



## CMG GardenNotes #108

# Worksheet ANSWERS: IPM & Diagnostics Practice Lab

### ANSWERS to practicing diagnosing tree insects and diseases.

For this activity, refer to *CSU Extension Bulletin 506A, Insects and Diseases of Woody Plants in Colorado*. On pages 295 to 314 is a diagnostic key to common disorders; answer the following questions by using the key and reference pages cited therein.

#### Plant One

1. Plant ID: Douglas fir.
2. Describe signs and symptoms:
  - a. In severely stressed to recently killed trees, you find piles of sawdust and fiber accumulating beneath them. Wide galleries, just under the bark, are filled with fibrous material. You also find adult beetles that are about an inch long, brownish gray with white specks and very long antennae.

#### Note symptoms and signs:

- Trees are stressed.
- Sawdust.
- Insect galleries.
- Adult beetles.

Several insects are potential possibilities, as far as producing galleries in the trunk (page 300). Size and coloring rule out all but pine sawyer.

- b. What is the most likely (probable) insect causing the sawdust and fibrous material?  
**ANSWER is Pine sawyer.**
  - Ponderous borer – No, wrong coloring and size.
  - Douglas fir pole beetle – No, the found beetle is too large.
  - Douglas fir beetle – No, the found beetle is too large.
  - The insect in the scenario is also *not* an Asian Longhorned beetle. They are glossy black with bright white spotting, and not yet recorded in Colorado.
- c. Is management warranted in this situation?  
**No, the trees are severely stressed to dying/dead.**



Plant One Photo

## Plant Two

1. Plant ID: Aspen.
2. Describe signs and symptoms:
  - a. In the spring, leaves are found being eaten by caterpillars. They have a bright blue stripe on their side and yellow, keyhole shaped spots on their back. A neighbor thought they might be tent caterpillars, but you cannot find any tents.

**Note: Presence of caterpillars and chewed leaves. Students may want to ask the client if any leaf-rolling or silk structures (other than tents) have been observed.**



Plant Two Photo

- b. What are the possible insects that could be causing the problem?

**Forest tent caterpillar (correct answer based on anatomy and symptoms.)**

- Nevada buck moth – No, the spines are not correct for this species.
  - *Dasychira vagans* – No, the spines are not correct for this species; nor do the caterpillars dangle from silken threads.
  - Cottonwood leaf beetle – No, the insect depicted is a caterpillar.
  - Sawflies – Possible, but coloration in the photo is consistent with forest tent caterpillar. A sample of the insect (or clear photo) to allow the prolegs to be counted could rule sawflies out (or in).
  - Spiny elm caterpillar – No, spines are not correct for this species.
- c. Which insect do you think is causing the damage?  
**Forest Tent Caterpillar.**
  - d. Are control measures warranted in this situation?  
**Probably not. Infestations of forest tent caterpillars are rare, and they are subject to a variety of natural controls. Multiple years of heavy infestation or high aesthetic expectations (i.e., low aesthetic thresholds for control) may warrant control measures, which are outlined on page 3.**

### Plant Three

1. Plant ID: Crabapple (In key, looking under Pome Fruit, page 308).
2. Describe signs and symptoms:
  - a. Four crabapple trees were lost to what a gardener believes is fire blight. The trees were planted in an irrigated lawn area three years ago, but never really grew well. The first spring (just after planting) the trees bloomed, but the new growth was minimal. The second year, the trees grew smaller pale leaves and no new growth. By the third season, the trees progressively declined, having no blossoms, tiny pale leaves, and no twigs. Most leaves dropped by mid-summer. In fall as the homeowner removed the dead trees, he discovered a large, discolored area on the trunks just below ground level. He would like to replace the trees with fire blight resistant cultivars, so he will not have this problem again. Note: Progressive decline, leaves yellow, no growth, early leaf drop, and a discolored crown.
  - b. What are the possible causes of this problem?
    - **Apple mosaic virus (discoloration too uniform; trunk discoloration does not fit).**
    - **Iron chlorosis (possible, but quick onset, uniform yellowing beginning on older leaves, see photo, and trunk discoloration do not fit).**
    - **Verticillium Wilt (whole tree is affected, no wilting).**
    - **Phytophthora root rot.**
    - **Fireblight (symptoms do not match but considered because of homeowner diagnosis).**
  - c. What is the probable (likely) cause?

**Phytophthora root and butt rot. Note that fireblight symptoms are completely inconsistent and it can be ruled out. Students may want to describe what they would expect to see in the case of fire blight to convince the client that it is not the culprit.**



**Plant Three Photos**

Andrej Kunca, National Forest Centre. Slovakia.