

The Tower burn

Lessons Learned



Burning Issues Symposium

**Tallgrass Prairie & Oak Savanna
Fire Science Consortium**

**February 2, 2016
Chris Thornton**



What is an invasive species?



The official federal definition:

An alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.

What are Invasive Species?

- Not Native?
- Aggressive?
- Harmful?
- Land or Aquatic?
- Plant? Animal? Insect?
Pathogen?
- Causing significant
change to ecosystem?



Black locust
Robinia pseudoacacia



Kudzu

The environmental and economic costs associated with alien-invasive species in the United States

“Invading alien species in the United States cause major environmental damages and losses adding up to almost \$120 billion per year. There are approximately 50,000 foreign species and the number is increasing. About 42% of the species on the Threatened or Endangered species lists are at risk primarily because of alien-invasive species.”

David Pimentel, Rodolfo Zuniga, Doug Morrison
College of Agriculture and Life Sciences, Cornell University, Ithaca, NY 14850-0901
Ecological Economics: 2004

Managing Invasive Plants

Costs of Invasive Species

- **Environmental Costs:**
 - Reduced biodiversity
 - Reduced soil and water quality
- **Economic Costs:**
 - Costs to control
 - Reduced productivity
 - Impact to natural resource-based recreation and tourism



Dispersal Mechanisms

- Seeds by Wind, Water, or Animals
- Vegetative spread
- Direct planting or seeding
- Equipment
- Contaminated soil or plant material



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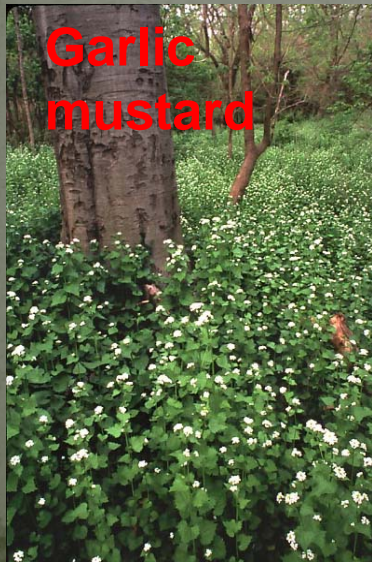
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Hydrilla



Monkey pox



Garlic mustard



**SUPER
EMERALD
ASH
BORER**

Asian Carp

Photo courtesy Andy Whitcomb



Zebra mussels

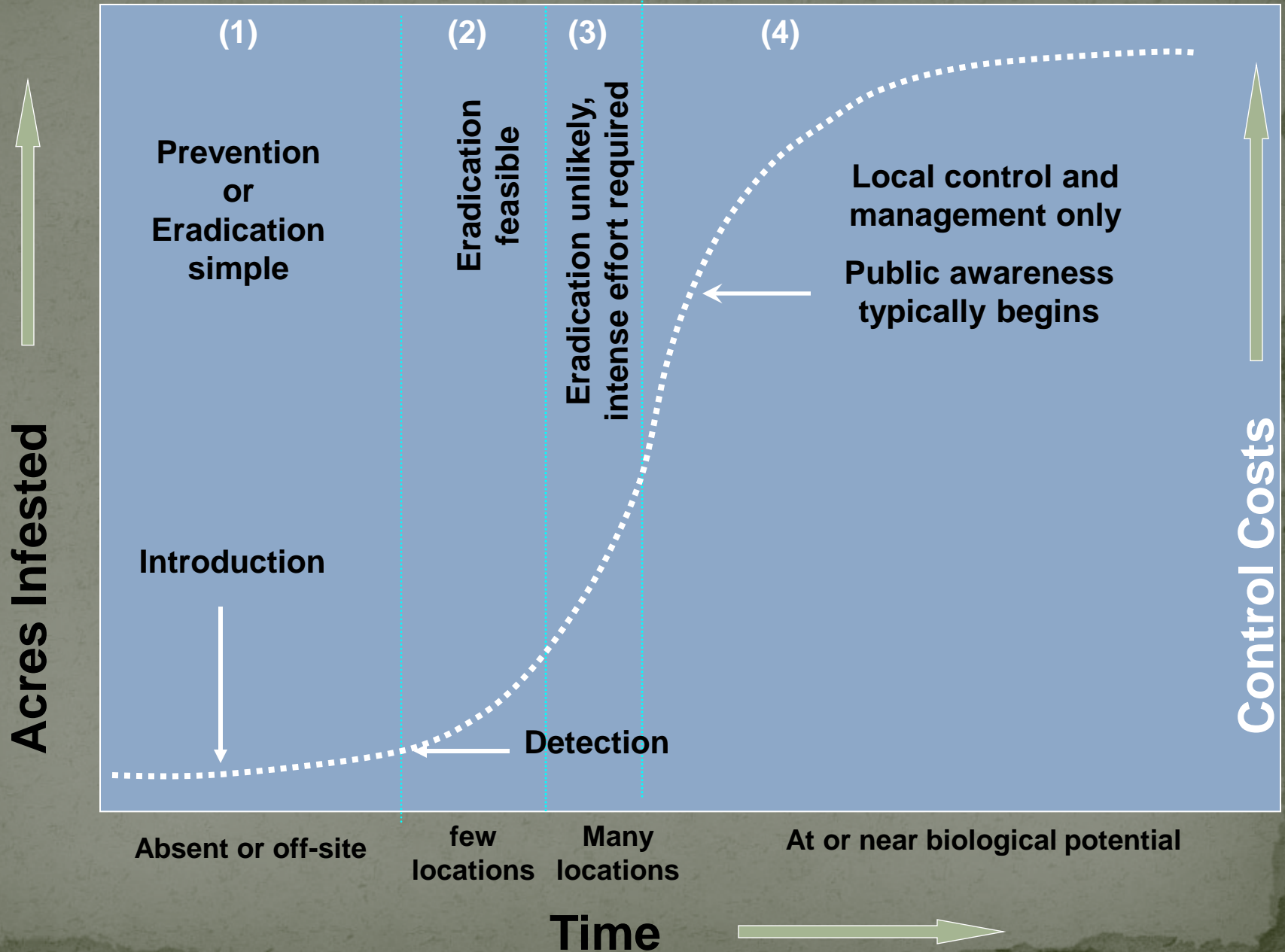


Asian soybean rust



Feral hogs

Weed Increase Over Time and Control Potential



Tree-of-heaven

Ailanthus altissima

- Can reach 80 ft in height
- Forms dense thickets
- Saplings can grow 3-4 ft a yr.



Tree of Heaven

Ailanthus altissima



- Prolific seeder, as many as 350,000 seeds per tree
- Produces wind disseminated seeds at 3 yrs.
- Leaves 1-3 ft long

Tree Of Heaven

- Will outcompete all native tree species in this region
- Prolific sprouter
- The tree has both male and females. Best to concentrate on the females to limit seed dispersal
- Has an offensive odor similar to rotten peanuts
- Cutting or pulling alone IS NOT an option.
- It can be controlled with chemicals (triclopyr or imazapyr)
- There is hope a new “wilt” will provide biological control but that hasn’t been found in Indiana

Asian bush honeysuckles

Lonicera maackii, *L. morrowii*, *L. tatarica*, & *L. x bella*



- Introduced to North America in 1752
- Early spring leaf out, drop leaves late in fall
- 6-18 ft tall

Asian Bush Honeysuckles



Asian Bush Honeysuckles

Lonicera sp.



Asian Bush Honeysuckles

- Can be confused with native honeysuckles. The Asian honeysuckle has a hollow stem
- Can overtake a site and shade out native flora
- Fruits have poor nutrition for migrating birds
- Small plants can be hand pulled
- It can be controlled with chemicals . Best method is to use glyphosate in the fall after natives have lost their leaves

Japanese stiltgrass
(Nepalese browntop)
Microstegium vimineum



Japanese Stilt Grass

Microstegium vimineum



SNCIMTM
Southern Indiana Cooperative Invasives Management



SNICIMTM

Southern Indiana Cooperative Invasives Management

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Japanese Stiltgrass

- Annual grass
- Prolific seeder with a seed bank that can last up to five years
- Prefers sunlight, but will survive in shady areas
- Small infestations can be hand pulled or cut back with a “weed wacker”
- It can be controlled with chemicals (glyphosate or a grass specific herbicide)
- It will take several years to eradicate an area

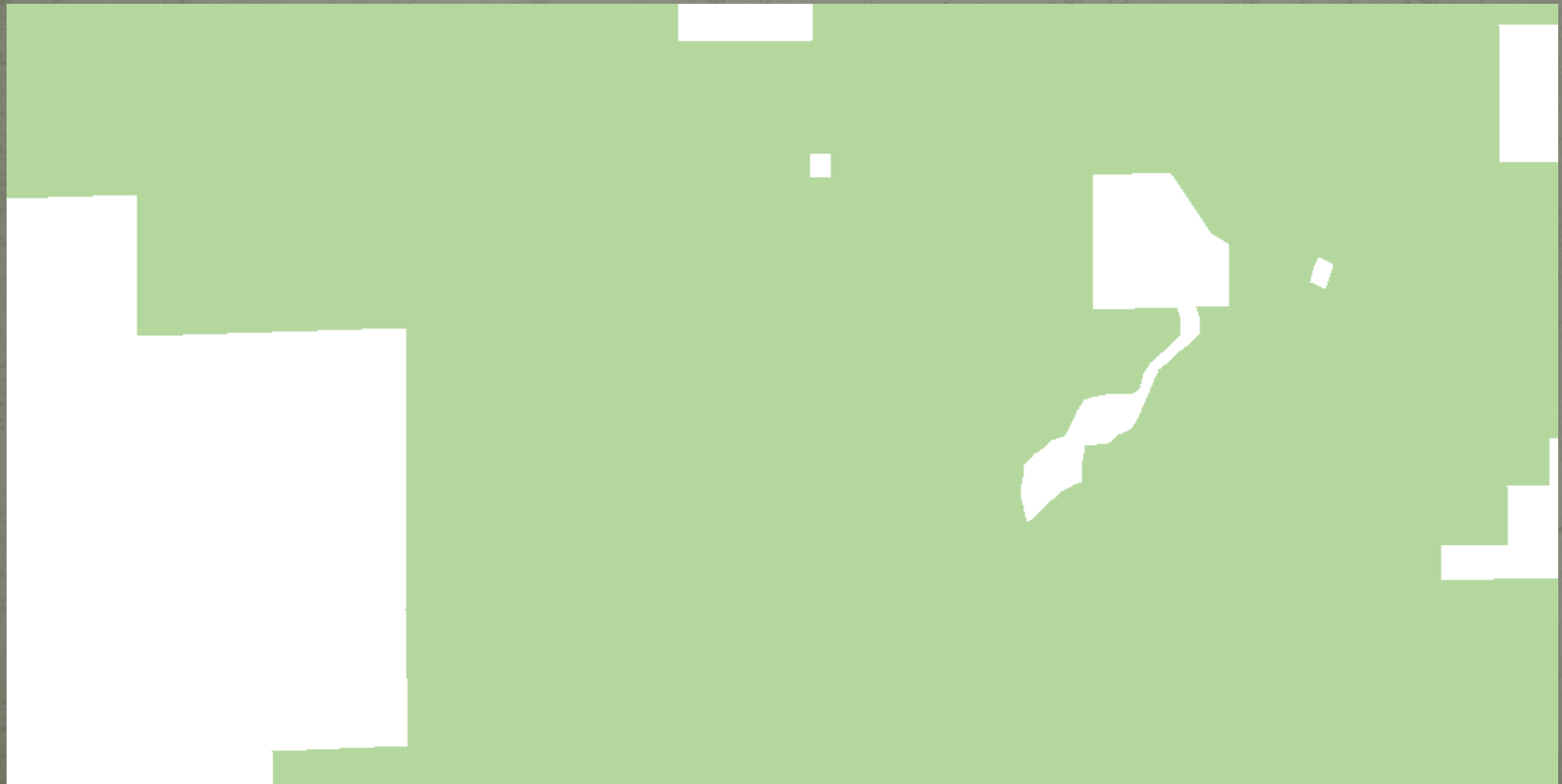
Tower Burn area, 1930s photo



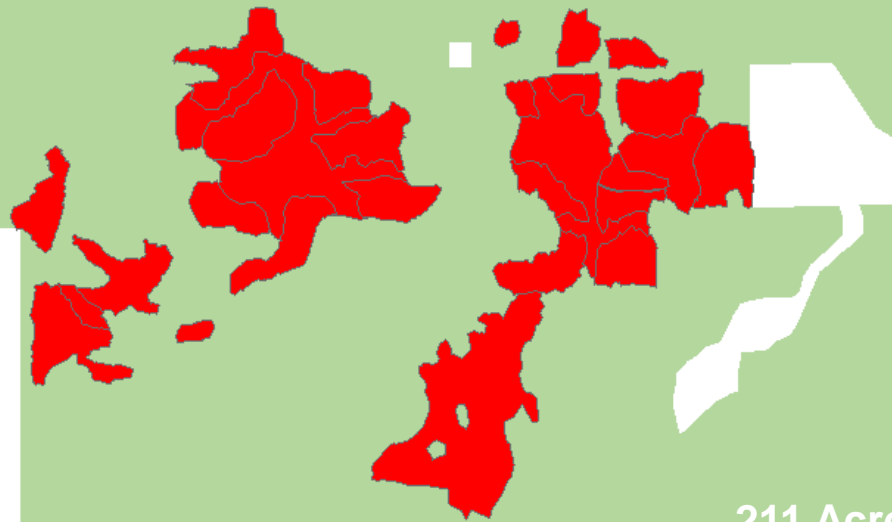
And the pine grew and grew



The Story of the Tower Burn

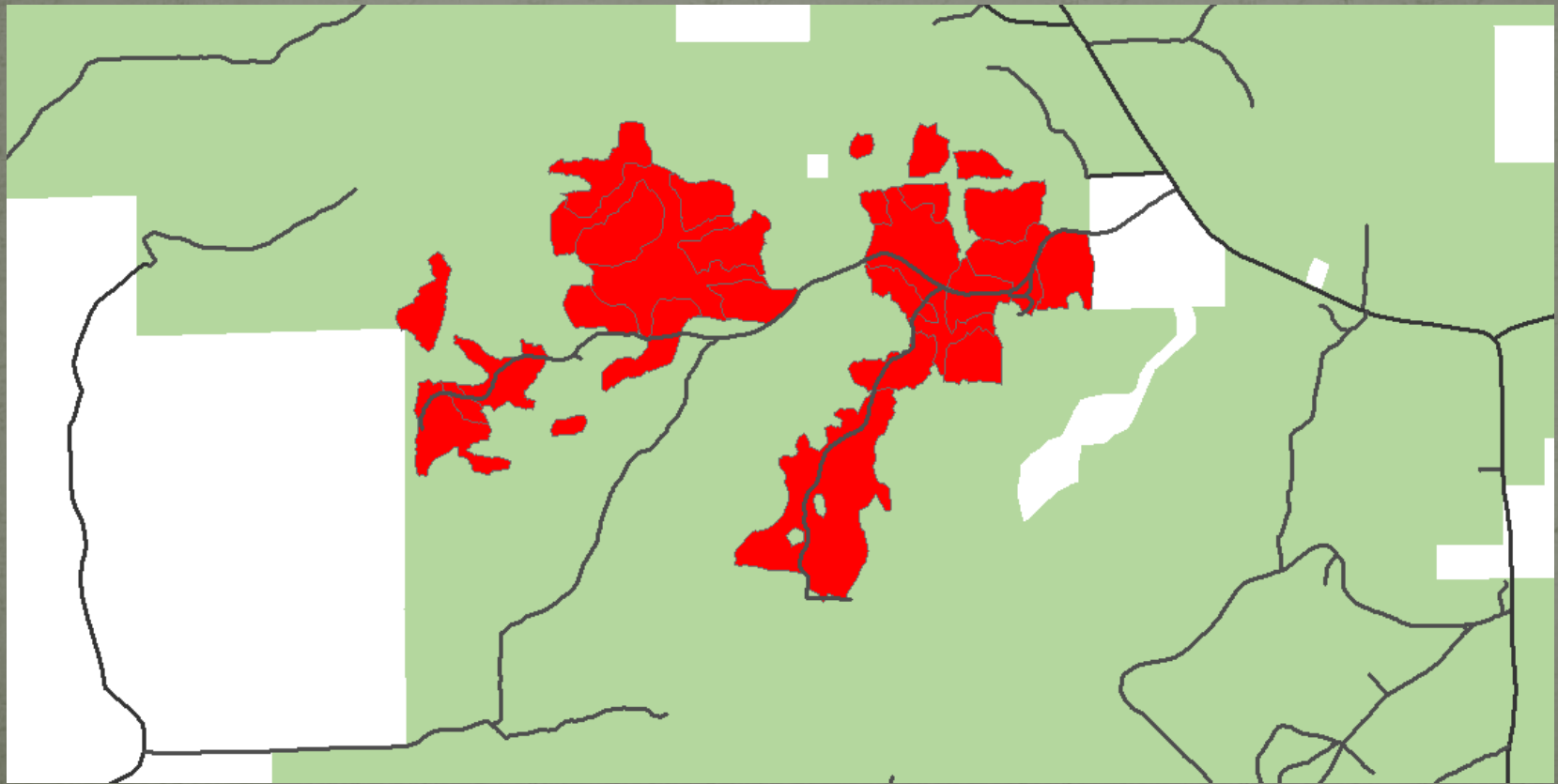


The Story of the Tower Burn

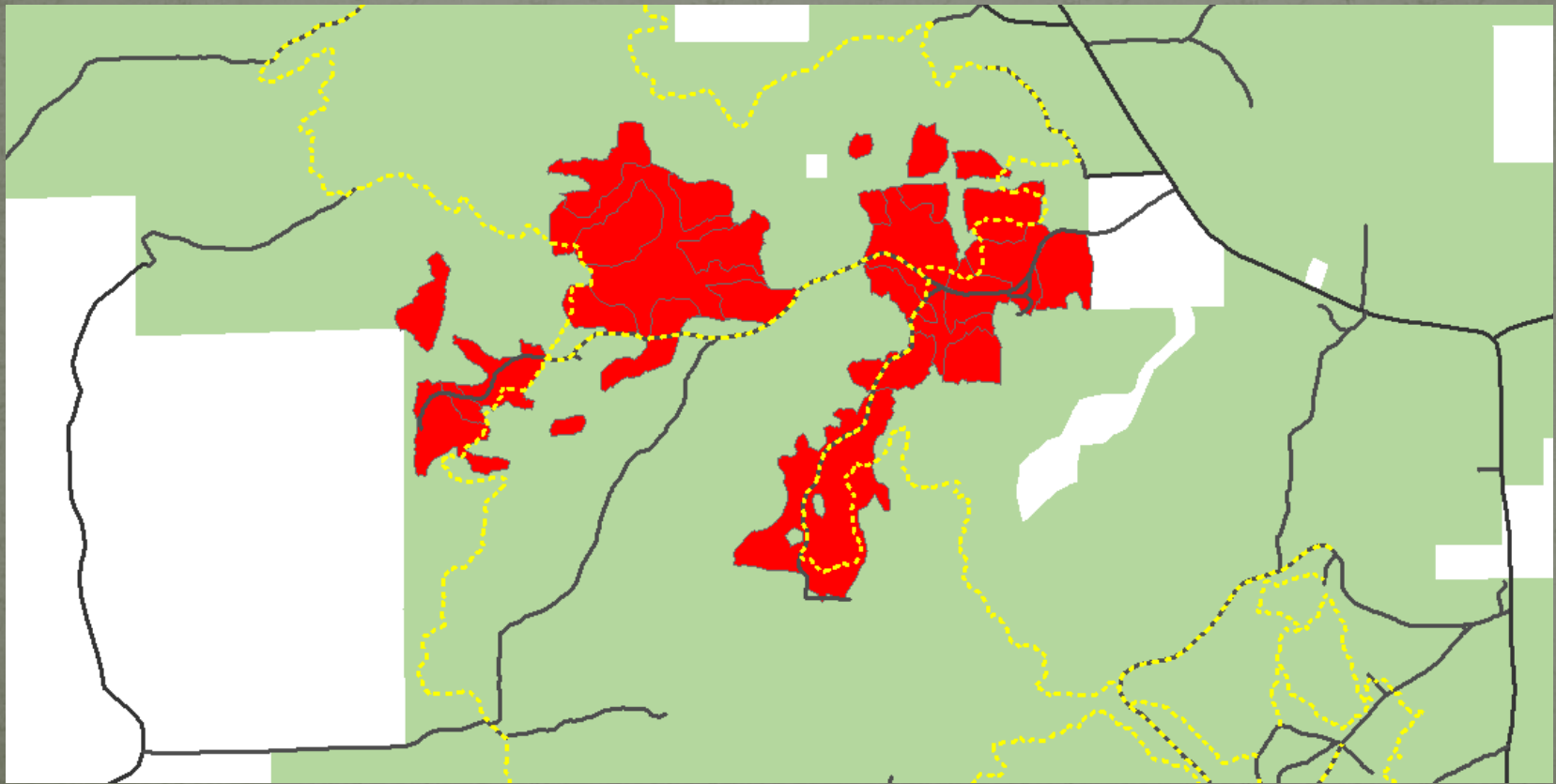


211 Acres of
pine clearcuts
and thinnings
cut in 2010

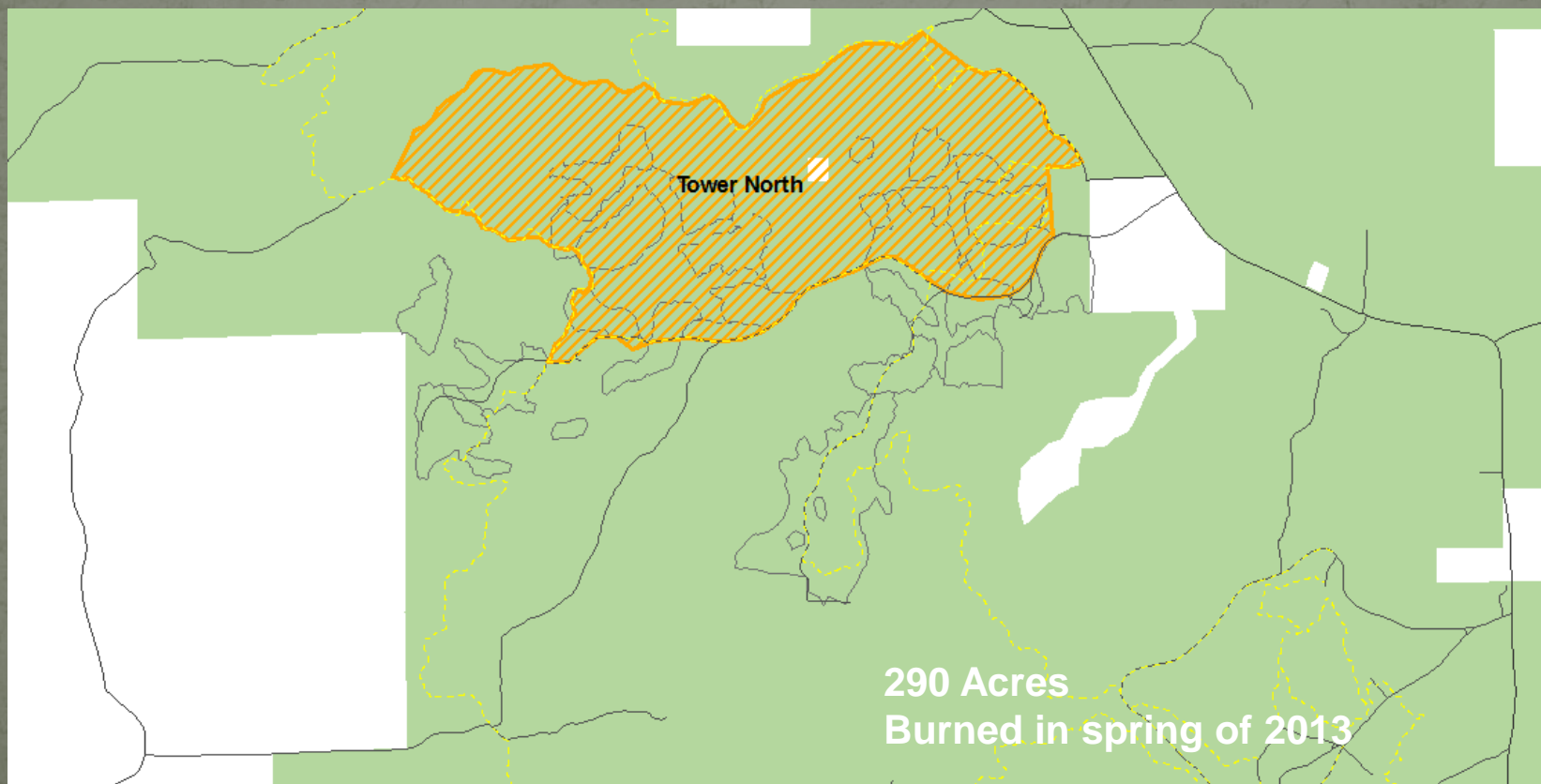
The Story of the Tower Burn



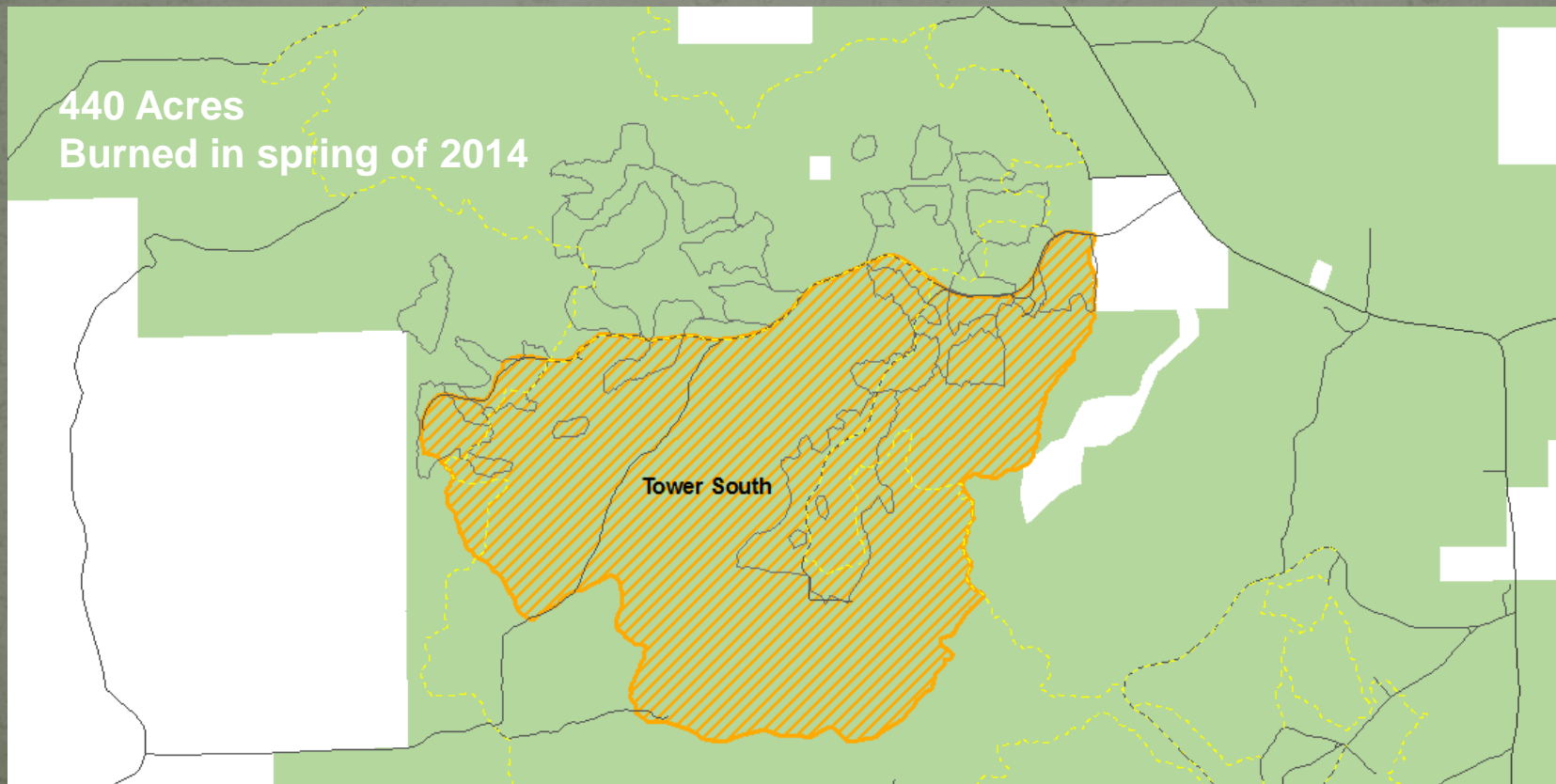
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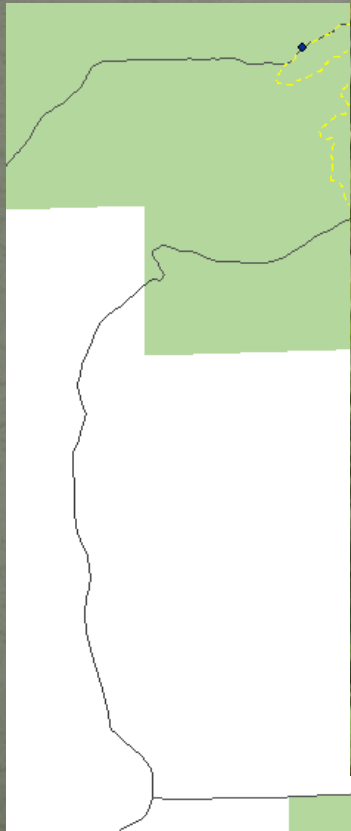
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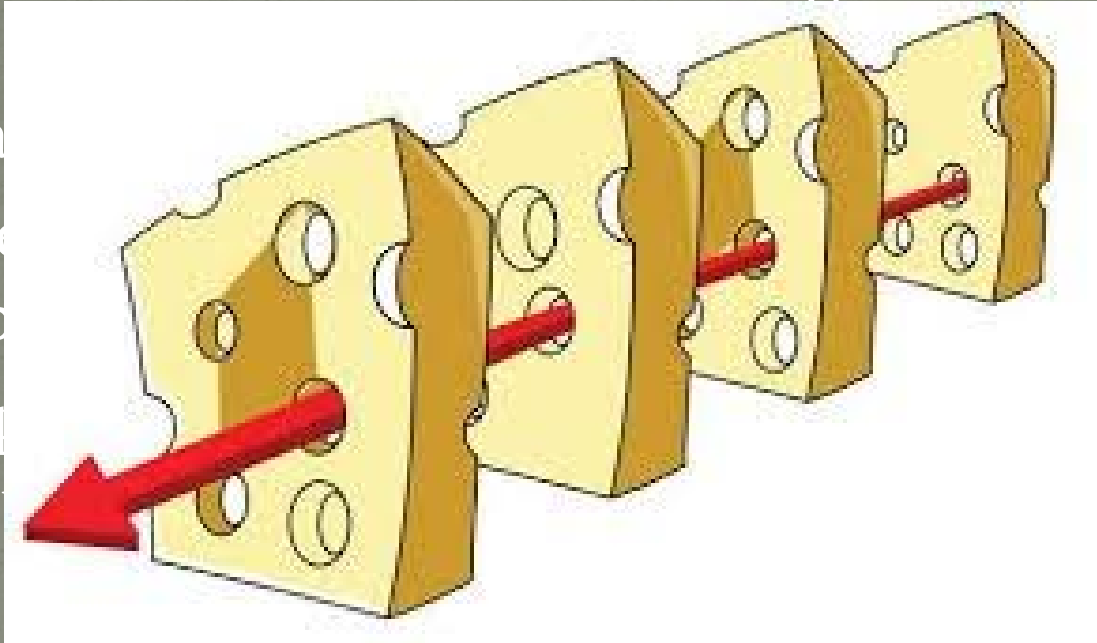
The Story of the Tower Burn



To Burn or Not to Burn??

A tough question

- If you don't have advanced oak regeneration in the stand after a fire, you may not want to burn again until it naturally appears
 - Treat oak regeneration as a priority and burn if you have advanced oak regeneration
 - Treat oak regeneration as a priority and burn if you have advanced oak regeneration
 - Early planting of oak seedlings may be necessary to regenerate any oak in the stand
 - There are many tools available to help regenerate oak to
- consider other tools when the



There isn't always a "clean" answer QUESTIONS?!?

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