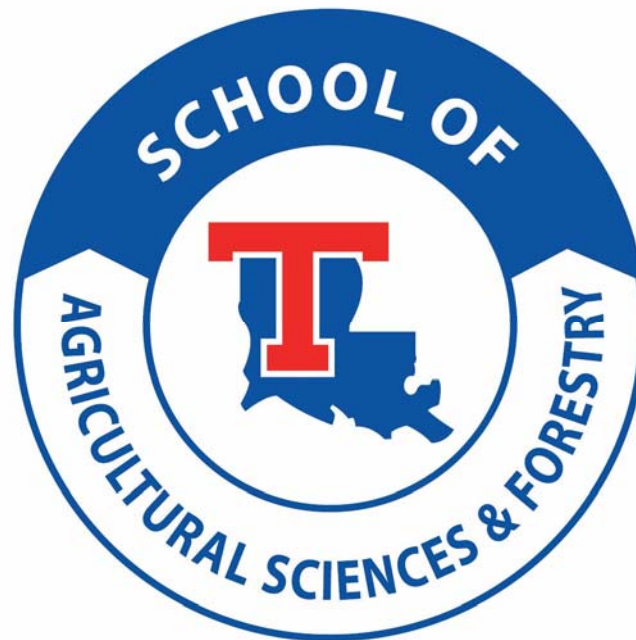


# Tree Disorder ID



Dr. Joshua Adams  
Dr. Laura Sims

# Three main groups

- Insects
- Fungi
- Other (environmental, mechanical, etc.)

# Insects

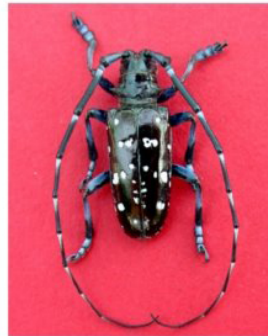
- Asian longhorned beetle
- Cicada
- Emerald ash borer
- Gypsy moth
- Ips engraver beetle
- Sawfly
- Nematode
- Scale
- Southern Pine Beetle
- Tent caterpillar

# Asian Longhorned Beetle

Mostly found in upper in mid west through to Mass.

Eats: Ash, maple, birch, poplar, willow

Comparison between the introduced Asian longhorned beetle (*Anoplophora glabripennis*) and the native Whitespotted Pine Sawyer (*Monochamus scutellatus*) [PHOTOS NOT TO SCALE]



Male Asian Longhorned Beetle



Female Asian Longhorned Beetle



# Cicada

- Most danger poised to young trees
- Can cause “flagging” on hardwoods





# Emerald Ash Borer

Only affect Oleaceae family trees  
Just arrived in LA a little over a year ago  
99% mortality  
Imported from Asia



# Gypsy moth

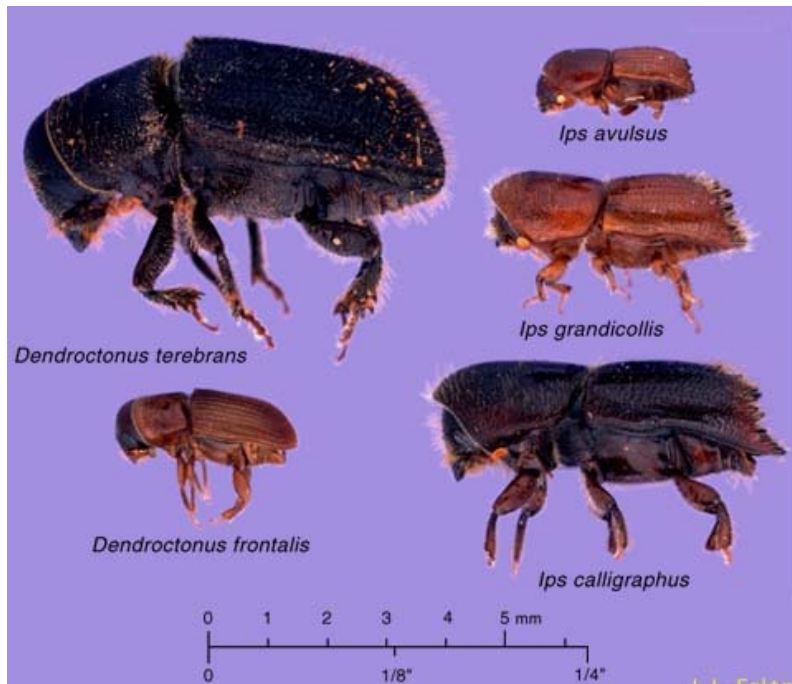
Native to Europe and Asia  
Feeds on oaks and aspen





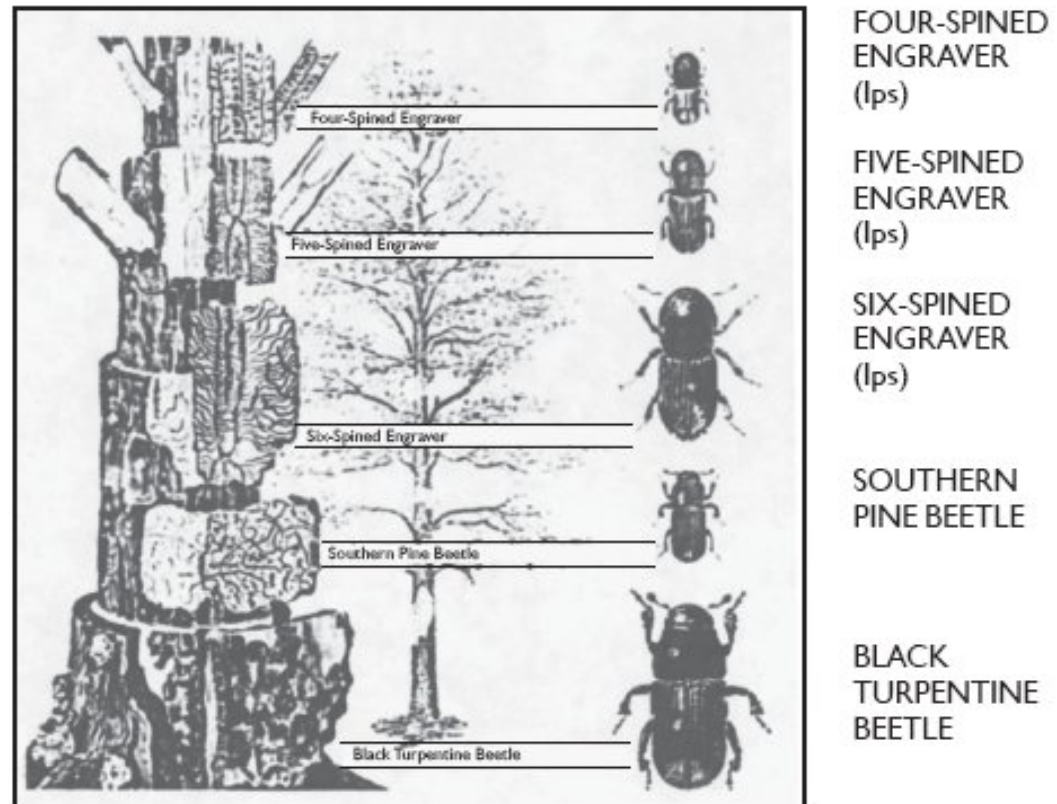
# Bark Beetles

- Three Ips species
- Southern Pine Beetle





# Bark Beetles



**Figure 1.** Major pine bark beetles of the South and the trunk areas usually attacked. From top to bottom: small lps, medium lps, large lps, southern pine beetle, and black turpentine beetle. Note distinctive egg gallery patterns.

# Sawfly larvae and their damage

Most damage is on pine trees  
Cause mortality and growth loss



# Nematode

Usually associated with soil and thus root diseases  
Causes root swellings and galls





# Scale

Sucks sap from trees

Causes leaves to turn yellow and drop

Honeydew and sooty mold associated



# Tent Caterpillar

Many times found on fruit trees

Can defoliate mature trees

Hatch in March and begin to feed and spin webs



# Fungi

- Butt and heart rot
- Canker
- Damping off
- Rust



# Butt and Heart Rot

Both hardwood and conifers

Cause either a white or brown rot of the wood

Impacts are mainly of mature stands

Impacts depend on the disease type and plant host

Include loss of fiber (cull), growth loss, mortality, predisposition to beetles, uprooting or snapping of live trees

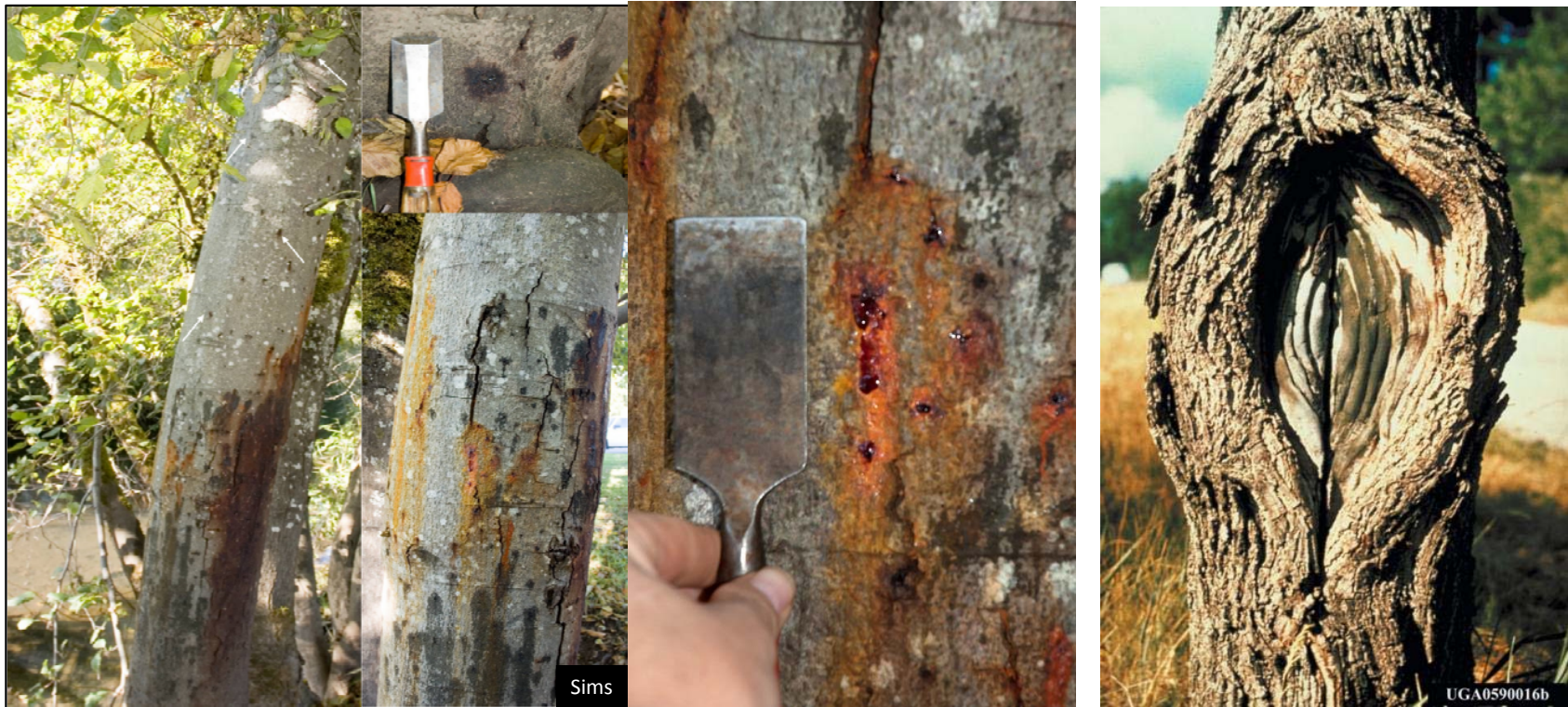
Positive impacts include wildlife habitat improvement

Examples of diseases include red heart of pine, annosus root and butt rot, and brown cubical rot



# Cankers

Disease of the bark many hardwood tree species and also conifers. Differ from wounds and mechanical damage because a fungus or fungal-like organisms is causing the damage and disease.

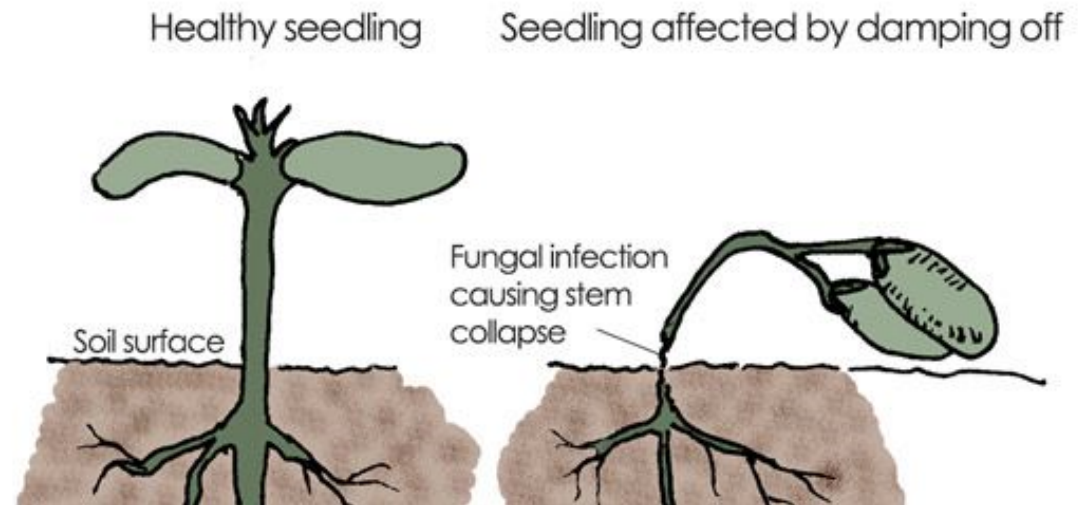




# Damping off



Mainly a problem in nurseries can impact forest nursery crops  
Caused by fungi and fungal-like organisms especially *Fusarium* and *Pythium* species  
Impacts very young seedlings which usually do not survive if infected





# Rust

Usually conifers are negatively impacted but pathogen may produce spores on more than one species including non-conifers  
Cottonwood rust is also important disease  
Fusiform rust is an important disease on southern pines especially loblolly and the disease cycles from oaks to pines



# Other

- Chemical Damage
- Climatic Injury
- Fire Damage
- Lightning Damage
- Mechanical Damage
- Mistletoe
- Wetwood/Slime flux
- Sunscald
- Wildlife/Livestock Damage

# Chemical Damage

Salt and herbicide damage are common types of chemical damage

May occur in two way either by direct contact or indirectly through root absorption





# Climatic Injury

Windthrow, ice damage and frost damage are common climatic injuries



# Fire Damage

Charred bark and resin flow are characteristic

Can occur after a lightning strike if the tree catches fire

High intensity fires can damage tree canopies

Low intensity fires may not cause damage to trees





# Lightning Damage

Can result in immediate mortality  
Usually results in slight damage  
characterized by a long narrow furrow  
in the bark and a thin layer of blown  
out wood  
Lightning impacted trees are more  
susceptible to beetles and stem decay





# Mechanical Damage

Vehicles (skidders and cars), lawn mowers, axes, falling trees and branches can cause the damage  
Provides an entry point for stem decay fungi



# Mistletoe

Many hardwoods- oaks, locust,  
cottonwood, flowering pear

Spread by birds

Generally cause minimal damage

May weaken branches which are  
more likely to break in a windstorm





# Wetwood/Slime flux

Mostly occurs in mature hardwoods especially oaks, elms, tulip poplar and maples  
Occasionally conifers- fir trees  
Unsightly streaks and bleaching  
Is not a disease  
Smells bad- fermented, sour from bacteria  
Wetwood liquid sometimes under pressure  
If additional microorganism colonize the surface liquid it can create a slime Can cause lumber defects and warping





# Sunscald

South facing side  
Can be from solar heat injury or occur in  
conjunction with freeze injury



# Wildlife/Livestock Damage

Various animals that cause physical damage to trees  
Removal of bark, wood, foliage, twigs  
Can result in girdling, scaring, brooming, stunting

