Biological Control of Mile-a-Minute Weed (MAM) in CT

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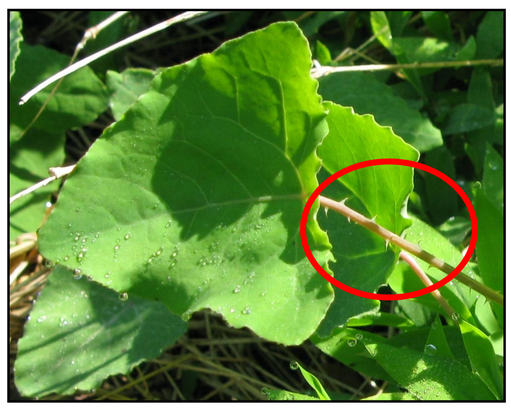
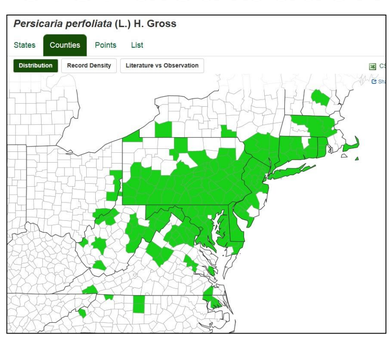
Identifying MAM, *Persicaria perfoliata* (L.) H. Gross (*Polygonum perfoliatum*)

Origin: Asia
Family Polygonaceae

- Triangulate leaves
- Recurving barbs
- Blue fruit when ripe
- Saucer-shaped leaves encircling stem (ocrea)

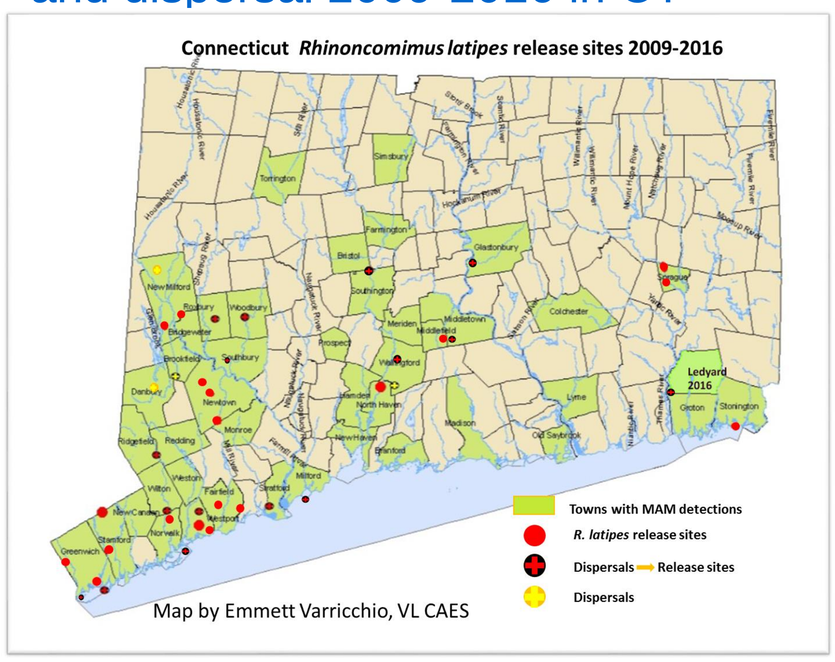


U.S. distribution



EDDMapS. 2016. Early Detection & Distribution Mapping System. The University of Georgia - Center for Invasive Species and Ecosystem Health. Available online at http://www.eddmaps.org/; last accessed July 28, 2016.

Distribution of MAM, location of weevil release sites and dispersal 2009-2016 in CT



- First confirmed in Greenwich, 2000
- Annual vine with exponential growth
- Colonizes disturbed soil, forest openings, wetlands; persistent seed bank (6-7 yrs) is a challenge
- Threat to forest regeneration
- Out competes native plants
- Dispersed by man, birds, wildlife, water

Rhinoncomimus latipes (Coleoptera:Curculionidae)

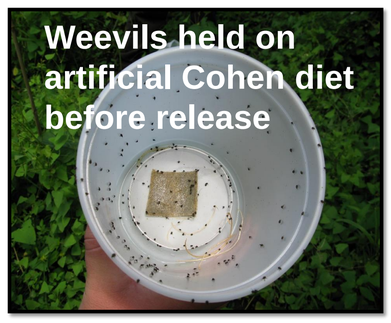
- Adults feed on youngest leaves, flowers and buds of MAM and are very host specific; in time reduces overall fruiting
- Eggs are laid on undersides of leaves and on the stem, preferentially on plant capitula (flower heads) of MAM
- Larvae hatch, bore into first node in stem and enter stem to feed and develop; cannot develop on other related species
- Mature larvae leave the stem and drop to soil to pupate
- New adults emerge from the soil as black adults which turn orange with feeding; Generation time is approx. 26 days; >2 generations in Connecticut
- Adults overwinter and can live >1yr
- Adults fly and readily disperse to find new MAM populations

Weevil Life Stages

Origin: Central China; introduced by the USDA Forest Service and University of Delaware in 2004

R. latipes Releases in CT 2009 - 2016 and Field Assessments

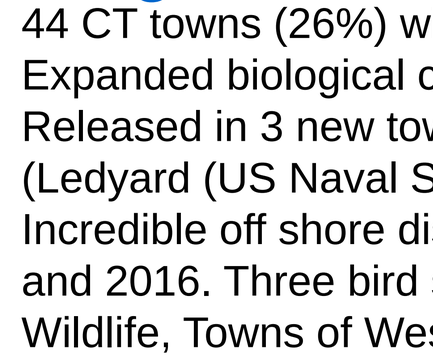
- Weevils reared & supplied by NJDA PABIL & URI
- 500-1000 adults released per site at a central location
- Monitoring over time for weevil survival and dispersal, activity and MAM damage, reduction in fruits

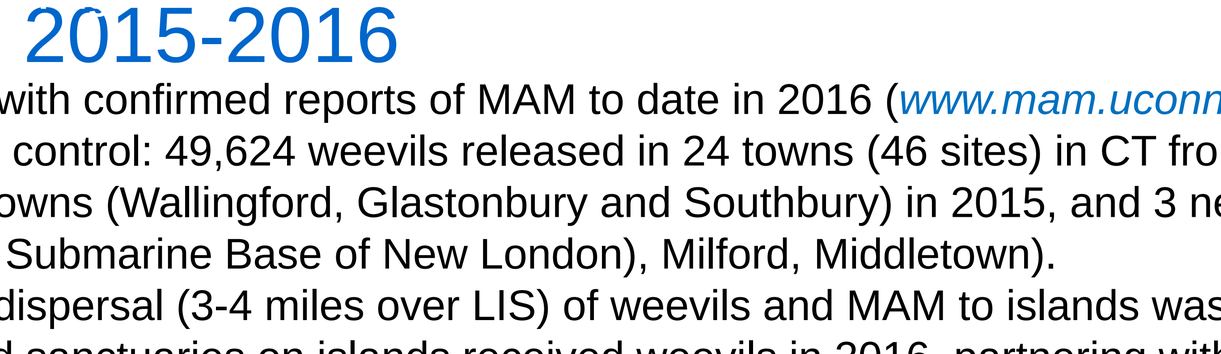


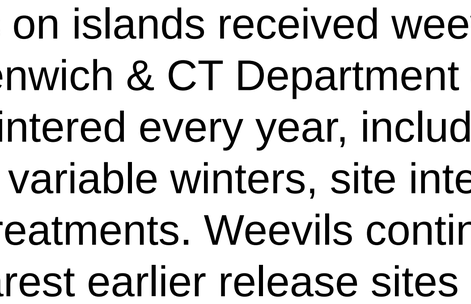
CT Releases 2014-2016

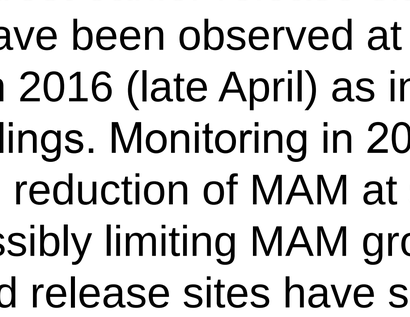
Progress in 2015-2016

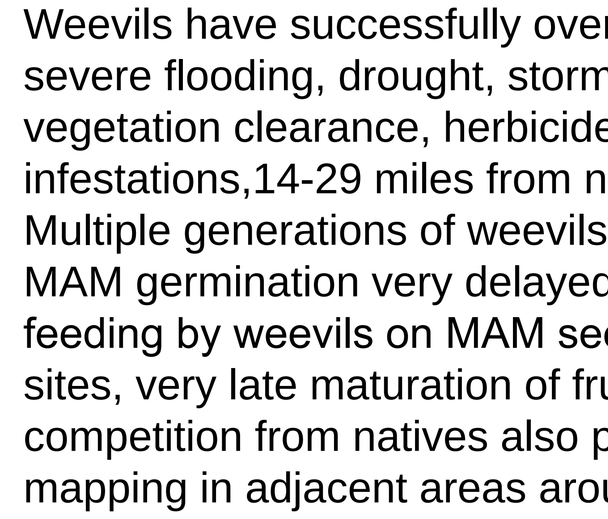
- 44 CT towns (26%) with confirmed reports of MAM to date in 2016 (*www.mam.uconn.edu/)*
- Expanded biological control: 49,624 weevils released in 24 towns (46 sites) in CT from 2009-2016. Released in 3 new towns (Wallingford, Glastonbury and Southbury) in 2015, and 3 new towns in 2016 (Ledyard (US Naval Submarine Base of New London), Milford, Middletown).
- Incredible off shore dispersal (3-4 miles over LIS) of weevils and MAM to islands was recorded in 2015 and 2016. Three bird sanctuaries on islands received weevils in 2016, partnering with US Fish and Wildlife, Towns of Westport, Greenwich & CT Department of Energy & Environmental Protection.
- Weevils have successfully overwintered every year, including the most severe winter of 2015; survived severe flooding, drought, storms, variable winters, site interference from mowing, tree felling, vegetation clearance, herbicide treatments. Weevils continue to spread near and far to MAM infestations,14-29 miles from nearest earlier release sites in 2014-2016.
- Multiple generations of weevils have been observed at sites & surrounds in 2015 and 2016
- MAM germination very delayed in 2016 (late April) as in 2014, due to cool spring and drought. Early feeding by weevils on MAM seedlings. Monitoring in 2016 showed weevils' continued presence at all sites, very late maturation of fruit, reduction of MAM at some sites. Extended severe drought, competition from natives also possibly limiting MAM growth and seed set. Intensive scouting and GIS mapping in adjacent areas around release sites have shown little or no spread of MAM.











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2009 - 2016

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