

Tree Health Monitoring

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- Why monitor tree health ?
- Need to make good observations and record tree damage symptoms
- Enable a preliminary investigation of tree damage and think about possible causes
- Threats to tree species in Scotland due to climate change and newly emerging pathogens



- Procedure for monitoring and recording tree health
- Monitor trees regularly; maintain vigilance out in the forest
- Record relevant field observations



- Note 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



- Symptoms of damage ?
- 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. climate, site, soil, herbicide)



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?



Damage to one-year-old needles of Scots pine



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 bleeding at stem base

Can indicate root disease;

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
- Damage can often be dated
- Knowledge of recent, severe weather events



- Foliage browning of SP reported from many locations in Scotland in June 2010
- Winter injury -also associated with *Lophodermium* and *Brunchorstia pinea*



- 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
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- Attach photos to the email
- Send in good samples!
- Package in plastic bags and send immediately



Disease Diagnostic Advisory Service

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