



Winter Moth (*Operophtera brumata*) Feeding Damage and Larvae

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Winter moth is an invasive insect from Europe that feeds on the leaves of hardwood trees. It was first found in North America in Nova Scotia in the 1930's, then in the Pacific Northwest in the 1970's and most recently in eastern Massachusetts in the early 1990's. Since the introduction into Massachusetts it has spread into Rhode Island, Connecticut, and as far as west as the Connecticut River valley in Massachusetts. In May 2012 several hundred acres of winter moth defoliation were mapped in Harpswell, Maine.

The winter moth has been at outbreak levels in eastern Massachusetts since the 1990's. In 2010 Massachusetts had 65,000 acres of defoliated forest and three counties with tree mortality associated with the winter moth damage. When winter moth invaded Nova Scotia in the 1930's, some areas had 40% mortality of the red oak after four years of continuous defoliation. Winter moth not only feeds on forest trees but also on apple and blueberry as well. This is a serious pest, please report suspected sightings in Maine to the Maine Forest Service Insect and Disease Lab. For More information see: <http://www.maine.gov/doc/mfs/InvasiveThreats.htm#wm>

Approximate seasons of development:

Eggs: overwinter Larval feeding: April through mid June Pupae (in soil): End of May through December
Adult flights/mating: Late November through December (into early January in warm years)



Winter moth larvae begin feeding before the buds expand. This picture shows larvae several weeks into their development and illustrates the variable sizes of larvae feeding on the same host, webbing that can be associated with winter moth feeding and the Swiss cheese appearance of leaves early on in the spring. (21 May 2012, Harpswell, ME; Charlene Donahue, Maine Forest Service Forest Health and Monitoring Division)



Winter moth caterpillar feeding on red oak. Later feeding by this green looper or inchworm causes large chunks of missing foliage. Note the caterpillar-generated silk creating a refuge on the host leaf. (21 May 2012, Harpswell, ME; Charlene Donahue, Maine Forest Service Forest Health and Monitoring Division)



Winter moth feeding damage on understory red maple. (21 May 2012, Harpswell, ME; Charlene Donahue, Maine Forest Service Forest Health and Monitoring Division)



Two dark phase winter moth caterpillars on red oak (right), a single light phase individual is visible on the left. (21 May 2012, Harpswell, ME; Charlene Donahue, Maine Forest Service Forest Health and Monitoring Division)



Winter moth feeding damage on apple. Ends of shoots were tied together by caterpillar silk, giving a very messy appearance, winter moth larvae were inside the bundles and typical Swiss cheese feeding damage is also apparent. (21 May 2012, Harpswell, ME; Charlene Donahue, Maine Forest Service Forest Health and Monitoring Division)