

Invasive Plant Control Options

Techniques appropriate for each

Season

Site

Species



Control Options

Manual or mechanical

Hand pulling

Hand tools

Girdling

Biological

Fungal

Insect

Combination of Mechanical and chemical

Cut stem

Frilling

Ecological

Shading

Grazing

Fire

Chemical

Foliar spray

Basal spray

Herbicide Labels are the law as stipulated by EPA regulations

“The Label is the Law”



State and Federal Regulations

Site considerations are important for impacts to wetlands and sensitive species, as well as neighboring properties

Judicious use of herbicide is your decision to make, and your responsibility to use with caution

Spring

Plants drawing reserves out of
root system

Leafing out and flowering

Period of active growth and
energy expenditure

Moist soil



Summer

Time of active and rapid growth

Energy resources located in leaves and stems

Seed production; flowering for late species

Periods of drought

Hot temperatures

High humidity



Fall

Plants pull nutrients into root system

Seed production

Seed dispersal

Leaf surfaces are tough

Deciduous plants begin to drop leaves



Winter

Deciduous plants are dormant

Herbaceous vegetation is dormant

Semi-evergreen and evergreen
vegetation photosynthesizing

Moist soil

Snow cover



Site Conditions

Wetland

Upland



Presence of sensitive native species

Dense invasive vegetation



Sparse invasive vegetation

Garlic mustard, *Alliaria petiolata*

Biennial, evergreen

Plants flower in spring

Seeds mature in mid-summer

Grows on moist shady sites

Hand pull before flowering

If flowering, bag all pulled stems

Seeds will mature from flower buds

Foliar herbicide such as Glyphosate can be applied to basal rosettes,

In winter, apply a foliar spray of Triclopyr in oil

Mowing in late spring with a string trimmer





Oriental bittersweet, *Celastrus orbiculatus*

Perennial vine

Flowers in spring

Fruits mature late summer to fall

Populations 1st appear along habitat edges



Hand pull seedlings and small populations

Mowing can be effective if done several times during the growing season, over the course of several years

Vines will continue to grow if in contact with moist soil



Do not pull vines from trees

Cut vines at ground level in late winter or early spring,
and apply Triclopyr in oil solution
Apply Glyphosate to cut stems in late summer or fall

Japanese knotweed,
Polygonum cuspidatum

Perennial herb

Hollow stems

Grows from a tuber

Spreads by rhizomes

Flowers in late summer



Small populations can be hand dug

Dry stems for 3 months

Foliar spray with Glyphosate
when flowering

Cut stems and apply Glyphosate to
hollow cavity

Stem fragments can root





Biological Control for Japanese knotweed Experimental stages in Britain

Plant-jumping lice called Psyllids
suck the sap of Japanese knotweed stems,
causing them to die back



Japanese silt grass, *Microstegium vimineum*

Annual grass

Seeds begin to germinate late May and continue until mid-July

Flowers form in late August

Seeds mature by early to mid-September

Prefers moist soil



Hand pull, or string trim in August

Apply foliar herbicide of Glyphosate in August

Avoid areas when grass is in seed

Japanese barberry, *Berberis thunbergii*

Multi-stemmed shrub

Early leaf out, late leaf drop

Flowers in May

Fruits mature in fall and persist

Prefers moist fertile soil

Hand pull small plants in spring or fall

Cut stem treatment with Glyphosate
in fall or Triclopyr in oil in
winter or spring

Stack cut stems to dry; will re-sprout
in contact with moist soil.



Mowing with a string trimmer



Or with a brush hog can reduce dense growth, and control fruiting

Following cutting or mowing, re-sprouts can be treated with a foliar herbicide

Cut stems and apply herbicide directly to the cut surface



Selective applications where
populations are relatively small





Multiflora rose, *Rosa multiflora*

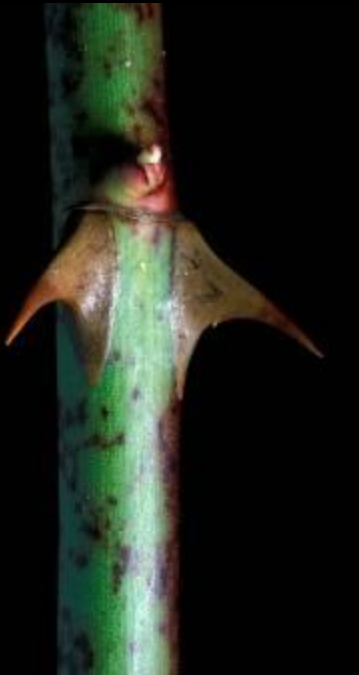
Shrub with arching stems

Vining habit common in shade

Stout, sharp prickles

Can tolerate moist soils

Flowers in early summer



Hand pull small plants when soil is moist

Apply foliar spray of Triclopyr when
flowering to reduce mass

Spot treat with Glyphosate in late summer

Stack pulled or cut plants to dry. Avoid contact with soil

Foliar application of herbicide can be useful where vegetation is dense
Applications can be high or low in volume depending on the sensitivity of the site



Shaw Nature Ctr.

Glossy buckthorn, *Frangula alnus*

Colonial tall shrub

Flowers throughout summer

Fruits mature throughout summer

Late leaf drop

Hand pull seedlings in spring or fall

**Cutting alone causes roots
to sprout multiple stems**

Mow thickets in early summer and
treat stems with Triclopyr in oil

Cut stem treatment in fall with Glyphosate

Foliar spray in fall with Glyphosate





Basal spray applications can be conducted in the winter when herbaceous species are dormant.

Do not use this method if there is snow cover

Hand-pulling seedlings

Use of hand tools to pull larger plants





When the canopy is released, large numbers of seeds lying dormant in the seed bank will sprout. It is important to consider the future community

Desirable species may be present in the understory or in the seed bank.



Or, the seed bank may contain numerous seeds of the
invasive species just removed



Ultimately, the goal should be to create management practices that tip the balance in favor of native plants





Some sites may require replanting



FHWP “Rhody Native”

- Promote RI Biodiversity
- Promote local nursery industry
- Locally Sourced, genetically diverse Native Plants
- Rhody-Marketed
- Not just Forest plants
- Several markets: restoration groups, LA’s, homeowners, etc.
- Long-term Initiative, still in the planning stages
- Interest & Help Welcome





Question about Invasives?

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Center for Invasive Plant Management

www.weedcenter.org (TNC information)

Connecticut Invasive Plant Working Group (CIPWG)

www.hort.uconn.edu/cipwg

Invasive Plant Atlas of New England (IPANE)

www.nbii-nin.ciesin.columbia.edu/ipane

Natural Resource and Conservation Service

www.ct.nrcs.usda.gov

Penn State Weed Management Extension and Outreach

www.weeds.cas.psu.edu/extension

Rhode Island Natural History Survey (RINHS)

www.rinhs.org/invasives

The Nature Conservancy (TNC)

www.tncinvasives.ucdavis (archived material)