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# 1. Determine that a "real" problem existsWhat are the characteristics of the plant?

- How does it display them through the year?



Japanese Cedar (Cryptomeria japonica) with Incense Cedar (Calocedrus decurrens



The "population" refers to the *number of plants of the species of interest* that are present





















Usually the result of non-living, environmental causes > Occurs over the <u>entire population</u> of plants, <u>or discrete groups</u>



















Don't overanalyze "uniform" versus "random" Arborvitae (Thuja occidentalis) near La Grande, OR





nita (*Arctostanhvic* 



d Maple (Acer rubrum): Anthracnose (Kabatiella sp.)





## Twig or branch dieback?





































rrv (*Vaccinium corv um*): drought stre











Alstroemeria (*Alstroemeria* sp.): Frost damage Photo: Luanne Whitaker





























# 10. Are any signs of a pest present?



Damage from non-living factors will induce *symptom* development, but there will be no *signs* of a pest

Rhododendron (*Rhododendron* sp.): Sunburn

*Symptoms*: Physical characteristics of a problem expressed <u>by the plant</u>.



- Include: wilting leaf discoloration
  - leaf spots
  - leaf distortion defoliation
  - galls
  - cankers
  - rots/dieback
  - "plant decline"

Cucumber (Cucumis sativus): wilt





estern Spicebush (Calycanthus occidentalis): leaf spots

















## igns: evidence of the actual causal agent



## Diseases:

- fungal fruiting bodiesfungal mycelia

#### Insects:

- the insect itself
  boring holes or tunnels
  sawdust
  frass...

#### Other...

- rodent mounds/holes slug trails

- Goldenchain tree (*Laburnum* x *watereri*): aphids



Sunflower (Helianthus annuus): Sclerotinia wilt (Sclerotinia sclerotiorum)



Apple (Malus domestica): Rust (Gymnosporangium





Apple (Malus domestica): Leaf roller (species undetermined)













Fig trails





Red raspberry (Rubus idaeus): RBDV

