Kansas Insect Newsletter

For Agribusinesses, Applicators, Consultants and Extension Personnel

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October 8, 2010 No. 28

Carpenters Build With Wood ----- Carpenterworms Destroy Wood

Over many years of operating blacklight traps throughout Kansas, I have collected hundreds of carpenterworm moths. Female moths are large (wingspread up to 3 ¼ inches) and rather drab in appearance (Figure 1). Male moths are smaller (wingspread ½ that of the female) and also appear drab when wings are folded. But upon spreading the forewings and exposing the hindwings, the coloration and pattern of the male's hindwings is strikingly different from that of the female (Figure 1).

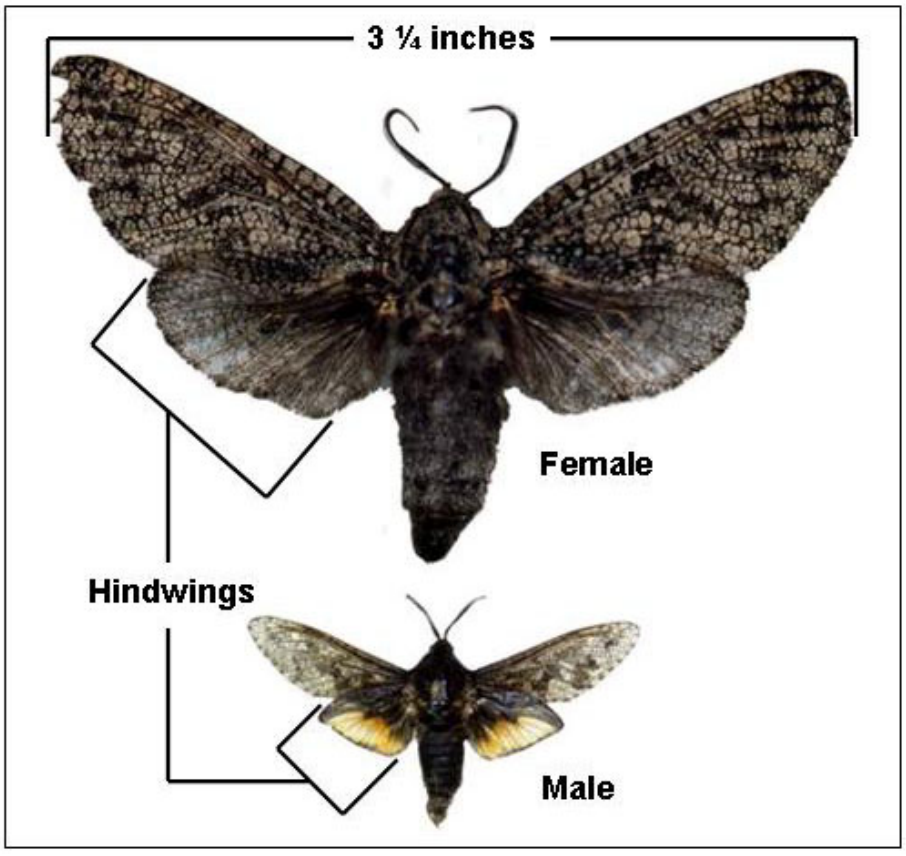

Figure 1

As common as the moths are, I had never observed (firsthand) infested trees from whence these moths originate. That is, until last Monday. Late the previous week, Dale Ladd, McPherson County CEA-ANR, received a call from a client who reported borers in a tree in her yard. When Dale inquired (of me) what type of borer might be responsible for creating large piles of sawdust at the base of trees, my immediate answer was, "Carpenterworms!" Thus it was that last Monday, Dale and I visited the site in question.

The tree was a green ash estimated to be in excess of least 60 years of age. As evidenced by the pile of sawdust at the base of the tree, it was obvious that carpenterworms were busily doing what carpenterworms do: creating tunnels within the tree and expelling the wood chewings and frass through openings in the bark (Figure 2).

Figure 2

This tree has been under attack over a period of years as seen by extensive scarring of the bark (Figure 3).

Figure 3

While the scarred bark surface presents a “healed appearance”, it conceals the extreme underlying damage accrued by various generations of carpenterworm attacks (Figure 4).

Figure 4

While the abovementioned damage is concentrated at the tree’s base, carpenterworms will attack points along the entire trunk and upper tree limbs as seen by the appearance of scarring and fresh frass/chewings (Figure 5).

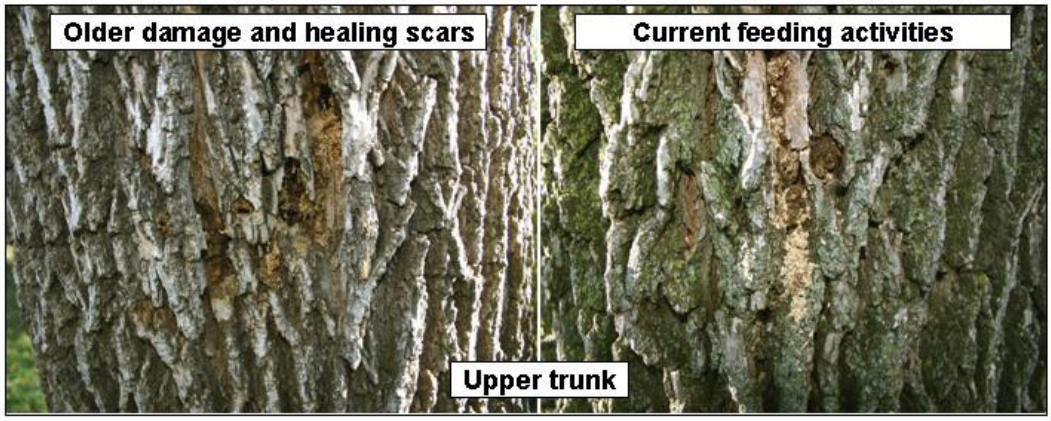

Figure 5

We had hoped to flush out some carpenterworms with a disclosing mixture (fancy words for a mixture of water and lemon Joy dish detergent). We were unsuccessful as we were not able to force water up the length of the inner vertical tunnels in the heartwood where the carpenterworms resided. Had we been able to collect carpenterworms, we would have found them to be large (up to 3-inches when mature) creamy-colored larvae with a pinkish or possibly greenish tinge (Figure 6).

Figure 6

While most people probably are not familiar with carpenterworms, they are not a "new pest species". We are rapidly approaching the **second century anniversary** of the year in which they were first reported to damage trees **(1818)**. Carpenterworms attack a wide variety of tree species including ash, birch, black locust, cottonwood elm, maple, oak and willow. Fruit trees such as apricot and pear are also listed, and possibly (by extension) would also include most any fruit tree species.

The carpenter worm developmental life cycle varies depending on their geographical latitude: 1-2 years in the Deep South to 4 years in the Northern States and southeast Canada. In Kansas (being somewhat in the middle), the carpenterworm life cycle probably lies between 2-3 years. However in any given year, overlapping generations are likely to occur.

Given a 3-year scenario: Female carpenterworm moths reportedly produce between 200 and 1,000 eggs which are preferably deposited in protected/hidden sites (bark crevices, under lichens, and near wounds and scars) on tree trunks and main/larger limbs. Newly hatched larvae penetrate the bark, or enter through existing openings. They create shallow tunnels in the inner bark in which they overwinter. Feeding resumes in the spring at which time larvae extend and widen tunnels. Moving inward, they form upward-slanting tunnels into and through the sapwood and then into the heartwood where they form vertical tunnels in which they overwinter. In the third summer, the vertical tunnels are extended (up to 9 inches long) and expanded (over ½-inch diameters). In the fall, larvae return to the area of the exit hole in the bark and produce a silken layer which lines the gallery walls and forms a curtain over the exit hole. Larvae then overwinter a final time. In spring, larvae move close to the exit hole and are transformed into pupae. Just prior to moth emergence, pupae will wiggle and force their way through the silken curtain. With the anterior of pupae thusly exposed, moths emerge outside of the tree where they will harden and be "free" to take flight.

While they seldom kill tree hosts, carpenterworms are responsible for causing extensive feeding damage. Given their long developmental period as well as large size, accumulated tunneling activities may honeycomb and structurally weaken trees. During high wind events, limbs and/or entire trees may be broken. Minimally for a homeowner, this may mean removing downed debris. More serious would be the damage to nearby homes and out buildings struck by falling limbs and downed trees.

Carpenterworms have a negative impact on lumber production. Individual or cumulative damage associated with extensive tunneling, staining and wood decay may seriously degrade the quality and quantity of lumber from individual trees. Fortunately, however, carpenterworm distribution (and consequently damage) within fully forested lumber production areas appears to be less than that seen on open-grown shade trees, roadside trees or trees in shelterbelts and edge-of-the-woods trees.

Due to the unpredictable appearance/occurrence of carpenter worms, little can be done in a preventative sense. The presence of carpenterworms usually is detected late (the third year) in their developmental cycle when excessive sawdust accumulations catch one's attention. While the damage has already occurred, some individuals will attempt to kill larvae by inserting a wire probe into the carpenterworm's tunnel. Depending on the larva's position in the tunnel system, this may or may not work. It a person attempts to force a stream of insecticide into the tunnel, care should be taken to avoid a backsplash of the insecticide stream. Because carpenterworms seem to prefer repeatedly attack the same tree and ignore nearby trees, the "magnet tree" can be removed, thus eliminating the major local source of carpenterworm moths.

Bob Bauernfeind

Parsleyworm or Black Swallowtail Caterpillars

This is the time of year when we start getting inquires regarding parsleyworm or black swallowtail (*Papilio polyxenes*) caterpillars. These caterpillars primarily feed on the leaves of fennel, dill, and parsley although they

will sometimes feed on plants such as Queen Anne's lace, celery, and similar plants in the carrot family (Apiaceae).

Young caterpillars are mottled black and white, which results in them resembling bird droppings. More mature caterpillars possess bands of green, yellow, white, and black. In addition, there are six yellow spots within each black band. Full grown caterpillars are about 5.0 cm in length. Parsleyworm overwinters as a pupa or chrysalis that is attached to the bark of trees, sides of buildings, or other protected habitats. Adults typically emerge in May and June, and females deposit eggs on plants in the Apiaceae family—only laying several eggs per location. After eggs hatch, caterpillars feed for 3 to 4 weeks in which they undergo a series of color changes as they mature. Full-grown caterpillars eventually migrate off plants to find a place to pupate. They form a gray pupa, which blends in with the surrounding background. After approximately two weeks, adults emerge from the pupa or chrysalis. Adults are large black swallowtail butterflies with a wingspan of 2.0 to 3.5 inches. They are shiny black in color, occasionally with iridescent blue; and yellow bands or spots along the edge of the forewings and hindwings. Adults feed on the nectar of many different flowers. Females and males mate, then females lay eggs that will result in the occurrence of the second generation sometime in August. There are usually two generations per year.

Raymond Cloyd

Report from the Kansas State University Insect Diagnostic Laboratory:

The following samples were submitted to the Insect Diagnostic Laboratory from October 1st to October 7th.

October 1 2010 – Nemaha County – Green stink bugs on soybean pods
October 1 2010 – Leavenworth County – Grass-carrying wasp nest and pupae in window
October 1 2010 – Riley County – Golden-necked carrion beetle around home

October 5 2010 – Riley County – Red-shouldered bugs around home
October 5 2010 – Shawnee County – Bat bugs
October 5 2010 – Dickinson County – Army cutworm moth
October 6 2010 – Laclede County, MO – Mimosa webworm in common honeylocust

Note: Army cutworm moths are still active throughout Central Kansas

If there are any questions regarding these samples or about the identification of any arthropod please contact the Insect Diagnostician at (785) 532-4739 or GotBugs@ksu.edu.

Holly Davis

Sincerely,

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