Triage for Trees

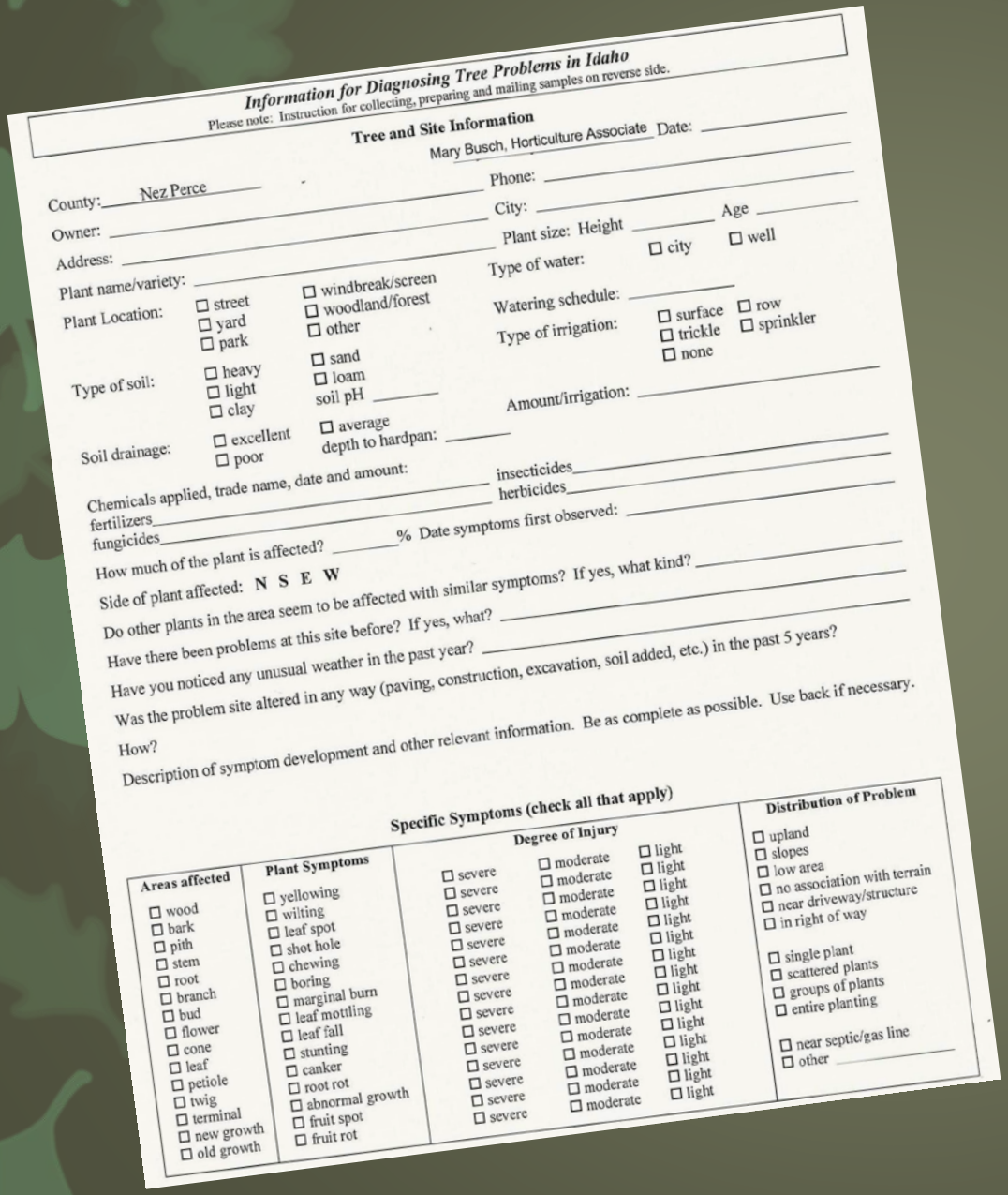
Stories from Plant Clinic

WSU and UI Master Gardeners

February 25 , 2020

Philip Shinn

(1) All the facts, Ma'am!



Information for Diagnosing Tree Problems in Idaho

Please note: Instruction for collecting, preparing and mailing samples on reverse side.

Tree and Site Information

Mary Busch, Horticulture Associate Date: _____

County: Nez Perce Phone: _____

Owner: _____ City: _____

Address: _____ Plant size: Height _____ Age _____

Plant name/variety: _____ Type of water: ☐ city ☐ well

Plant Location: ☐ street ☐ yard ☐ park ☐ windbreak/screen ☐ woodland/forest ☐ other

Watering schedule: _____

Type of irrigation: ☐ surface ☐ trickle ☐ none ☐ row ☐ sprinkler

Type of soil: ☐ heavy ☐ light ☐ clay ☐ sand ☐ loam soil pH _____

Amount/irrigation: _____

Soil drainage: ☐ excellent ☐ poor ☐ average depth to hardpan: _____

Chemicals applied, trade name, date and amount:

fertilizers_____ insecticides_____

fungicides_____ herbicides_____

How much of the plant is affected? _____% Date symptoms first observed: _____

Side of plant affected: **N S E W**

Do other plants in the area seem to be affected with similar symptoms? If yes, what kind? _____

Have there been problems at this site before? If yes, what? _____

Have you noticed any unusual weather in the past year? _____

Was the problem site altered in any way (paving, construction, excavation, soil added, etc.) in the past 5 years?

How?

Description of symptom development and other relevant information. Be as complete as possible. Use back if necessary.

Specific Symptoms (check all that apply)

Areas affected	Plant Symptoms	Degree of Injury			Distribution of Problem
☐ wood	☐ yellowing	☐ severe	☐ moderate	☐ light	☐ upland
☐ bark	☐ wilting	☐ severe	☐ moderate	☐ light	☐ slopes
☐ pith	☐ leaf spot	☐ severe	☐ moderate	☐ light	☐ low area
☐ stem	☐ shot hole	☐ severe	☐ moderate	☐ light	☐ no association with terrain
☐ root	☐ chewing	☐ severe	☐ moderate	☐ light	☐ near driveway/structure
☐ branch	☐ boring	☐ severe	☐ moderate	☐ light	☐ in right of way
☐ bud	☐ marginal burn	☐ severe	☐ moderate	☐ light	
☐ flower	☐ leaf mottling	☐ severe	☐ moderate	☐ light	☐ single plant
☐ cone	☐ leaf fall	☐ severe	☐ moderate	☐ light	☐ scattered plants
☐ leaf	☐ stunting	☐ severe	☐ moderate	☐ light	☐ groups of plants
☐ petiole	☐ canker	☐ severe	☐ moderate	☐ light	☐ entire planting
☐ twig	☐ root rot	☐ severe	☐ moderate	☐ light	
☐ terminal	☐ abnormal growth	☐ severe	☐ moderate	☐ light	☐ near septic/gas line
☐ new growth	☐ fruit spot	☐ severe	☐ moderate	☐ light	☐ other _____
☐ old growth	☐ fruit rot	☐ severe	☐ moderate	☐ light	

(2) Positive tree ID

http://leafsnap.com

Tree Problems

Abiotic

Nonliving agents – environmental, non biological, human causes

Biotic

Living agents – fungus, bacteria, virus, insect, nematode, parasitic plant, animal

Abiotic Problems

Non Living Causes

Drought/ Flooding
Improper Irrigation
Sunscald/ Freezing
Wind Injury
Planting too Deep - SGR
Herbicide
Mechanical Damage
Poor Pruning
Vandalism – Collision
Poor Tree Selection

Drought
Lack of Water

Late frost killed leaves at bud break. Re-leafing now.

Lack of Water?

Mimosa, Silk-Tree

Albizia julibrissian

Over Irrigation/ Untimely irrigation

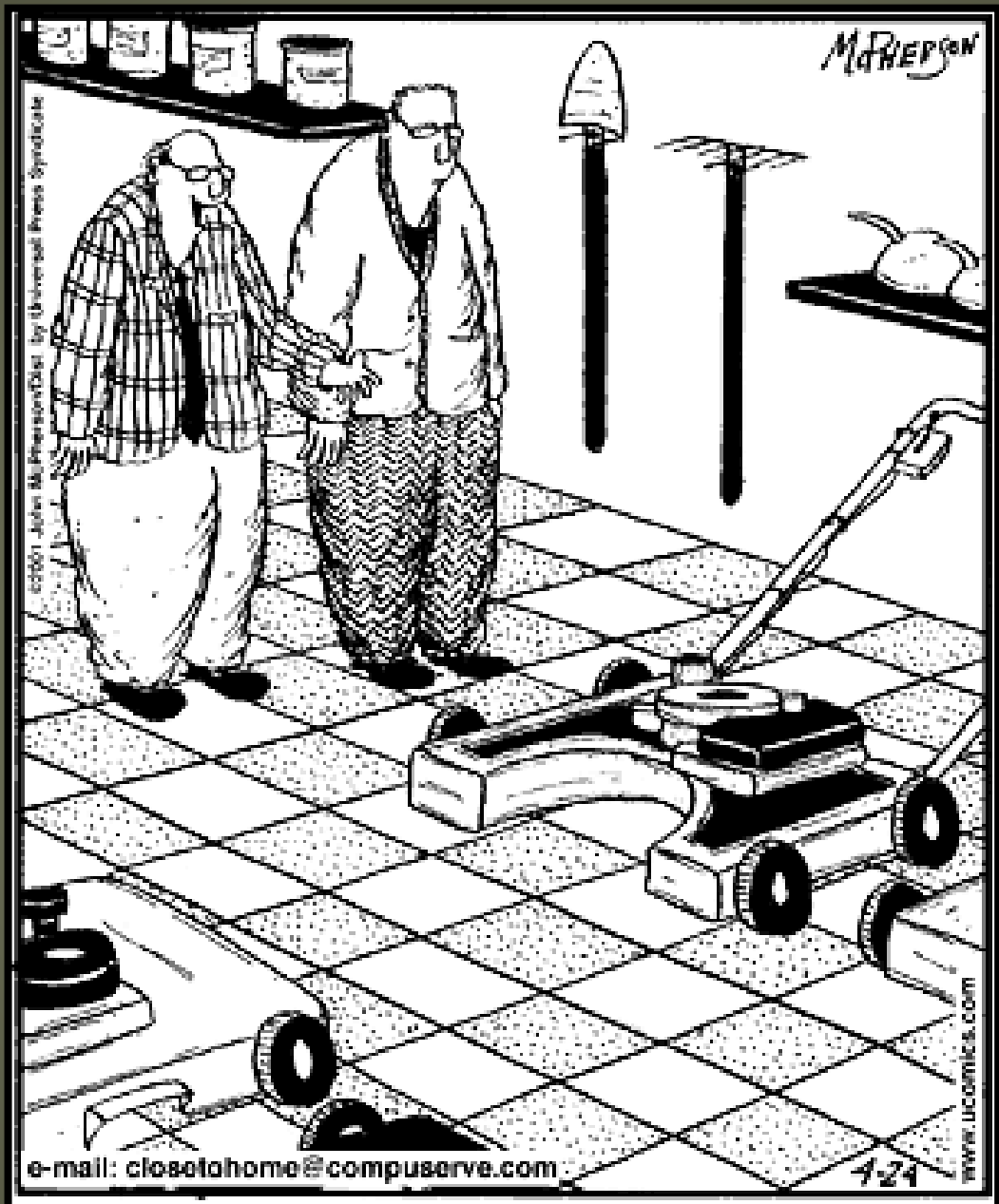
Warm Fall prompted over irrigation which didn’t allow the tree to go into dormancy. Subsequent abrupt cold killed buds. Tree setting new buds.

Ice Storm, weight = structural problems

Hail damages young oak twig

Sun Scald – Southwest Disease

Lawn Mower – Weed Eater



"Hey, are you like me? Do you hate mowing around trees? Well, then THIS is the machine for you!"

Tree Rings & Mulch Prevent Mower and Weed Eater Damage

Spraying tree ring kills Concolor Fir

We hope
you enjoyed
your stay!

Herbicide Damage

Herbicide Damage

The people who stake trees at planting aren’t around later

Graft Failure

“ My flowering cherry trees used to be identical size”

SGR

Vandalism

Vandalism

Vandalism ?

Irresistable force meets Immovable object

Trees are immovable but are not inanimate

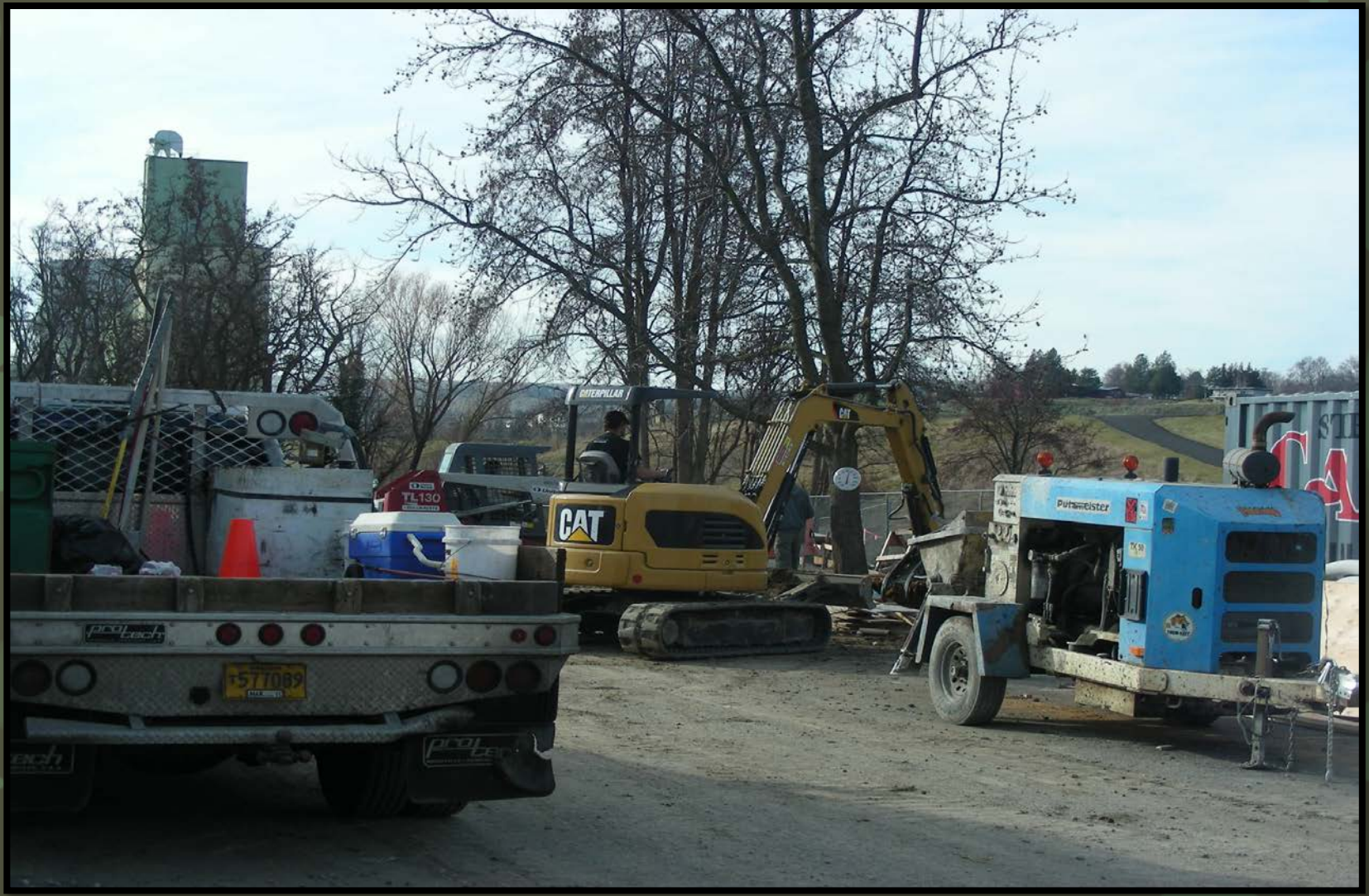
Damage by incorrect pruning

Tale of Two Trees

Elder Abuse

Trenching

Compaction during Construction



Compaction from Foot Traffic

Raising the grade kills mature trees

Trees Need Soil

2 cubic feet of soil for every 1 cubic foot of canopy at maturity

Sub-Alpine Fir

Abies lasiocarpa

Zone 5 to 8
Full to partial sun
Medium moisture
Short growing seasons
Cold winters
Cool summers
Northern slopes in rainier areas
Near timberline
Can grow to 100’ tall 2’ dia.

Will survive near sea-level but, protect from harsh sunlight

Quaking Aspen

Populus tremuloides

Zone 1 – 7
Sandy to Loam soils
pH 5.5 to 8
High water table
East slope
Full Sun

Hypoxylon canker
Cytospora canker
Stem decay
Rusts and Marssonia leaf spots
Oystershell scale
Aphids
Twig gall fly
Fungus Ciborinia – Inky Spots

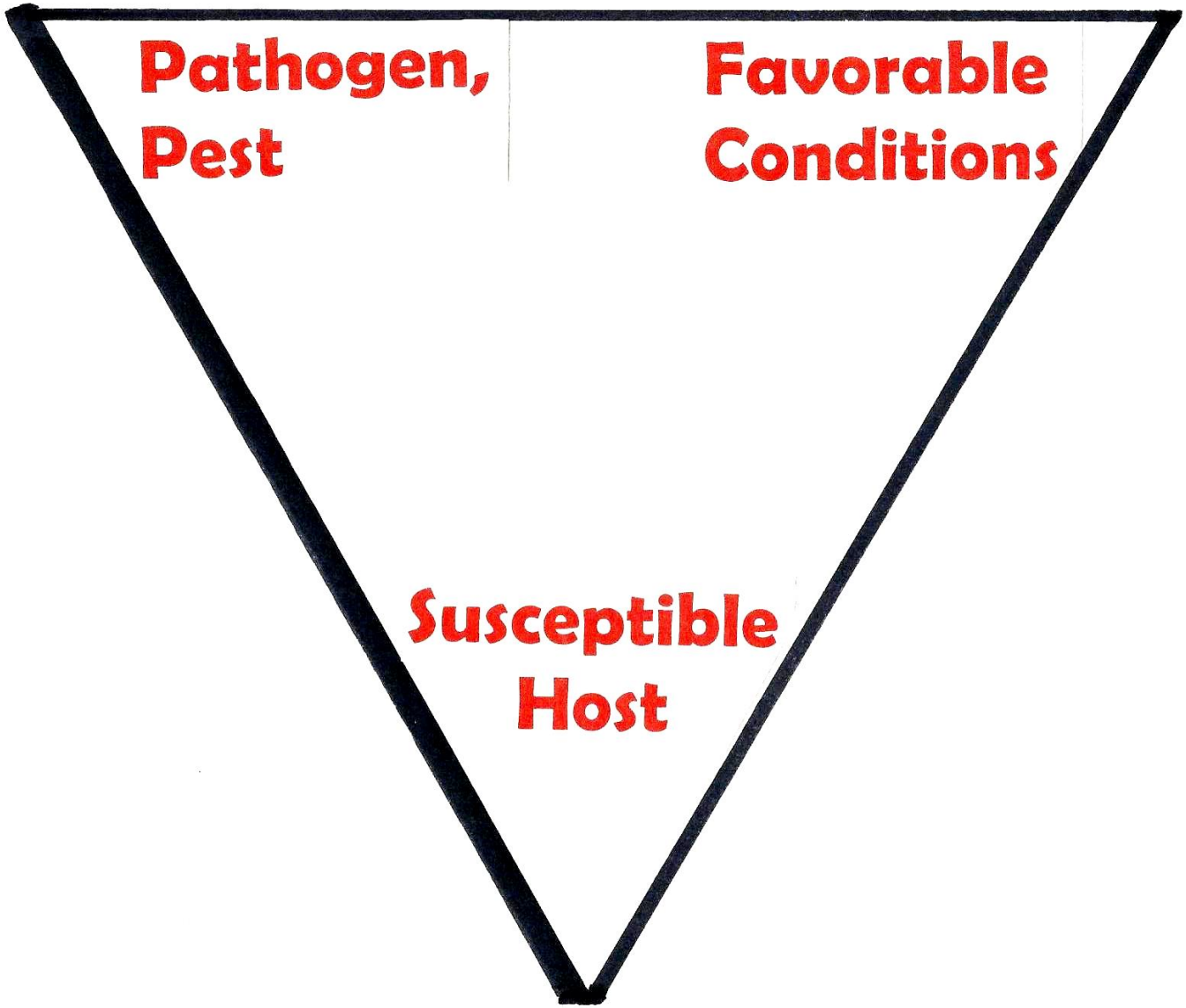
Should you plant? – Probably not

Chilorsis – species like Pin Oak & Maples do not Tolerate high pH soils

Pin Oak
in commercial
landscape

Biotic Problems

- **Disease**
  - Bacterial
  - Fungal
  - Virus
- **Insect**
  - Leaves
  - Trunks and twigs
  - Roots
- **Animal**
- **Nematodes**


Pathogen,
Pest
Favorable
Conditions
Susceptible
Host

Emerald Ash Borer

Asian Longhorn Beetle

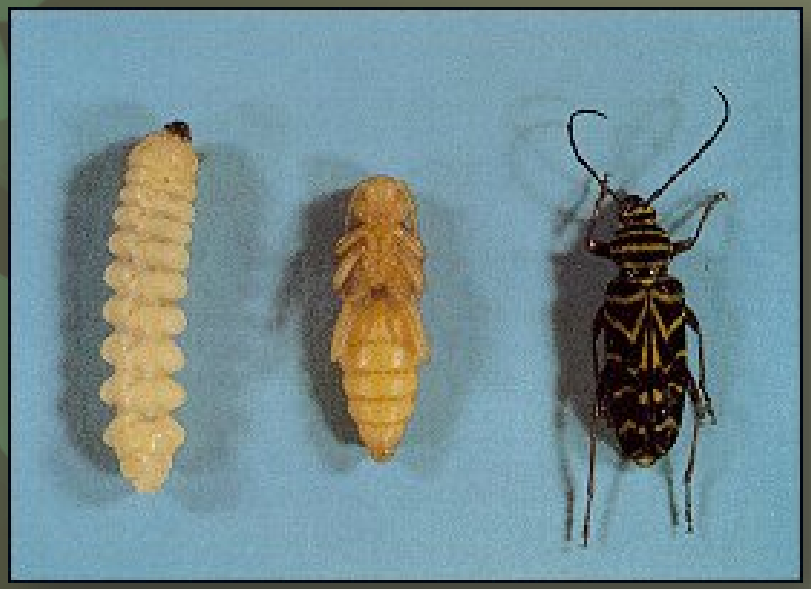
June Bug (beetle)

Locust Borer

Megacyllene Robiniae

Locust Borer

Megacyllene Robiniae



Bronze Birch Borer

Agrilus anxius

???

Black Walnut Twig Beetle

Xylosandrus compactus

1000 Cankers Disease

Xylosandrus compactus - *Pityophthorus Juglandis*

Sequoia Pitch Moth

Dioryctrica ponderosae

Sequoia Pitch Moth

Dioryctrica ponderosae – clear wing moth

Whitney Cranshaw

Jerald Dewy

Fir Engraver

Scolytus ventralis

Donald Owen

Flat headed borer

Anthracnose – 60 species,

Fungal - Warm wet springs
Sycamore, Dogwood, Maple

Anthracnose

Infects buds causing first leaves to shrivel, die and fall off. Trees can re-leaf but expend energy and lose time to do photosynthesis. Repeated outbreaks weaken trees. Cankers form on the tops of twigs and branches

Anthracnose Damage

Powdery Mildew

Fungus, over 500 species

Red Leaf Norway Maple
Lilac
Apples

Warm days and cool nights

Honey Locust Knot

Bacterial, not much known, eventually fatal, sterilize tools

Sequoiadendron giganteum

Canker caused by *Botryosphaeria dothidea*,

Joe Travis photo

English Walnut

Botryosphaeria and Phomopsis Cankers

Coryneum Blight, aka Shothole Blight
Stone fruit – cherry, plumb, peach, almond
Damage to buds, twigs, leaves, blossoms, fruit

PNW Plant Disease Handbook photos

UC Davis photo

Fire Blight

Bacteria
Rose Family- Apples, Pears
Wind & water, bees can carry, pruning can spread
Moves quickly, population doubles quickly
Significant damage to trees

Verticillum Wilt

Fungal
Effects over 80 species
Stains tissue of branches and trunk
Heat brings on symptoms
Soil borne
Maples are susceptible
Impedes vascular system
Don’t fertilize with high N
Extra water

PNW Handbook

Cytosproa Canker

Bulls eye shape
Peach apricot apple aspen
Looks like callus, prune below canker 12”
Trees loose vigor over a number of years

Oregon State photo

UNM.edu photo

Nectria Canker

60 hosts

Apple, ash, dogwood, honey locust, sweet gum, walnut

Causes branch die back

Disfigures but not usually fatal

Pine Rust Gall

Fungal, *Endocronartium harknessii*

2 and 3 needle pines

Rarely fatal

Forestry Images photo

Western Pine Budworm
Choristoneura lambertina

WSU photo

USFS photo

Bacterial cankers

drought stress
Sunken areas, ooze
Cherry

Rhizophera needle cast

Douglas Fir, *Pseudotsuga menziesii*

Armillaria mellea, *Phytophera* Root Rot, Tussock Moth

PROGRESSIVE
Clelland Insurance

Arborvitae

Thuja occidentalis

Leaf blight

Juniper blight

Tip blight

Seindium Canker

Arborvitae aphid

Cedar tree canker

Arborvitae leaf miner

Mealybug

Scale

Bag worms

Other pests

Transplant stress

Cooley spruce gall adelgid, *Adelges cooleyi*

Pine Spittlebug

Aphrophora parallela

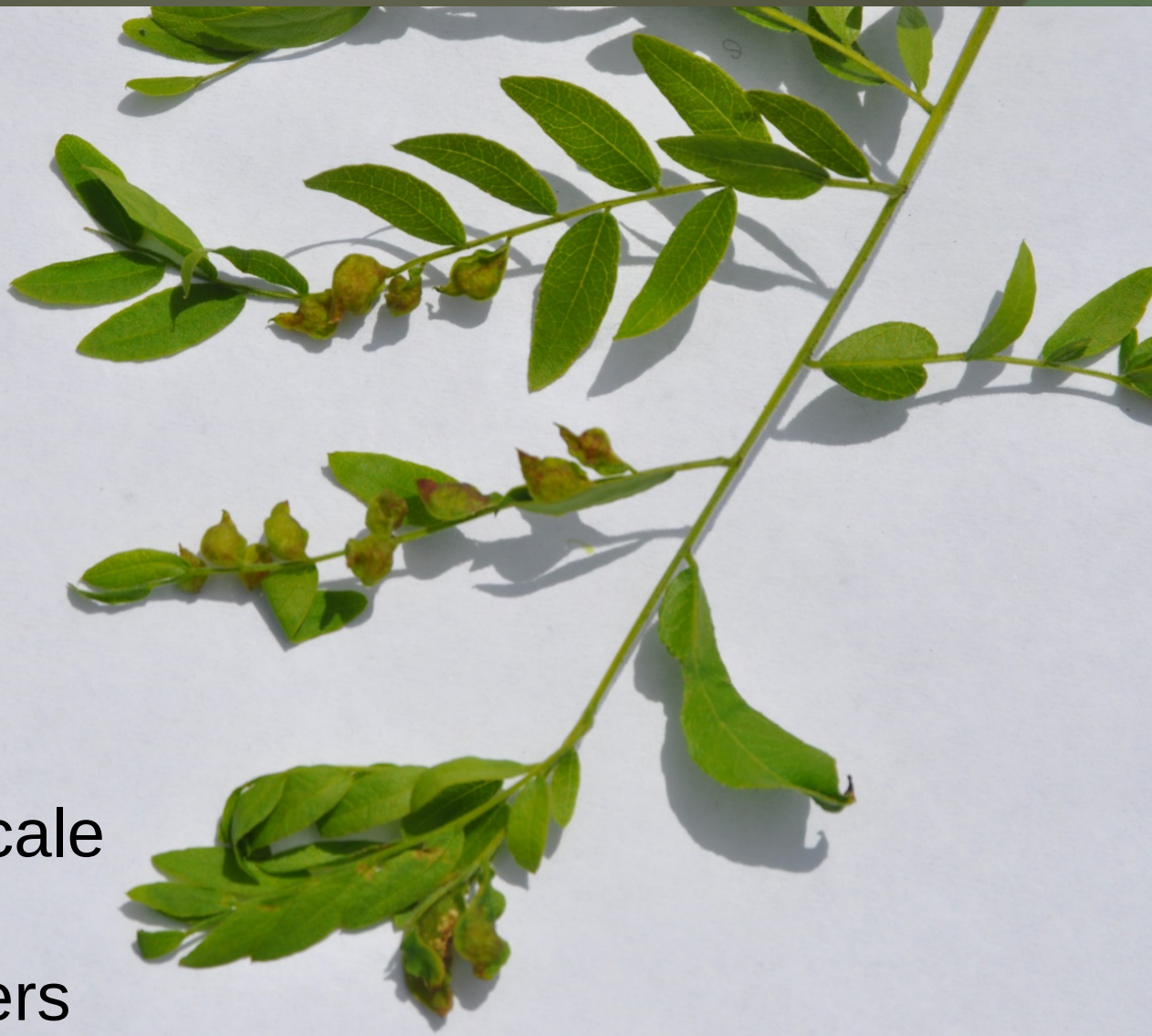
Both nymph and adult cause damage

Honeylocust – *Gleditsia* – not Sunburst®

Midge Pod Gall

- Only *Gleditsia*
- Shademaster resistant

Plant Bugs
Aphids
Spider Mites
Leafhoppers
Eriodphyid Mites
Cottony Maple Scale
Blister Beetles
Honeylocust Borers



Hybrid Poplar *Populus deltoides x Populus nigra*

Leaf Scorch

Poplar Borer
Saperda calcarata

Aphids

What could be wrong?

Elm Leaf Nipple Gall
Elm Leaf Miner
Elm Leaf Beetle
Dutch Elm Disease

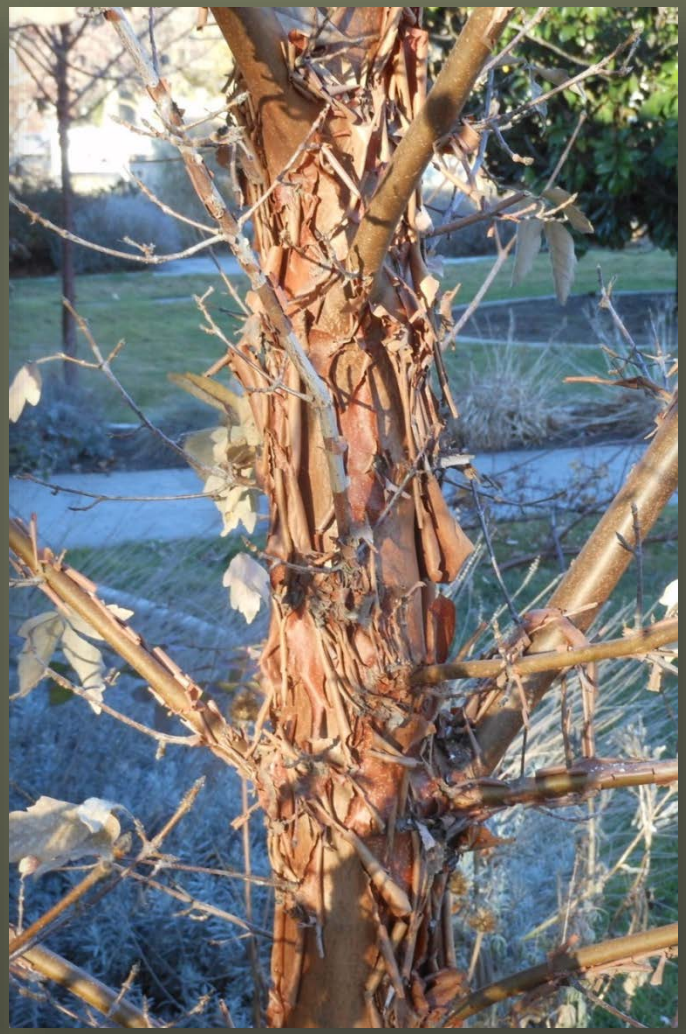
What caused bud and twig drop?

Phil’s “Most Wanted” for crimes against trees

It was a hungry winter for Voles

The Buck Stopped Here

Not a problem



Conifers Are Not All Evergreens

- Western Larch
- Dawn Redwood
- Bald Cypress

Conifer loose foliage too

20

Marcescent Trees

Leaves Persist

- Oak
- Beech

Galls, Burls are common in *Prunus* – *(plums)*

Questions?