Understanding risk associated with Nectria flute canker

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Nectria flute canker

- In *Pinus radiata* plantations in NZ & Chile
- Severe stem malformation & growth loss – 22% of trees
- 5-10% volume loss
- Flute cankers associated with a pruned whorl
- Grey/white dry wood in cankers
- No breakdown in structural integrity of the wood
- Decay fungi may invade the dead sapwood

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Nectria flute canker

- *Neonectria fuckeliana*
  (was *Nectria fuckeliana)*
- Red perithecia on some cankered trees
  - Primary means of dispersal
  - Dispersed by rain/mist
- From Northern Europe and North America in spruce and fir
  - Does not cause disease

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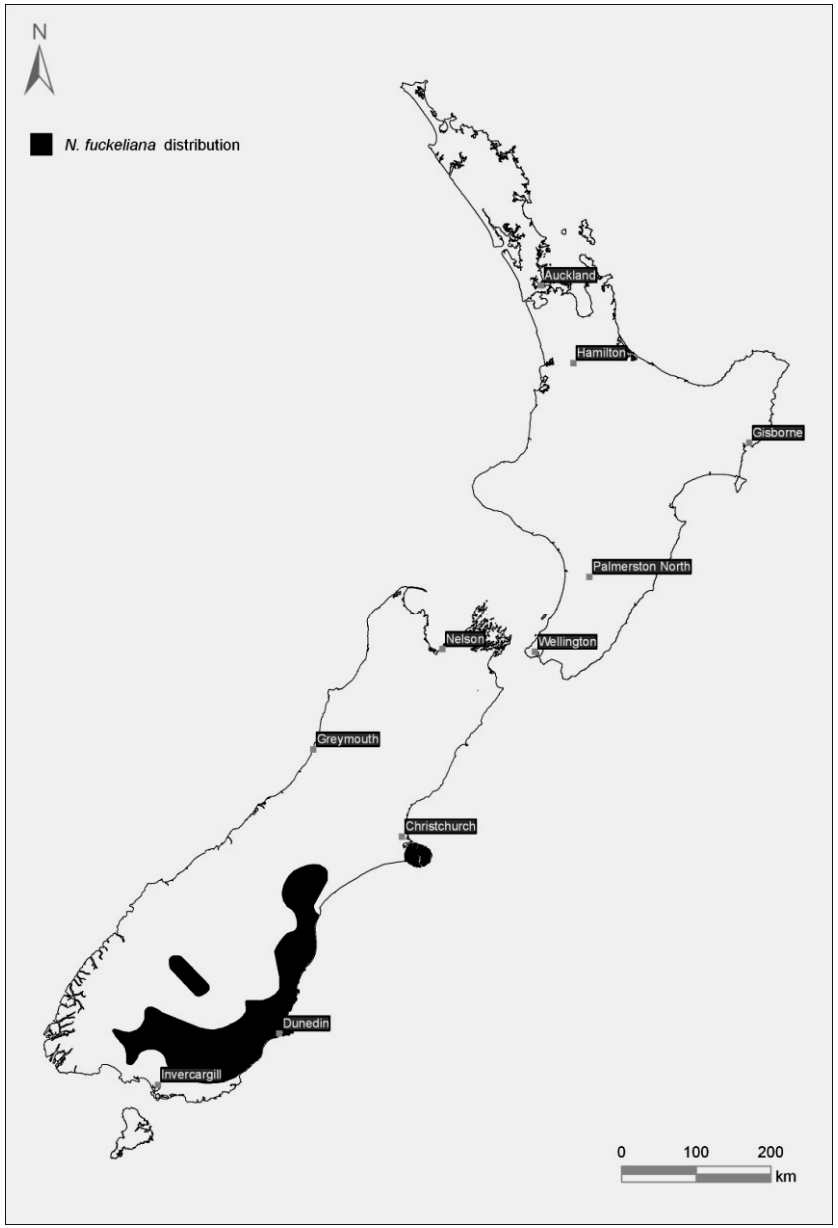
Distribution

Distribution

- Restricted to lower part of South Island
- First official record 1996
- First records around Dunedin, anecdotally from mid-1980s
  - Confusion with Diplodia
- Diseased trees now reaching harvest age

- Since 2002, gradually spread north along east coast
- Natural spread within country (rain)
  - BUT could use human vectors



Surveys of Logs for Export

Questions:

- Are there symptoms of Nectria flute canker present on logs for export?
- Is *N. fuckeliana* present on any logs bound for export?
  - Fruitbodies
  - Mycelium

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Methods

- November 2009
- Visited Port of Bluff and Port Chalmers
- Surveyed log ends and bark-covered sides
- Looked for fruitbodies and canker symptoms
- Logs pruned and unpruned, range of classes
- Range of forests and forest companies

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Results

- Surveyed 44,000 log ends
- Surveyed 550 log sides

- No living fruitbodies found
- No evidence of old fruitbodies found
- Only 4 logs had evidence of cankers
  - No fungus isolated

- Second survey planned for Autumn 2010

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Spore Production

Questions:

- What if *N. fuckeliana* was found on logs?
- Under what conditions can it produce spores?

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Spore Production - Methods

- Discs of wood, known to be infected
- Store under range of conditions:
  - High/low RH
  - High/low Temperatures
- Monitor fungal survival and spore production over time
- Understand whether pathogen is likely to spread from logs

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Outcomes

- Primary focus of research – collate information on pathogen behaviour
- Counter potential trade restrictions
- Australian PRA

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Further Work

Other questions:

- Would *N. fuckeliana* cause disease on commercial species in Asia or other countries?
- Would *N. fuckeliana* even survive in warmer climates?
- Modelling – where else would disease occur worldwide?

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Acknowledgements

- Beccy Ganley, Lindsay Bulman, Margaret Dick – Scion
- Paul Cox
- City Forests Ltd.
- Wenita Forest Products Ltd.
- Ernslaw One Ltd.

- Funding:
  - Foundation for Research Science and Technology
  - Forest Biosecurity Research Council
  - Nectria Focus Group

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