

The Elm Leaf Beetle, *Xanthogaleruca luteola*, originally from Europe was first discovered in Ontario in 1945. It is a significant threat to elms in Toronto's urban forest. Although the damage caused by this insect seldom kills trees, it can severely weaken them and make them more susceptible to Dutch Elm Disease.

The Elm Leaf Beetle over-winters as an adult beetle in houses, sheds or garages, under house shingles or loose tree bark, or any other protected site. They can become annoying to homeowners when they enter buildings in the fall or leave in the spring. Adult beetles fly to elm trees to feed and mate in May. The adult female lays eggs on the undersides of fully developed leaves. Young black grub-like larvae hatch in about 7 to 10 days. They later become greenish yellow, with lateral black stripes. After 3 or 4 weeks of feeding, they are full-grown and may be 10 mm long. Most larvae migrate down to the ground to pupate. Adults emerge approximately 10 days later and start feeding. There is usually only one generation per year in Toronto.



Adult beetle and egg mass



Larvae and pupae on the soil surface

Hosts and Damage

Elm Leaf Beetle attacks all species of elm trees.

Beetles feed on new leaves in the early spring, before they lay eggs. Adult feeding damage has little impact on the tree, making small round holes in expanding leaves.

The larvae cause the most damage, “*skeletonizing*” the undersurface of the leaves over a 4-week period in early summer. The upper surface of the leaves is left intact. Badly affected leaves turn brown and drop prematurely.

Severe defoliation causes the tree to put out new flushes of growth in the summer. Entire crowns are affected, but the largest most vigorous leaves of the suckering shoots are preferred. This leaf loss during the growing season is harmful to tree health.



Larval feeding damage on the underside of the leaves

Specific Management Practices for Control of the Elm Leaf Beetle:

- Remove and destroy the pupae, by sweeping or vacuuming them from under the tree, commencing in mid-July.
- Remove and destroy adult beetles by vacuuming them from sheltered areas like garages and basements.
- Attract to your yard insect-eating birds and other beneficial organisms like ground beetles by planting appropriate landscapes with herbs, flowers, ground covers and shrubs.
- Apply the biological insecticide *Bacillus thuringiensis var. tenebrionis (Btt)* in severe infestations when the host leaves first start unfurling. This bacterial insecticide only affects certain beetles.

General Management Practices to Improve Plant Health:

- Water your trees during dry spells. Infrequent, but deep soaking preferably during the early morning hours is recommended. Water absorbing roots are located in the upper 25 cm of the soil and extend outward well beyond the canopy dripline.
- Place organic mulch, (e.g. wood chips), or living mulch, (e.g. ground cover plants) around tree bases to keep the soil moist for longer periods and encourage healthier roots.
- Avoid unnecessary excavating, grade changes, soil compaction, root cutting or hard surfacing around trees. These activities destroy vital roots, which may lead to the decline or death of trees.
- Refrain from using salt or herbicides around trees.

Forest Health Care is a holistic approach to tree care that focuses on improving the health of trees in an urban environment. Our objective is a healthy, sustainable urban forest. Trees in urban forests are often stressed by compacted soil, drought, poor planting and pruning techniques, air pollution, road salt, damage from construction and much more. Trees planted in the right sites and properly maintained are less likely to suffer and are more resistant to pest problems.

Pest problems are managed using a decision making process, that considers the following:

- Identification of the host and the pest.
- Monitoring of the host and the pest.
- Selection of the appropriate management strategy.
- Evaluation of the management plan.

Our focus is on pest management programs that are environmentally, socially and economically sound.