


State-wide Assessment – Invasive Plants in Indiana Forests

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Overview

- History
- Trends
- Drivers
- Influences

- Invasive Species Council

History

- First, a definition of invasive plants – non-native plants that cause economic or environmental harm, or harm to human health
- Certainly have been present in Indiana forests for many decades; first became aware when garlic mustard started dominating sites in 1980's
- Originally concern was simple wildflower displacement – but research has revealed a wide variety of troubling impacts

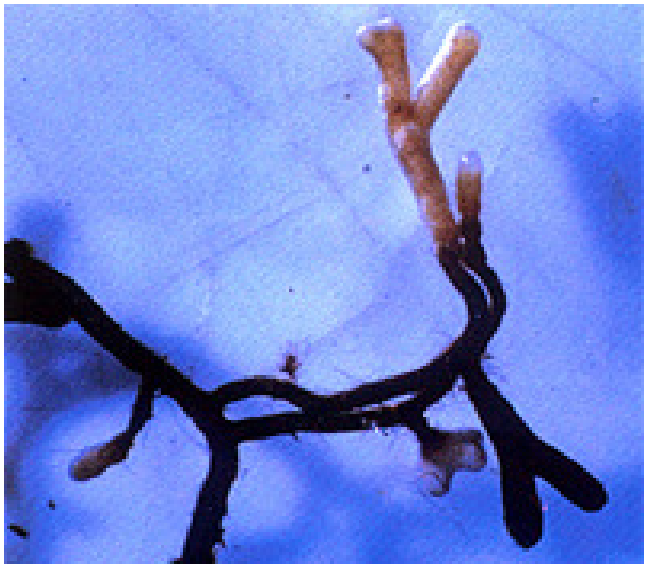
History

Impacts to

- Species composition
- Wildlife habitat
- Erosion
- Sedimentation
- Hydrology
- Infrastructure

Garlic Mustard Decreases Native Tree Growth by Killing Myccorhizae

"In conclusion, our results reveal a novel mechanism by which an invasive plant can disrupt native communities: by virtually eliminating the activity of native AMF from the soil and drastically impairing the growth of native canopy species." (Stinson et al 2006)



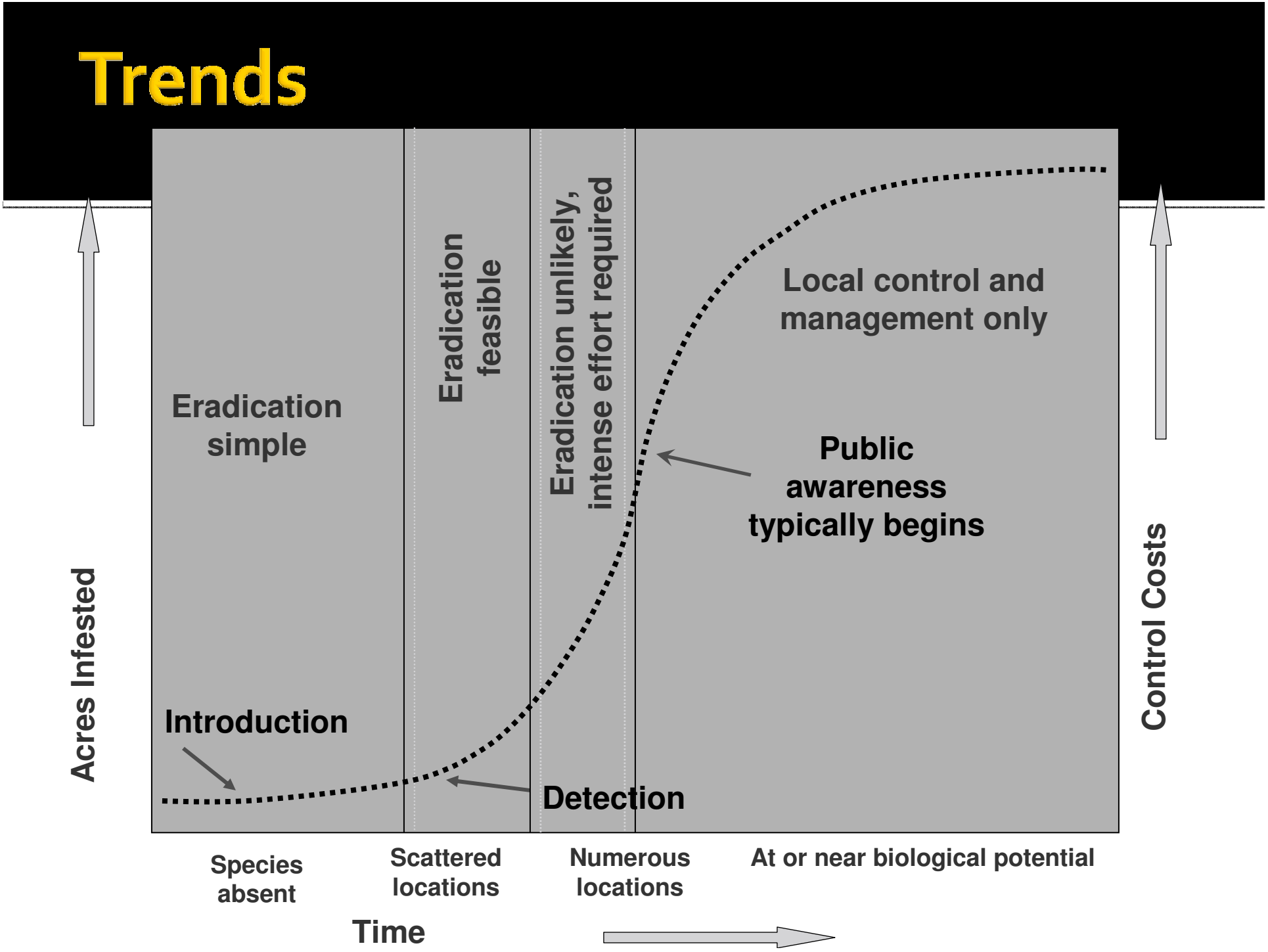
Asian bush honeysuckle reduces growth rate of forest trees

In Ohio forests invaded by Asian bush honeysuckle the overall rate of basal area growth of mature trees was reduced by 53.1% (Hartman and McCarthy 2007)

Trends

- Increase in number of new invasive species, both intentional (e.g. landscaping) and unintentional (e.g. moved by equipment, boots, etc.)
- Increase in landscaping in rural, suburban areas
- Increase in rate of spread in some areas due to established roadside populations of invasive species combined with disturbance

Trends


Eradication simple
Eradication feasible
Eradication unlikely, intense effort required
Local control and management only
Public awareness typically begins
Introduction
Detection
Acres Infested
Control Costs
Species absent
Scattered locations
Numerous locations
At or near biological potential
Time

Drivers

- Movement of propagules through equipment (timber harvest, road maintenance, ATVs) or boots.
- Introduction of invasive species by nursery industry – Reichard found that of 235 woody invasive species, 82% were introduced for landscaping purposes

Influences

- **Increased awareness** by public, nursery industry; more mgmt/BMPs on the ground.
- **Increased landscaping** in suburban, rural areas.
- **Climate change**
  - Dukes et al 2009 Can. J. For. Res. –
    - invasive plants may show increased metabolism, reproduction, dispersal;
    - able to expand northward/higher elevations;
    - have decreased winter mortality
    - the story is more complex for insects and pathogen

Indiana Invasive Species Council

11 members:

- *Dean of Purdue University School of Agriculture or designee (Steve Yaninek)*
- *Director of Indiana State Department of Agriculture or designee (Sara Slater)*
- *Commissioner of Indiana Department of Transportation or designee (Bill Fielding)*
- *State Veterinarian or designee (Sandi Norman)*
- *DNR – Division of Fish and Wildlife's Aquatic Invasive Species Coordinator (Doug Keller)*
- *DNR – Division of Entomology and Plant Pathology's Terrestrial Invasive Species Coordinator (Phil Marshall)*
- *One individual representing research on invasive species (?)*
- *Two individuals representing industries affected by invasive species (?)*
- *Two individuals representing conservation organizations (?)*

Invasive Species Council Duties

1. Recommending project priorities, funding, and rules and laws to the appropriate entities;
2. Recommending a lead state agency to develop invasive species inventories and data management systems for each taxon;
3. Communicating with agencies and organizations outside of Indiana to enhance consistency and effectiveness in invasive species work;
4. Coordinating education and outreach for invasive species;
5. Convening or supporting an invasive species meeting at least once per biennium;

Invasive Species Council Duties

6. Assisting government agencies in reviewing their invasive species policies and procedures and addressing any deficiencies or inconsistencies;
7. Assisting state agencies in reviewing agencies' performance measures for accountability on their invasive species actions;
8. Receiving reports from any governmental agency regarding actions taken on recommendations of the council; and
9. Applying for and providing grants for education concerning or management of invasive species.