

Outline

- General Invasive Plant Ecology
- □ Identification of New Invasive Plants
- Management Principles



Invasive Species

- A species that is not native to the ecosystem
- Escaped and naturalized
- Disrupts or has the potential to disrupt natural communities or ecological functions
 - Leads to ecological, economic, or environmental damage

Definitions

Exotic

- Not naturally found in a given ecosystem or region
- Arrived in new ecosystem not by its own means

Native

- Naturally found in a given ecosystem or region
 Evolved in or naturally migrated to given ecosystem
 - In the United States, typically means it was present pre-European settlement





How Did They Get Here?

- Introduced, either accidentally or intentionally by humans
- Not natural migration of species
 - Barriers of inhospitable habitat prevents natural spread

Invasive Plant Introductions

- Accidental
 - Seed/plant material contaminant
 - Ballast water
 - Packing material
- Intentional
 - Erosion control
 - Agriculture
 - Wildlife
 - Ornamental

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Impacts

- Invasive plants can impact:
 - The health of your land
 - The potential of your land
 - The productivity of your land
 - The cost of management
 - $\hfill\square$ The value of your land
 - The recreational use of your land





Bush honeysuckle can reduce growth of trees by 50% and completely restrict tree seedling establishment



Garlic mustard is unpalatable to most wildlife and can replace other species used as food sources





Oriental bittersweet can completely overwhelm trees

Wildlife Impacts

Infestations of exotic shrubs can

- Drastically increase nest predation for bird species
- Alter water chemistry and food sources for fish in streams
- Change microclimate conditions to deter reptile species
- Increase tick and tick-borne disease prevalence
- Japanese stiltgrass infestations can
 - Increase populations of predators of young amphibians



How do they become invasive?

Faster and/or more efficient acquisition of limited resources

Water

- Sunlight
- Nutrients
- Space



Allelopathy



Invasive Species Dispersal Pathways













New Invasive Species in Illinois



New Invasive Plants

- Burning bush
- Japanese barberry
- Callery pear
- Japanese stiltgrass
- □ Japanese chaff flower
- Giant hogweed











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Management of New Invasive Plants

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

- Expect to need 3-5 years to eradicate an infestation
 Expect reinfestation
 - Common species

- If nearby infestation
- Equipment sanitation/cleaning a must to prevent moving seeds around and aided spread of these plants



Invasive Plant Control

- Learn to anticipate problems
 - Know which species are in the area and likely to invade
 - Learn how to recognize new species and act quickly to control them
 - Early control of infestations is always cheaper and more successful than waiting until the infestation is large and well established









New Invasive Plant Monitoring

- Disturbed sites
- Fencerows

- Off-site material
- Off-site equipment
- High use areas
- Edge habitats
- Travel corridors







Best Management Practices

- Learn to identify and recognize invasive species
- Know what is on <u>or near</u> your land
 Monitor and Survey
- Mark infestations on a map and in the field
- Start managing as soon as new infestations are found
 Infestations are easier and cheaper to control before they are large and well established

Best Management Practices

- Help prevent the spread of invasive plants onto your land
 - Equipment sanitation
 - Stop using invasive species
 - Inspect off-site equipment and material
 - Monitor areas with recent disturbance
 - Inform any users of your land about invasive species (hunters, loggers, hikers)



Planning for Control

Focal points

- □ New and/or actively spreading infestations
- Significant resource at risk
- □ Spread potential
 - Trails
 - Parking areas
 - Future disturbance planned



Edge of Infestation Inward



Control Techniques

Invasive Plants

Control Techniques

Mechanical and Chemical

- Can be used in combination
- Decide what the most effective, safe, and efficient method to use



http://mipncontroldatabase.wisc.edu/



Chemical control

- Always use appropriate protective gear
 Goggles
 - Long sleeves and pants
 - Closed-toe shoes
 - Chemical gloves
- ☐ <u>Always</u> read and follow label information
 ☐ It's the law!



Chemical control

Typical herbicides used

- Glyphosate (Roundup, Rodeo, Glypro, etc.)
- Triclopyr (Garlon, Tahoe, Crossroads, Ortho Brush-B-Gone, etc.)

Application methods

Cut stump

- Basal bark
- $\hfill\square$ Foliar treatments
 - Spot sprayBroadcast





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

- \square 50% solution of glyphosate
- □ 17-25% solution of triclopyr (Garlon)
 - Use water-based 20-25% solution during summer and fall treaments
 - 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



Cut Stump and Basal Bark

- Effective through fall and winter (until plants start getting active in late winter / early spring)
 Late fall most effective time
- $\hfill\square$ Cut stump can be used on any woody invasive species
- Basal bark needs a target with thin, smooth bark to work best
- Cut stump
 - Glyphosate at 50% in water (when temperature are above freezing) (preferred for bush honeysuckle)
 - Triclopyr at 17-25% in water (amine formulation) or oil (ester formulation)



Cut Stump and Basal Bark

Basal Bark

- Triclopyr (ester formulation like Garlon 4) at 17-20% in oil
 - Commercially available basal oil
 - Seed or crop oil
 - Kerosene or Diesel no longer recommended





Ready to use formulation

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)



This foliage is 'past it' and not suitable for foliar application (note thinning and yellowing)



Foliar Treatments

- A variety of herbicides can be used, depending upon target species
- Thorough coverage of leaves with herbicide
- Don't spray to point of runoff







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



Treatments Summary

- Many options available for control
- The best options depends upon the specific conditions at the site and the target invasive species
- Treatments can be combined (cut stump larger stems and basal bark remaining small ones) to achieve desired results
- Always check label information for specifics

Management Summary

- Prioritize control
 - Outside-in
 - Resources at riskSpread prevention
- $\hfill\square$ Keep an eye out for new species or new infestations
- $\hfill\square$ Anticipate future problems but act now!

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- Research the best methods and techniques for control
- $\hfill\square$ If you are not sure, do not be afraid to ask for help



Thank you!

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