

Entomology 306
STUDY GUIDE - PARTS 3 and 4
PART 3

Social Behavior -1 Intro. and Termites

What characteristics separate truly social (eusocial) insects from others?
What is meant by kin selection and altruistic behavior?
What are the major characteristics of termites
Describe the nature of an African termite mound.

Social Behavior - 2 Ants and Wasps

Briefly describe the biology of sawflies and horntails
Briefly describe the biology of ichneumonid and braconid wasps
What social characteristics do the social Hymenoptera have?
Are any of the above traits different from those of termites?
Describe the biology of leafcutter, army and fire ants. How are the 3 species similar and how do they differ?
At what locale are fire ants thought to have entered the U.S.?
Describe the biology of solitary wasps and know all of the examples.
Explain the life cycle of a wasp that has an annual colony.

Social Behavior - 3 Bees

How are bees distinguished from wasps?
Describe the life cycle of a bee that has a perennial colony.
Discuss the evolutionary history of the honey bee.
How are Africanized bees different from others?
What are the characteristics of queen bees? Drones? Workers?
What are examples of bees that do not have annual colonies?
Describe the evolutionary pathways that lead potentially to social behavior in insects.
What are sweat bees and how are they different from other bees?

The Evolution of Insects - 1

What is the closest non-insect relative of an insect?
What types of insects are considered to be most primitive?
Explain the theories that deal with the origin of wings
What groups of insects are called Paleoptera and why?
What are examples of insects that have: incomplete metamorphosis, complete metamorphosis, chewing mouthparts, piercing-sucking mouthparts.
How does a cicada differ from a locust?
Where do pubic lice hang out?
Are pubic lice important disease vectors?
What are insects closely related to treehoppers?

The Evolution of Insects - 2

What are Neoptera?

What is the specific habitat of an ant lion larva?

What is a carrion beetle?

Name 3 common species of scarabs in Indiana.

Briefly describe the biology of tiger beetles.

Review the geological/fossil history of insects

Pollination Biology

In what ways are insect pollination important to insects, plants and humans?

How are gymnosperms primarily pollinated?

Explain the coevolution of pollination in insects and plants.

Define flower constancy and differentiate it from degree of flower specialization.

Look over the table on common pollination strategies

What bees are the best pollinators?

Are solitary bees good pollinators? Why and why not?

Are bumble bees good pollinators?

Relate flower anatomy to type of insect that pollinates it.

Phytophagous Insects -1 Leaf Eaters

Know the biology, host plants and basic biology of the following species: gypsy moth, eastern tent caterpillar, fall webworm, bagworm and mimosa webworm.

Phytophagous Insects - 2 Borers and Gall Makers

Know the basic biology of the following borers: Asian longhorn beetle, bronze birch borer and emerald ash borer

PART 4

Entomophagous Insects

Know what makes a good predator and a good parasitoid

Understand and be able to apply the concepts associated with the history of the cottony cushion scale in Calif.

Distinguish between the effects of a parasitoid and a hyperparasitoid on a host population.

Be familiar with the examples discussed in class.

Forensic Entomology

How are insects used in forensics?

What are some of the major problems involved with the use of insects in a forensic way?

What information can we get from insect forensics and what information would be, theoretically at least, hard to obtain?

What other groups of insects are found associated with human bodies?

What insects are used in maggot therapy?

What insects are commonly used in taxidermy?