

**ensis**

# Lindsay Bulman

## Ensis FBP

Forest Biosecurity and Protection

**Research updates  
2007**



**March 2007**

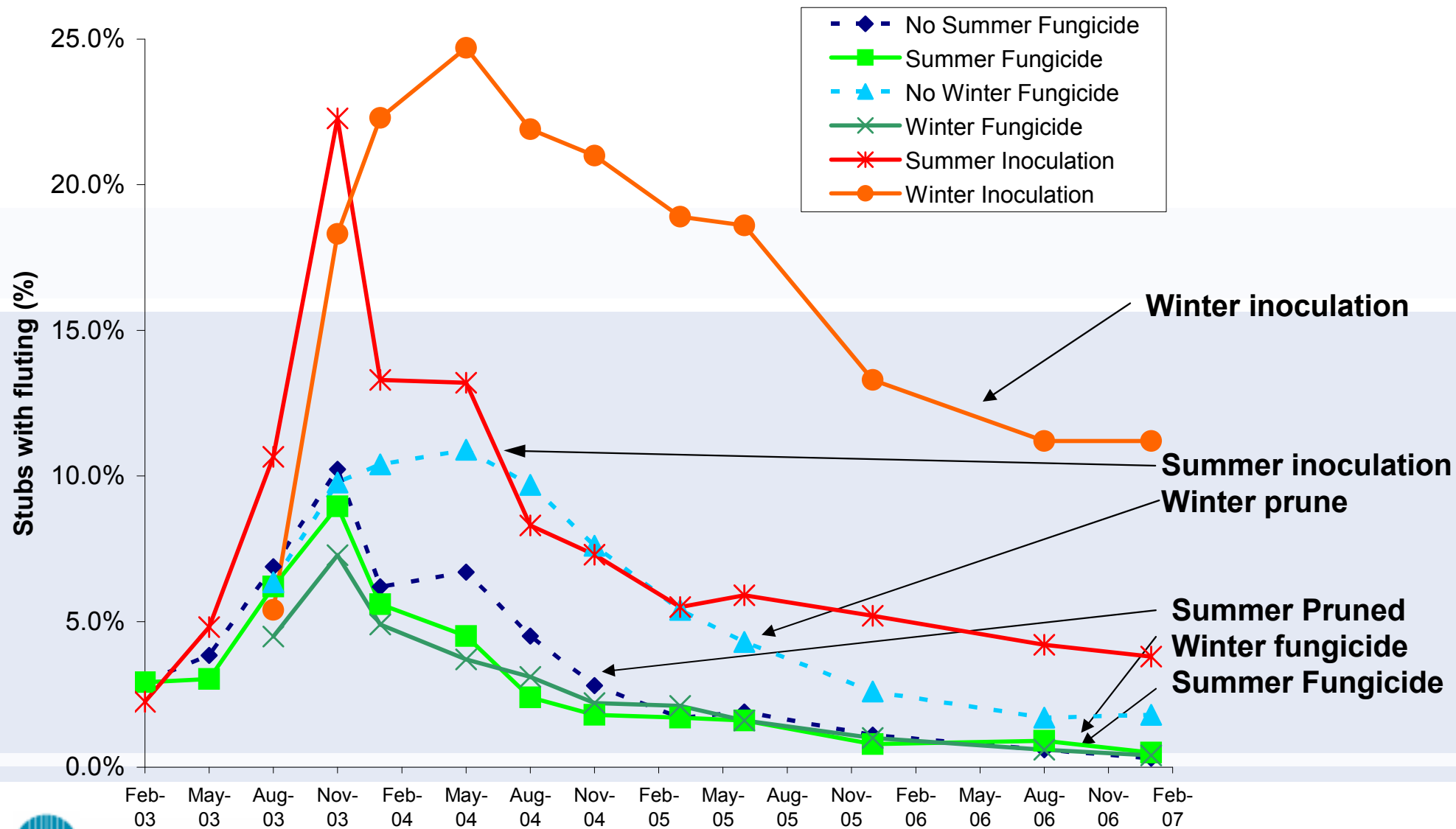
- **Treatments**

- ▶ Pruning, fungicide and inoculum application (summer and winter)

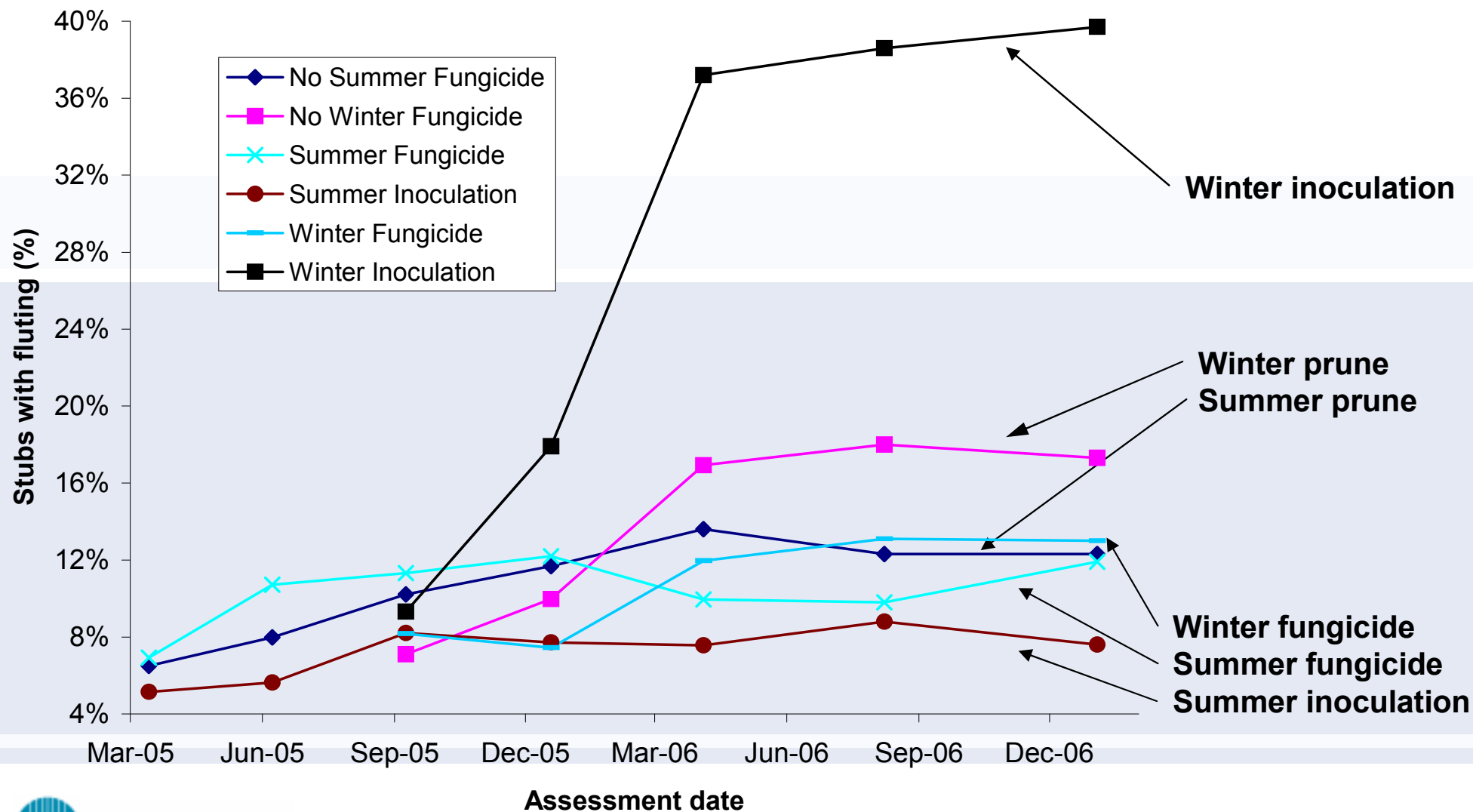
- **Goals**

- ▶ Determine the effect of time of pruning
- ▶ Test efficacy of fungicide application
- ▶ Determine how long stubs remain susceptible to infection

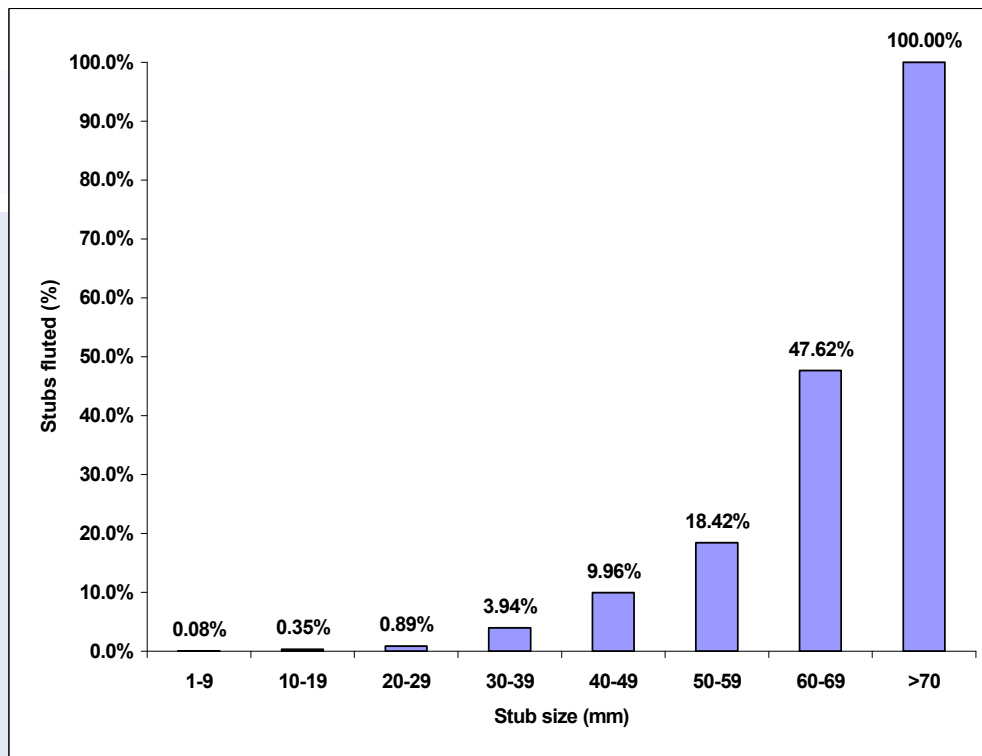
# Pruned Stub Trial – results from first lift whorls



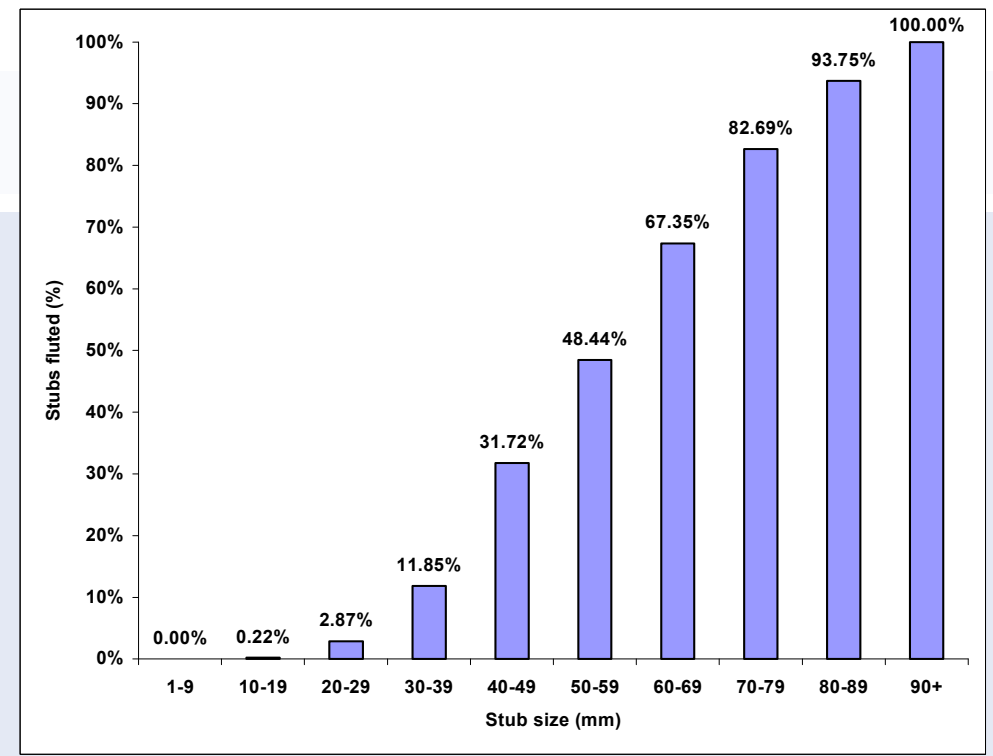
# Pruned Stub Trial – results from second lift whorls



## First lift whorls



## Second lift whorls



- **Time of Pruning**

- ▶ Fluting is more common after winter treatment

- **Fungicide**

- ▶ Immediate fungicide application reduced, but did not eliminate, fluting
- ▶ Delayed fungicide application was ineffective

- **Stub size**

- ▶ Fluting was rarely associated with stubs smaller than 30 mm diameter

- **Pruning**

- ▶ Fluting was more common in pruned treatments (1.8% of stubs after winter pruning), but flutes were present on unpruned trees (1.1% of stubs)
- ▶ The incidence of fluting was higher after second lift pruning (15.5% of stubs cf 1.9% on first lift)

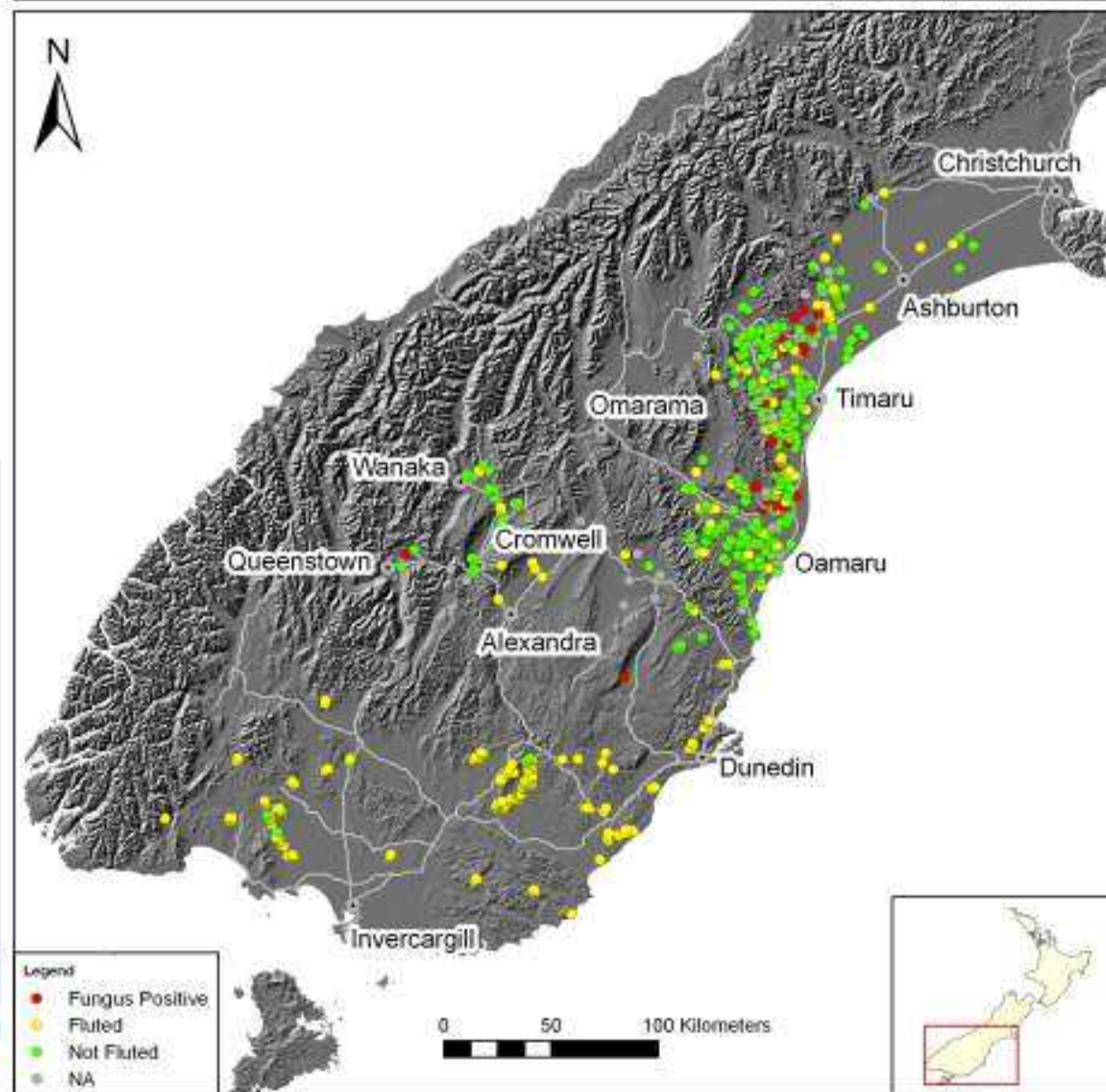
- **Ongoing and future work**
  - ▶ Continue assessments annually?
  - ▶ Full statistical analysis
  - ▶ Destructive sampling
  - ▶ Why do second lift whorls have a higher incidence of fluting?



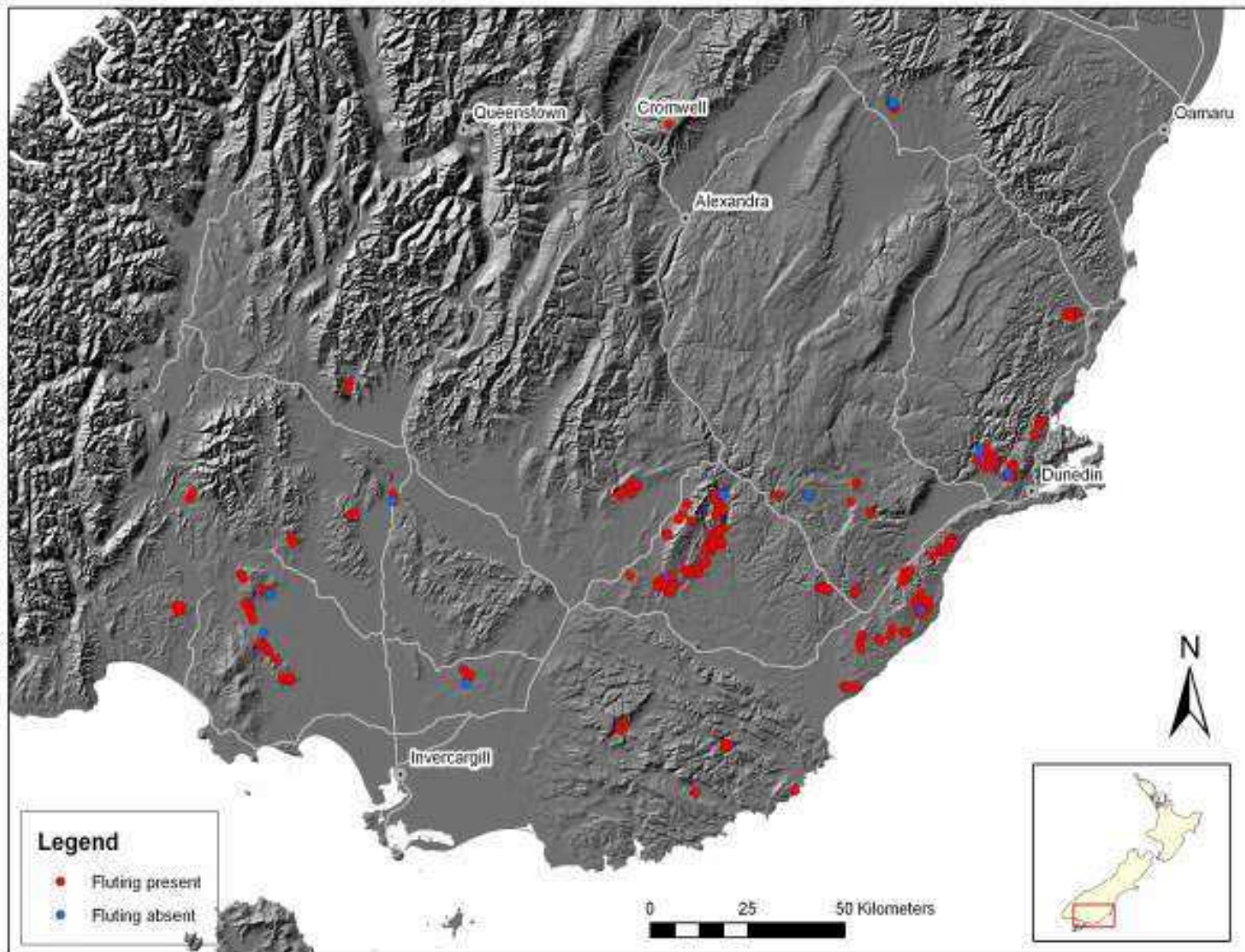
- **Operations**

- ▶ Main delimiting survey completed February 2006
- ▶ Extension made November 2006
- ▶ Further extension planned March/April 2007
- ▶ Linked data with a GIS
- ▶ Regional incidence survey redone October 2006 to March 2007
- ▶ Funding from FIDA

## Nectria disease distribution

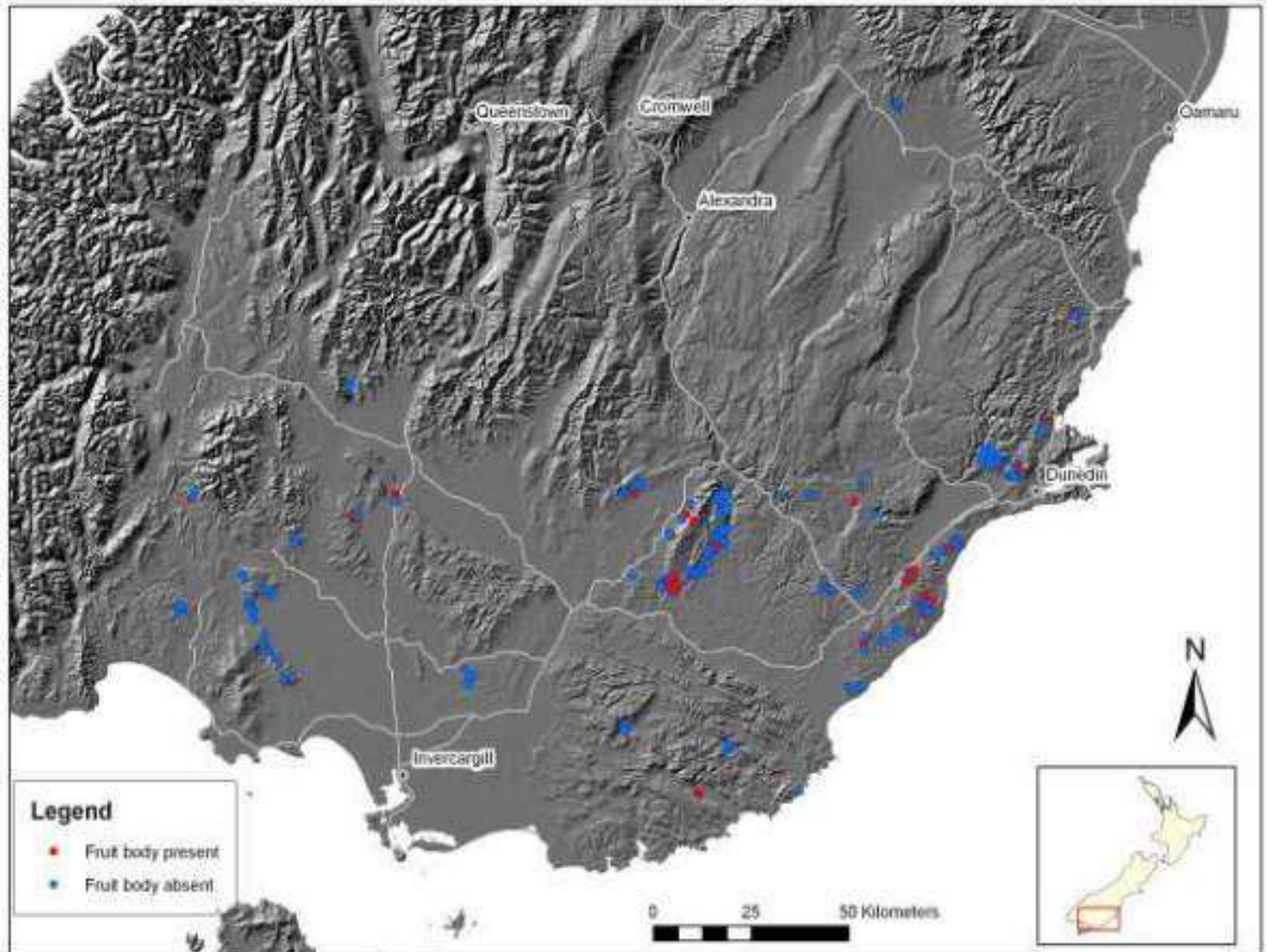


## Nectria disease distribution

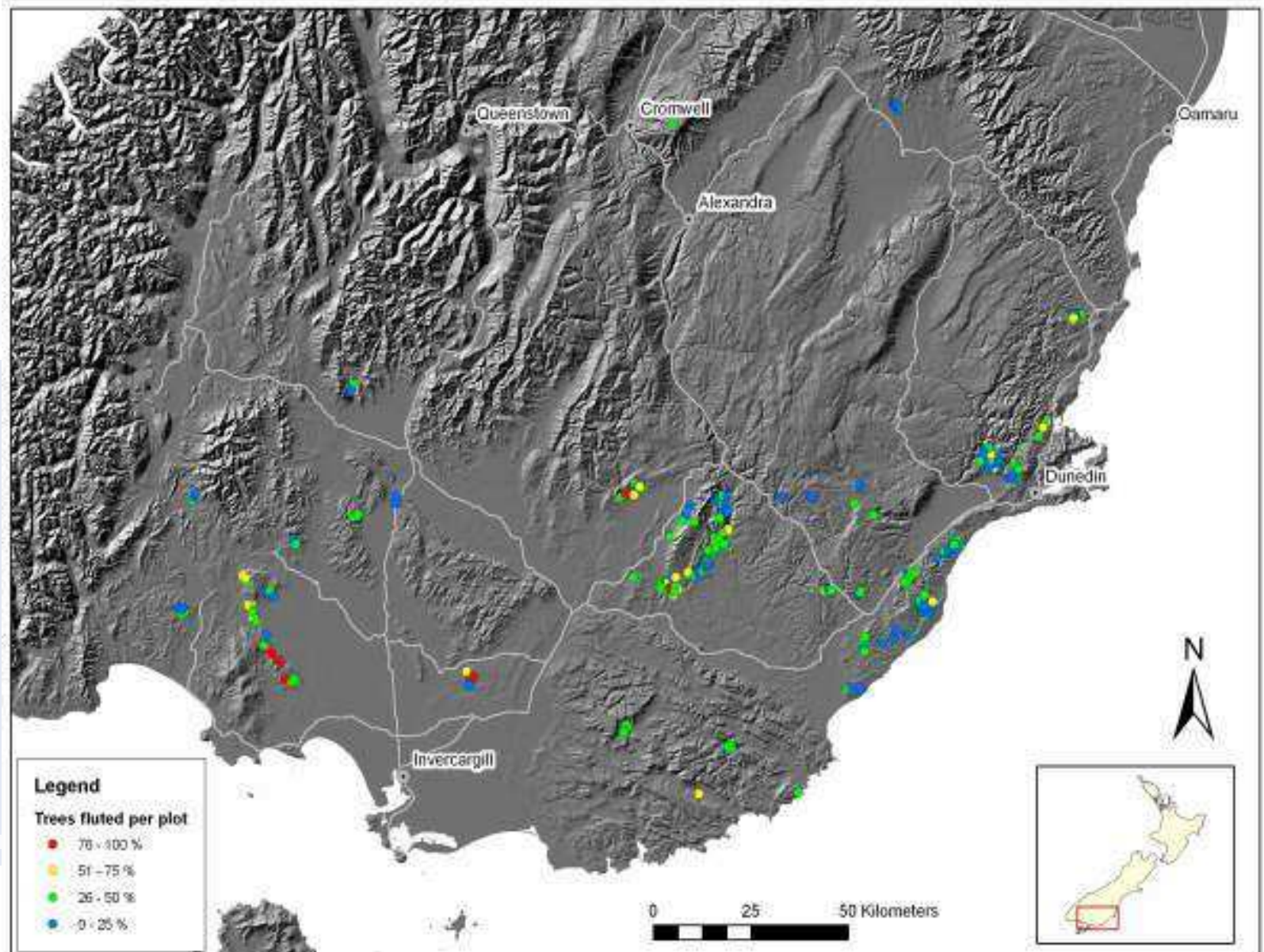




## Fruit body distribution

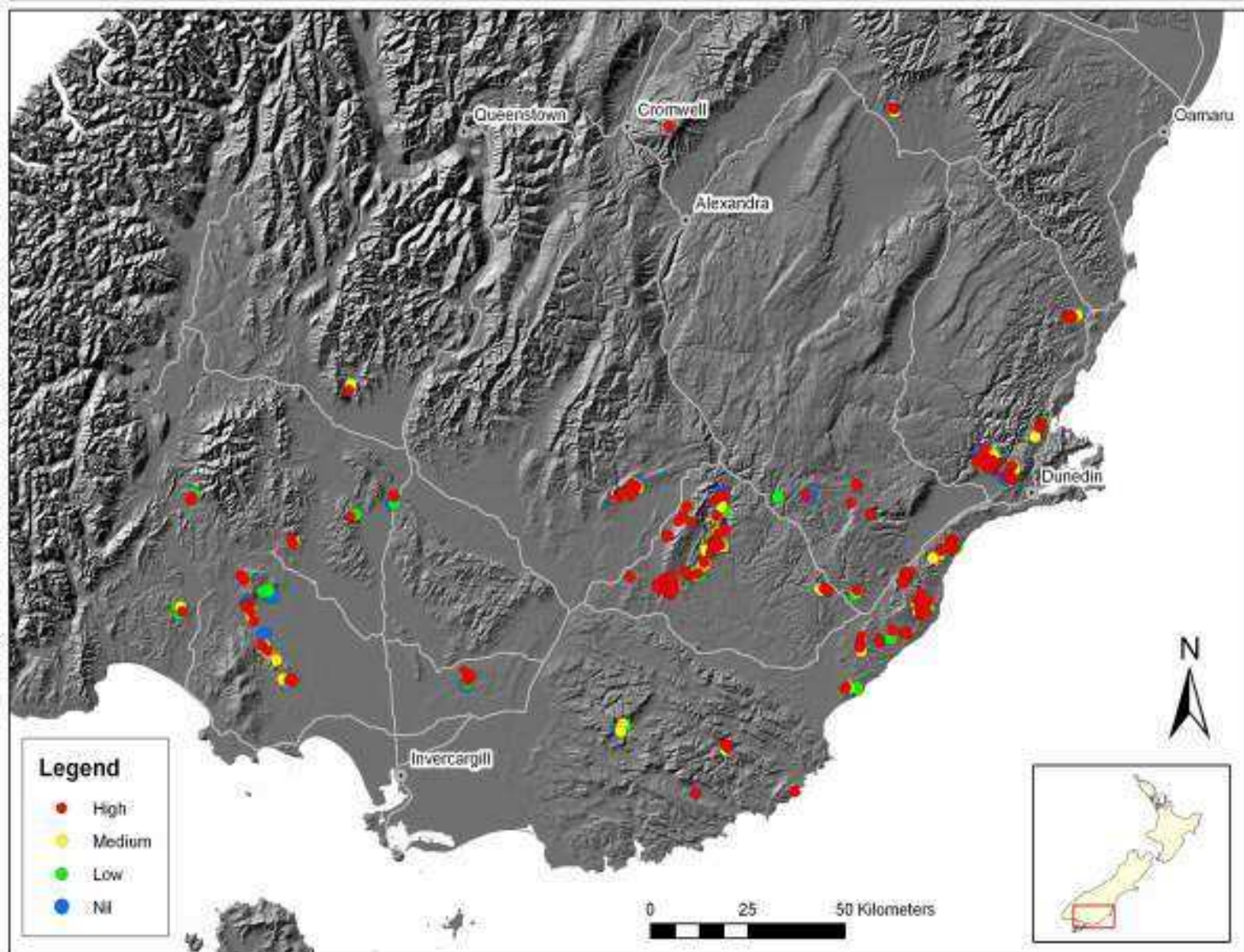


## Nectria disease infestation classes





## Nectria disease infestation level



- **Regional survey**

- ▶ Overall, 24% of trees had fluting
- ▶ Averages for each estate varied between 14% and 32%
- ▶ Detailed analysis to be done

- **Delimiting survey**

- ▶ Incidence of fluting higher in southern region
- ▶ Nectria present throughout areas surveyed, but lower in Central Otago

- **Regional survey**

- ▶ Redo data analysis
- ▶ Link with GIS and produce risk profile maps
- ▶ Compare with findings from ecology project

- **Delimiting survey**

- ▶ Extend to Balmoral forest
  - ▶ Survey part of Marlborough
  - ▶ Sample from symptomatic and non-symptomatic trees
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- ▶ Redo national survey in parts of the North Island