

# Incorporating Refugia Into Prescribed Burns for Invertebrate Conservation

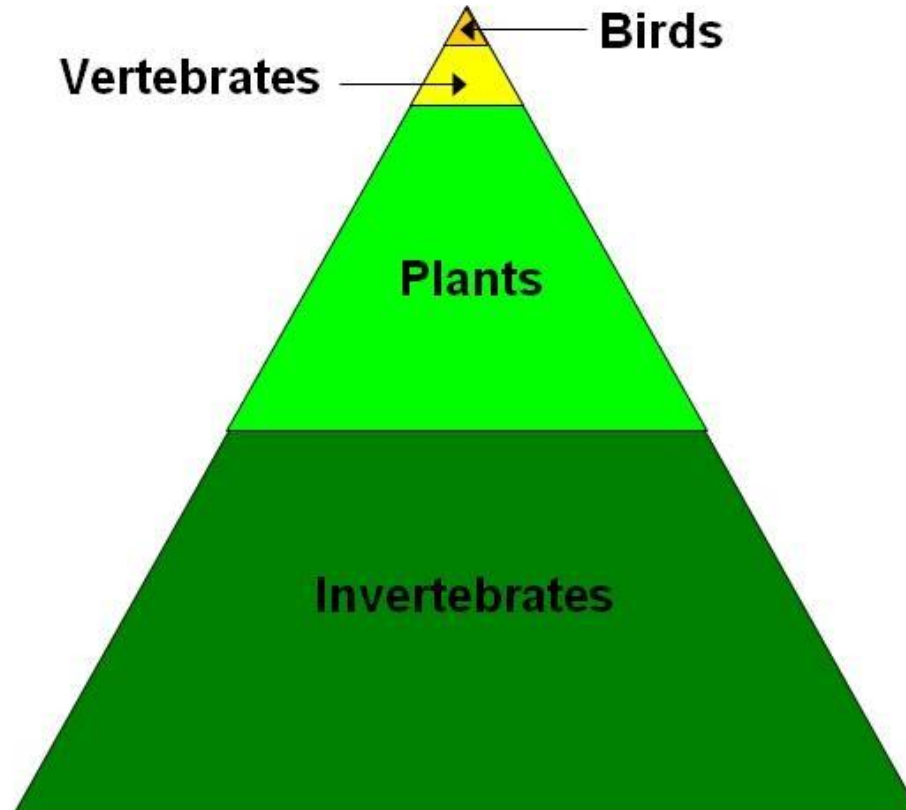


Blue River Bluffs SNA



# BIODIVERSITY

## Biodiversity in Grasslands



Prudent precaution



# Why have refugia?

- fire-dependent/fire-sensitive
- Risks magnified when habitat patch isolated and rare
  - Prairie remnants
  - Oak savanna
- Forest types less of a concern



# You're not here



Kansas - Bartz



# Prairie-Specialist Invertebrates

- Approx. 2,000 in WI and adjacent states
- Vary in immediate sensitivity to fire
  - 40% negative
  - 30% unaffected
  - 30% positive
- Recovery time varies
  - Majority by end of first season
  - Most of the rest by second season
  - a few may take 3 to 4 years



# Recovery Factors

- In situ survival vs. re-colonization

- Size and proximity of refugia

- Dispersal ability

- Reproductive capacity

Leafhopper - Smith



# Refugia Details

- Where:
  - Host plant representation
  - Representation of community types
- Size
- Permanent vs. rotating
- Fire return frequency
- Wet vs. upland sites



Lg. white Tiger beetle



# Restorations?

- Lack prairie-dependent species
- Type/quality
- Proximity to remnant sod



# Inherent Refugia

- Primarily wetland types
- Exceptions to rule



# Incidental Take



Bluff Creek SNA



# Adjacent Refugia



Hogback SNA - Bartz



# Interior Refugia



Blue River Bluffs SNA



# Placement

- Good stuff, not bad
- Some in, some out
- See Henderson/panel



# Accessibility: goat prairies

- Resources?
- Risks
- Contingencies

Rush Creek SNA



# Accessibility: wetlands



Lulu Lake SNA



# Refugia breaks

None – burn them in

- If fuels/conditions permit

- You have time, staff, water



# Refugia breaks

Existing

BRS SNA

BRS SNA  
Bx Unit - 2010

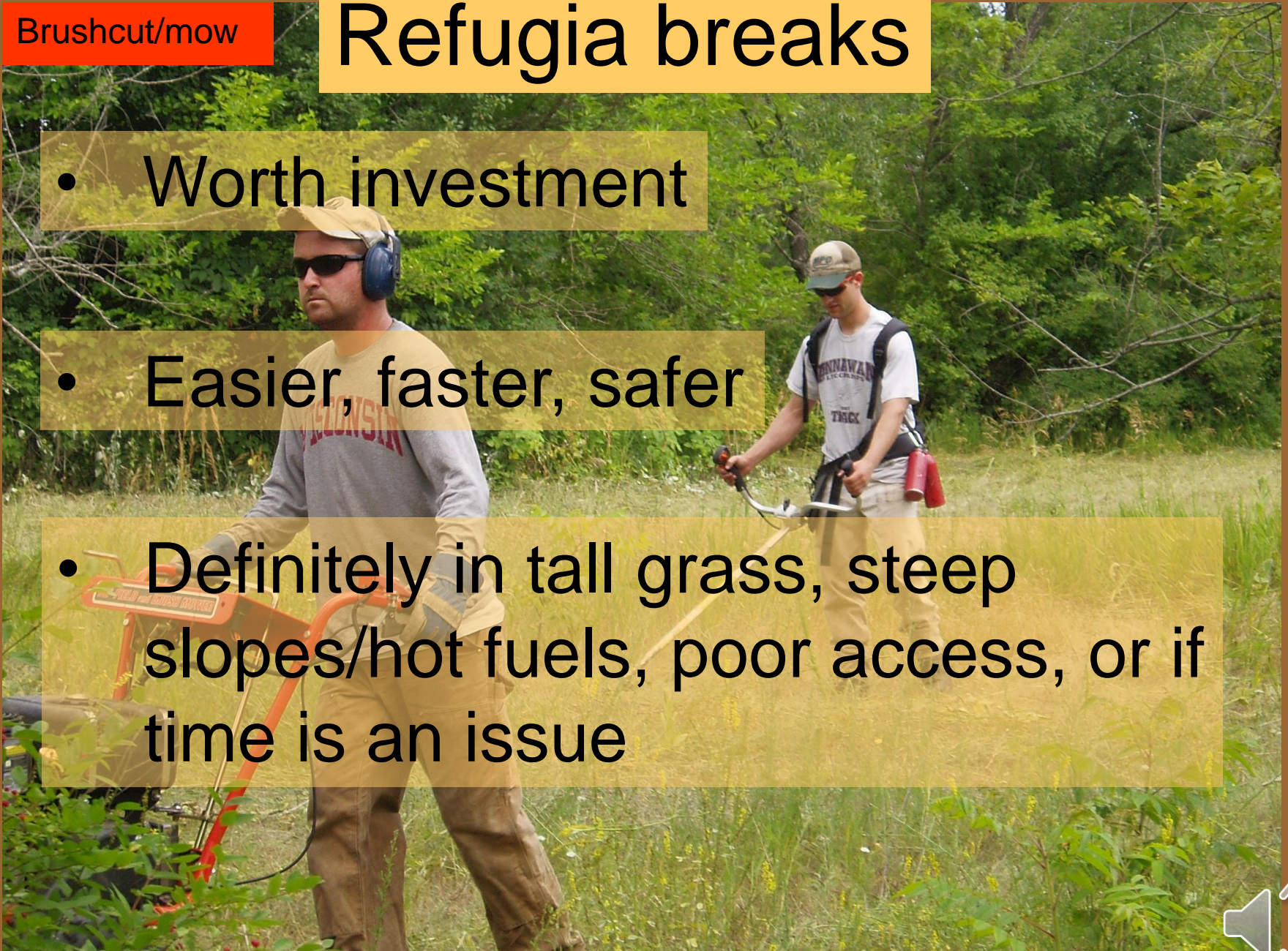
0 0.1 0.2 Miles



Brushcut/mow

# Refugia breaks

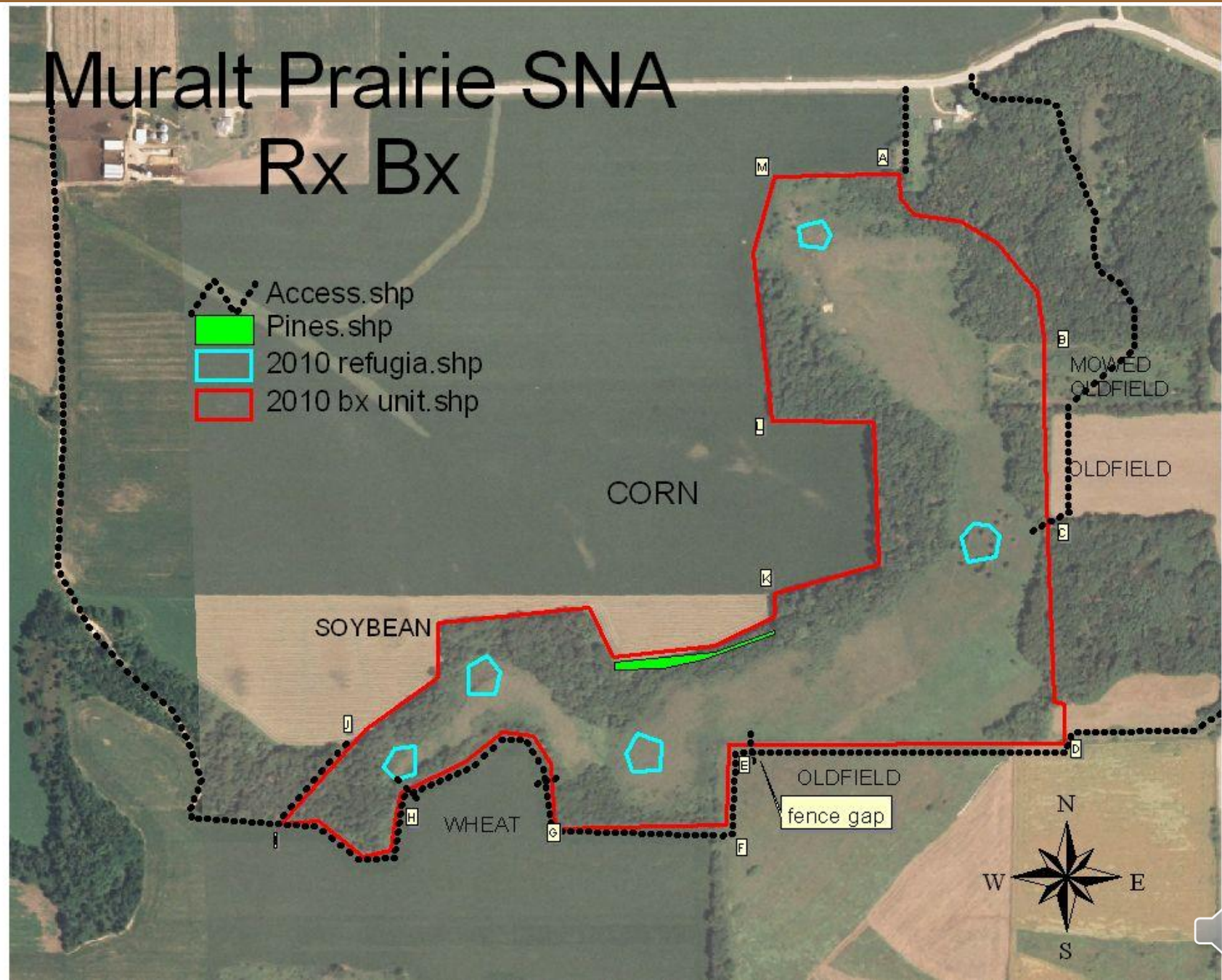
- Worth investment
- Easier, faster, safer
- Definitely in tall grass, steep slopes/hot fuels, poor access, or if time is an issue



# Muralt Prairie SNA

## Rx Bx

- Access.shp
- Pines.shp
- 2010 refugia.shp
- 2010 bx unit.shp



# Staffing

- 3 will generally do it
- Sometimes 2, or 3+



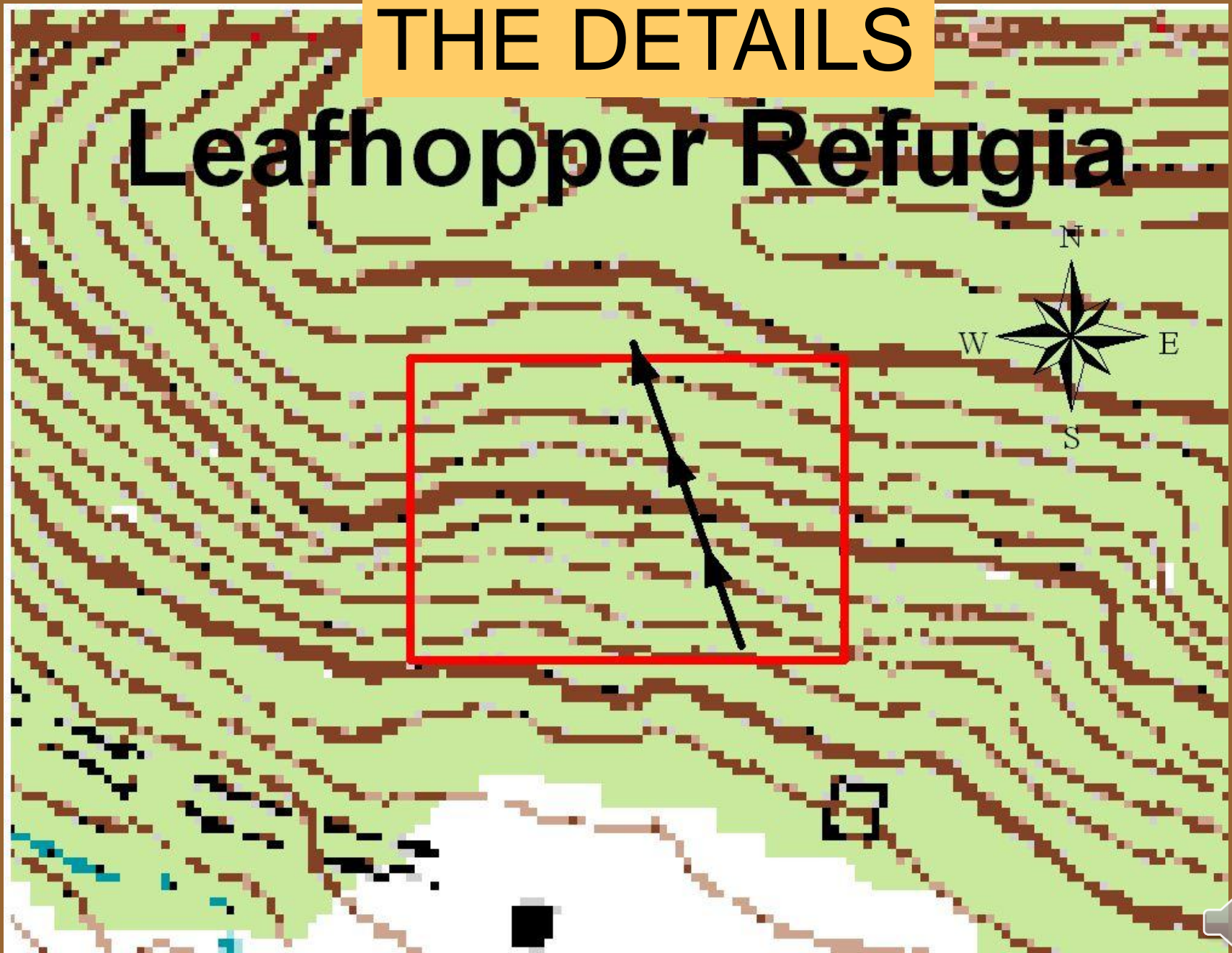
# TIMING

- Refugia headfire – perimeter?
- Interior vs *way* interior



# THE DETAILS

## Leafhopper Refugia



# Secured?

- In process
- perimeter fire?



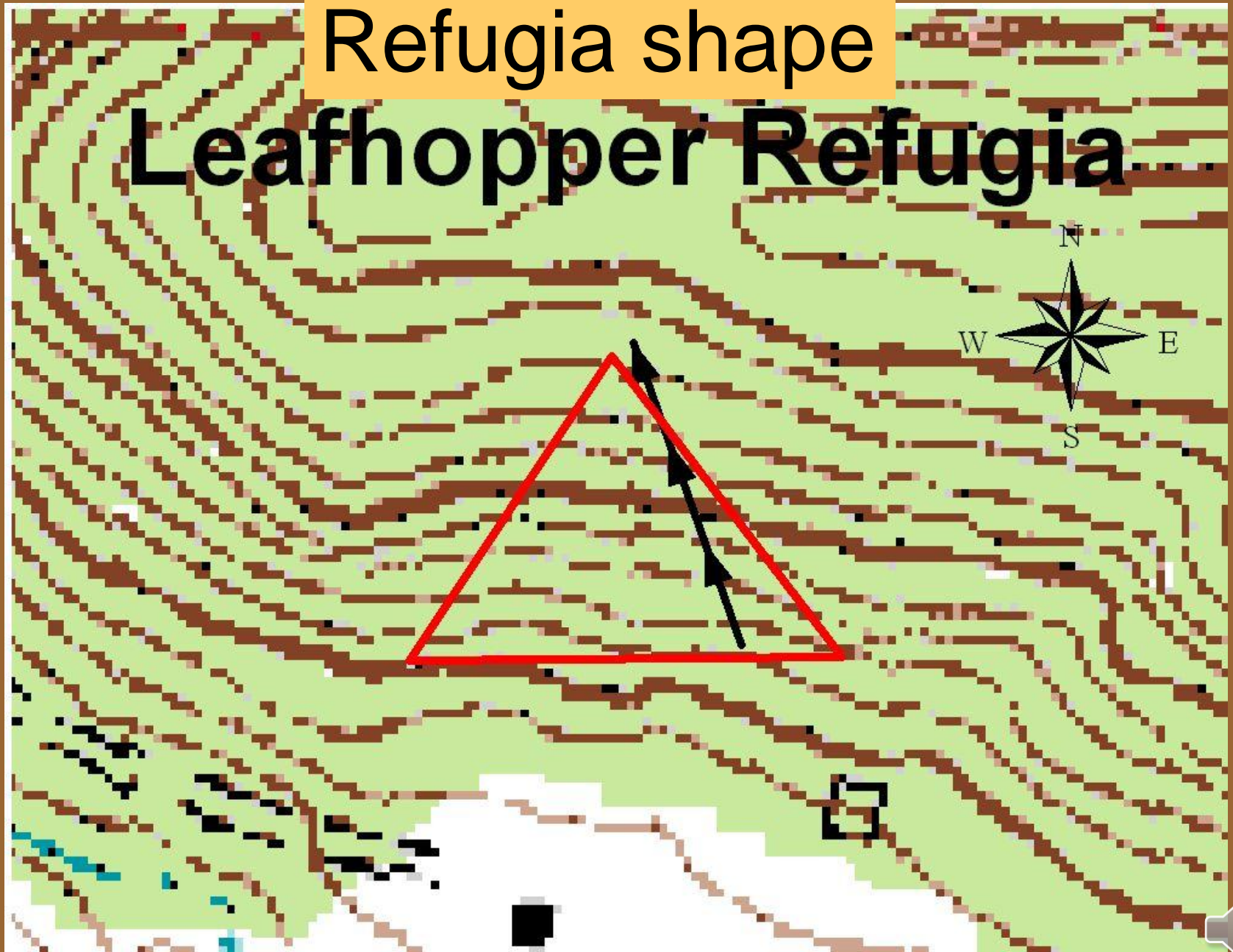
# Secured?

- Adjacent snags/brush piles



Refugia shape

# Leafhopper Refugia





















# Safety - Equipment

- Move into black
- Secure on slopes
- Pumpers and slopes
- Don't get stuck



# Safety – Personal

- Safety zone
- Don't get caught
- Communication
- Have enough resources
- Abort if necessary



# What's Conservative?



