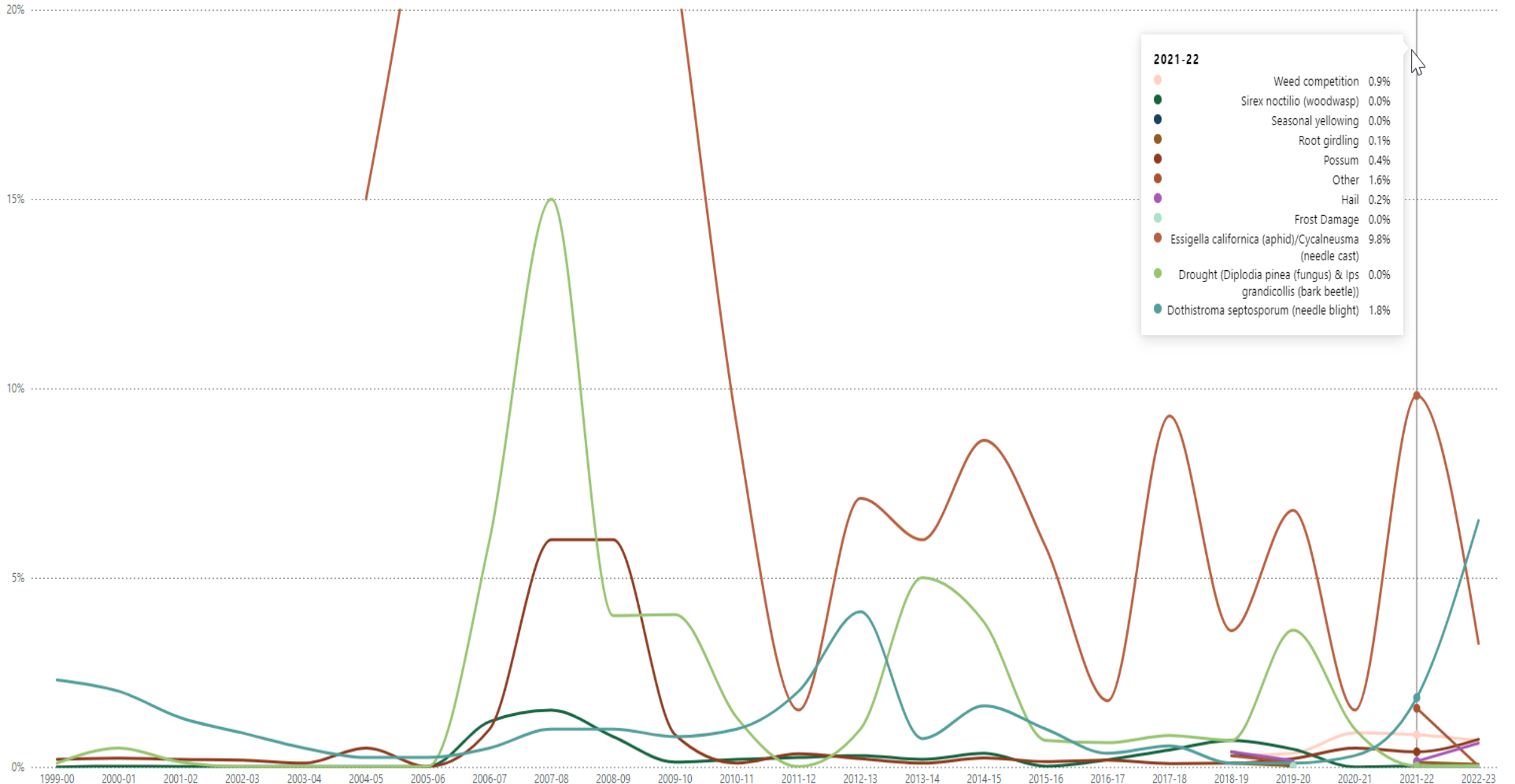




## Forest Health Monitoring

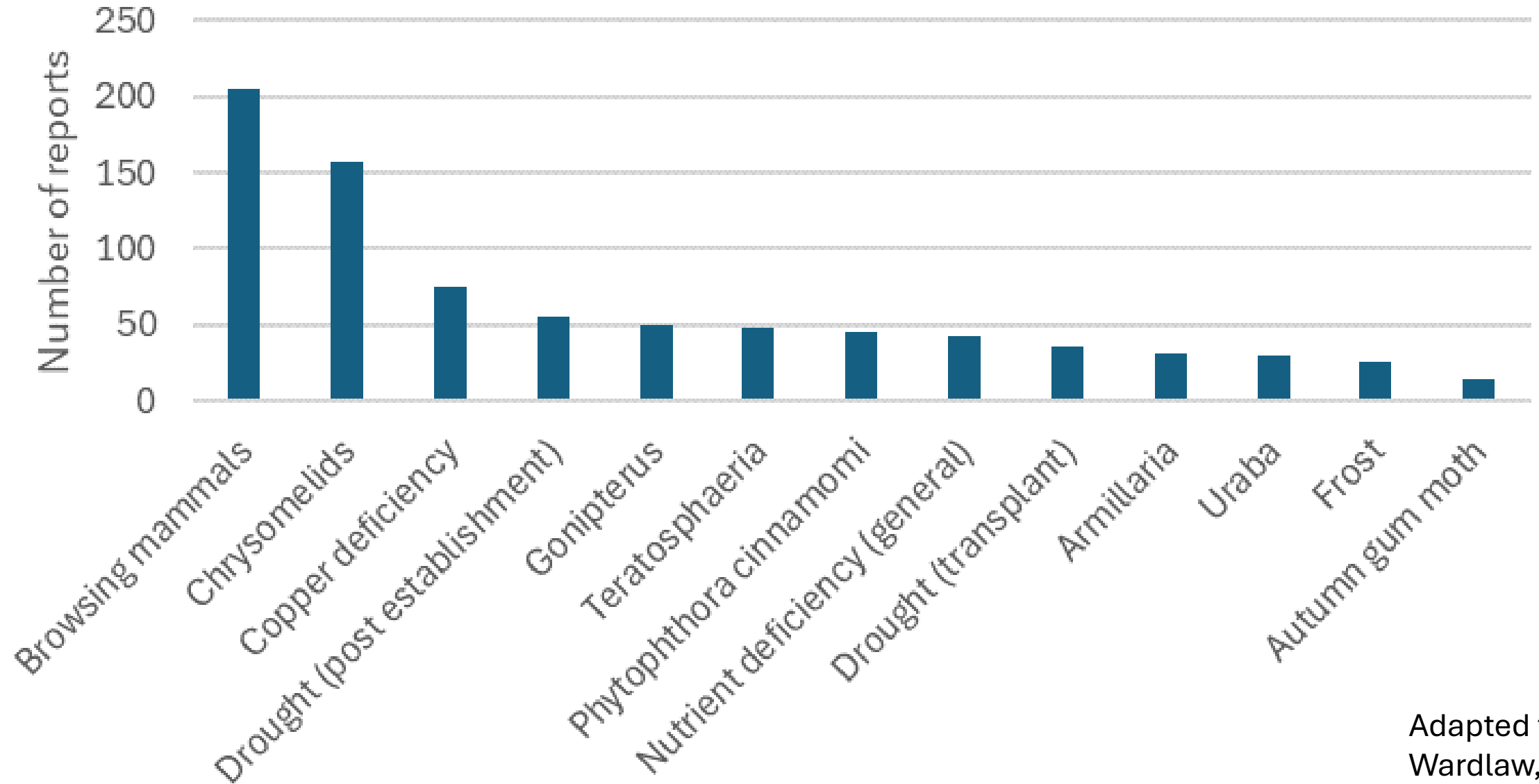
- Ground truthing surveillance

Agent ● Weed competition ● Sirex noctilio (woodwasp) ● Seasonal yellowing ● Root girdling ● Possum ● Other ● Hail ● Frost Damage ● Essigella californica (aphid)/Cycalneusma (needle cast) ● Drought (Diplodia pinea (fungus) & Ips grandicollis (bark beetle)) ● Dothistroma septosporum (needle blight)





# Main threats



Adapted from  
Wardlaw, 2017)



## Forest Health Surveillance

- Detection

## Forest Health Monitoring

- Identification of cause
- Assessment/Identification

## Management

- Decision – Intervention or continue to monitor

## Research

- Does damage warrant control
  - Control methods
  - Bio-controls
- Management controls





**NO  
FOREST  
CERTIFICATION**



**PEFC  
OR FSC**





# Why do we care about forest health surveillance

- Detect problems early
- Reduce cost of intervention
- Prevent loss of production
- Grow our knowledge
- Have healthy forests



**FOREST WATCH**  
A U S T R A L I A





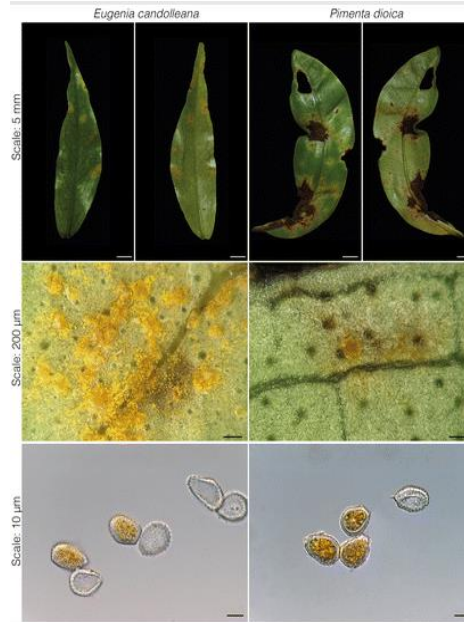
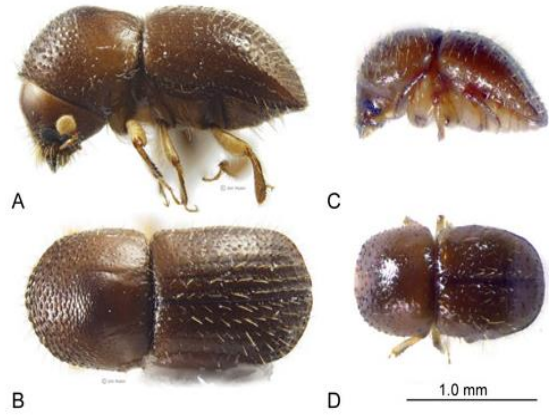


|                                    | Coleoptera | Dermaptera | Diptera | Hemiptera | Hymenoptera | Isoptera | Lepidoptera |
|------------------------------------|------------|------------|---------|-----------|-------------|----------|-------------|
| Biological control                 | ●          |            |         |           | ●           |          | ●           |
| Contaminant nursery material       | ●          | ●          | ●       | ●         | ●           |          | ●           |
| Food contaminant                   | ●          |            | ●       | ●         | ●           |          | ●           |
| Contaminant on plants              | ●          |            | ●       | ●         | ●           |          | ●           |
| Timber trade                       | ●          |            |         | ●         | ●           |          | ●           |
| Transportation of habitat material | ●          | ●          | ●       |           | ●           | ●        |             |
| Container/bulk                     | ●          | ●          | ●       |           | ●           |          | ●           |
| Hitchhikers on ship/boat           | ●          | ●          | ●       |           | ●           | ●        | ●           |
| People and their luggage           | ●          |            |         | ●         | ●           |          | ●           |
| Vehicles                           | ●          |            |         | ●         | ●           | ●        | ●           |
| Organic packing material           | ●          | ●          |         |           | ●           |          | ●           |
| Natural dispersal across borders   | ●          |            | ●       | ●         | ●           |          | ●           |

- Figure from Invasives Species Council report *Invasive Insects: Risks and Pathways Project*

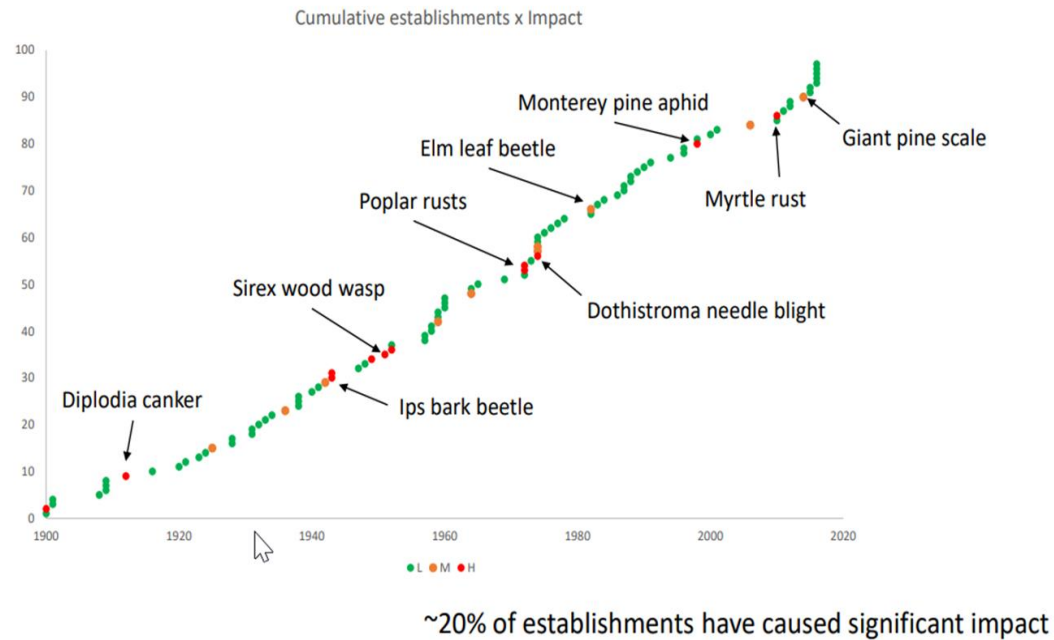


# Loss of expertise

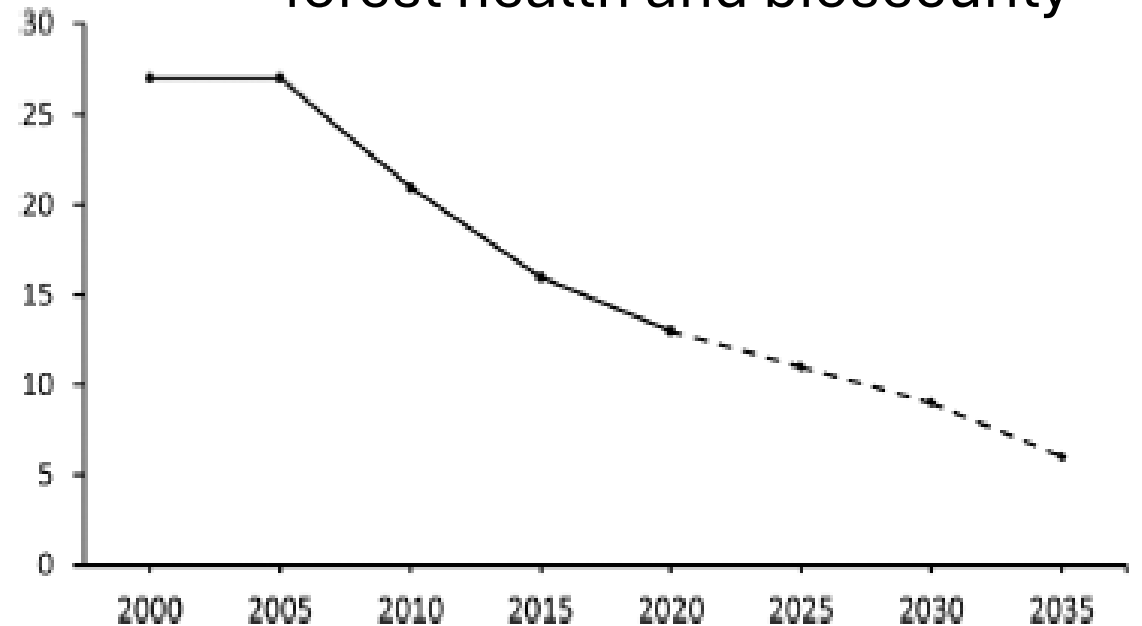


# Risky business

## History of incursions



## Decline in technical expertise in forest health and biosecurity

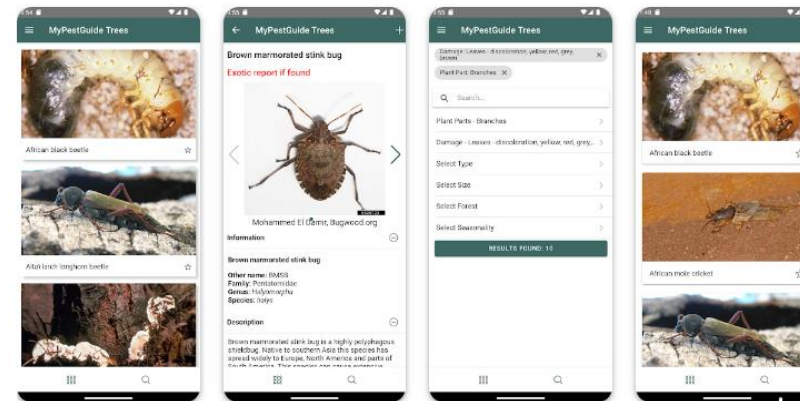




# Polyphagous Shot Hole Borer workshop







# MyPestGuide Trees

Department of Agriculture and Food WA



