

Social and Economic Analyses of DNB Disease Management

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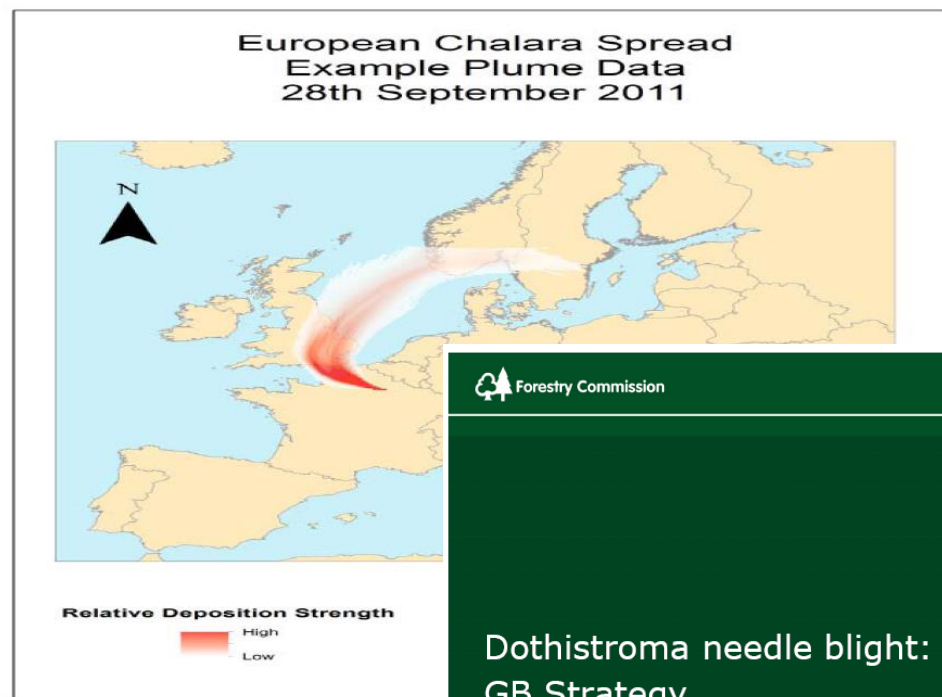
Emerging findings from
A Defra supported project undertaken
by
Forest Research
Fera
Bath University
Independent researchers
University of Aberdeen
SCION NZ

Tree health

Disease management

Mobilising forest managers

Tree Health Action Plan



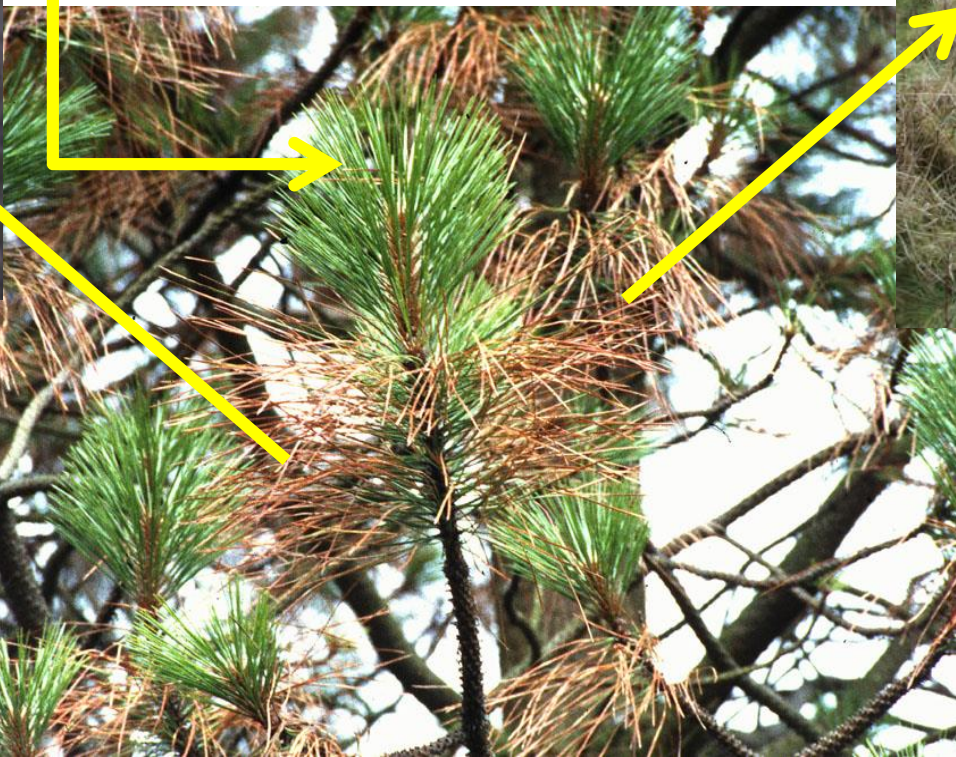
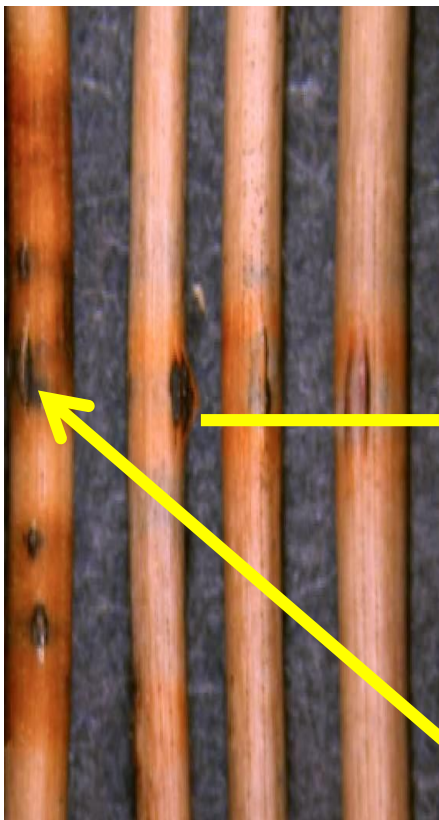
- Barriers and opportunities of known management options to inform progress on communication and action plans
- Main stakeholders and their beliefs, values and practices around control methods and the need for them
- Understand public attitudes towards tree pest and disease control methods
- Conduct cost-benefit analyses of specific combinations of woodland type and disease status and management so that the economic position is understood



Teleomorph (sexual) *Mycosphaerella pini*

Anamorph (asexual) *Dothistroma septosporum*

Dothistroma Needle Blight



Exotic pine

Native pine



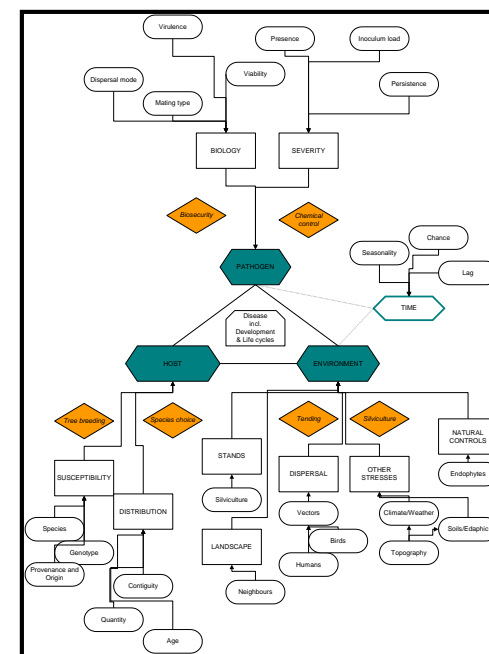
Nurseries

Planted forests

Native pinewoods

So far.....

- Established a large number of disease management options - not all currently being used
- Derived four scenarios based on disease burden and sector strength
- Explored effectiveness and acceptability – and how these might change within the four scenarios
- Identified types of barriers to management – and some of the motivations



“Sense checking, sounding board and source”

- Help ground the work in practical context
- Provide opinion, expertise and facts e.g. scenario development, feasibility and efficacy of management options
- Participate in synthesis and relevance of findings



Management options

Knowledge	Biosecurity	Surveillance & response	Direct treatment
Forest design & management	Thinning & felling	Other	

Barriers to management

Affordability & financial impacts	Capacity & resources	Knowledge & evidence	Attitudes & objectives
Technical feasibility & legality	Time		

Motivations for disease management

Productivity	Finance	Culture & reputation	Wider impacts
Timing			

Stakeholder Mental Models

- Understanding existing values, beliefs and practices
- Acceptability of different management options
- Structures and processes by which new knowledge is taken on board

Stakeholder analysis, interviews, online survey

Public attitudes towards management methods

- Level of acceptance that outbreaks should be managed and preferred methods

Literature review of public attitudes, Public survey (2000 people, 18+ yrs) , focus groups



- Site characteristics and owner objectives
- Costs of management and value of different species
- Evidence and experience

....contribute to differing opinions on extent of DNB and how it should be managed

Most of our areas where we have problems with Dothistroma are areas where we wouldn't be able to thin because of the high wind-throw hazard and the poor soil and the high DAMS scoring

Our plan, absolutely, is diversity

There will be lots of forest owners out there... might be very keen, in principle, to fell their 500 or 1,000 hectares of lodgepole pine and re-plant it but if that's going to cost them half a million to a million pounds, even if they want to do it, they simply won't have the money to be able to do that

I couldn't say whether or not felling the trees would have any measureable difference in the disease spreading, but my feeling at the moment...is that it's everywhere now [in lodgepole]

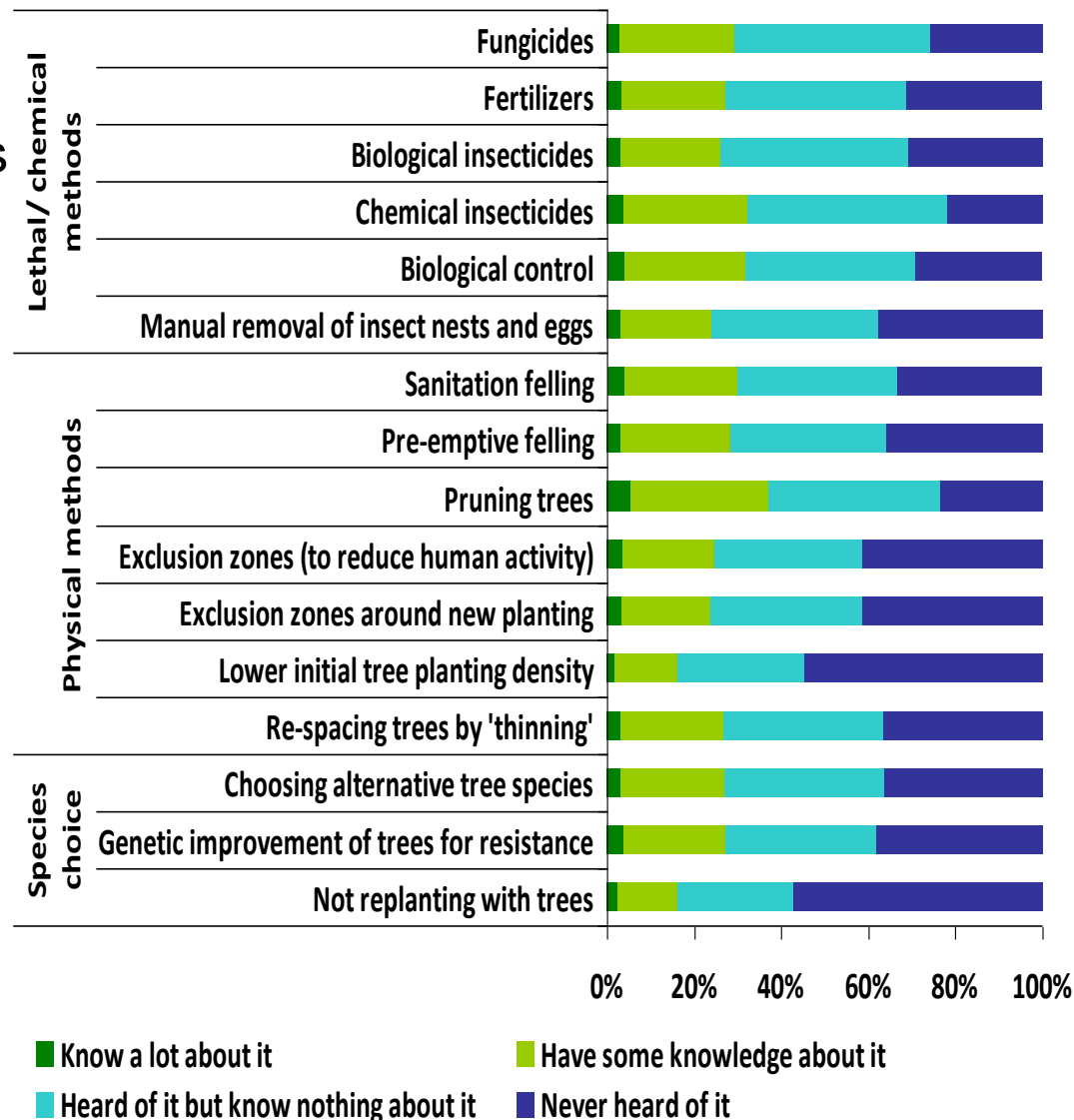
Evidence suggests:

- Male, older, rural individuals and those with high economic (rather than environmental) values more likely to support management intervention and stronger methods
- Higher support for methods which are believed to occur naturally or disturb/ damage the environment less than others. Stronger methods of management are only supported if less 'extreme' measures have been tried and failed.
- Knowledge of pests and diseases, possible management measures and the likely results is low.
- The more knowledgeable stakeholders are about the damage and impacts caused by pests, the more they are likely to support management. However, there is also evidence to suggest that as knowledge of the pest increases, trust in or support for management interventions can decrease.

High level of concern about threats to our trees, woods and forests from pests and diseases (74%) but most (81%) rate themselves as having little knowledge

Little awareness of management methods

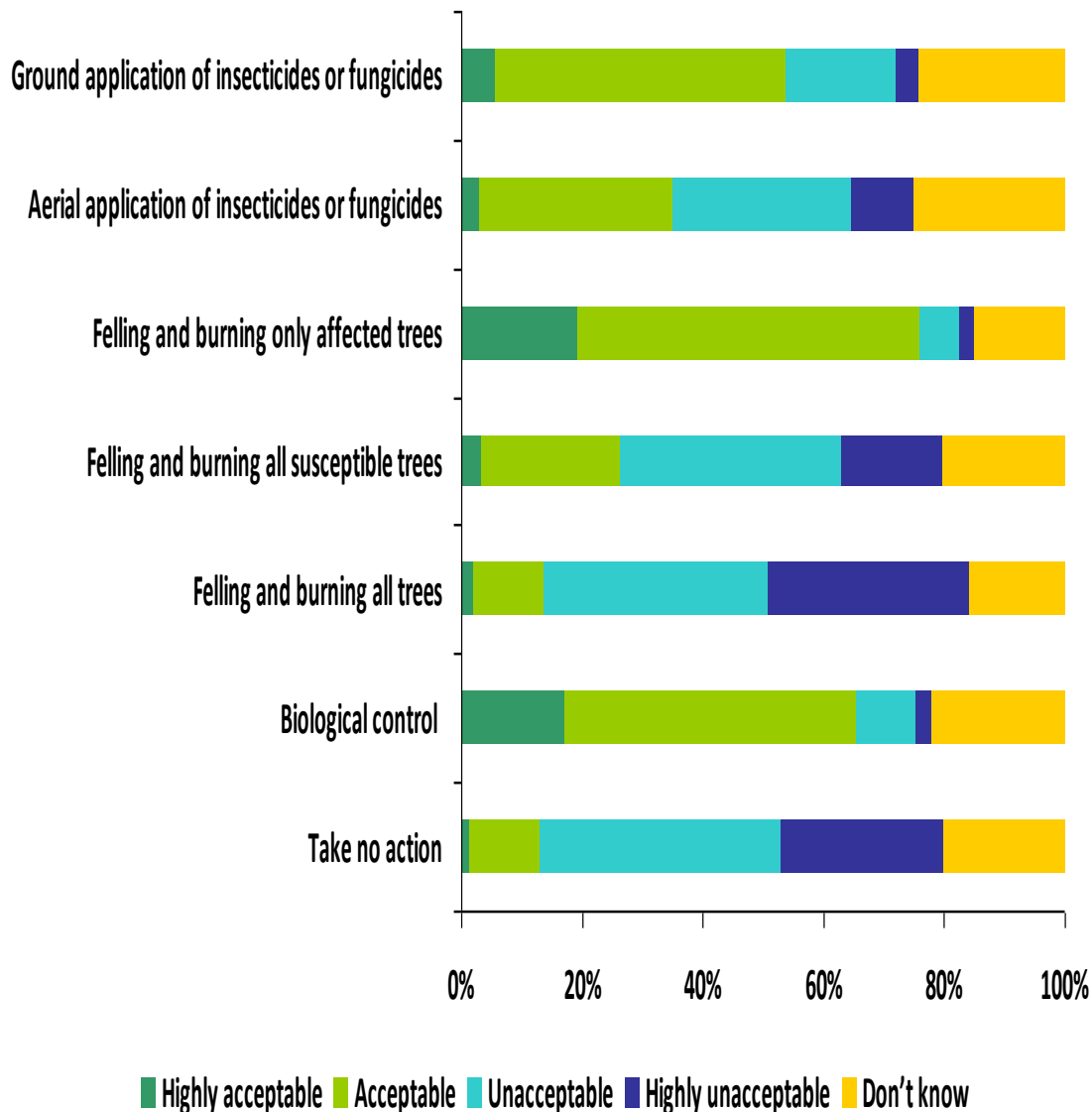
Trusted sources - forestry industry (77.3%), researchers (74.6%), environmental groups (68.4%), media (65.1%) and government (61.7%)



Aerial spraying less acceptable than ground spraying but fungicides and insecticides generally acceptable

Felling and burning affected trees more acceptable than same action on all trees or potential hosts

Taking no action is unacceptable



Cost-benefit analysis model – reflecting private values:

Developing a Rotation model (CARBROD) that allows:

- Infection at varying ages, possible mortality
- Slower growth (post infection), Early clear fell
- Replacement with alternative species
- Can include timber and carbon values as applicable

Exploring a range of management scenarios (types of thinning interventions; felling ages; species choice)

Limitations of available data and yield models

Management is cost effective in certain circumstances

Cost-benefit analysis – reflecting public values

Extending existing model to explore the benefits and avoided losses related to social and environmental values of forests

Making use of Defra and DECC assumptions over future carbon values

Limited evidence

- On the assessment of social and environmental values
- How they are impacted by disease

Carbon values dominate and can result in perverse outcomes

Emerging disease placing significant demands upon experts and practitioners

Barriers neither exclusively economic or social, and vary according to ownership type and objectives

Public attitudes arguably not as restrictive as assumed

Clarity of prescription and commonality of purpose may be issues for communication

