Metroparks Deer Management:

Initial Findings and Ecological Implications

Timothy A. Schetter, Ph.D. and Timothy D. Gallaher

METROPARKS
TOLEDO

White-tailed Deer Ecology

- A generalist herbivore:
  - Preferred habitat: forest edges
  - Highly adaptable & selective
  - Dietary preference varies by season & habitat
- Lack of predators
- High reproductive potential

Reproductive Potential: an example

- George Reserve, Michigan:

  1,100-acre fenced natural area

  1928: 6 deer introduced (2 bucks, 4 does)

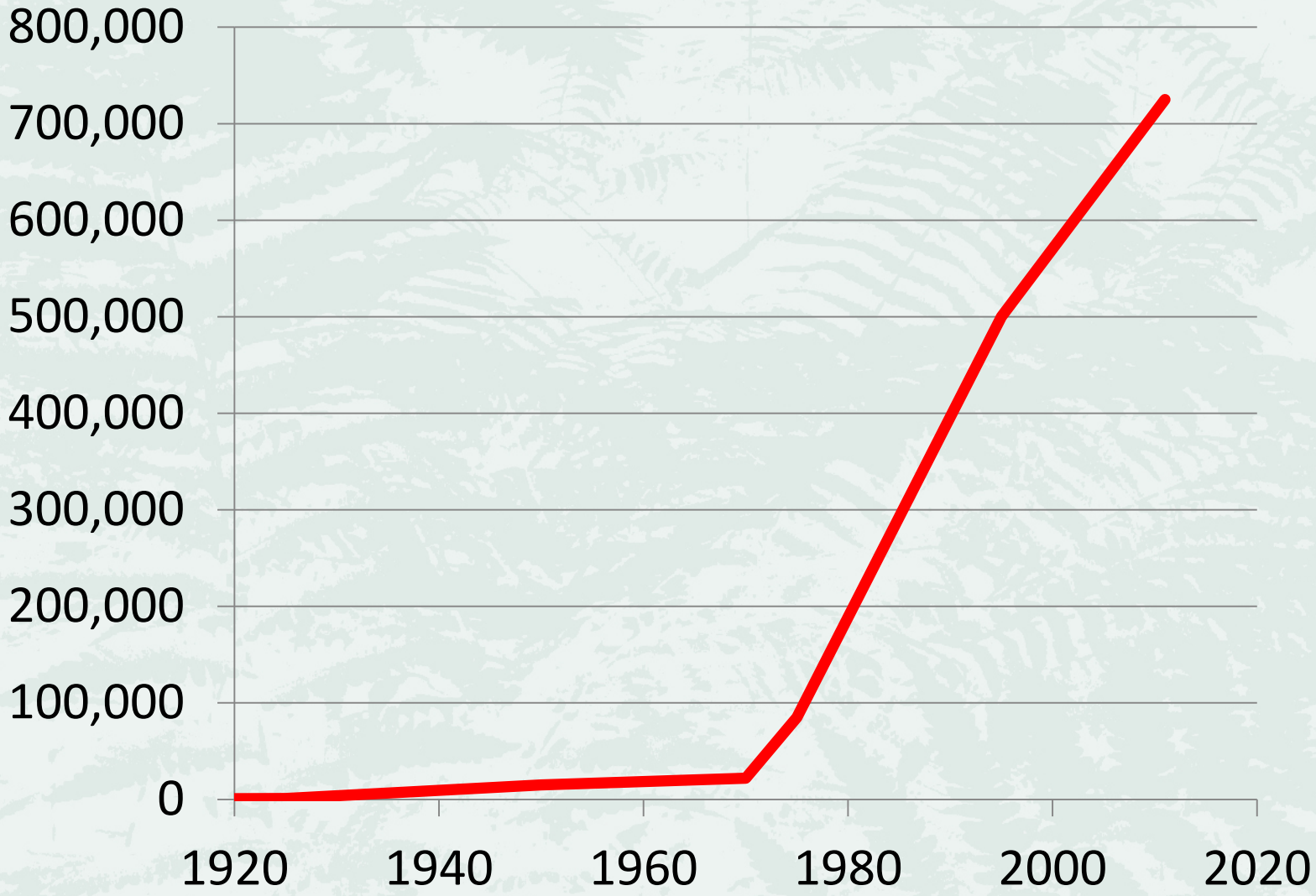
  1935: 222 total deer

  1975: population reduced to 10 deer

  1981: 212 total deer

Data from McCullough (1984)

Ohio's Deer Population



Data from Ohio Division of Wildlife

Ecological Impacts of Too Many Deer

- Negative impacts on forest regeneration
- Loss of plant diversity
- Habitat degradation for other wildlife species

Photo from www.nature.org

Photo from cougarrewilding.org

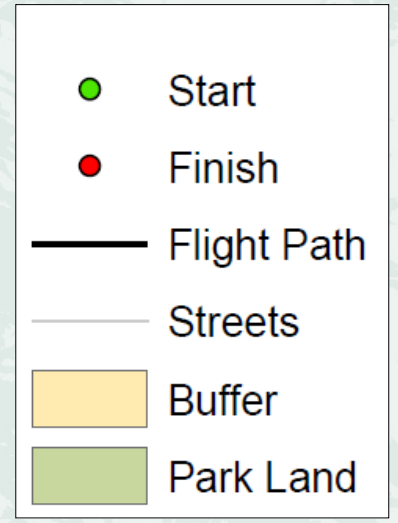
Deer Damage in the Metroparks

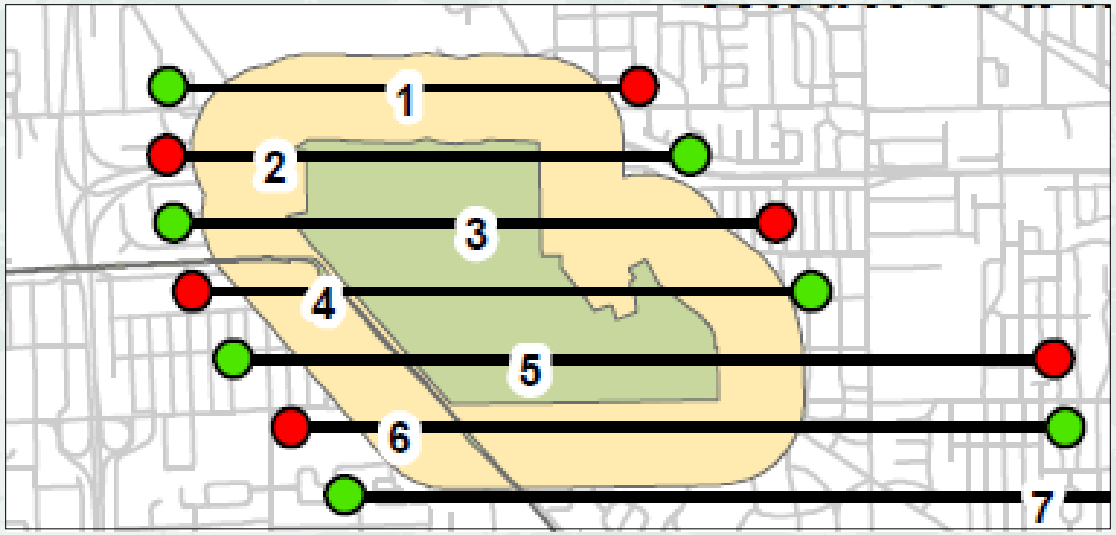
- Wide-spread browse damage to tree seedlings
- Persistent damage to rare plant populations
- Long-term decline in spring ephemeral wildflowers

Metroparks Deer Management

- Monitor deer population levels
- Assess ecological damage
- Targeted population reductions
  - Controlled archery hunting
  - Culling performed by professional marksmen

Survey Methods: Helicopter Snow Count

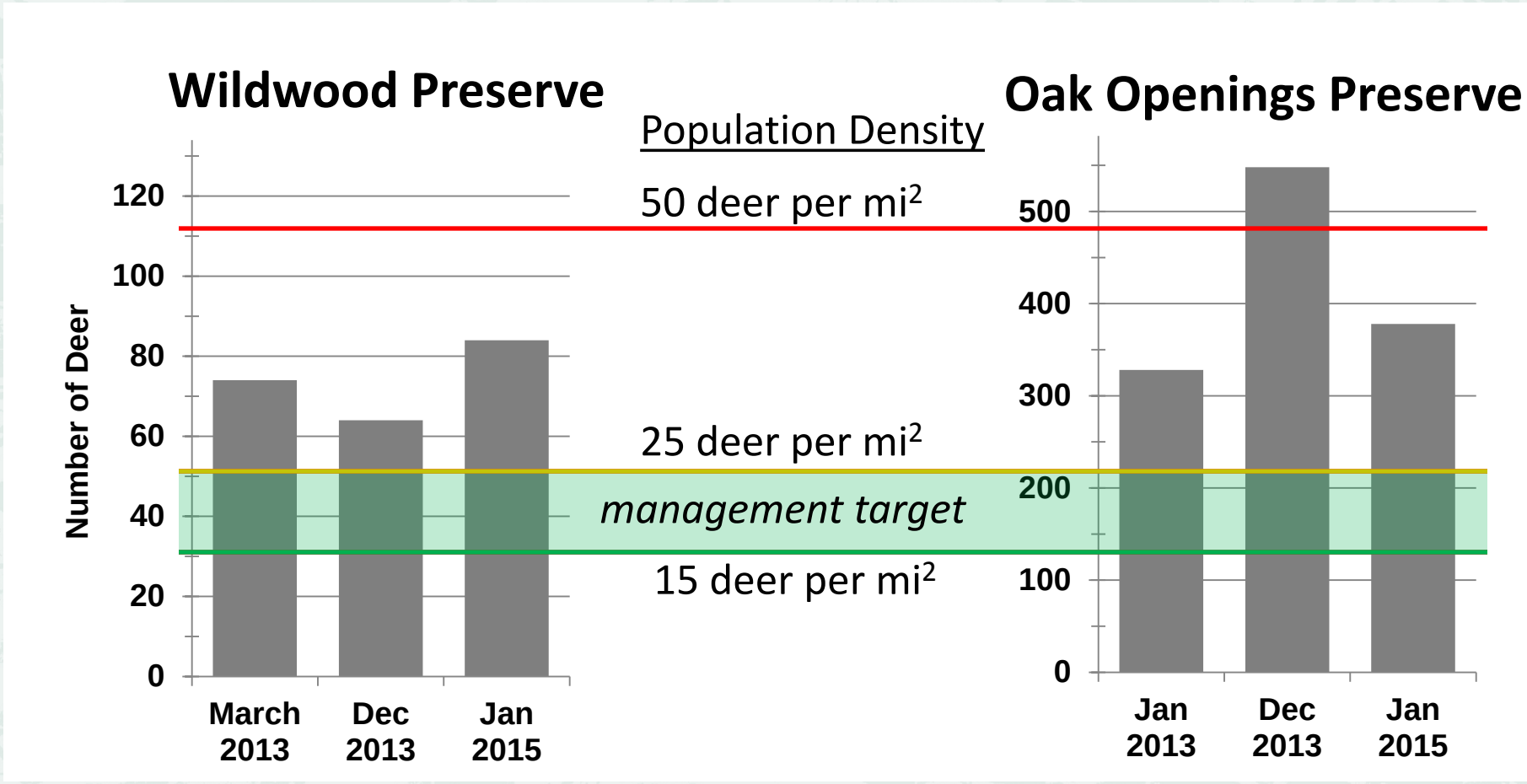




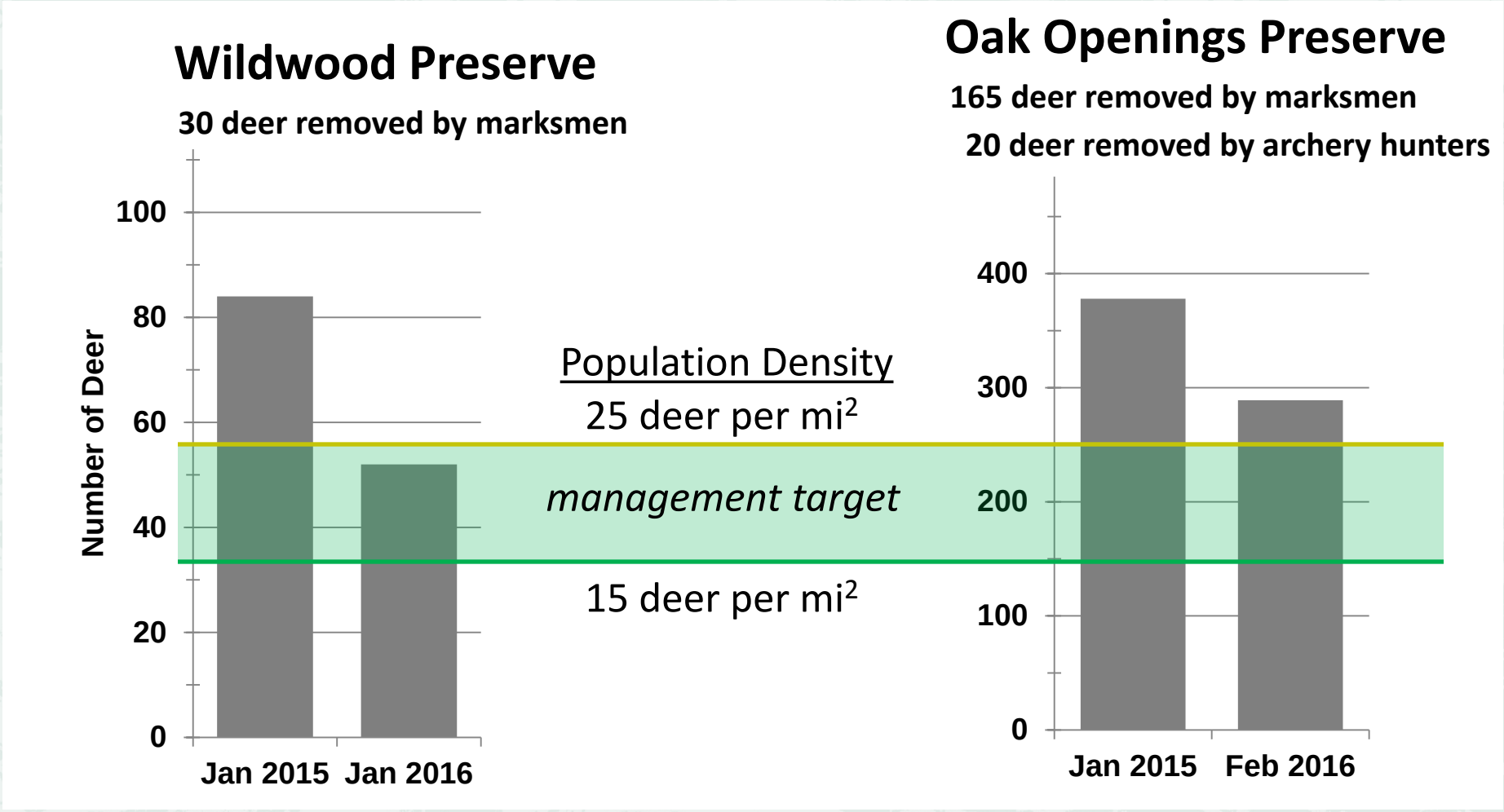
Survey Methods: Aerial Infrared Count

Surveys conducted by Davis Aviation, Kent, Ohio

Deer Survey Results: Population Index



2016 Population Reductions

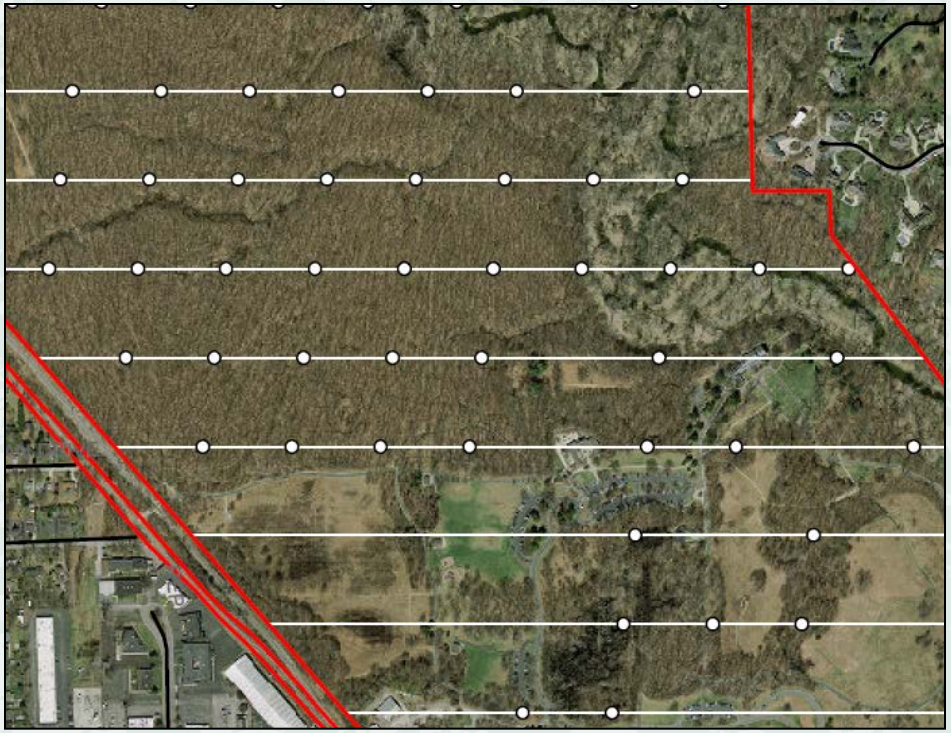


Overwinter Browse Damage Assessment

1. Not Browsed: no visible browse damage
2. Light: 0 - 50% of stems browsed
3. Moderate: >50% of stems browsed, seedlings not hedged
4. Heavy: >50% of stems browsed, seedlings severely hedged but >0.5 ft.
5. Severe: no seedlings >0.5 ft., seedlings severely hedged

Heavy Browse

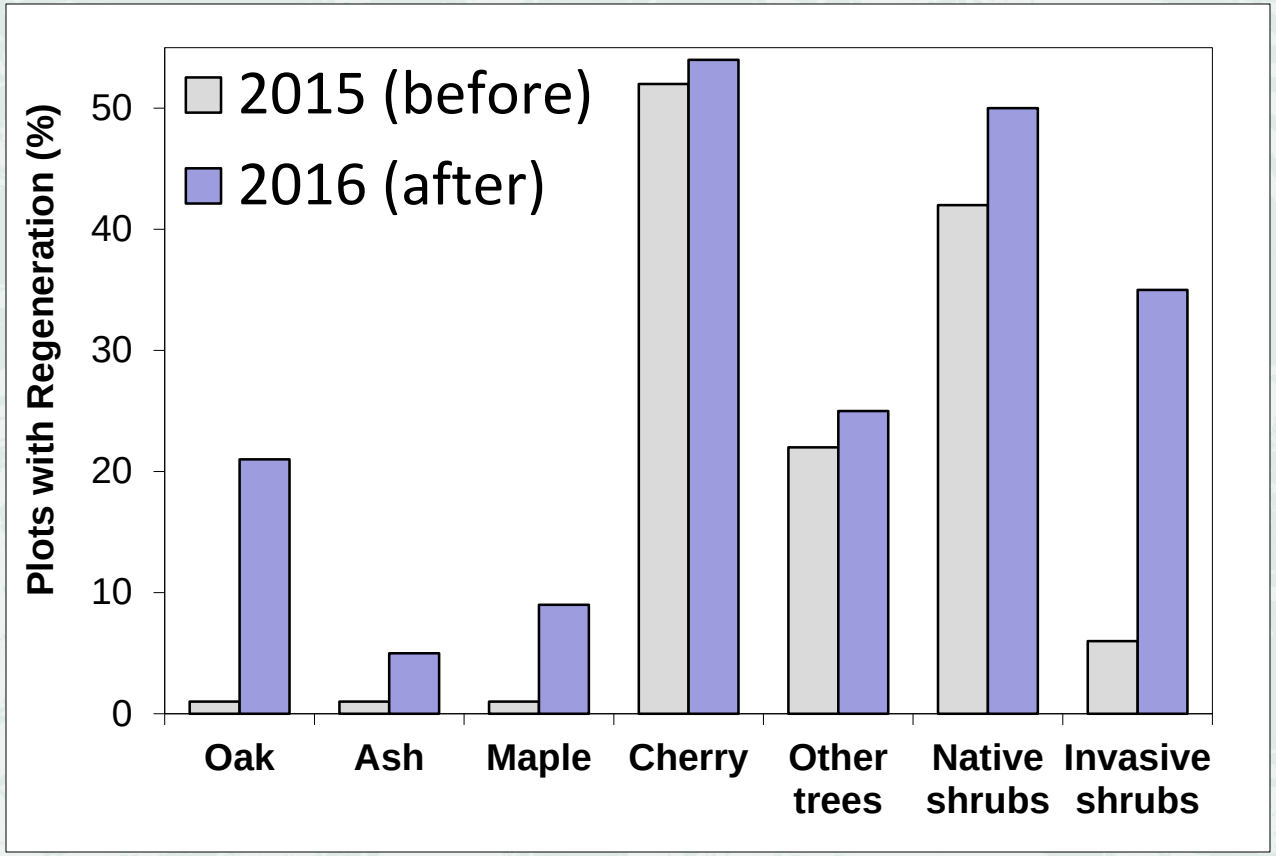
Severe Browse

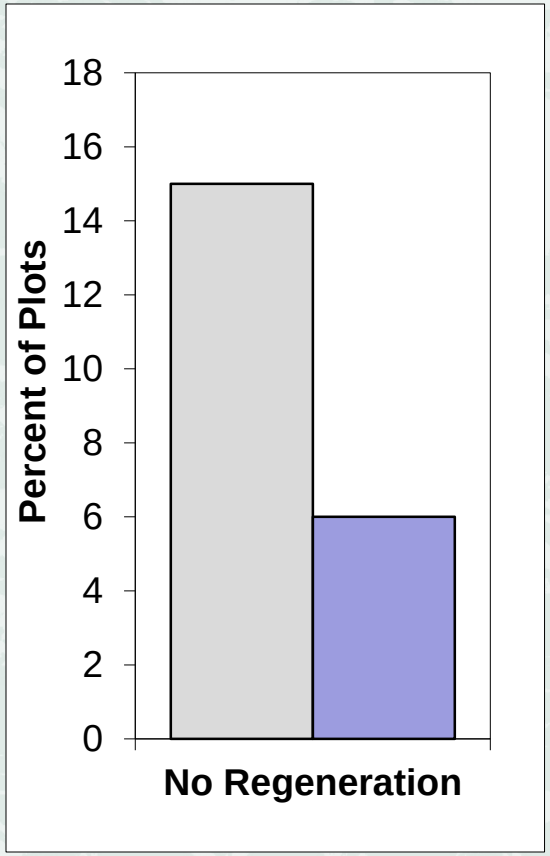


Adapted from Benner (2007)

Browse Damage Assessment: Results

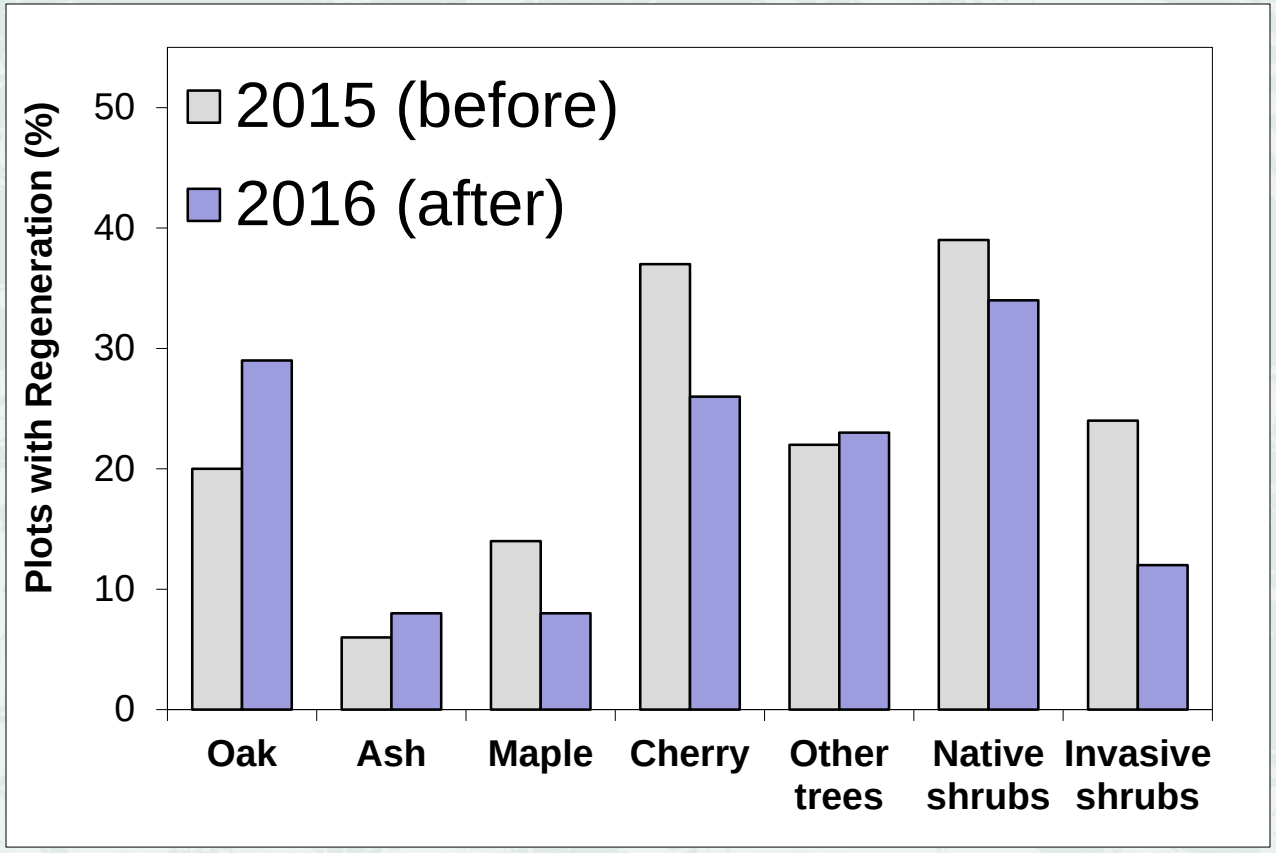
Wildwood Preserve: Regeneration of Woody Plants

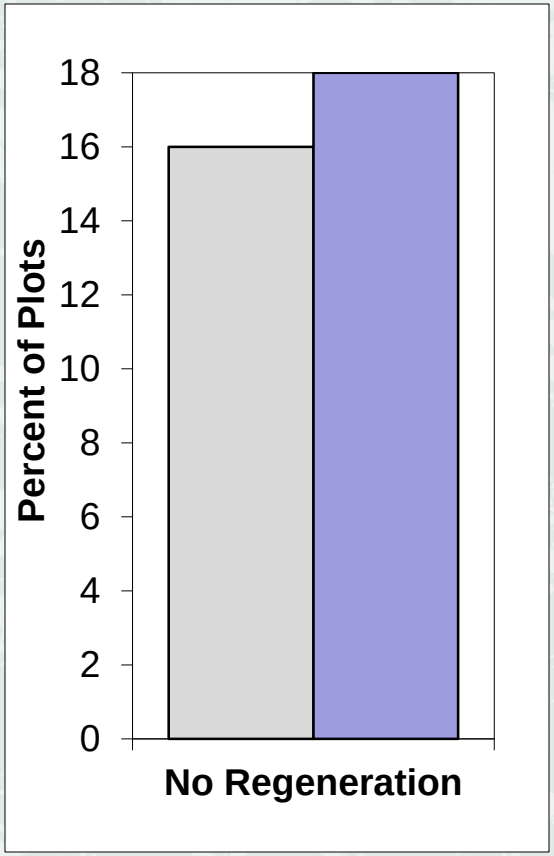




Browse Damage Assessment: Results

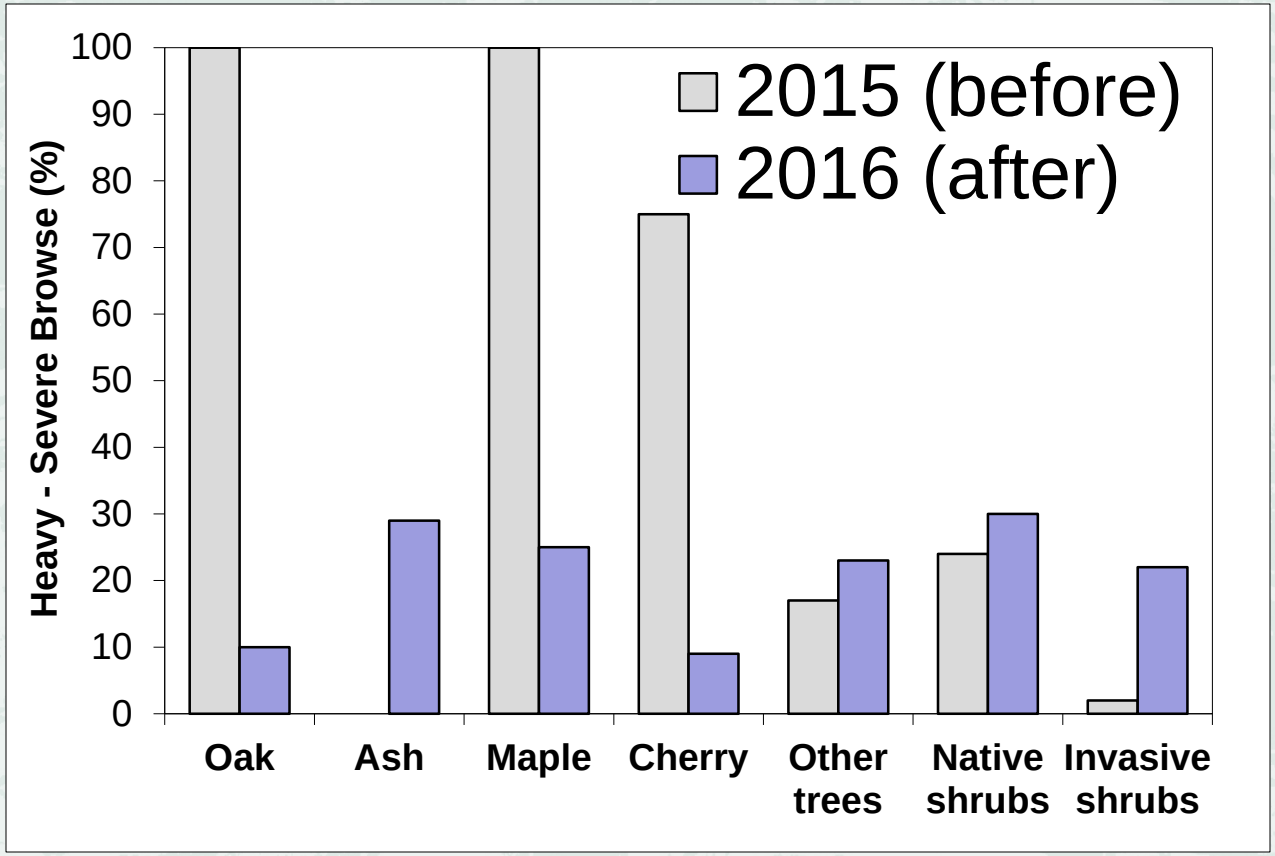
Oak Openings Preserve: Regeneration of Woody Plants

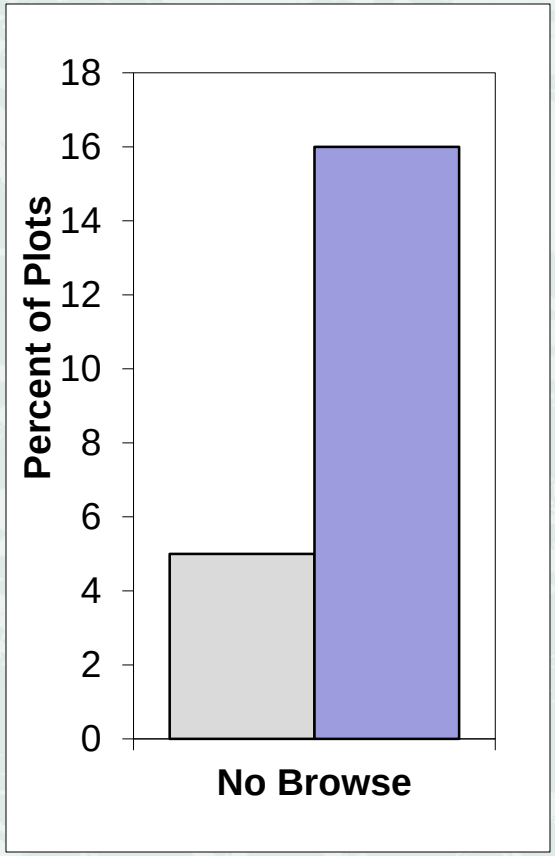




Browse Damage Assessment: Results

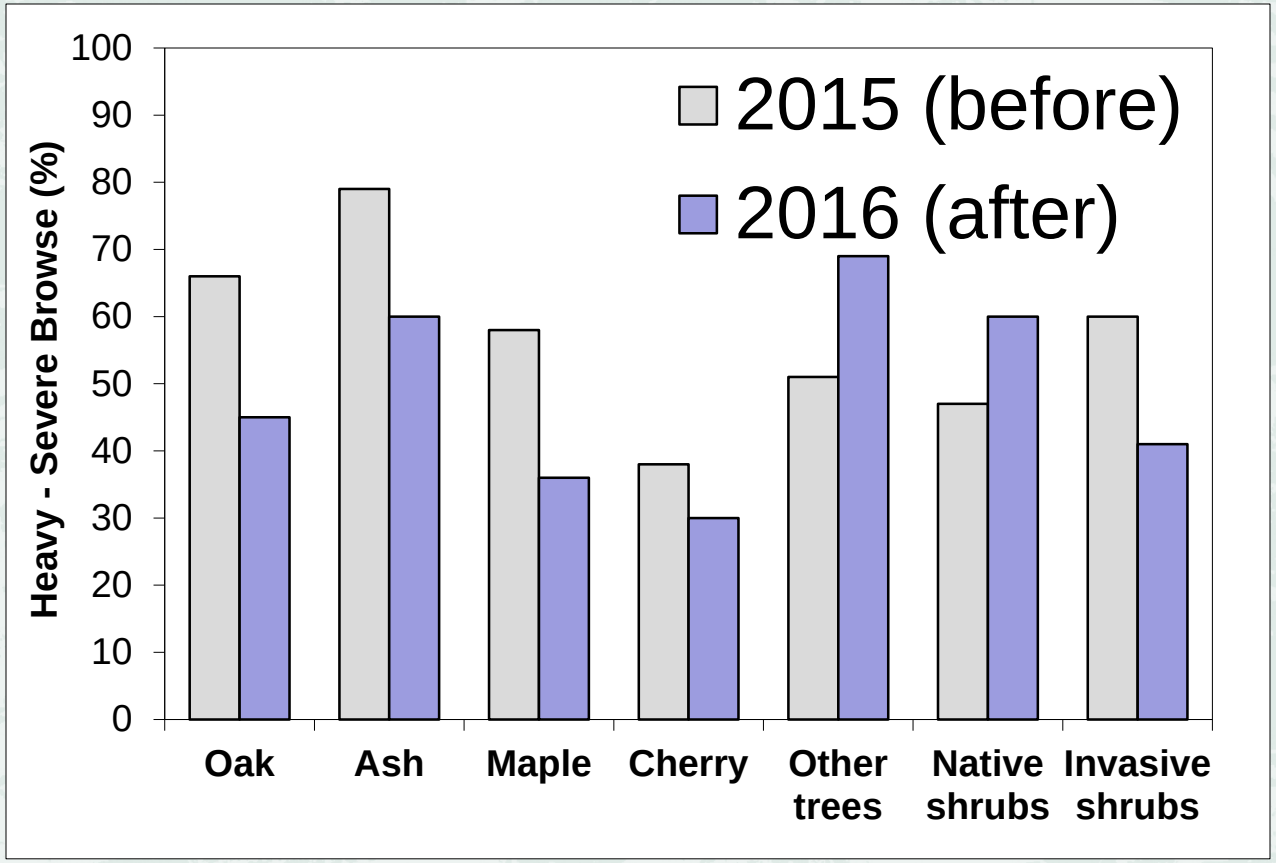
Wildwood Preserve: Browse Damage to Woody Plants

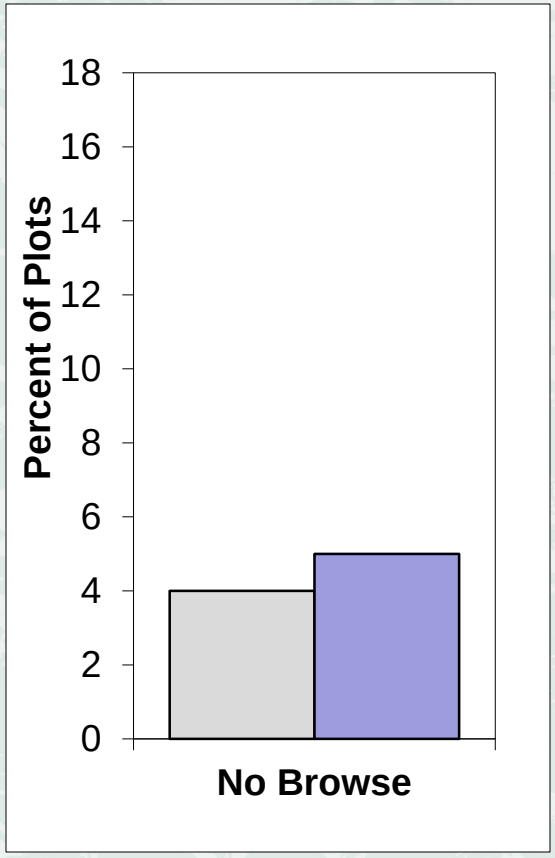




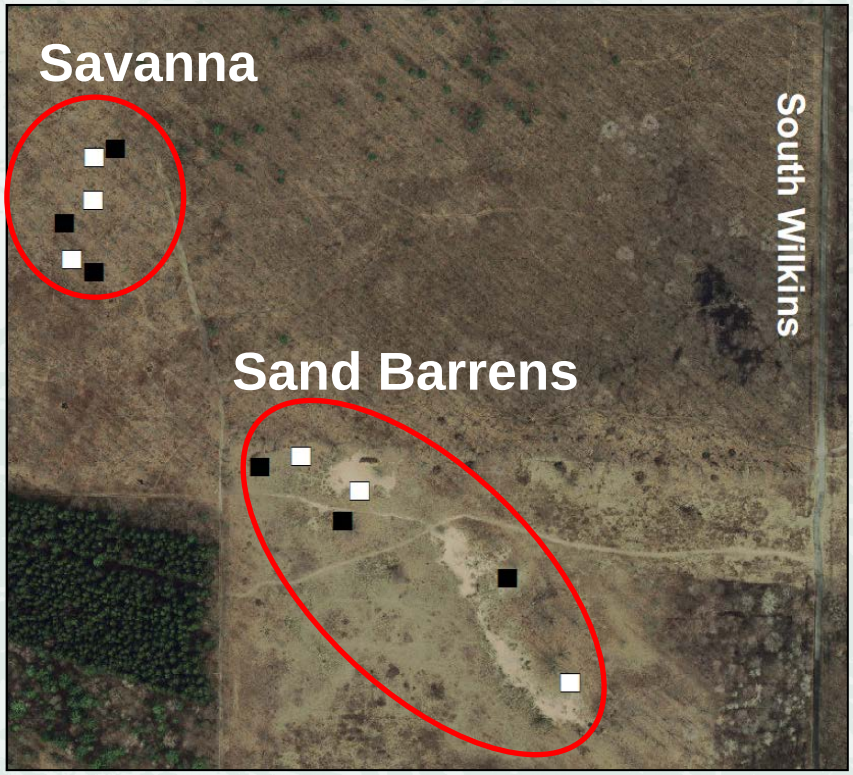
Browse Damage Assessment: Results

Oak Openings Preserve: Browse Damage to Woody Plants





Lupine Browse Study Plots



Control

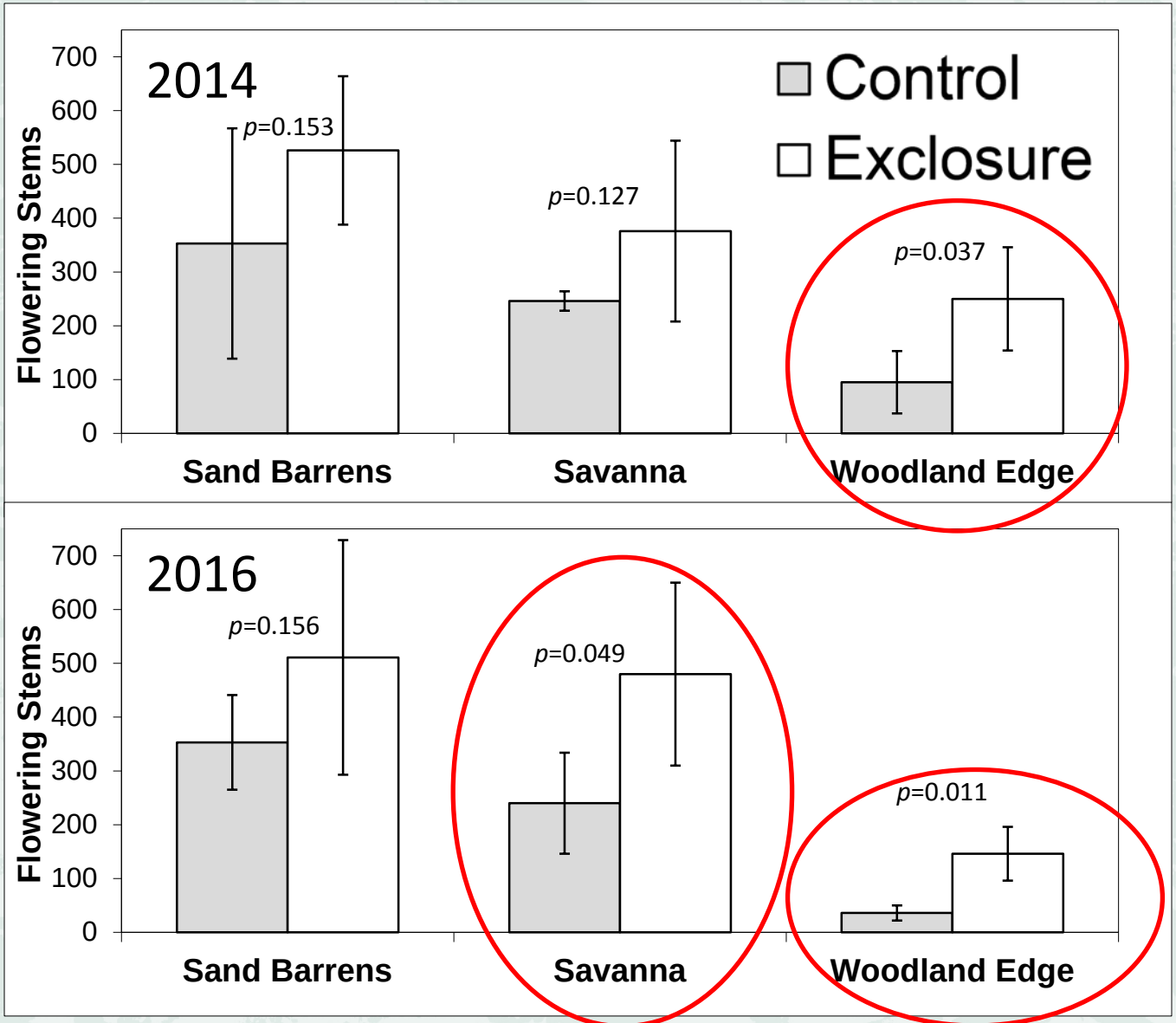
Exclosure

0 125 250 500

Feet

N

Lupine Browse Study: Results



1-tailed t-test, equal variance

Conclusions

- Deer population management is necessary to protect park natural areas.
- We observed immediate benefits when population reduction goal was achieved.
- Park ecosystems will require many years to fully recover from deer impacts.

Acknowledgements

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