



## CMG GardenNotes #310

# Identifying Insects

## References and Review Material

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### Reading/Reference Materials

#### CSU GardenNotes

- <https://cmg.extension.colostate.edu/volunteer-information/cmg-gardennotes-class-handouts/>.
- #311, *Taxonomy of Arthropods: Insects and Insect Relatives*.
- #312, *Insect Anatomy and Growth*.
- #313, *Insect Orders*.
- #314, *Key 1 – Key to Insects Associated With Gardening*.
- #315, *Key 2 – Key to Insect Orders*.

#### CSU Extension Fact Sheets

- <https://extension.colostate.edu/topic-areas/yard-garden/>.
- <https://extension.colostate.edu/topic-areas/insects/>.

#### Planttalk Colorado™

- Planttalk Colorado™, <http://planttalk.org>.

#### Other

- *Garden Insects of North America* by Whitney Cranshaw. Princeton University Press. 2004.
- *Insects and Diseases of Woody Plants of the Central Rockies* by Dr. Whitney Cranshaw, Colorado State University Extension # 506A. 2004.
- *Pests of the West* by Dr. Whitney Cranshaw. Fulcrum Publishing. 1998. ISBN: 1-55591-401-2
- *Beginner Bee Field Guide*, Lisa Mason, Brooke Sayre-Chavez, Colton O'Brien, and Arathi Seshadri. CSU Extension, 2022.

## Learning Objectives

At the end of this training, the student will be able to:

- Identify common insects to taxonomic orders.

## Review Questions

1. Describe the identifying characteristics of the following orders:
  - a. *Coleoptera* (beetles).
    - 1) Adults.
    - 2) Typical *grubs*.
    - 3) Some borer larva in trees.
  - b. *Diptera* (flies).
    - 1) Adults.
    - 2) Larva: *maggot*.
  - c. *Hemiptera*, Suborder *Heteroptera*, (true bugs).
  - d. *Hemiptera*, suborder *Homoptera*.
    - 1) Aphids.
    - 2) Scale.
  - e. *Hymenoptera* (bees, wasps, sawflies, etc.).
    - 1) Adults.
    - 2) Sawfly larva.
  - f. *Lepidoptera*.
    - 1) Adults (butterflies, moths).
    - 2) Larva: *caterpillars*.
  - g. *Orthoptera* (Grasshoppers, katydids, and crickets).
2. How do you quickly tell the following orders of insects apart?
  - Caterpillars (*Lepidoptera* larva) from sawfly larva (*Hymenoptera*).
  - *Diptera* adults (flies) from *Hymenoptera* adults (bees, sawflies, hornets etc.).
  - *Hemiptera*, *Homoptera* suborder nymphs from *Heteroptera* suborder nymphs.
  - *Hemiptera*, *Homoptera* suborder adults and *Hemiptera* suborder adults.
  - Beetles (*Coleoptera*) from true bugs (*Hemiptera*, suborder *Heteroptera*), and cockroaches (*Blattaria*).
3. What orders and families have maggot or maggot-like larva?