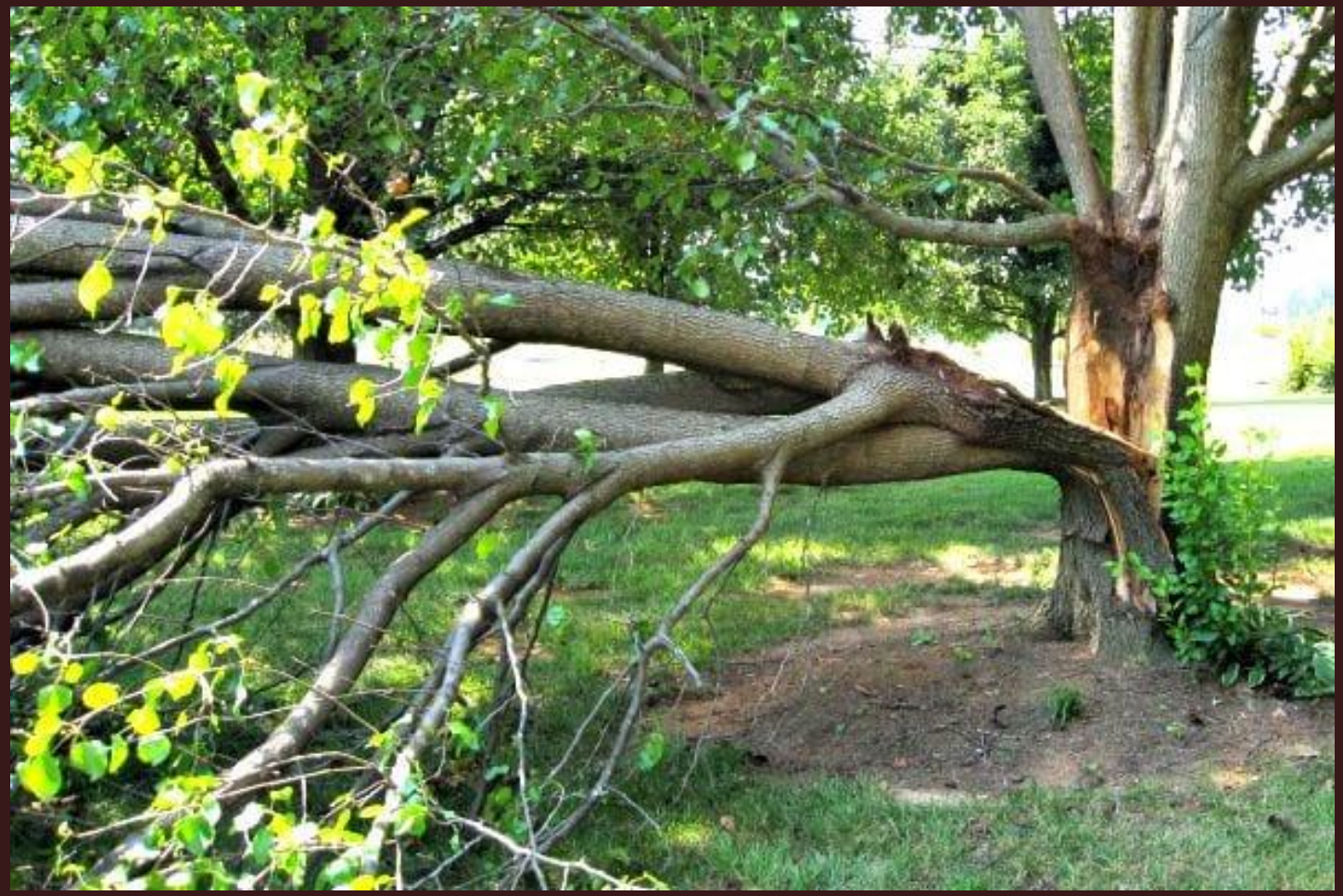
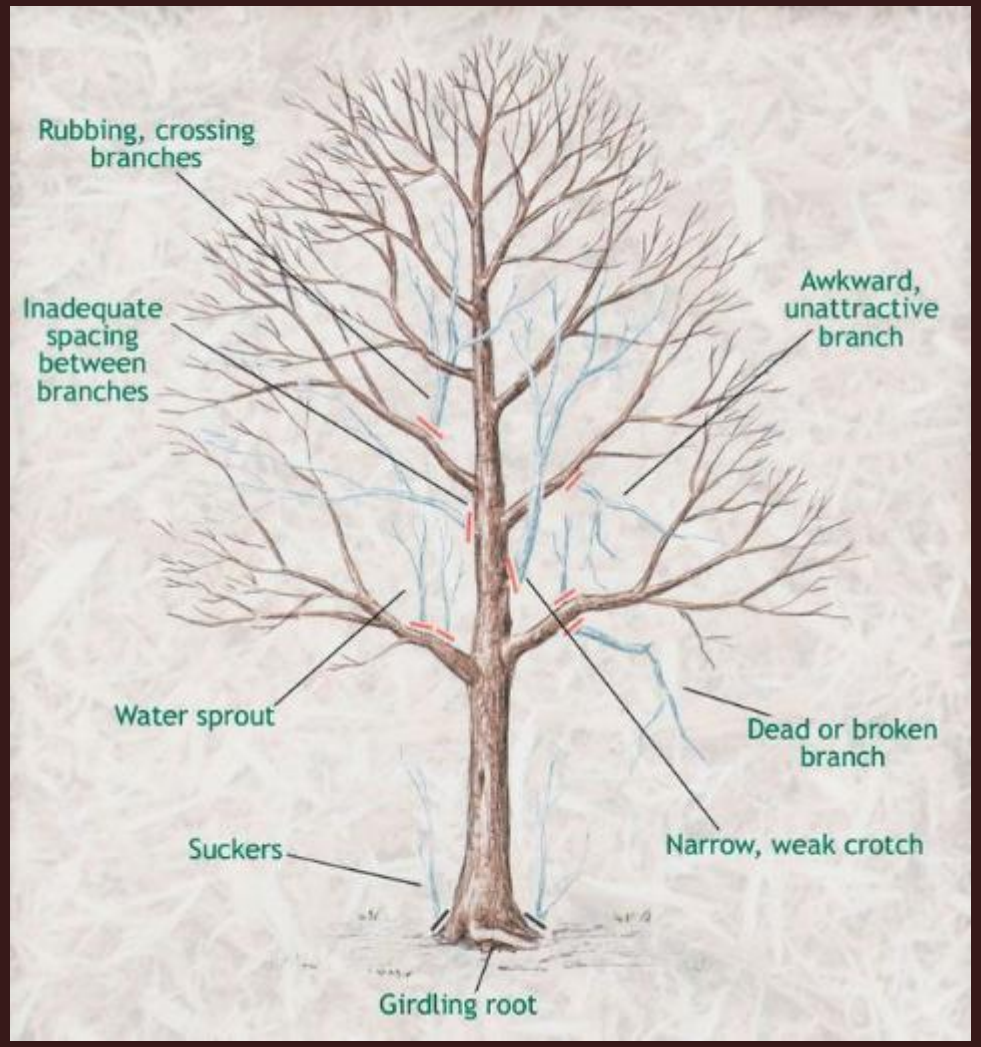
WIND DAMAGE



SUN SCALD

GIRDLING ROOTS

STRUCTURAL PROBLEMS



ANIMAL DAMAGE

- Woodpecker
- Deer
- Squirrels

WOOD PECKERS
YELLOW-BELLIED SAPSUCKER

NOT CAUSED WOOD BORERS

Yellow bellied Sap Sucker – Wood peckers

DIAGNOSIS

DIAGNOSTIC TOOLS

Digital camera

D-tape & clinometer

Binoculars

Hand lens

Soil probe

Pole and hand saw/pruners

Plastic bags

Mallet, chisel, knife, trowel/sholve

SYSTEMATIC PROCESS OF DIAGNOSIS

Assemble Diagnostic Tools

1. Identify the tree
2. Look for patterns
3. Examine the site
4. Check the leaves and canopy
5. Trunk and branches
6. Roots and root collar

STEP 1: CORRECTLY ID THE “PATIENT”

- What is normal and abnormal for the species
- Know what pests/problems are common to certain species
- Examples
  - Live Oaks shed their old leaves in the spring
  - Fungal leaf spots that occur on Shumard Red Oak
  - Bradford Pears are highly susceptible to Cotton Root Rot
  - Leyland and Italian Cypress routinely get Seiridium Canker

STEP 1: CORRECTLY IDENTIFY THE “PATIENT”

STEP 2: LOOK FOR A PATTERN OF ABNORMALITY

Biotic -or- Abiotic

- Biotic factors tend to be non-uniform across the plant and the landscape
- Abiotic factors tend to be more uniform across the entire plant and the landscape

Caution! These are only generalities!

STEP 3: CAREFULLY EXAMINE THE SITE

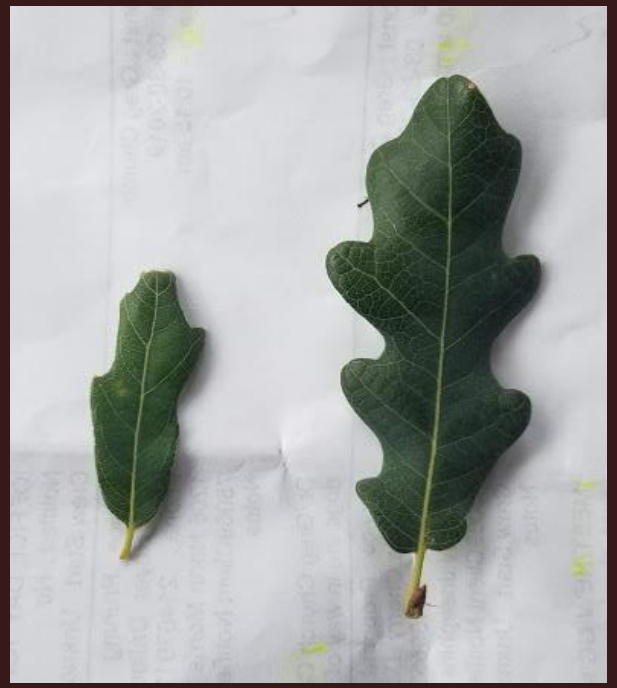
- Where are the plants located on the site? (topography, structures, etc)
- Check for recent construction or landscaping activities
- Observe evidence of poor drainage
- Does the lawn have broadleaf weeds?

STEP 3: CAREFULLY EXAMINE THE SITE

STEP 4: CAREFULLY EXAMINE THE FOLIAGE

- What is normal for that species/variety?
  - Color, size, thickness, lobes, margins
- Check for:
  - Insects and their damage
  - nutrient deficiencies
  - fungal growth

STEP 4: CAREFULLY EXAMINE THE FOLIAGE



STEP 5: CHECK THE TRUNK AND BRANCHES

- Are there wounds in the trunk or branches?
- How vigorous was past growth?
- Does the bark appear normal?
- Borer, sapsucker, woodpecker, squirrel damage?
- Water sprouts?
- Examine twigs on the ground or in piles in the yard

STEP 5: CHECK THE TRUNK AND BRANCHES

STEP 6: EXAMINE THE ROOTS AND ROOT COLLAR

- Root flare should be visible!
- Check for:
  - Girdling roots
  - Severed roots
  - Fungal conks or growth
  - Bacterial Galls
  - Wood borer exit holes
  - Oozing sap

ROOT FLARE EXCAVATION
AIR SPADE

BE A DETECTIVE!

- Ask lots of questions

  …and ask them again – get a straight answer

- Canvas the neighborhood…

  …don’t forget the neighbors

KNOW THE PROBLEMS NEAR YOU

- Which Tree Species:
  - Responds poorly to disturbance
  - Drought susceptible
  - Need good soil drainage
  - Soil Type and pH intolerant
  - Susceptible to Insects & Diseases

TEXAS PLANT DISEASE DIAGNOSTIC LAB

Follow instructions for sample submission

- Send in fresh sample
- Do not add water
- Label
- Fill out form in entirely and place form in ziplock
- Send sample in zip lock bag, place in cooler, ship in a box

http://plantclinic.tamu.edu

This is only the beginning…

…there is so MUCH more to learn

Questions?

https://isatexas.com/

https://www.isa-arbor.com/

https://ask.extension.org/

https://dallas.tamu.edu/

https://tfsweb.tamu.edu/

https://entomology.tamu.edu/

https://plantpathology.tamu.edu/

REVIEW

WHAT'S WRONG HERE?

1. "Top" tree to encourage watersprouts that weaken tree and encourage pests.
2. Leave co-dominant leaders to encourage "V" growth and splitting during winds and storms.
3. Leave crossing branches to rub protective bark and create wounds.
4. Ignore insect or disease damage.
5. Coat pruning cuts with paint or sealer to slow healing and promote pest problems.
6. Leave broken branches unpruned to encourage pests.
7. Spray unapproved herbicides over tree root area to weaken tree.
8. Damage roots and trunk with lawn equipment.
9. Rip through roots when digging trenches.
10. Plant close to house or obstacle to reduce adequate tree and root growing space

WHAT'S WRONG HERE?

11. Attach items to tree to damage bark and girdle branches with wire and rope.
12. Prune randomly to leave branch "stubs."
13. Prune flush cuts to reduce wound closure.
14. Leave tree staked until guy wire girdles trunk.
15. Leave wrap on to constrict trunk growth and rot bark.
16. Pile up excessive mulch to encourage rodent damage and bark rot.
17. Put non-porous black plastic under mulch.
18. Stack items atop roots to cause soil compaction.
19. Leave ball roping on to girdle trunk.
20. Plant near downspout to assure excessive water or water lightly to encourage shallow root growth

WHAT'S WRONG HERE?

21. Leave top of wire basket in place to girdle roots.
22. Leave treated or synthetic burlap on to prevent root growth.
23. Dig hole too narrow and over amend backfill to discourage proper root spread.
24. Dig hole too deep or fill with gravel to collect water and drown roots.

True/False

Information about a tree's history and symptoms gained from a home owner can always be considered accurate.

If a tree is not well suited for the site in which it has been planted, it may become stressed predisposing it to other problems.

A common mistake in diagnosis is to carefully examine the aboveground portion of the tree, while ignoring the Roots.

True/False- If a tree declines or dies within the first year following installation, a likely cause is excess or insufficient water.

Leaf scorch, girdling roots, and mineral deficiencies are examples of abiotic disorders.

Fire blight is an example of a disease caused by a bacterium.

True/False

Pollution damage is often difficult to diagnose because the symptoms may mimic other problems such as insect injury and mineral deficiencies.

Curling and cupping of the foliage, and parallel venation, are common symptoms of herbicide.

Name five causes of physical or mechanical injuries to trees.

a) lawn mower/ string trimmer
b) vandalism
c) construction
d) rodents
e) guy wires

Allelopathy is the chemical inhibition of growth and development of one plant by another.

Name five insect pest of trees with piercing or sucking mouths

a) Aphids

b) Scales

c) leafhoppers

d) Mealybugs

e) True bugs

Name five insect pests of trees with chewing mouthparts

a) Beetles

b) Caterpillars

c) Weevils

d) Leafminers

e) Borers

Insect damage to trees is usually the result of feeding or Egg laying.

Insects that carry plant pathogens are said to be vectors.

True/False

Mites are not actually insects.

Microscopic worms that sometimes feed on trees and vector disease are called nematodes.

DISEASES

Name the four requirements of tree diseased:

1.) Tree susceptible to pathogen

2.) Pathogen present

3.) Environment suitable for disease development

4.) Proper timing

True/False

Vascular disease of trees are rarely fatal.

True/False

Diseases that affect only the foliage of a tree may not be serious problem unless defoliation occurs in several consecutive years.

True/False

Most fungi cause plant disease.

True/False

The pathogens that cause plant diseases are primarily fungi.

B Vector

D witch's broom

C canker

A gall

H stunting

E stress

F pathogen

I leaf spot

G allelopathy

A) Swollen plant tissue, often insect or mite induced

B) Carrier of pathogens

C) Localized dead tissue, often shrunken and discolored

D) Abnormal growth of multiple secondary shoots

E) May predispose a plant to other problems

F) Causal agent of disease

G) Natural chemical inhibition of growth

H) Reduced growth

I) Dead spots on the foliage