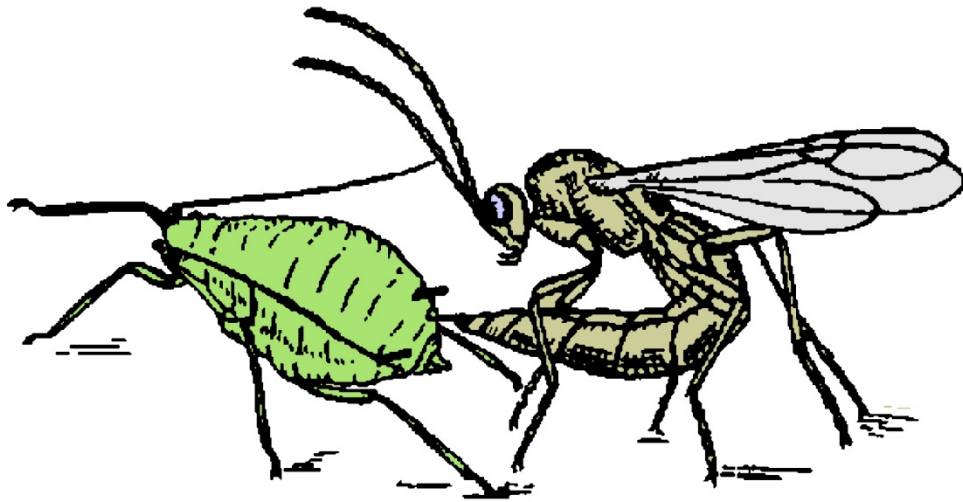




MASTER GARDENER
COLORADO STATE UNIVERSITY
EXTENSION



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

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