



# Identifying Insects



## Reference

### *CMG GardenNotes*

- #310 Identifying Insects: Reference and Study Questions
- #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
- #316 Worksheet: Identifying Insects
- #317 Homework: Identifying Insects

### Books

- *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

#### **Note: Taxonomy is constantly changing.**

New books combine *Hemiptera* and *Homoptera* into *Hemiptera* with the following subgroupings:

#### **Hemiptera**

- ***Heteroptera***—true bugs
- ***Sternohynncha***—aphids, psyllids and scales
- ***Auchenorhynncha***—leafhoppers and plant hoppers

In CMG training, we continue to teach the old taxonomy since most books the gardener will be using have the old taxonomy.

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## Learning Objectives

At the end of this unit, 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* (true bugs)
  - d. *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?
  - a. Caterpillars (*Lepidoptera* larva) from sawfly larva (*Hymenoptera*)
  - b. *Diptera* adults (flies) from *Hymenoptera* adults (bees, sawflies, hornets etc.)
  - c. *Homoptera* nymphs from *Hemiptera* nymphs
  - d. *Homoptera* adults and *Hemiptera* adults
  - e. *Beetles* (*Coleoptera*) from true bugs (*Hemiptera*), and cockroaches (*Blattaria*)
3. What orders and families have maggot or maggot-like larva?