

Invasive plants in Maine's forests



Japanese barberry, Wells



Shrubby honeysuckle, Windsor

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Maine Natural Areas Program**

Stewardship Forester Workshops

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Maine Natural Areas Program (MNAP)

Our mission – to ensure the maintenance of Maine’s natural heritage for the benefit of present and future generations.



- Keep track of natural resources
- Facilitate informed decision-making
 - Invasive plant initiatives

All photos courtesy of MNAP unless otherwise noted.

What is an invasive species?

A non-native species whose introduction does cause, or is likely to cause, economic or environmental harm or harm to human health, and which can establish and spread in minimally managed habitats.



Japanese knotweed (aka bamboo) and burning bush (aka winged euonymus)

How do invasive plants get here?

~50-60% brought
for horticulture



~30% brought for
“conservation”



~10% accidental



#s from Marinelli and Randall 1996, Invasive Plants: Weeds of the Global Garden, P.5-6, and New England Wildflower Society

Why are they so successful?

- Thrive on disturbance
- Competitive advantages:
 - Not usually eaten
 - Early leaf out
 - Bountiful reproduction



What harm do invasive plants do?



Second harm to herbivores and on up the-food web

Out-compete native plant species, overrun habitats

Compete with native tree regeneration



Damage or kill plants directly or indirectly



Key steps in addressing invasive plants

- Prevent new introductions
- Identify and assess
- Prioritize
- Control
- Monitor

Additional need: Meet Tree Farm Standards

Standard 5, Forest Health

Indicator 5.3.1

Landowner should make practical efforts to promote **forest health**, including prevention, control or response to disturbances such as wildland fire, **invasive species** and other pests, pathogens, or unwanted vegetation, to achieve specific management objectives.

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**Most important
opportunity to keep
Maine's forests clean!**

Meet Tree Farm Standards

Standard 5, Forest Health

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Preventing introductions in the forest



Clean equipment



Monitor sites with fill, seed mix, etc.
And sites near waterways



Preventing introductions in the forest



Plant native species

GIVE INVASIVE SPECIES THE BRUSH OFF.

Clean Your Gear Before Entering
And Before Leaving The Recreation Site.



Help Prevent The Spread
Of Invasive Plants And Animals.

- REMOVE plants, animals & mud from boots, gear, pets & vehicle.
- CLEAN your gear before entering & leaving the recreation site.
- STAY on designated roads & trails.
- USE CERTIFIED or local firewood & hay



STOP INVASIVE SPECIES
IN YOUR TRACKS.
PlayCleanGo.org

Clean yourself and pets

Learn to identify 10+ important forest invasive plants

1. Japanese barberry
2. Shrubby honeysuckles
3. Asiatic bittersweet
4. Common buckthorn
5. Glossy buckthorn
6. Autumn olive
7. Multiflora rose

8. Norway maple
9. Burning bush
10. Garlic mustard
[Japanese knotweed]
[Common reed, aka *Phragmites*]



Asiatic bittersweet (*Celastrus orbiculatus*)

- Woody vine that climbs
- Can strangle or weigh down a mature tree
- Favors open areas but will survive under forest canopy



Autumn olive

Eleagnus umbellata

- Woody shrub can grow to ~15' tall
- Found in open areas and forest edges
- Alternate leaves with tiny brown and/or silver scales
- Leaf edges are smooth
- Can have thorns



Autumn olive
Eleagnus umbellata



Burning bush
aka winged euonymus
Euonymous alatus

- Branching shrub can grow to over 10' tall
- Tolerates sun and full shade
- Opposite leaves
- Moist to wet soils



Euonymus alata Understory
Middlefield, CT
May 2, 2006
T.J. Rawinski

Burning bush
aka winged euonymus
Euonymous alatus



“Winged” twigs

Common buckthorn (*Rhamnus cathartica*)

- Shrub or small tree (to 25')
- Does fine in full shade
- ~1/4 in. “thorns” at the end of twigs
- Opposite to sub-opposite leaves
- Harmful to amphibians



Glossy false buckthorn (*Frangula alnus*)

- Shrub or small tree
- Grows in uplands or wetlands, in shade or sun
- Clearly *alternate* leaves
- Smooth leaf edges
- Fruits first red, ripen to black



Garlic mustard

Alliaria petiolata

- Biennial herb
- Can grow in uplands ***or wetlands***, in shade or sun
- Year 1 – basal rosette of round/kidney shaped leaves (no flowers)
- Year 2 – alternate, triangular leaves



Garlic mustard

Alliaria petiolata

- 4-part, white flower
- Long, thin seed pods
- Can form very dense infestations
- Crushed leaves have a garlic-y smell



Honeysuckle shrubs

Lonicera morrowii, *L. tatarica*

- Arching shrubs of open to shaded areas
- Older shrubs can reach 10' tall and 10' wide
- Opposite, oval leaves
- Hollow stem pith distinguishes invasive spp. from our native species

hollow
stem pith

...on
larger
stems



© Gary Fewless/University of Wisconsin-Green Bay



Honeysuckle shrubs

Lonicera morrowii,

L. tatarica



Japanese barberry *Berberis thunbergii*

- Arching shrub of forests and edges
- Shade tolerant
- Can grow to 5' tall x 5' wide
- Densely thorny twigs (“barbs”)
- Oblong red fruits hang below stems



Japanese barberry *Berberis thunbergii*



Ticks!! ☹️

Japanese knotweed (*Fallopia japonica*)

- Thrives in open areas, and partial shade
- Can tolerate wet soil
- Forms monoculture connected by rhizomes
- **Mostly spreads by fragments** – can sprout from any node or rhizome ☹️



Japanese knotweed (*Fallopia japonica*)



Multiflora rose

Rosa multiflora

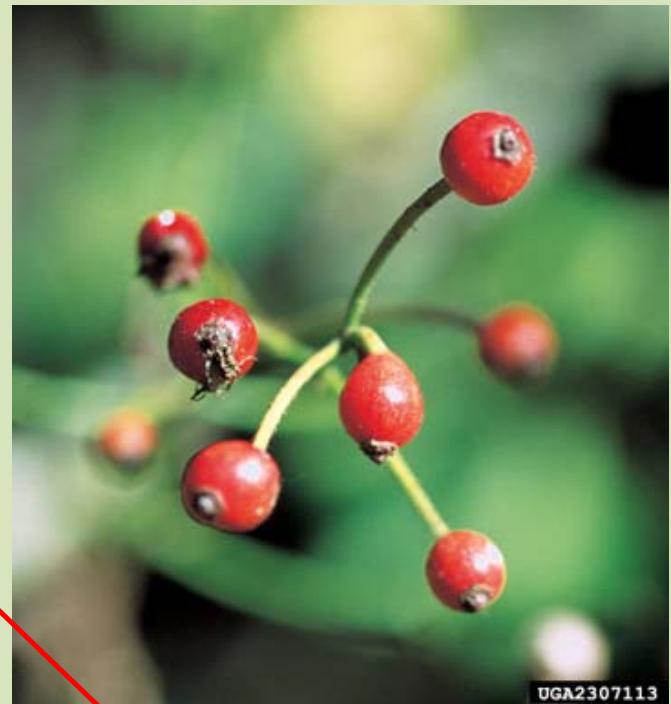
- Arching shrub
- Grows in open areas to partial shade
- Typical, rose thorns along twigs
- Compound leaves
- Can even start to climb/sprawl on trees and shrubs



Multiflora rose

Rosa multiflora

- Leaf base has fringed petiole where it meets the stem – distinguishes it from all native roses



Norway maple
Acer platanoides

- Canopy tree
- Widely planted street tree
- Leaves slightly different shape than native maples
- Broken leaf stem has white, milky sap, unlike native maples



Common reed

Phragmites australis

- Tall grass (up to 13'+) with blue-green leaves
- Leaves alternate
- Seed head starts purplish, turns brown
- Forms dense stands in brackish salt marshes and freshwater marshes



Websites for invasive plant identification

- Maine Natural Areas Program - factsheets
- GoBotany
- About My Woods, What's in My Woods section (also an App)

The screenshot shows the Go Botany website. At the top, there is a green header with the logo and the text "Go Botany Discover thousands of New England plants". To the right is the logo for the "NEW ENGLAND WILD FLOWER SOCIETY". Below the header is a navigation menu with links for Home, Simple Key, PlantShare, Full Key, Dichotomous Key, Teaching, and Help. A search bar is located on the right side of the menu. The main content area features a large image of children in a forest. To the right of this image is a "Simple ID Key" section with a description: "Want to know what that plant is? With our Simple Key, you can identify over 1,200 common native and naturalized New England plants! Observe closely, collect a sample or take a photo, answer some questions, and narrow down to the correct identification." Below this is a "GET STARTED" button. Further down, there are three columns: "PlantShare" (Connect with other plant fans!), "Advanced ID Tools" (For experienced botanists!), and "Teaching Tools" (New: a useful teaching resource!). At the bottom, there is a dark green navigation bar with links for "About My Woods", "Maps", "What's in My Woods", "Things to Know", "Who Can Help", and "Field Notes". Below this is a section titled "Invasive Plants and Invasive Insects" with a grid of images and captions for "Burning Bush", "Glossy Buckthorn", "Multiflora Rose", and "Spotted Knapweed". A "Source" section is also visible, mentioning Douglas Cym and the NH Dept. of Agriculture.

Key steps in addressing invasive plants

- Prevent new introductions
- Identify and **assess**
- **Prioritize**
- **Control**
- **Monitor**
- **Act early and often**

iMapInvasives online mapping tool can help



***Google “Maine
iMapInvasives”
to request an
account***

Centralized repository for
reporting new species

Site assessment:

what, where, how much?

Landscape context:

What plants already
infest your area?

Record and monitor

Treatments

iMapInvasives map - by county

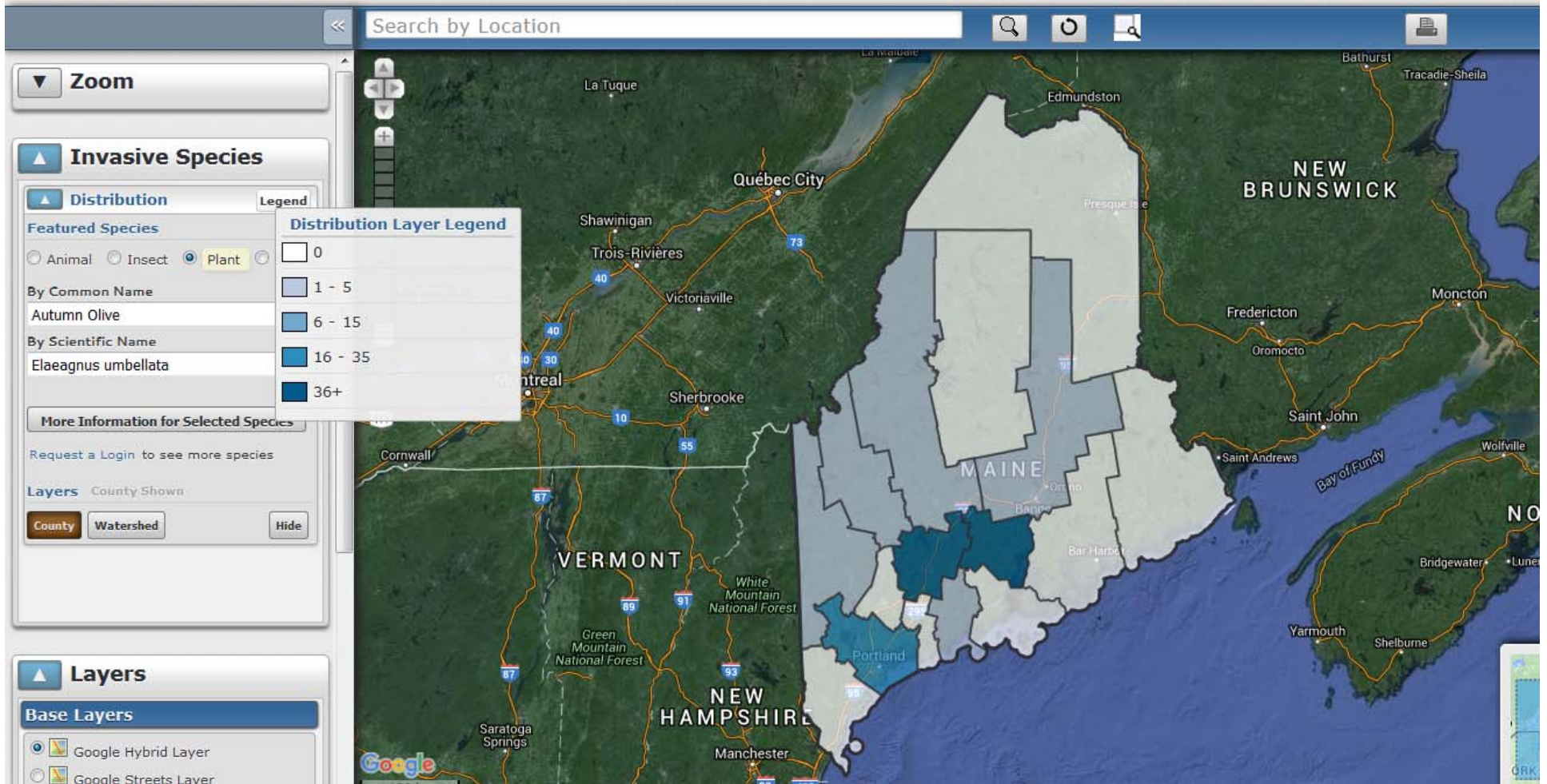


iMapInvasives
Sharing information
for strategic management

Maine Invasive Species Public Map

[Request a Login](#)

[Instructions](#) [Generate Reports](#) [Report Invasive](#) [Links](#)



iMapInvasives map - site scale



Maine Invasive Species Map

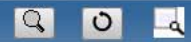
[Instructions](#) [Generate Reports](#) [Data Entry](#) [Links](#)

Welcome back, **Nancy**
(nanolmstead_10) 2.031

[Home](#)

[Log Out](#)

Search by Species, Location, or ID #



- Partner Data
- Nonindigenous Aquatic Species (USGS-NAS)
- Confirmed
- Unconfirmed
- Approximate
- Problem
- Deleted

Infestation

Invasive Species Details

- Assessments - Animals
- Assessments - Insects
- Assessments - Plants
- Treatments
- Treatment - Problem Data
- Treatment - Deleted Data
- Survey
- Survey - Problem Data
- Survey - Deleted Data

Map Overlay Layers

- Counties
- Watershed (HUC 8)
- Conservation Lands

Conservation Lands

Transparency

22%



Mouse Position
Long:-69.8828 /Lat:44.2876
X:429562 /Y:4904193



Set realistic goals, make a plan

Prioritize:

Best timber stands

Eradication of new species

Eradication of small,
isolated populations

Next priority:

Suppress bad infestations

Contain larger patches



Species-specific Best Control Practices (what herbicide do I use, when, concentration, etc.)

- **UMaine Ext. fact sheets** – a start
- **Michigan DNR - Invasive Species Best Control Practices**
- **US Forest Service - *A Management Guide for Invasive Plants in Southern Forests***



A Management Guide for Invasive Plants in Southern Forests

James H. Miller, Steven T. Manning, and Stephen F. Enloe



United States Department of Agriculture • Forest Service • Southern Research Station
General Technical Report SRS-131



Invasive Species—Best Control Practices

Michigan Department of Natural Resources
Michigan Natural Features Inventory
2/2012

Autumn olive

Elaeagnus umbellata

Autumn olive is native to Asia and was introduced into the US in the 1830s. It was commonly planted for wildlife food and cover until its invasive traits became apparent. It produces abundant fruits that are widely distributed by birds and mammals. Like many non-native shrubs, it leafs out early and retains its leaves late in fall, shading out desirable native species and reducing species diversity. It is able to germinate and survive in shade as well as sun.

Autumn olive has root nodules that fix atmospheric nitrogen. As a result, it has the potential to degrade native plant communities that are adapted to low nutrient levels such as barrens and prairies. The resulting increase in nitrogen



Good Forestry in the Granite State

Chapter on Invasive Plants

Good Forestry in the Granite State:
Recommended Voluntary Forest Management Practices for New Hampshire

[Home](#) | [About the guide](#) | [Allowed uses](#)

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5.2 INVASIVE PLANTS

BACKGROUND

Invasive plants can pose a threat to forest ecosystems and forest productivity. Foresters, landowners, and loggers can play important roles in slowing the spread of invasive species.

Invasive plants are non-native species that invade natural communities and develop self-sustaining populations. The start of many infestations is often tied to a disturbance, and once established, the invasive species spread into undisturbed landscapes. They out-compete native species, disrupting ecological processes, and cause a loss of economic value or output. The economic impacts, sometimes hard to discern directly, often result from the environmental impacts.

The N.H. Invasive Species Law (RSA 430:52 and N.H. Administrative Rules AGR 3800) defines an invasive species as "an alien species whose introduction causes or is likely to cause economic or environmental harm or harm to human health." These species come in a variety of forms, including trees, vines, shrubs, grasses, terrestrial herbaceous and aquatic.

Table 3800.1 New Hampshire Prohibited Invasive Species List from N.H. Administrative Rules AGR 3800

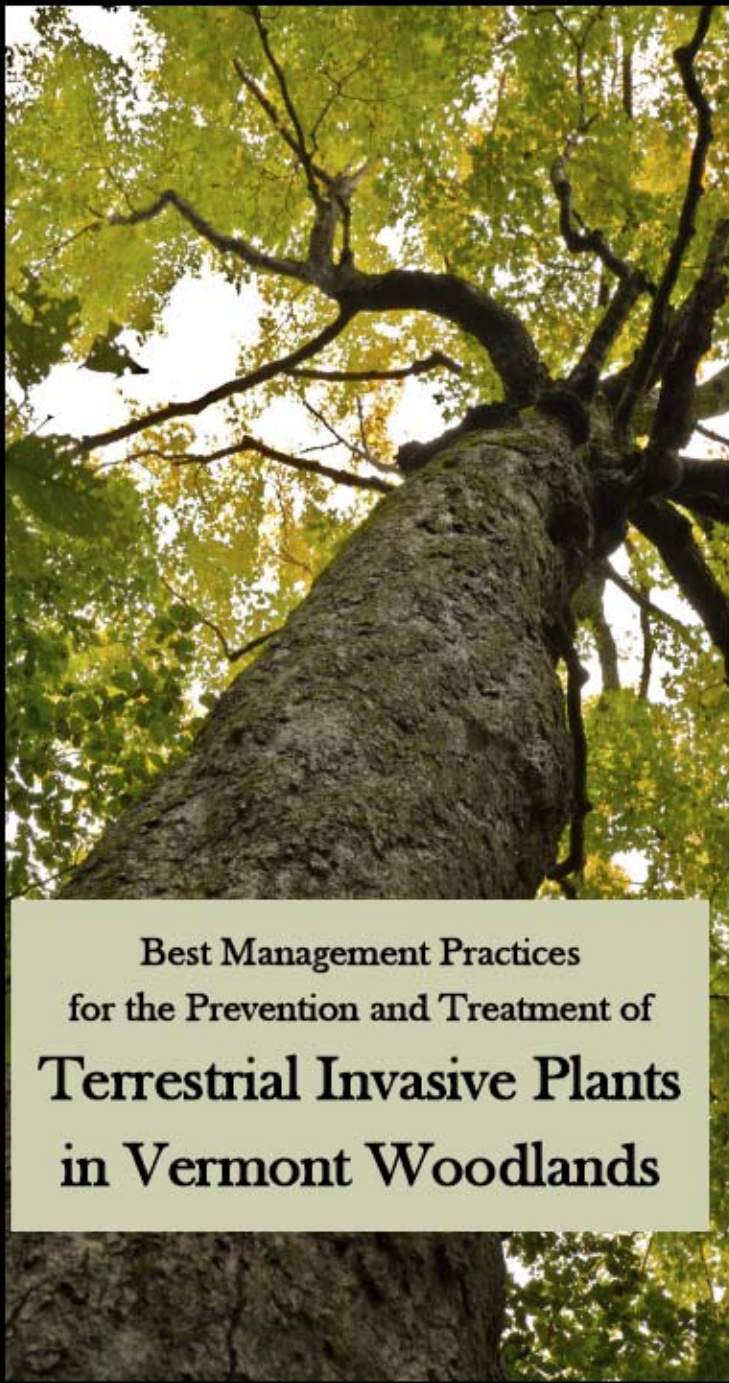
Scientific Name	Common Name
<i>Acer platanoides</i>	Norway maple
<i>Ailanthus altissima</i>	tree of heaven
<i>Alliaria petiolata</i>	garlic mustard

<http://extension.unh.edu/goodforestry/>

Useful BMPs

VT

FIELD GUIDE FOR LAND MANAGERS, FORESTRY PROFESSIONALS AND LANDOWNERS



Best Management Practices
for the Prevention and Treatment of
Terrestrial Invasive Plants
in Vermont Woodlands

<http://www.vtinvasives.org/plants/prevention-and-management/forestry-best-management-practices>



THANK YOU! QUESTIONS?

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