

# Tree Health Monitoring

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- Why monitor tree health ?
- Importance of making good observations and records of tree damage symptoms
- Enable a preliminary investigation of tree damage and think about possible causes
- There are threats to numerous tree species in Scotland due to climate change and newly emerging pathogens

- A procedure should be in place for monitoring and recording tree health
- Monitoring should be done regularly, by maintaining vigilance whilst out in the forest
- Record relevant field observations in site visit reports and in forest health record book

- Note any obvious symptoms of damage or ill health in trees
- This will provide a record of common or recurring forms of damage in the forest
- New or unusual forms of damage are a particular concern
- Take further action to diagnose the cause

- What are the symptoms of damage ?
- What is the distribution of damage ?
- When did damage occur ?

- Take a closer look at damaged trees
- Write down observations *ASAP*
- Consider non-living agents too (i.e. climatic events, site conditions, nutrient deficiency, herbicide damage)

Mortality;  
severe damage to LP  
stands in Caithness in  
2009; most likely due to  
*Ramichloridium pini*





Foliage discoloration and dieback;

pattern of damage on needles/leaves

pattern of damage on the tree

are bark and buds of affected shoots dead ?





Here, damage is occurring on one-year-old needles of Scots pine



Here, there is dieback of young shoots in lodgepole pine





Foliage discoloration and dieback;

is the whole crown affected in a uniform manner ?

(if so, suspect damage to roots and/or stem base)



Resinosis or stem bleeding can indicate root problem, i.e.;

*Armillaria* spp.

*Heterobasidion annosum*

*Phytophthora* spp.





Stem bleeding may indicate bark-canker diseases





Extent and distribution of damage; are affected trees of the same age class ?



Extent and distribution of damage; is more than one species affected ?





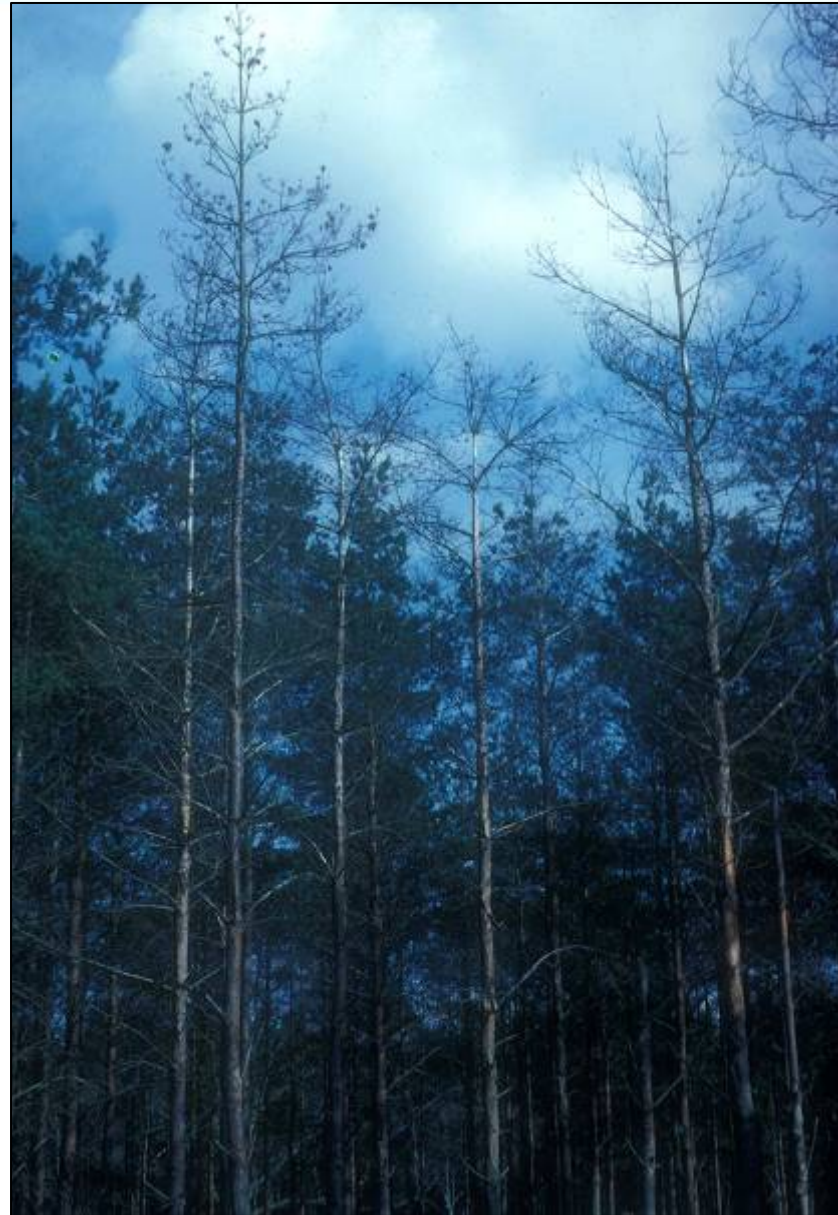
Extent and distribution of damage; are damaged trees in groups or scattered ?



Extent and distribution of damage;

is damage confined to a particular area ?

if so; what are the characteristics of the area ?  
i.e. stand edges, frost hollow, elevation/exposure, poor drainage, construction damage, herbicide applications



- Be observant when working in different areas
- Shoot damage in conifers can usually be dated
- Examination of annual growth rings in stem cross sections
- Knowledge of recent, severe weather events



- Symptoms of damage
- Distribution of damage on the tree
- Distribution of damaged trees within area
- Presence of insects/fungal fruit bodies
- When were symptoms first observed
- Indicate possible site-related factors
- **Get a diagnosis for new/unusual/severe damage**

- Send an email with symptoms, site details and site location
- Attach photos to the email
- Send in good samples
- Package in plastic bags and send immediately

Disease Diagnostic Advisory Service

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