

# Elm Leaf Beetle

## Biology and Control

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The elm leaf beetle (ELB), *Pyrrhalta luteola*, is one of the most serious defoliators of elm trees in Michigan. It is also a household nuisance because it invades homes in large numbers in late summer and early fall. This beetle was introduced from Europe over 100 years ago and is now a pest of elms throughout most of the U.S.

**DAMAGE SYMPTOMS:** The lower leaf surface between the major veins is removed by larval feeding, causing leaves to dry, curl and turn brown (Fig. 3).

**SIMILAR DAMAGE:** Severe drought may also cause a brown leaf scorch. When abundant, the elm leaf miner will brown leaves at about the same time as elm leaf beetle.

**HOSTS:** Most elms can act as hosts but Siberian and American are preferred in Michigan. Chinese, slippery and rock elms are also attacked but to lesser degrees.

### Identification

**EGGS:** Bright yellow football-shaped eggs are laid in clusters of 18-36 on leaf undersides (Fig. 3).

**LARVAE:** The slug-like larva is dull yellow in color, with a black head capsule and two rows of longitudinal spots (appearing as stripes) along the back. A mature larva may be nearly 1/2 in. in length (12 mm) (Fig. 2).

**ADULTS:** The adult beetle is approximately 1/4 in. long (6-8 mm) and dull olive-green in color. There is a longitudinal black stripe along the outside edge of each wing cover and an elongate spot at the base of each wing cover near the center of the body.



Figure 1. Elm leaf beetle adult.

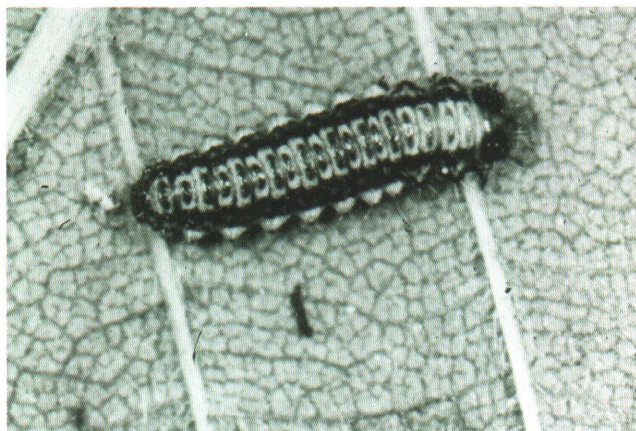
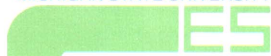


Figure 2. Elm leaf beetle larva.

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Figure 3. Elm leaf beetle egg mass & larvae on leaf underside. Note feeding damage.

## Life Cycle

Overwintered adults emerge and fly to elm trees in early-to-mid-May and chew small round holes in the unfolding leaves. Adults mate and soon deposit clusters of 18-36 eggs on leaf undersides. Larvae hatch in early-June and begin to feed on the tissue between the major veins on leaf undersides. At the end of the third and final larval stage, usually early to mid-July, mature larvae migrate down the trunk of the tree to pupate, either in bark crevices near the tree base or on the soil surface between root flares.

Adults emerge in 10-14 days and feed on the remaining foliage for several weeks. In mid-to-late August, the adult beetles will enter buildings through loose fitting screens, doors, cracks in the siding or attic vents in search of overwintering sites. The migration of large numbers of adult beetles into an attic often causes great concern to homeowners. However, these beetles are a nuisance and cause no structural damage. There is only one generation a year in Michigan.

## Destructive Stages

Adults chew small, circular holes in the newly expanding leaves, but third stage larvae cause most of the leaf damage in late June.

## Control

Control of elm leaf beetle by homeowners is not always feasible. Many mature elms (40-80 ft. in height) are too large for homeowners to treat with small garden sprayers. One alternative is to have the infested tree treated by a commercial tree service with either a foliar spray or systemic treatment (see

below). The other alternative is not to spray at all, since elm leaf beetle damage does not directly cause tree death. Usually, trees completely defoliated by ELB in late June will grow new leaves later in the summer. Many trees can survive annual attacks by ELB without suffering appreciably. However, excessive beetle feeding can cause physiological stress which may make a tree more susceptible to attack by other insects and diseases. In cases where controls are not applied, proper fertilization (see Extension Bulletin E-786) and frequent deep waterings during dry periods will help minimize tree stress due to elm leaf beetle feeding.

**FOLIAR SPRAYS:** Insecticide applications should be made in early-June (approximately June 5-15) when egg hatch is complete and most larvae are in the first stage. Many materials such as carbaryl (Sevin), acephate (Orthene), or methoxychlor can be used (refer to the product label for specific application rates and safety information). **NOTE:** Sprays for ELB applied in late summer (late-July-September) are needless and *not recommended*.

**SYSTEMIC TREATMENT:** Tree injection, either Mauge® (Metasystox-R) or Acecap® (acephate), provides effective control of ELB. However, these are recommended *only* when foliar applications cannot be made due to human exposure considerations or weather. Consult a qualified commercial applicator to inject your tree. Di-syston 15% granules may also be used (by commercial applicators only) as a soil treatment for ELB control.

**IN THE HOME:** Elm leaf beetle adults create the greatest nuisance, invading homes in late summer and early fall. They may become active inside the house if their hiding places become warm any time throughout the winter. In the spring, beetles attempt to return outdoors, and often gather in large numbers around windows. At this time a vacuum cleaner or broom can be used to remove the beetles. An insecticide spray may be helpful in subduing the beetles. A household-flying-insect spray containing synthetic pyrethrins is usually best. As additional beetles leave their hibernating quarters, vacuuming and/or insecticide applications must be repeated. The spring emergence period (early-mid-April) lasts from several days to a month. After this period the beetles will be gone from the house.

A water-based solution of premium grade malathion may be used to treat hibernating masses of beetles located in attics and similar spaces.

The severity of infestations can be greatly reduced by caulking cracks in exterior and interior house walls and by keeping screens in good repair.