

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

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Assisted by Emmett Varricchio 2015-2017

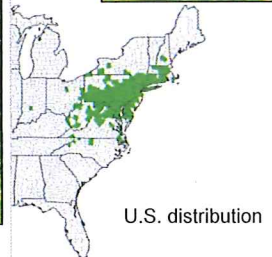
<sup>1</sup>The Connecticut Agricultural Experiment Station; <sup>2</sup>University of Connecticut  
Identifying MAM, *Persicaria perfoliata* (L.) H. Gross (*Polygonum perfoliatum*)

Origin: Asia  
Family Polygonaceae

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

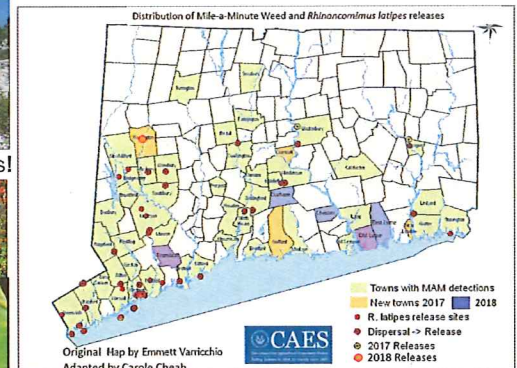


Tolerates beach conditions!



U.S. distribution

Distribution of MAM, location of weevil release sites and dispersal 2009-2018 in CT



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

EDDMapS. 2018. 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 October 2, 2018.

## *Rhinoncomimus latipes* (Coleoptera:Curculionidae)

- Federally screened for biological control; first introduced in CT in July 2009
- Adult weevils feed on youngest leaves, flowers and buds of MAM and are very host specific; in time, feeding may delay and reduce overall fruiting and maturation
- 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; 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 CT
- Adults overwinter and can live >1yr
- Adults fly and readily disperse to find new MAM populations, even dispersing to off shore islands in Long Island Sound



Feeding Damage



Adults feeding on new leaves

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



Feeding on immature fruit



Egg



Young larva



Larvae tunnelling in stem



2mm





# R. latipes Releases in CT 2009 - 2018 and Field Assessments

MAM Biocontrol Team 2018



- Weevils reared & supplied by NJDA PABIL (2009-2018) & URI (2012-2014)
- 500-1000 adults released per site at a central location
- Monitoring over time for weevil survival and dispersal, activity and MAM damage, timing of fruiting
- Annual visits in late summer to ~30 selected sites initiated in 2014



CT Releases 2014-2018



Washington 2018



Sheffield Island, 2018



U.S. Naval Submarine Base Ledyard 2016



Middletown 2016



Sprague 2016



Sprague 2014



Wallingford 2015



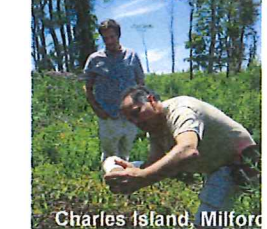
Glastonbury 2015



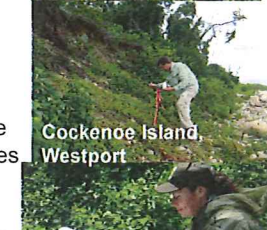
Southbury 2015



Bird Sanctuaries 2016



Charles Island, Milford



Cockenoe Island, Westport

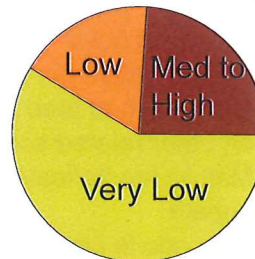


Stewart B. McKinney NWR

## Progress in 2015-2018

- 52 CT towns (31.3%) with confirmed reports of MAM to date in 2018 ([www.mam.uconn.edu/](http://www.mam.uconn.edu/)); **5 new in 2018**
- Expanded biological control: **56,124** weevils released in 25 towns (49 sites) in CT from 2009-2018: 1 new site and town, Washington, with augmentations in Westport and Sheffield Island, Norwalk (2018); Glastonbury Meadows + augmentation in Mohegan State Forest, Sprague (2017). Three new towns in 2016 (Ledyard (US Naval Submarine Base of New London), Milford, Middletown). Three new towns in 2015 (Wallingford, Glastonbury and Southbury). Weevil releases are dependent on availability from NJDA PABIL. In 2017, 200+ weevils were collected from established sites on the mainland for a late fall release on Sheffield Island, USFW NWR
- Heavy rains and one of the hottest summers on record in 2018 favored abundant MAM growth and extensive expansion but weevil activity and damage was negatively impacted in most sites. Climate impacts to be explored.
- 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 are observed yearly. New weevils were seen in mid-late Sep. 2018
- MAM germination very delayed (late April) in 2018, as in 2014, 2016 & 2017 due to cool springs. Drought heavily impacted MAM germination in 2016. Early feeding by weevils on MAM seedlings. In 2016, weevil activity was variable at sites; there was very late maturation of fruit, reduction of MAM at some sites, with or without weevil activity in 2018. Extended severe drought, competition from natives possibly limited MAM growth and seed set in 2016 but not so in 2017 and 2018. Weevil damage was disappointingly very light in 59% of sites in 2018:

## 2018 weevil damage



## USDA APHIS PPQ

USDA Forest Service  
Northeastern Area State Private  
Forestry

Forest Health Technology  
Enterprise Team

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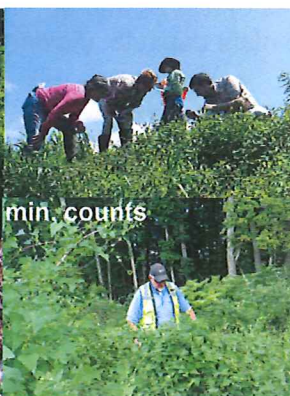
## Many thanks to cooperators 2009-2018

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All photos by Carole Cheah



Weevil activity: 5 min. counts



Fall damage  
Newtown Oct 2011

## Funding Support 2009 - 2018