Common Insects (Orders Ephemeroptera, Odonata, Phasmatodea, Blattaria, Mantodea, Isoptera, and Neuroptera) in the Wichita Mountains and Surrounding Areas

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Order Ephemeroptera (mayflies)

Mayflies are pale, delicate-looking insects, with large protruding eyes, a long forked tail, and transparent membranous wings with multiple veins (Fig. 1). At the rest, the wings are kept folded together on a vertical position. Mayflies undergo an incomplete metamorphosis. The larvae (naiads) are aquatic and live one or two years in pools, lakes, and other fresh water habitats, feeding mostly on algae and detritus. The naiads are a major food source for fish and predaceous aquatic insects. The adults live one or two days, do not feed, and are preyed upon by birds, spiders, and insects. There are about 600 species described in the U.S. and Canada.

Figure 1. An unidentified mayfly

Order Odonata (dragonflies, damselflies)

The Wichita Mountains lakes and pools are home to a wide diversity of dragonflies (suborder Anisoptera) and damselflies (suborder Zygoptera). These insects have an incomplete metamorphosis. The nymphs or naiads are aquatic and predaceous, feeding on other aquatic insect larvae, tadpoles, and small fish. Prey is caught using a long labium armed with opposing sharp teeth. The labium is kept folded under the head and can be extended and retracted rapidly. The adults have a long, thin, cylindrical, abdomen; two pairs of long, membranous wings with numerous veins and cross-veins; large compound eyes, and sharp biting mouthparts. These insects feed on small flying insects that they capture on the wing and are often seen flying or perching on vegetation from spring through early fall. Body color and wing pigmentation patterns are helpful for identifying some species, although these may be different in males and females of the same species. Dragonflies are larger than damselflies, their large compound eyes meet at the center of the head, and at rest keep their wings spread out. Damselflies are much smaller and delicate-looking, their compound eyes are widely separated, and at rest they keep their wings together and folded over the abdomen. A few representative species are shown below.

All photos in this guide were taken by the author using a Canon PowerShot SX110 IS camera.

Dragonflies

Widow skimmers, *Libellula luctuosa*, are among the most common dragonflies in the area. In males and females a dark brown patch covers the basal half of front and hind wings. In mature males the abdomen and part of the outer portion of the wings are covered with light blue waxy scales (Fig. 2). Immature males and females lack the pale blue scales on the abdomen, but the sides of the abdomen and top of the thorax are dark yellow. A longitudinal stripe runs along the dorsal surface of the abdomen. (Fig. 3)

Fig. 2 Widow skimmer, *Libellula luctuosa*, male

Fig. 3 Widow skimmer female or immature male

The whitetail skimmer, *Plathemis lydia*, is often seen resting on vegetation or on the ground. Males have a dark central band on the wings and bluish waxy scales cover the abdomen of mature males (Fig. 4), but are absent in immature males.

Fig. 4 Adult whitetail skimmer male, *Plathemis lydia*

Females have two narrow dark bands on each wing, and their abdomen lacks the bluish scales found in mature males (Fig 5).

Fig. 5 Whitetail skimmer female, *Plathemis lydia*

The eastern pondhawk, *Erythemis simplicicollis*, is one of the most colorful dragonflies in this area and is often be seen perching on vegetation around lakes. In females and young males the thorax and base of the abdomen are bright green, while the rest of the abdomen has black bands (Fig. 6). The thorax and abdomen of mature males are pale powdery blue. The wings in both sexes lack markings.

Fig. 6 Eastern pondhawk female or immature male

The eastern amberwing, *Perithemis tenera* is a small and rather robust dragonfly. The abdomen is brownish, relatively short, widest at its mid-point, and with a thin white band where the segments meet (Fig. 7).

Fig. 7 Eastern amberwing, *Perithemis tenera*

Damselflies

Two common damselflies are the blue-fronted dancer, *Argia apicalis* (Fig. 8) and the familiar bluet, *Enallagma civile* (Fig. 9). Although there is some color variation, in blue-fronted dancer males the head, thorax, and last abdominal segment are usually blue. Females are mostly brown or greyish-brown. Familiar bluet males are light blue, with three black stripes along the thorax and six black bands or patches on the abdomen. In females the color is variable, and can be blue, tan, or olive.

Fig. 8 Blue fronted dancer

Fig. 9 Familiar bluet

Order Phasmatodea (walking sticks)
Family Heteronemiidae

Walking sticks are thin, elongate, wingless, and resemble twigs. Most are pale green or tan, walk slowly, and blend perfectly with the plants where they live. Their cryptic form and color explains why they are seldom seen even though they are relatively common. Walking sticks have chewing mouthparts, feed on leaves, and undergo a gradual metamorphosis. The young nymphs look like miniature adults.

Diapheromera sp. (Fig. 10) is one species found in our area. The adults are 2½ - 3 inches long. Of 29 species recorded in the U.S. most are restricted to the southern states.

Fig. 10 Walkingstick, *Diapheromera* sp.

Order Blattaria (=**Blattodea**)
Family Blatellidae
Wood cockroach, *Parcoblatta pennsylvanica.*

This native cockroach is found in accumulated decaying plants, under pieces of bark, in compost mounds, and similar habitats that can provide food, shelter, and a high degree of moisture, all necessary for its survival. Wood cockroaches contribute to the breakdown of dead plant material and the return of nutrients to the soil.

Fig. 11 Wood cockroach females, one with an ootheca

Adult males are about 1 inch long and are good fliers. In urban areas males may fly into houses and may be confused with the smaller German cockroach, *Blattella germanica*, which they superficially resemble. Females are ½ - ¾ inch long, lack well-developed wings, but have a pair of short wing pads (Fig. 11). Cockroaches undergo a gradual metamorphosis, and nymphs look like small wingless adults. Females are often seen with an ootheca protruding from the tip of the abdomen (Fig. 11). The ootheca is a sclerotized capsule that contains up to 32 eggs, each. Once it is fully formed it is dropped by the female in the appropriate moist habitat that will provide food and shelter for the nymphs.

Order Mantodea (praying mantises)
Family Mantidae (mantids, mantis)

Praying mantises have a small triangular head, large compound eyes, a long and thin thorax, and strong raptorial front legs armed with a row of sharp spines designed for grasping. The abdomen is long and thin in males, but broader and heavier in females. A mantid can rotate its flexible head nearly 180º left or right and scan its immediate surroundings without moving its body. Mantids can run using the middle and hind legs. The adults have wings, and most species can fly. Mantids prey on insects and spiders within reach, seizing them with a swift thrust of their raptorial legs. Mantids undergo a simple, gradual metamorphosis. Although mantids are predominantly tropical insects, some 20 species are found in the U.S., including several introduced species.

Carolina Mantis, *Stagmomantis carolina*

Figure 12 Carolina mantis, female

The Carolina mantis is a widely distributed native species and fairly common in our area. It is green or grayish-brown and 2 - 2 ½ inches in length. Females have short wings that partially cover the broad and bulky abdomen, leaving three or four segments exposed (Figs. 12 - 13). Males are slender, with wings that entirely cover their long, thin abdomen (Fig. 14). These mantids have a single generation per year in this area. In fall the female deposits an egg mass mixed with a foamy material on stems, twigs, or any available vertical surface. The foam hardens shortly after, encasing and protecting the eggs. This type of egg capsule is also known as ootheca, and a female may deposit several of them per year. Mantids overwinter as eggs inside the protective ootheca, and the nymphs emerge the following spring.

Figure 13. Carolina mantis, female

Figure 14. Carolina mantis, male

Order Isoptera (termites)
Family Rhinotermitidae

Termites are small, pale, soft-bodied social insects that feed on wood cellulose that is broken down to simple sugars in the gut by symbiotic protozoa and bacteria. The eastern subterranean termite, *Reticulitermes flavipes* (Fig. 15) is commonly found under logs, branches, and other dead wood resting on moist soil. It is present in the Wichita Mountains and just about anywhere in the state. It is also the most common and widespread subterranean termite.

The colonies are located one foot or more underground, but workers can forage above ground and tunnel in wood. They have low tolerance for dry conditions and dehydrate rapidly if not protected. When foraging above ground they move within tubes made with mud and chewed wood that protects them from predators and dehydration.

This species is responsible for most house infestations, but also plays a major role in the degradation and recycling of wood in the ecosystem. Termites undergo a gradual metamorphosis. Their colonies consist of a queen and queen, workers, soldiers with enlarged heads and long mandibles, and winged reproductive individuals that swarm once a year, in early spring, to mate and start new colonies.

Figure 15. Eastern subterranean termite workers
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Order Neuroptera

This order includes insects such as alderflies, dobsonflies, snakeflies, lacewings, mantidflies, antlions, and owlflies, some of which are rather uncommon. These insects have four wings of equal size, usually longer than the abdomen, and crisscrossed by a network of veins and crossveins. Most of them are weak fliers. The compound eyes are large and the mouthparts are designed for chewing. Neuropterans undergo a full metamorphosis. The larvae are rather flattened, quite different in shape from the adults, and some of them are aquatic. Most larvae and some adults are predaceous. This is a small order, with some 350 species in the U.S. A few representative groups are shown below.

Family Mantispidae (mantispids, mantisflies)

Mantispids have large, bulging eyes, a long thorax, and raptorial forelegs, similar to those of

mantids in structure and function (Fig. 16). Mantispids prey on small insects and spiders. The individual shown in Fig. 16 is about 1 ¼ inches long. The larvae of the species in the subfamily Mantispinae develop within a spider egg sac, feeding on spider eggs. These larvae go through two different morphological and functional types, a developmental process known as hypermetamorphosis. The first type is minute, has well-developed legs, is ambulatory, and is the type that locates and penetrates a spider egg sac. The second type is sedentary, grub-like, with atrophied legs, and feeds on the spider eggs until it matures and pupates. This small family consists of only 18 species in the U.S., most of them in the southern states.

Figure 16. A mantispid

Family Chrysopidae (green lacewings)

Green lacewings are common, delicate-looking insects, ½ - ¾ inch long, with a thin green body. Some individuals have a whitish dorsal band along the thorax an abdomen. The wings are transparent, longer than the abdomen and covered with a network of veins and crossveins. The eyes are somewhat golden and the antennae are thin and long. The eggs are laid at the end of a fine stalk attached to a leaf surface. The larvae have long sickle-like mouth parts and are known as aphid lions. Green lacewing adults feed on honeydew and sweet plant secretions, but the larvae prey on aphids and on eggs and larvae of various moths. The most common species are in the genus *Chrysopa* (= *Chrysoperla*) (Fig. 17). These insects have been used extensively in integrated pest management and biological control programs for various crops. There are about 90 species in the U.S. and Canada.

Figure 17. A green lacewing, *Chrysopa* sp.

Family Hemerobiidae (brown lacewings)

Brown lacewings are about ¼ inch long and when resting keep the wings folded like a tent over the body (Fig. 18). These brownish insects are more common in wooded areas and prey on aphids and mealybugs. There are some 50 species in the U.S.

Figure 18. A brown lacewing

Family Myrmeleontidae (antlions)

Adult antlions are greyish, with large bulging eyes, short antennae, long and thin abdomens, and clear or opaque wings. The abdomen in females is as long as the wings, or shorter. In males the abdomen is longer, often longer than the wings (Fig. 19). Antlions are 1½ - 2 inches

long and superficially resemble damselflies. Unlike damselflies, which are fast diurnal fliers, antlions are weak fliers, nocturnal, and attracted to lights. Both adults and larvae are predaceous. There are about 80 species in the U.S. and Canada.

Figure 19 An adult male antlion

The antlion larva is squat, plump, wrinkled, and covered with short bristles. It has three pairs of legs, short antennae, a group of six ocelli (simple eyes) behind each antenna, and a pair of sickle-like mandibles (Fig. 20).

Figure 20. An antlion larva (doodlebug)

It lives at the bottom of a funnel-shaped pit that it digs in loose soil or sand (Fig. 21). When an ant or other small insect crosses the pit it slides down toward the bottom, where it is grasped by the sharp mandibles. It can also flick its head and throw sand grains at prey to keep it from crawling out of the pit. If exposed it quickly crawls backward and disappears in the soil.

Figure 21. An antlion larva pit

Family Ascalaphidae (owlflies)

Owlflies resemble large antlions, but have long antennae that end in a club. Unlike antlions, at rest it keeps its wings folded downward and the abdomen held up at a 90º angle, thus looking like a broken twig (Fig. 22). Both adults and larvae are predaceous. The larva looks like a rather flat, oversized antlion larva with a large head. The larva is found on vegetation, where it ambushes small insects and spiders It can lay still for long periods of time, keeping its sharp mandibles wide open. When prey is within reach the mandibles spring shut like a trap.

Figure 22. An owlfly

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