

Invasive Plants in Michigan Prioritizing Response Efforts

Michigan Natural Features Inventory

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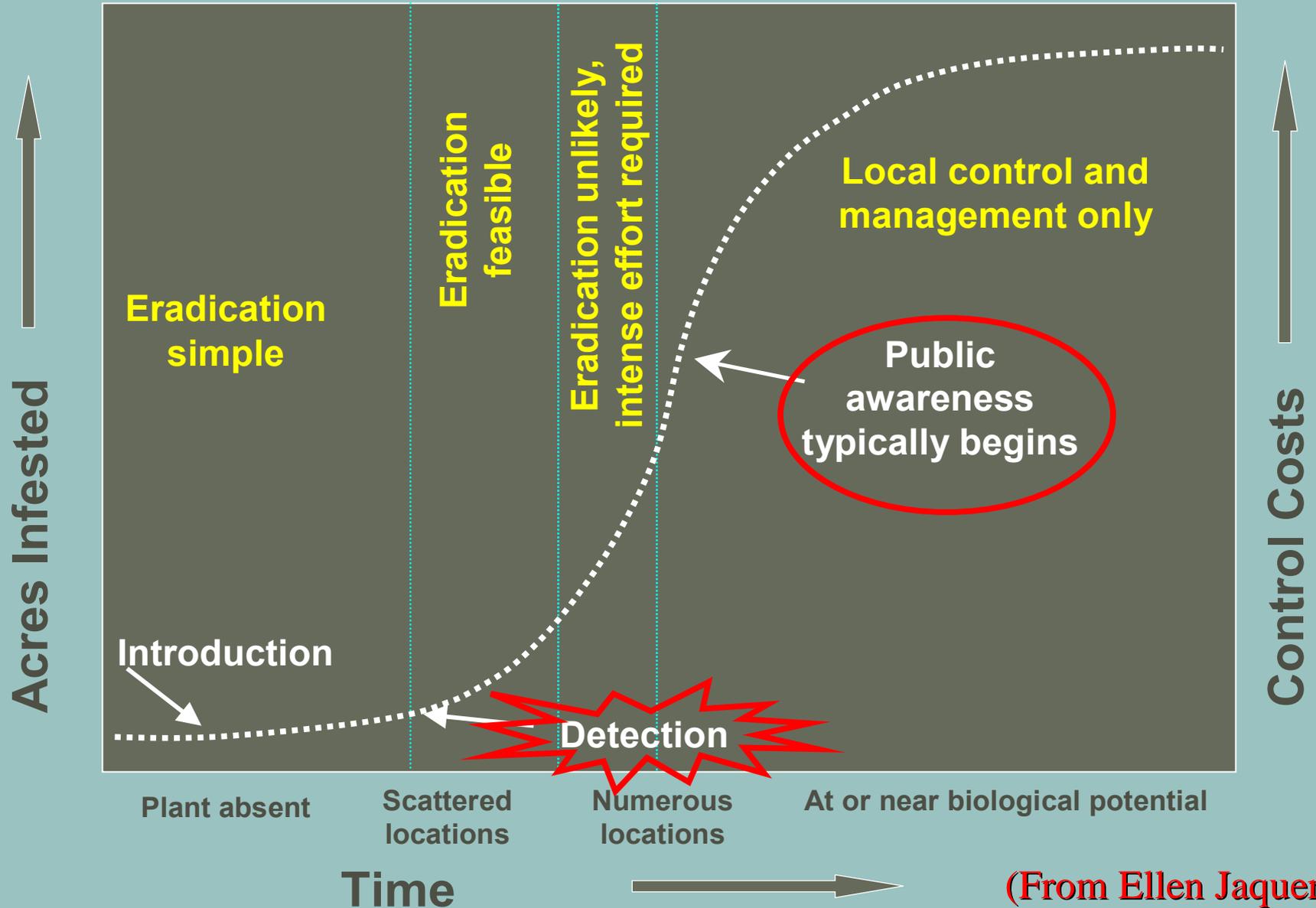
Supported with funding from
DMVA Camp Grayling, MDNR Wildlife

Elements of strategy

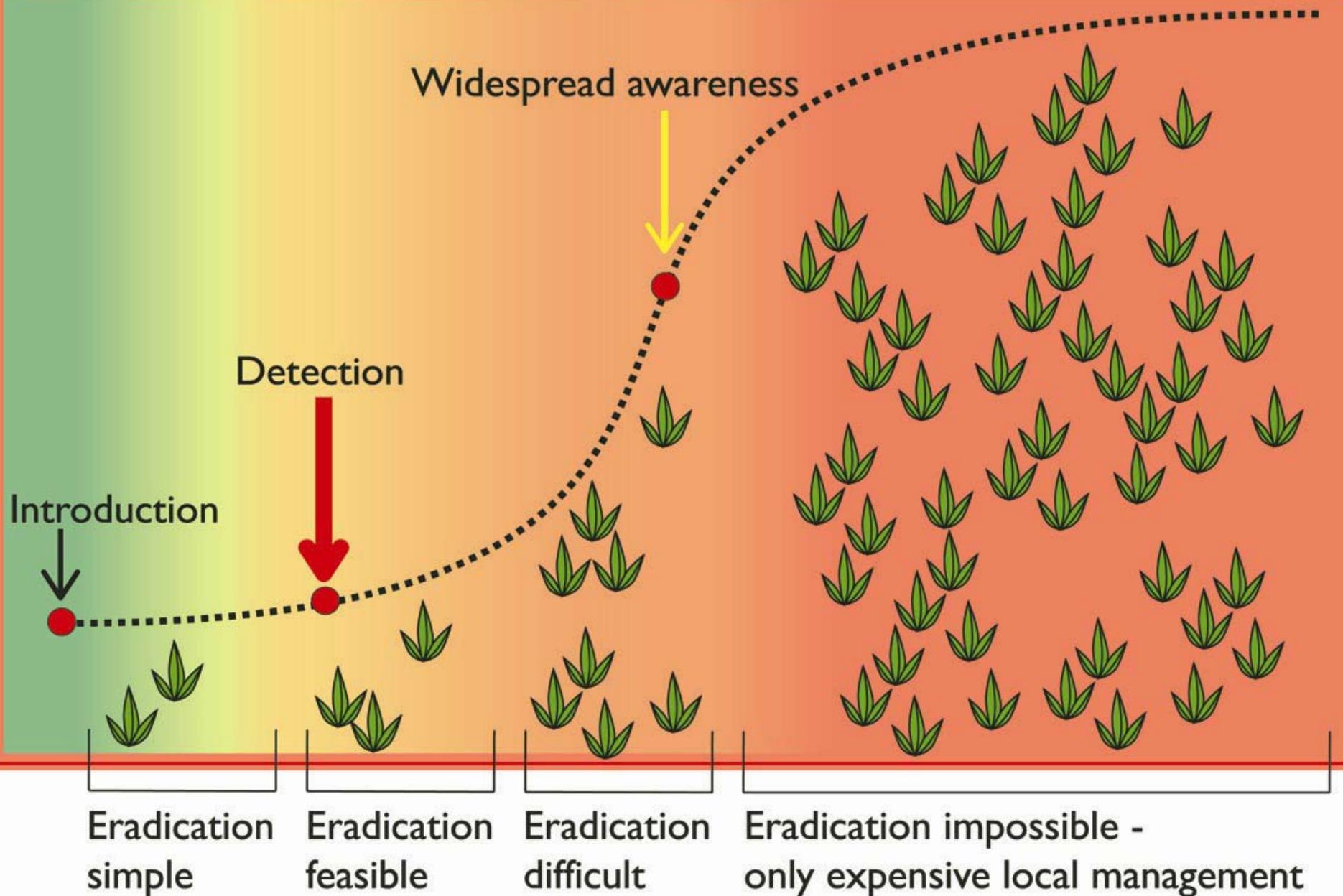


- ◆ Define the problem
- ◆ Priority species by eco-region
- ◆ Maps and mapping protocols
- ◆ Centralized information (localized to Michigan)
- ◆ Early Detection and Rapid Response protocols
- ◆ Prioritizing long-term control efforts
- ◆ Monitoring and research
- ◆ Training
- ◆ Management guidance document
 - specific objectives and measures of success
 - roles and responsibilities
 - integrate and coordinate with other entities

Weed Increase Over Time and Control Potential



Catch them early - while you still can . . .



Site specific example

extent/abundance
potential impact
feasibility
site value

**outliers first
in spring**

high quality
beech-maple

pine plantation

gm

barberry

privet

barberry

gm

gm

lesser priority

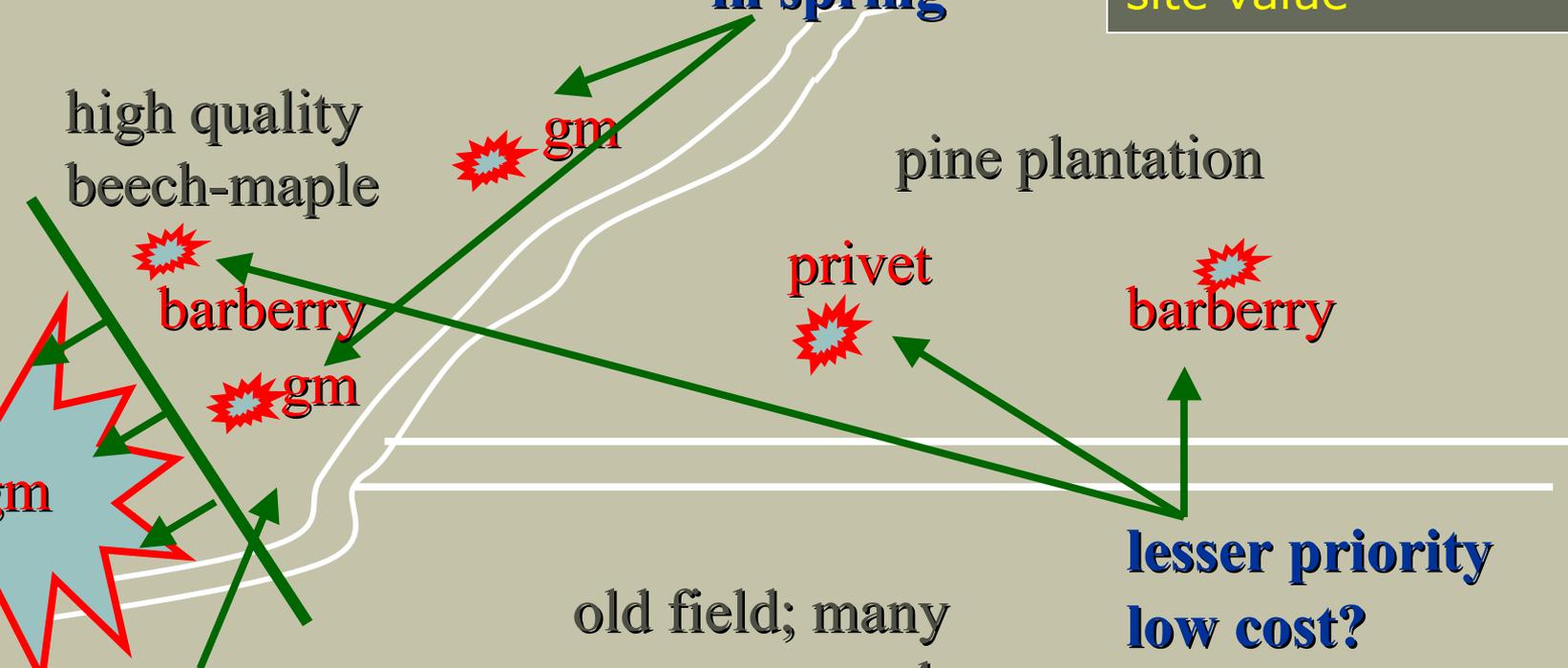
old field; many
common weeds

low cost?

**do it as
early as you
can**

low feasibility

**high threat
high quality site
border patrol! push it
back over time
Talk to your neighbor**

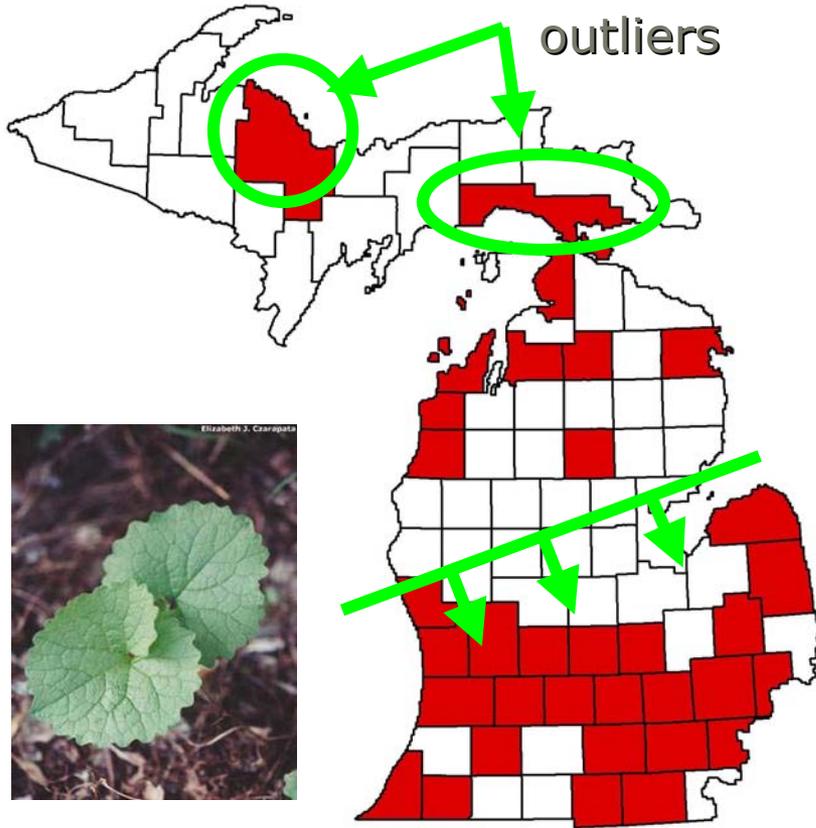


The Ecological Society of America, Recommendations for US Policy



- ◆ Better manage pathways: **PREVENTION**
- ◆ More risk analyses: **PREVENTION**
- ◆ ↑ active surveillance: **EARLY DETECTION**
- ◆ Emergency funding for **RAPID RESPONSE**
- ◆ Funding and incentives for **COST-EFFECTIVE CONTROL** of spread
- ◆ Establish National Center for Invasive Species Management: **COORDINATION**

garlic mustard

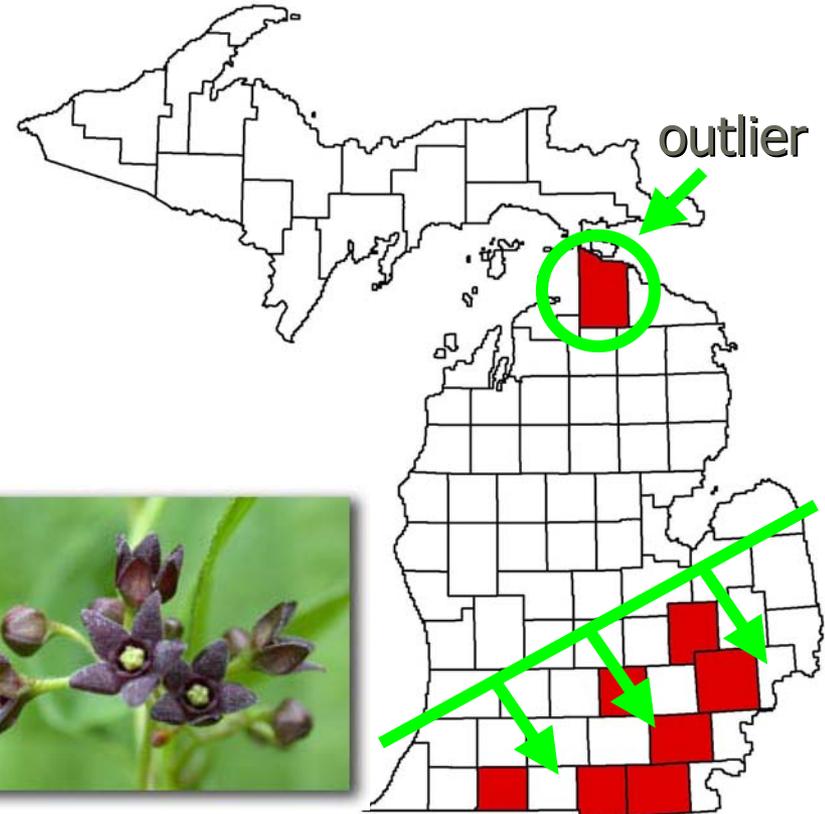


- outward from high value sites
- contain centers of spread



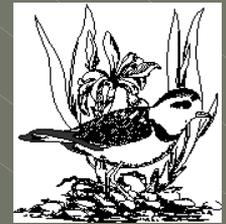
biggest impact in state

swallow-wort



- Value of the site**
- Extent and abundance
- Potential impacts
- Feasibility

Short-term goals:



- ◆ Urgency of statewide mapping
- ◆ Urgency of early detection and rapid response network – training
- ◆ Need for statewide, regional, and local priorities for managers
- ◆ Framework for funding, prioritizing and implementing response at multiple scales
- ◆ **Across jurisdictional boundaries**

Mapping



- ◆ essential for effective prioritization
- ◆ one of key reasons for control failure
- ◆ everyone wants to do it but just can't quite find the time
 - quick and dirty – what, where, how much
 - intermediate – potential treatments
 - detailed site maps – specific treatments; track over time
 - research – statistical sampling



Michigan Natural Features Inventory





V. UTM 2 16

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- Exotic_point.shp

- Exotic_line.shp

- Biot_p.shp

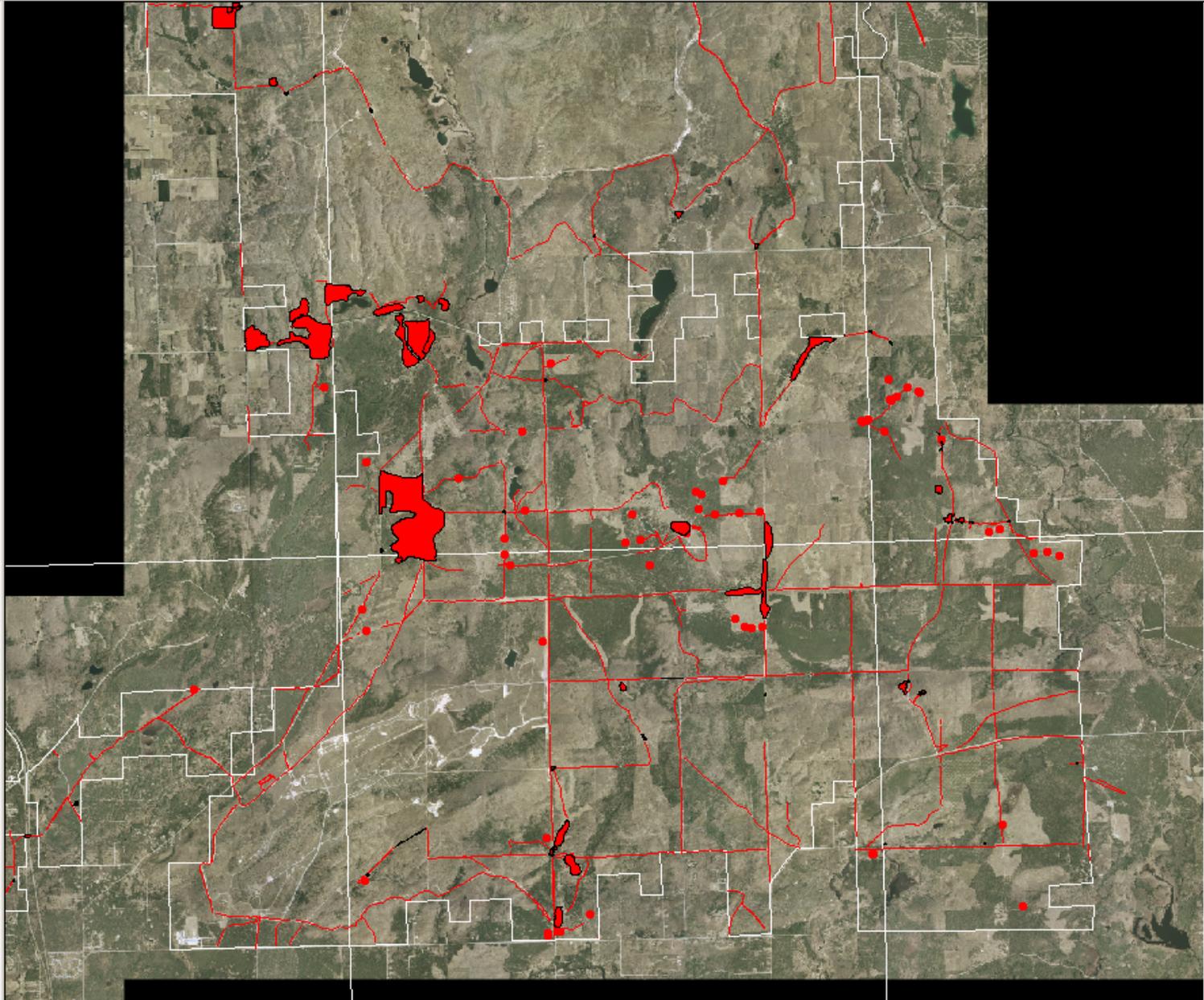
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- Streams_utm.shp

- Quads_utm.shp

- Military_boundaryutm.shp

- S_camp_drg_mosaic.img
- N_camp_drg_mosaic.img
- Grayling.sid



Status in Michigan



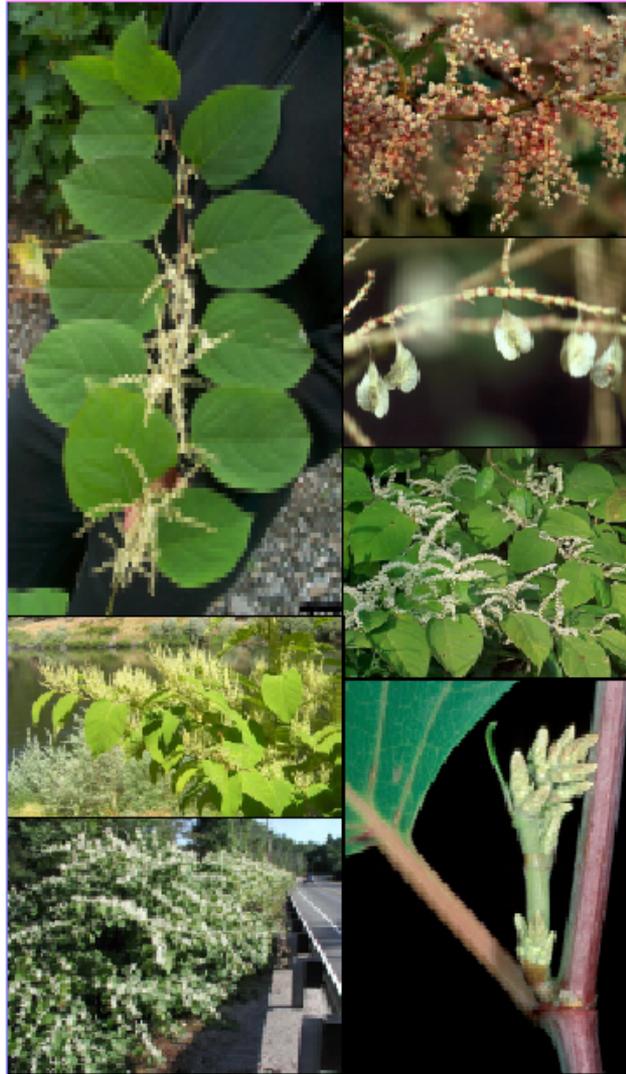
- ◆ committed, knowledgeable partners
- ◆ patchwork mapping and assessment
 - USFS, MNFI, Nat Parks, TNC, MDNR, tribes, DMVA, conservancies, & many site specific efforts
 - little systematic monitoring yet
 - little coordination or sharing yet
 - data mostly available, except private lands
 - biggest gaps: private lands, MDNR, aquatics
 - but all need work and would benefit from centralized coordinating system and better mapping tools and capacity
 - MNFI & MSU are ready to rock!

Michigan:



- ◆ The List – oh my!
- ◆ Field Guide – MNFI
- ◆ Web-site – localized shopping
 - MSU, MNFI, MDNR
 - On-line mapping system – MSU
 - ◆ data from USFS, Parks, Tribes...
- ◆ Statewide rapid mapping (MNFI)
 - tool can be used for other mapping
- ◆ Ready to work with other agencies

Field Guide



Japanese Knotweed

Polygonum cuspidatum

Habit: Perennial, herbaceous shrub reaching 3 m (10 ft); although it is larger than many woody shrubs, stems die but stalks persist through winter; growth form is a circular colony with interior plants dying as colony advances outward.

Leaves: Simple, alternate, broad, 8-15 cm long, 5-12 cm wide with an abruptly pointed tip and a flat base.

Stems: Upright, round, hollow, glaucous, often mottled; swollen nodes surrounded by a papery membrane; persistent dead stalks look like bamboo.

Flowers: Numerous, small, green-white flowers on a slender stalk arising from the leaf axils and near the ends of stems; blooms August-September.

Fruits/Seeds: Fruits are 3-winged, 8-9 mm, seeds are dark and glossy, wind and water dispersed.

Habitat: Semi-shade tolerant; found along roadsides, stream and river banks, wetlands, wet depressions and woodland edges; can tolerate a wide array of soil and moisture conditions.

Reproduction: Primarily through rhizomes or fragments; does not reproduce significantly by seed; spread by flood waters

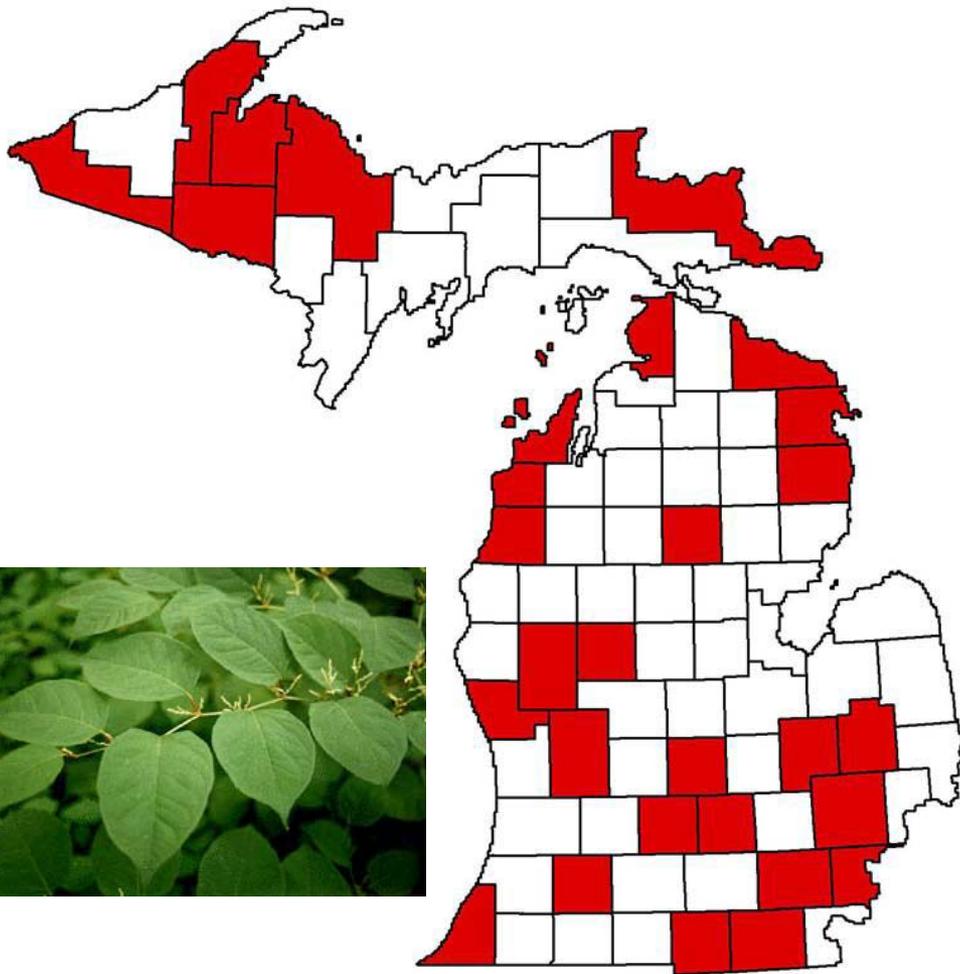
Similar Species: Virginia knotweed (*P. virginianum*) - not shrub-like, flowers on a slender spike.

Comments: Forms dense thickets that shade out natives; aggressive rhizomes can damage pavement; once established, stands are extremely difficult to eradicate.

Monitoring & Rapid Response: Monitor riverbanks, stream and pond edges, particularly downstream from known occurrences; can be identified most readily while in bloom, in August and September; cutting or mowing at least 3 times per season can reduce rhizome reserves; biweekly cutting preferable; foliar herbicide application effective; provides best control when plants have been cut, allowed to resprout to 3' tall and then treated; hand pull seedlings, not larger plants as new colonies can develop from cut stems or rhizomes; continued control efforts are required to keep this species in check.



Japanese knotweed



- ◆ small patches
- ◆ high impact
- ◆ high quality state(!)
- ◆ goal: statewide eradication?

MNFI

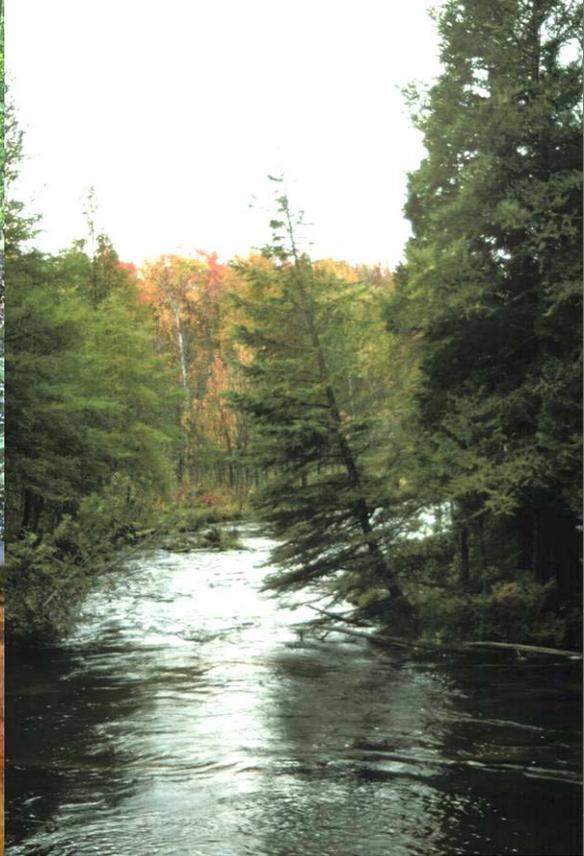


- ◆ We can waste enormous time trying to be perfect
- ◆ We need to act now
- ◆ Biggest needs:
 - user friendly mapping tools and training
 - rapid coarse scale mapping
 - aggregate data to assess statewide, regional priorities
 - ◆ Ed Schools is aggregating MNFI data
 - ◆ collaborating with MSU to feed into on-line mapping tool (Rob Ahern, Amos Ziegler)
 - multi-jurisdictional funding mechanism to implement early detection, rapid response, and prioritized control

VISION:



- ◆ User friendly field and on-line mapping tools are available and are used
- ◆ Data from different sources are seamlessly aggregated
- ◆ Long-term funding for maintenance and quality control of centralized database is secured
- ◆ Coarse and fine scale distribution maps of all significant plant invaders are available and continually updated
- ◆ Citizen mappers are certified to enter data



To wrap up:



- ◆ Identify and map what we value
 - biodiversity planning process
- ◆ Ramp up mapping of high impact species
 - high value areas outward
 - key infestation centers
- ◆ Identify statewide, regional, local priorities
 - keep high value sites clean
 - strategic eradication and containment sites
- ◆ Build capacity for rapid response and cost effective control
- ◆ Create regional partnerships for cross-jurisdictional action

Monitoring invasive species in MI



1. Collection of species distribution data – MSU research and extension (Michigan Natural Features Inventory– MNFI), TNC and other partners

2. Data analysis and database hosting – MSU Invasive Species Initiative

3. State-wide reporting and educational website (Collaboration between MNFI, partners, and researchers)

Long-term: Contribute to larger area (regional, national) databases

MICHIGAN STATE