

Order Lepidoptera: Butterflies & Moths, Life History



Fall cankerworm adult male (William M. Ciesla, insectimages.org).



Fall cankerworm adult female (William M. Ciesla, insectimages.org).

The name Lepidoptera, derived from the Greek words “lepido” for scale and “ptera” for wings, refers to the flattened hairs (scales) that cover the body and wings of most adults. Adults feed on flowers or tree sap for nutrients. Larvae are called caterpillars and have a well-developed head with chewing mouthparts. In addition to three pairs of legs on the thorax, they have up to five pairs of fleshy abdominal prolegs that are structurally different from the thoracic legs. Most lepidopteran larvae are herbivores; some species eat foliage, some burrow into stems or roots, and some are leaf-miners.

Classification: Two

Butterflies fly during the day, adults have mouthparts to suck nectar; larva feed on leaves

Moths usually fly during the night; some adults have no mouthparts to suck nectar; larva feed on leaves

Morphology

Adults

1. mouthparts: Mouthparts form a coiled tube (proboscis) beneath the head for collecting nectar
2. antennae: butterflies: capitate, knobbed or hooked at tip; .moths: thread-like, spindle-shaped, or plumose, feather-like
3. legs: cursorial
4. body segments: three body segment, head, thorax, abdomen; Body and wings covered with small, overlapping scales
5. tarsi: varies between families
6. wings: Front wings large, triangular; hind wings large, fan-shaped; and wings covered with small, overlapping scales.
7. eyes: compound eyes well developed

Immatures:

1. Head capsule well developed, with chewing mouthparts.
2. Abdomen with up to 5 pairs of prolegs.

Development: Complete metamorphosis (egg, larva, pupa, adult)

Life History:

Habitats: terrestrial

Feeding: leaves; wood

Importance in landscapes: Although many Lepidoptera are valued for their beauty, and a few are useful in commerce, such as the silkworm; the larvae of these insects are probably more destructive to trees than any other group of insects.

FAMILIES

Butterflies

Brush footed butterflies (Family Nymphalidae) front legs reduced in size. This is the largest butterfly family; it includes the fritillaries, admirals, emperors, and tortoiseshells.

Milkweed butterflies (Family Nymphalidae, Subfamily Danainae) adults are reddish-orange with black and white markings. Larvae feed on various species of milkweed. Includes the monarch.

Whites and sulfurs (Family Pieridae) adults are predominantly white or yellow with black markings. The imported cabbageworm is a pest throughout the world.

Swallowtails (Family Papilionidae) hind wings have a tail-like extension. The tiger swallowtail is a cosmopolitan species.

Blues, coppers, and hairstreaks (Family Lycaenidae) small butterflies with fluted hind wings. Some species are extinct or nearing extinction, others are very common.

Skippers (Family Hesperidae) antennal club is hooked at the tip. The silverspotted skipper is a common species.

Moths

Clothes moths (Family Tineidae) some larvae construct cases and feed on natural fibers. Pests include the webbing clothes moth and the casemaking clothes moth.

Micropleps (Family Gelechiidae) one of the largest families of micro-lepidoptera. These larvae feed on plants or plant products. Pests include the Angoumois grain moth and the pink bollworm).

Clearwing moths (Family Sesiidae) diurnally active adults mimic wasps. Many pests of fruit and vegetable crops, including the peachtree borer and squash vine borer.

Tortricid moths (Family Tortricidae) fourth largest family of Lepidoptera. Larvae feed inside stems, leaves, and fruit. Contains many pest species, including the codling moth and the oriental fruit moth

Snout moths (Family Pyralidae) second largest family of Lepidoptera. Pests include the European corn borer the Indian meal moth), and the greater wax moth.

Inchworms or spanworms (Family Geometridae) third largest family of Lepidoptera. Larvae are often called. Includes the winter moth and the fall cankerworm).

Lappet moths (Family Lasiocampidae) larvae feed on the leaves of trees and some spin large webs or tents on the foliage. Pests include the eastern tent caterpillar and the forest tent caterpillar.

Giant silk moths (Family Saturniidae) large, colorful moths. Larvae feed on a wide range of trees and shrubs. Well-known species include the cecropia moth and the luna moth.

Hawk moths (Family Sphingidae) medium to large adults with long proboscis for collecting nectar. Larvae are frequently called hornworms. Pests include the tobacco hornworm and tomato hornworm.

Tiger moths (Family Arctiidae) distinctive adults, usually white with black, red, yellow, or orange markings. Many larvae are covered with long hairs (woolly bears). Includes the fall webworm.

Tussock moths (Family Lymantriidae) larvae are characterized by tufts of hair along the body. Adults do not feed. Pests include the gypsy moth and the browntail moth

Loopers, owlet moths, and underwings (Family Noctuidae) this is the largest family in the Lepidoptera. Larvae are leaf feeders and stem borers. Many species are pests, including the fall armyworm the black cutworm), and the cabbage looper).

In the textbook, *IPM of Midwest Landscapes Pests of trees and shrubs*



Order Lepidoptera, Butterflies and moths

Family Arctiidae, Tiger or footman moths
fall webworm, *Hyphantria cunea*

Family Argyresthiidae, Ermine moths
arborvitae leafminer, *Arbyresthia thuiella*

Family Coleophoridae, Casebearers
elm casebearer, *Coleophora ulmifoliella*

Family Galacticidae, Webworms
mimosa webworm, *Homadaula anisocentra*

Family Geometridae, Measuring worms or geometers
fall cankerworms, *Alsophila pometaria*
spring cankerworms, *Paleacrita vernata*

Family Lasiocampidae, Tent caterpillars
Eastern tent caterpillar, *Malacosoma americanum*
forest tent caterpillar, *Malacosoma disstria*

Family Lymantriidae, Tussock and gypsy moths
gypsy moth, *Lymantria dispar*
whitemarked tussock moth, *Orgyia leucostigma*

Family Notodontidae, Prominents
poplar tentmaker, *Clostera inclusa*
redhumped caterpillar, *Schizura concinna*
walnut caterpillar, *Datana integerrima*
yellownecked caterpillar, *Datana ministra*

Family Nymphalidae, Brush-footed butterflies
mourningcloak butterfly, *Nymphalis antiopa*

Family Psychidae, Bagworm moths
bagworm, *Thyridopteryx ephemeraeformis*

Family Sesiidae, Clear-winged moths clearwing borers, several species

Family Tortricidae, Tortricid moths
Eastern pine shoot borer, *Eucosma gloriola*
European pine shoot moth, *Rhyacionia buoliana*
spruce budworm, *Choristoneura fumiferana*
uglynest caterpillar, *Archips cerasivorana*
Zimmerman pine moth, *Dioryctria zimmermani*

Pests of Turf

Order Lepidoptera, Butterflies and Moths

Family Noctuidae, Noctuid moths

armyworm, *Pseudaletia unipuncta*

fall armyworm, *Spodoptera frugiperda*

black cutworm, *Agrotis ipsilon*

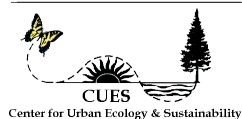
bronzed cutworm, *Nephelodes mimians*

variegated cutworm, *Peridroma saucia*

Family Pyralidae, Pyralid moths

sod webworms, *Crambus* and *Parapediasia* species

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