Managing Invasive Shrubs

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Outline

- Impacts of invasive shrubs
- Common invasive shrub species
- Management techniques and recommendations
Invasive Species

• Serious threat to natural resources and land management

• Loss of —
  — Diversity
  — Productivity
  — Wildlife habitat
Bush honeysuckle

- Invasion leads to a decline in the growth rate of trees by over 50%
  - Hartman and McCarthy 2007
- Infestations can eliminate native shrub and tree seedling diversity
Invasive shrubs and wildlife

• Increased predation of shrub-nesting birds in invaded forests
• Altered water chemistry and invertebrate and fish community in streams with invaded riparian areas
• Change microclimate conditions to deter reptile species
Invasive shrubs impact ticks and tick-borne diseases
Common Invasive Shrubs

- Bush honeysuckle (*Lonicera spp.*)
- Autumn olive (*Elaeagnus umbellata*)
- Common buckthorn (*Rhamnus cathartica*)
- Japanese barberry (*Berberis thunbergii*)
- Burning bush (*Euonymus alatus*)
- Callery pear (*Pyrus calleryana*)
Bush Honeysuckle – *Lonicera maackii*

- Shrub
- Opposite, simple leaves
- White-yellow fragrant flowers
- Bright red fruit, often in pairs or fours
Bush Honeysuckle - Notes

- Bird dispersed seeds
- Does not require disturbance to establish
  - Invades high quality woodlands
- Devastating effects on native understory
- Reduced tree growth
- Reduced seedling establishment
Autumn Olive – *Elaeagnus umbellata*

- Large, multistemmed shrub
- Alternate, simple leaves
- Silvery undersides
- Creamy-yellow flowers
- Rusty red fruit
- May or may not have short spines
Autumn Olive
Autumn Olive
Autumn Olive - Notes

• Bird Dispersed
• Very abundant (reinfects sites easily)
• Alters fuels needed for prescribed fire (leaves do not burn that well)
Common Buckthorn

- Opposite or ‘sub-opposite’
- Leaves with arcing veins
- Black fruits persist well into winter
- Dark gray bark with abundant lenticels
- Twigs tipped with ‘buckthorn’ spine
- Orange underbark layer
Common Buckthorn
Common Buckthorn
Common Buckthorn
Common Buckthorn
Glossy Buckthorn
Callery Pear

- Bradford pear, Cleveland pear, etc.
- Deciduous small tree
- Extremely widely planted as an ornamental
- Little wildlife value
- Now widely escaped and showing invasive behavior
Wasn’t this plat sterile?

- Species cannot self fertilize, obligate out-crosser
- Each variety is asexually propagated, meaning that they plants within the same variety are genetically identical and self incompatible.
- When new varieties were introduced, cross pollination led to fertile fruit formation and escaped populations
Callery Pear Identification

• Alternate, simple leaves
  – Turn deep red in fall
• White, five-petaled flowers
• Small, rough, tan fruit in open clusters
• Gray bark, often with thorns on small branches
• Fuzzy buds
Winged Burning Bush

• Winged euonymus, burning bush, winged wahoo
• Tardily deciduous woody shrub
• Very widely planted as an ornamental
• Bird-dispersed seeds
Winged Burning Bush Identification

• Opposite, toothed leaves
  – Widest point often beyond the middle
  – Very short petiole
  – Often turn bright red in fall
• Corky wings on branches (not always)
• Twigs green in color
• Orange-red fruit with rough covering that splits open
• ‘Upright’ nature to plant
Japanese Barberry

- Deciduous woody small shrub
- Widely planted ornamental
- Bird dispersed seeds
- Widely escaped in the Eastern United States
- Prohibited for sale in several states
  - New England states
Japanese Barberry Identification

- Multistemmed shrub, typically 3-6 feet in height
- Small, alternative leaves
  - Spatulate in shape
  - Can be blue green, purple, or reddish in color
- Stems are very spiny (spines single, not in threes)
- Light tan, stringy bark
- Fruit are oblong and bright red
MANAGEMENT
Management Notes

• Fruit/Seed
  – Most invasive shrubs have fleshy fruit that can be dispersed by birds
  – Most invasive shrubs have very little seed bank potential (1-2 years)

• Invasive shrubs tend to sprout aggressively when cut if not treated
Planning for Control

Focus on

• New and/or actively spreading infestations
• Significant resource at risk
Management goals

• Reduce, prevent, or eliminate the negative impact of invasive plants
  – Controlling established infestations
  – Preventing the introduction or spread of new infestations
  – Promoting desirable species and healthy systems to resist invasion
INVASIVE PLANT CONTROL DATABASE

Welcome to the Invasive Plant Control Database

This website contains information on how to control many invasive plants common to the Midwestern United States. Information was collected from both scientific literature and expert opinions and summarized by the Midwest Invasive Plant Network (MIPN), in partnership with the Mark Renz lab from the University of Wisconsin-Madison. Methods that are uncommon, do not provide sufficient control, or lack information for determining effectiveness on target species are omitted. For each species, information was reviewed by four individuals, including two identified as experts on control of that species. Information is searchable by several fields to improve the user’s ability to find pertinent information. To view the search feature, you must first select an invasive plant. Additionally, users have the option of entering personal experiences with managing specific species (see “add new case studies” under search results). These case studies will be visible to all users once verified by MIPN staff.

We make no representations or warranties of any kind, express or implied, about the completeness, accuracy, reliability, suitability, or availability with respect to the information or products on the website. Any reliance you place on such information is therefore strictly at your own risk. References to pesticide products on this website are for your convenience and are not an endorsement or guarantee of one product over another.

Step 1: Select Plant

Step 1: Select a species by choosing a common or scientific name from the list, or by typing a name in the search box.

- Free Form Search
- Common Name List
- Scientific Name List

[Select Plant]
Invasive Plant Control

• Expect to need 3-5 years to eradicate an infestation
  – Expect reinfection
    • Common species
    • If nearby infestation

• Equipment sanitation/cleaning a must to prevent moving seeds around and aided spread of these plants
Mechanical Control

- Hand-pull, mow, torch
- Works well for some plant but not for others
  - Smaller individuals
  - Moist soils
- ‘Weed wrench’ or other mechanical puller
Chemical control

• Always use appropriate protective gear
  – Eye protection
  – Long sleeves and pants
  – Closed-toe shoes
  – Chemical gloves

• **Always** read and follow label information
  – It’s the law!
Herbicides

• Glyphosate (Roundup and generics)
  – Broad-spectrum herbicide (kills any actively growing plant)
  – Aquatic-labeled versions (Rodeo, Aquaneat)
  – Works as both foliar application and cut stump
  – Does not work for basal bark
Herbicides

• Triclopyr (Garlon, Tahoe, generics)
  – Broad-leaved specific – Does not impact grasses
    • Give you selectivity in the right situations
  – Two versions – Amine and Ester
    • Amine – (Garlon 3A) – Mix with water
      – Used primarily for foliar applications and cut stump
      – Has an aquatic label
    • Ester – (Garlon 4) – Mix with oil
      – Not used much for foliar applications
      – Works well for cut stump
      – Best choice for basal bark
Cut Stump Treatment

- Used on any woody invasive plant, regardless of size
- Cutting down the woody plant and treating cut surface with a concentrated, systemic herbicide to prevent sprouting
Cut Stump Treatments

- 50% solution of glyphosate
- 17-25% solution of triclopyr (Garlon)
  - Use water-based 20-25% solution during summer and fall treatments
  - Use oil-based 17-25% solution during summer through winter months
Cut Stump Treatments

- Treatment very soon after cutting surface (ideally within 10 minutes)
- Treat entire surface of small stems (less than 2” diameter) or outer 1” of larger stems
- Adding herbicide dye is very helpful in tracking treatments and reducing missed stumps
Cut Stump Treatments

• Treatment is most effective in mid to late fall
• DO NOT treat in the spring using this method, it is not effective
  – Wait until plants are fully leafed out before using this method
Basal Bark Treatments

• Apply herbicide directly to the stem of the woody plant
  – Make sure to cover all sides
  – Ground – 12” high

• Need an oil-based herbicide

• Uses more herbicide than cut stump but doesn’t require cutting down plant

• Heavy snow cover limits this method

• Silt-covered stems (lowlands prone to flooding) limits this method
Basal Bark Treatments

• Used on smaller stem woody plants
• Leaves plants standing – no slash problem
• Ester formulation of Triclopyr (17-25%) in oil with a dye
• Effective through fall and winter (until plants start getting active in late winter / early spring)
  – Late fall most effective time
Foliar treatments

- Foliage needs to be healthy and actively growing to take up herbicide
  - Full foliage (not a lot of leaf loss)
  - Green foliage (little to no fall yellowing)
  - Temperature conducive to photosynthesis (above 50⁰)
  - Drought or other harsh conditions reduces effectiveness
Foliar Treatments

• Thorough coverage of leaves with herbicide
• Don’t spray to point of runoff
• Use an herbicide dye to help prevent overspray or skips
Foliar Treatments

• Typical application
  – 1-3% glyphosate
  – 2-4% triclopyr
  – CHECK Labels and literature for more specific rates and additional herbicide options
  – Young plants are more susceptible and can be controlled using lower range of rates
Aerial Control
Forestry Mulching
Forestry Mulching

• Follow up immediately with cut stump treatment (ester triclopyr in oil)

• Treat sprouts the following growing season
  – Allow regrowth to 24”-36”
Bush Honeysuckle Notes

• Fall foliar application of glyphosate at 2% (if foliage is adequate)
  – Allows selectivity

• Cut stump treatment with 50% glyphosate
  – Triclopyr inconsistent results
  – Basal bark inconsistent

• Burning will set it back and help prevent seed formation
Notes on Management

Autumn olive

- Basal bark applications with triclopyr (ester formulation) also work well on plants up to 4-6” in diameter
- Cut stump – glyphosate at 50% or triclopyr at 25%

Callery pear

- Cut stump or foliar application – triclopyr or glyphosate
Notes on Management

Burning bush
  – Cut stump, basal bark or foliar

Japanese barberry
  – Foliar, cut stump or basal bark
  – Torching root base
Questions