

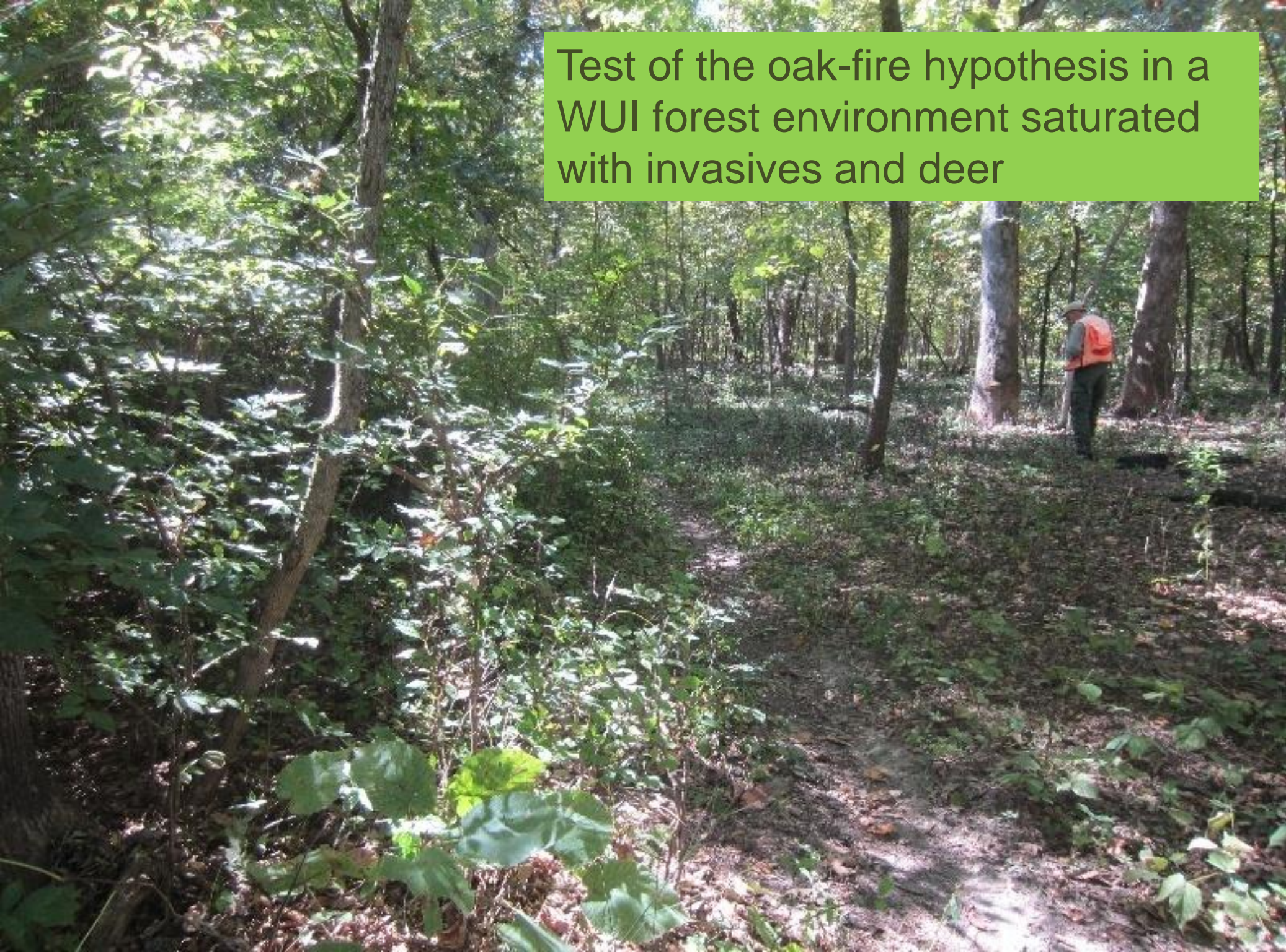
# AN URBAN FORESTRY RENEWAL PROJECT

Where do we go from here?



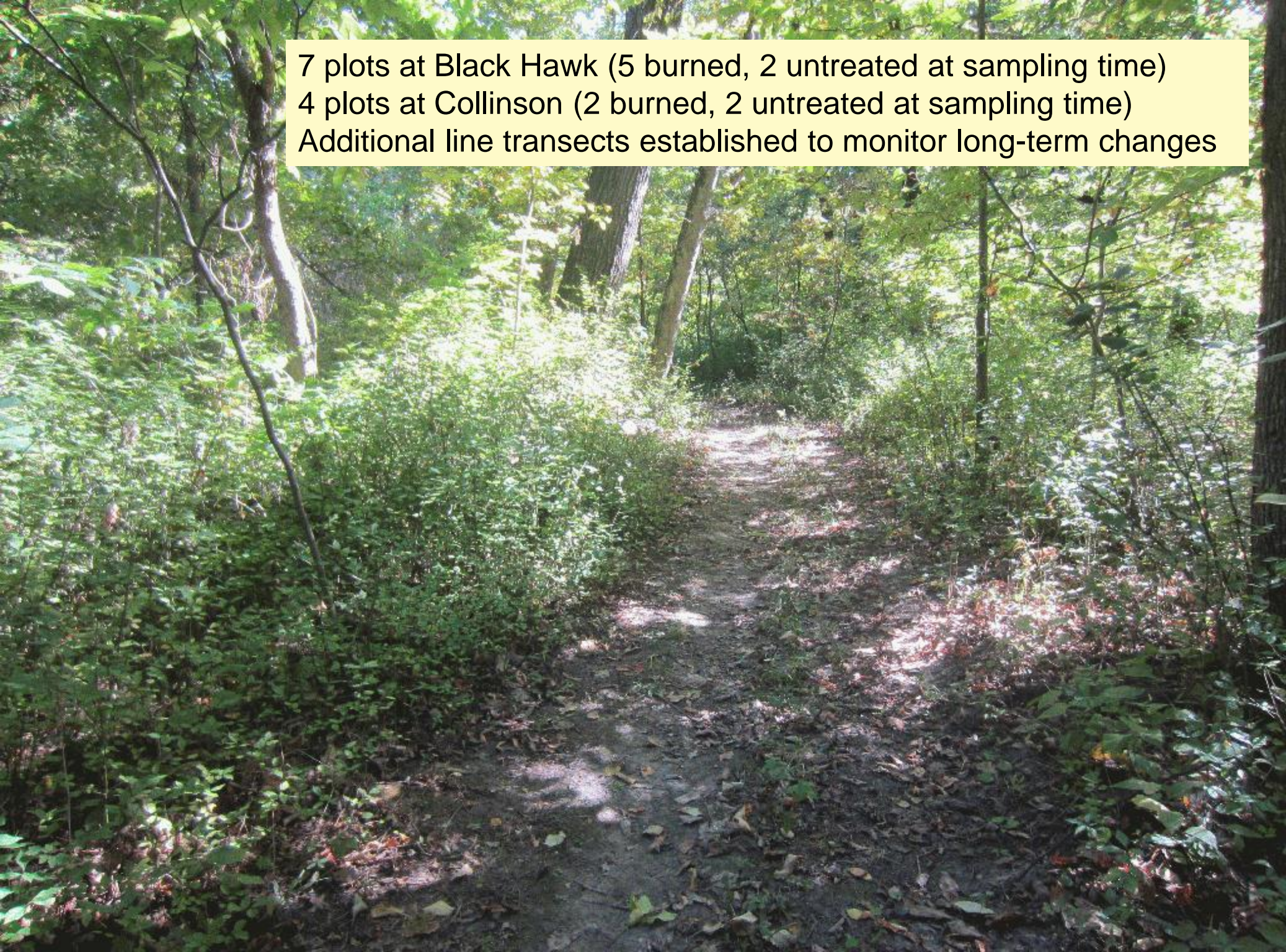


Test of the oak-fire hypothesis in a  
WUI forest environment saturated  
with invasives and deer





7 plots at Black Hawk (5 burned, 2 untreated at sampling time)  
4 plots at Collinson (2 burned, 2 untreated at sampling time)  
Additional line transects established to monitor long-term changes





Recorded GPS location, species  
(diversity), and stem count (density)  
in 1sq m plots







Treated (burned) plots



BLACK HAWK





Untreated (not yet burned) plots



BLACK  
HAWK



< treated (burned) plot



COLLINSON

untreated (not burned yet) plot





# Black Hawk Vegetative Plots

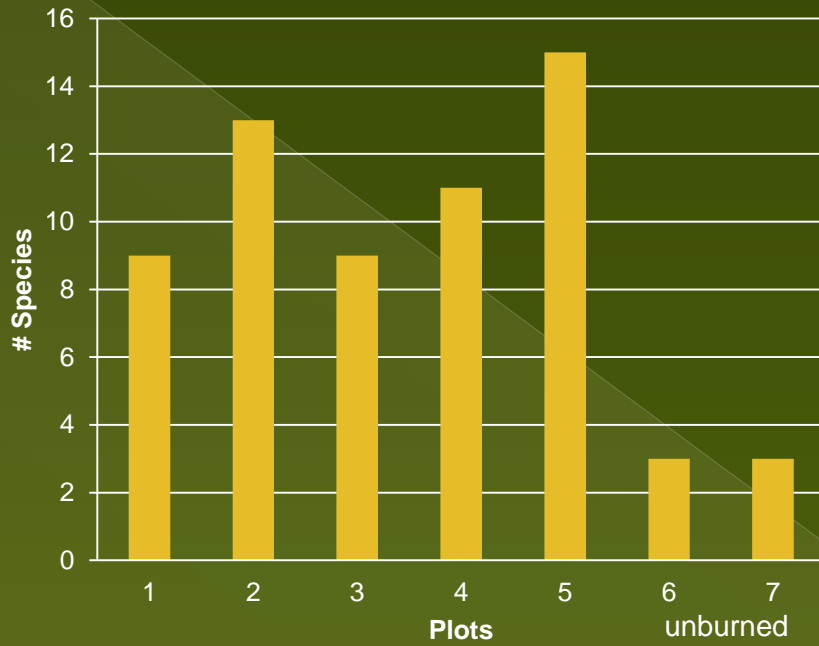
– most abundant plant species (fall sampling)

- ◉ winged wahoo (*Euonymous alatus*)
- ◉ climbing euonymous (*E. fortunei*)
- ◉ Virginia creeper (*Parthenocissus quinquefolia*)
- ◉ stickseed (*Hackelia virginiana*)
- ◉ hackberry (*Celtis occidentalis*)
- ◉ white avens (*Geum candense*)
- ◉ white ash (*Fraxinus americana*)
- ◉ poison ivy (*Toxicodendron radicans*)
- ◉ hog peanut (*Amphicarpaea bracteata*)
- ◉ pointed-leaved tick trefoil (*Desmodium glutinosum*)
- ◉ white snakeroot (*Ageratina altissima*)

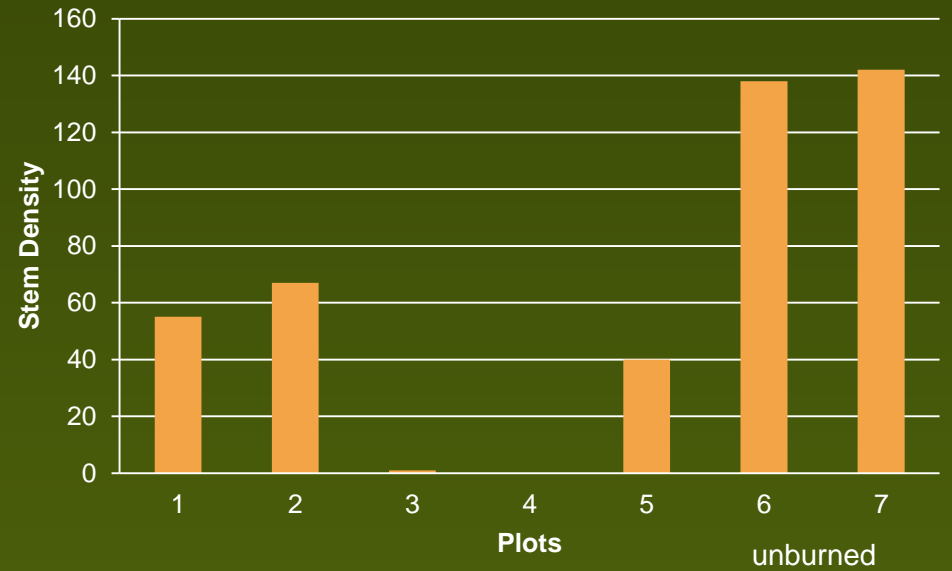




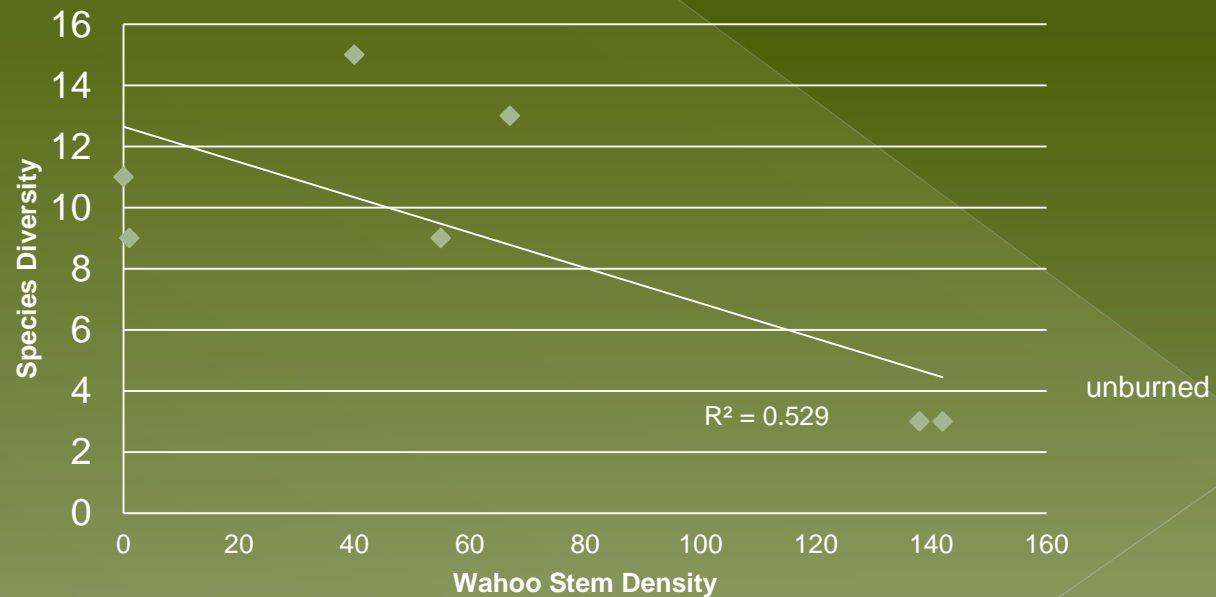
### Diversity at Black Hawk



### Wahoo Stem Density at Black Hawk



### Black Hawk Diversity vs. Wahoo





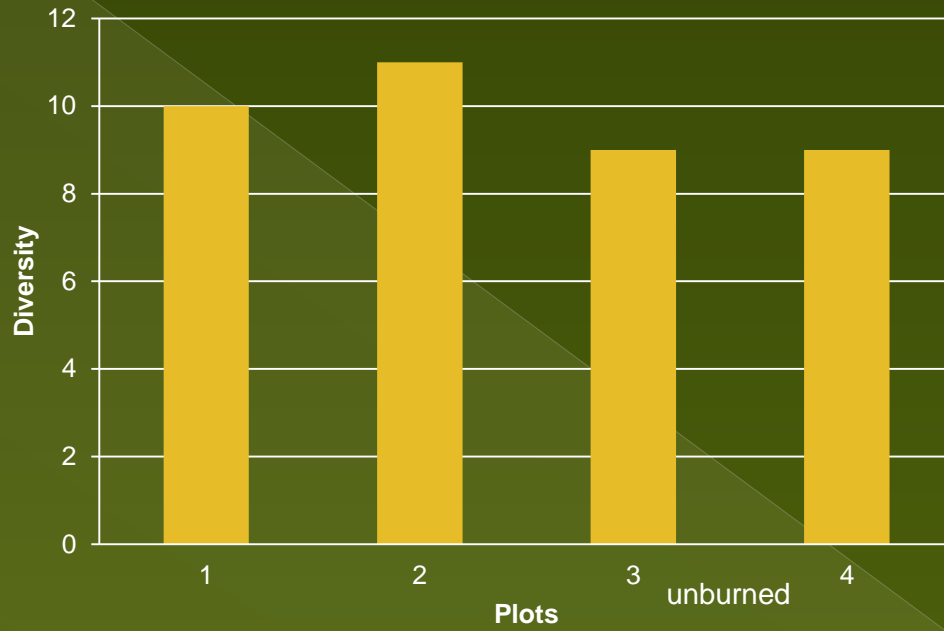
## Collinson Vegetative Plots

– most abundant plant species (fall sampling)

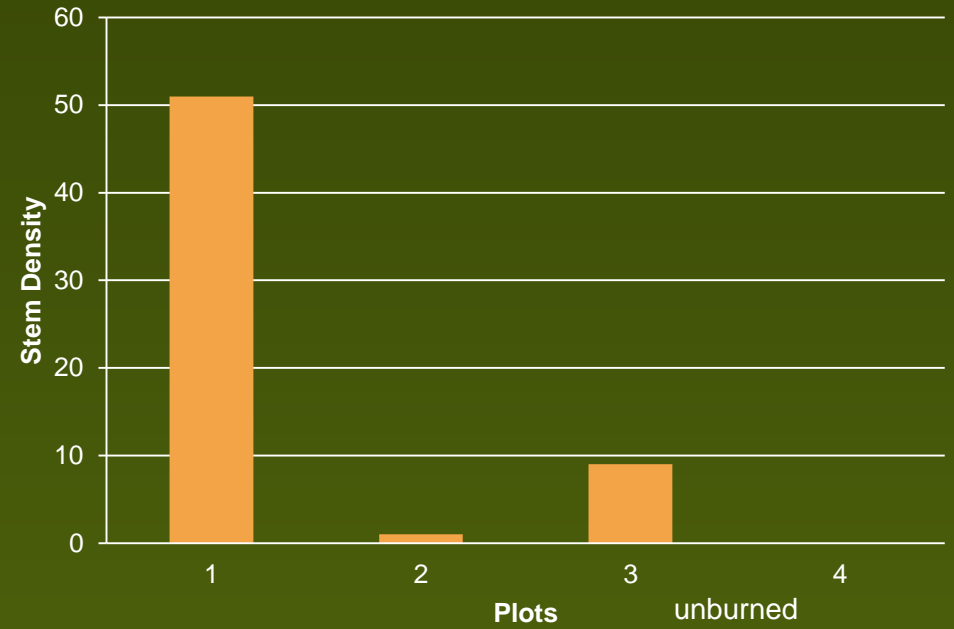
- black snakeroot (*Sanicula* spp.)
- prickly ash (*Zanthoxylum americanum*)
- pointed-leaved tick trefoil (*Desmodium glutinosum*)
- bedstraw (*Galium* spp.)
- Pennsylvania sedge (*Carex pensylvanica*)
- white snakeroot (*Ageratina altissima*)
- Virginia creeper (*Parthinocissus quinquefolia*)
- winged wahoo (*Euonymous alatus*)
- rough-leaved dogwood (*Cornus drummondii*)
- hog peanut (*Amphicarpaea bracteata*)
- stickseed (*Hackelia virginiana*)



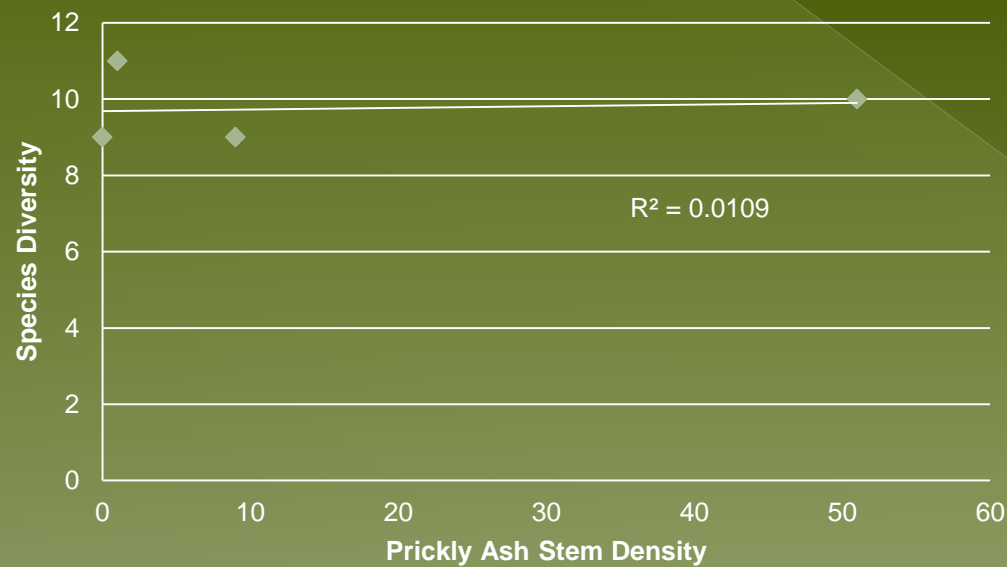
### Collinson Diversity



### Collinson Prickly Ash



### Collinson Diversity vs. Prickly Ash Density





# Conclusions

- Our WUI forests are rapidly changing due to:
  - > mesophification,
  - > climate change,
  - > invasive plants and pests,
  - > Disease and forest health decline,
  - > excessive fuel loads,
  - > failure of oak regeneration and lack of recruitment of new cohorts,
  - > high rates of herbivory.
- Ž We may need to rethink our expectations for WUI sites; focus on maintaining diversity over a larger scales (and multiple ownerships); target limited resources to larger patch sizes and critical sites.



## Conclusions (cont).

- Prescribed fire remains a preferred management tool due to its cost effectiveness and ability to produce short-term stand-level ecological changes in forest structure and species composition.
- However, the oak-fire hypothesis remains relatively untested in WUI forest environments that are saturated with both invasive species and deer. Over the long-term, we may need to alter the way we burn and combine fire with other management disturbances to effectively sustain these forest resources.



# Adaptive Management!





# Thanks to Our Project Sponsor

- USDA Forest Service,  
Northeastern Area State and  
Private Forestry
- Grant # 10-IL-329





# Acknowledgements



- River Bend Wildland Stewards  
Interstate RC&D
- Staff at Black Hawk State Historic Site
- Augustana College
- Western Illinois University
- U.S. Forest Service NE Area State & Private  
Forestry
- Illinois Nature Preserves Commission
- Illinois DNR
- Scott County (Iowa) Conservation Board





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