

# English Holly (*Ilex aquifolium*) Control and Eradication

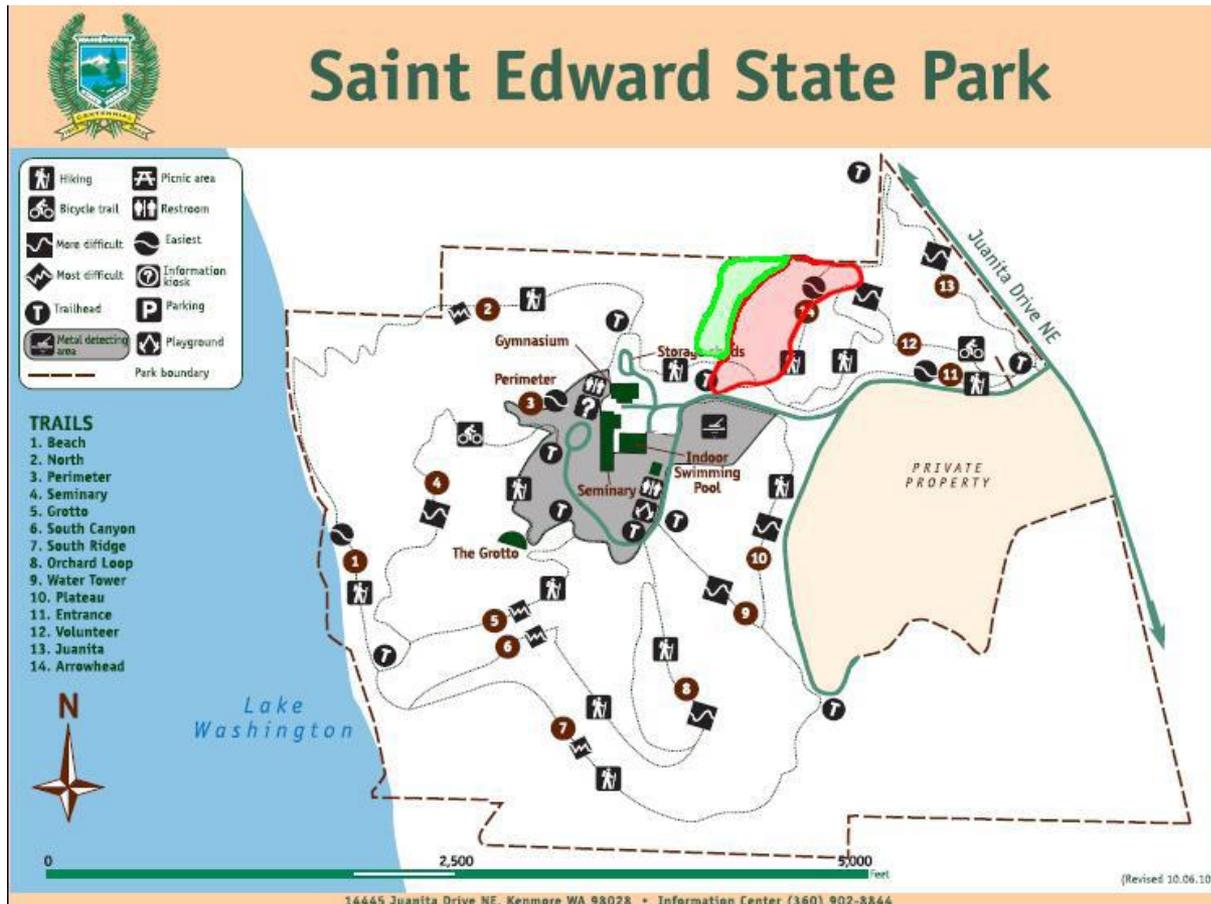
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A decorative graphic consisting of several horizontal lines of varying lengths and colors (teal, light blue, white) extending from the right side of the slide towards the center.

# Research Question

- How effective are common methods of English Holly removal?
  - Cutting
  - Cutting and Herbicide (18% glyphosate)
  - Pulling

# Study Site



•Red: 2011 removal area

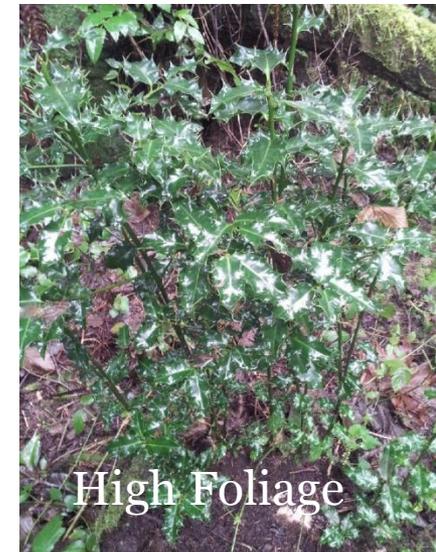
•Green: 2012 removal area

- Removed all holly plants in study area (n = 466)  
2011: 215, 2012: 251
  - Uprooted when possible (n = 421)
  - Cut remaining trees (n = 45)
    - Herbicide treatment (n = 29)
    - No herbicide treatment (n = 16)
- Collected basal cross section to determine age



# Methods

- In 2013 survey 2011 and 2012 study areas for new growth at 74 original removal sites
  - 34 pulled with a Weedwrench
  - 14 cut at base
  - 26 cut at base, 18% glyphosate herbicide applied to stump
- Collect Data from Jan. 2013-May 2013
  - Original removal method, number of new sprouts, sprout height, diameter, and foliage thickness



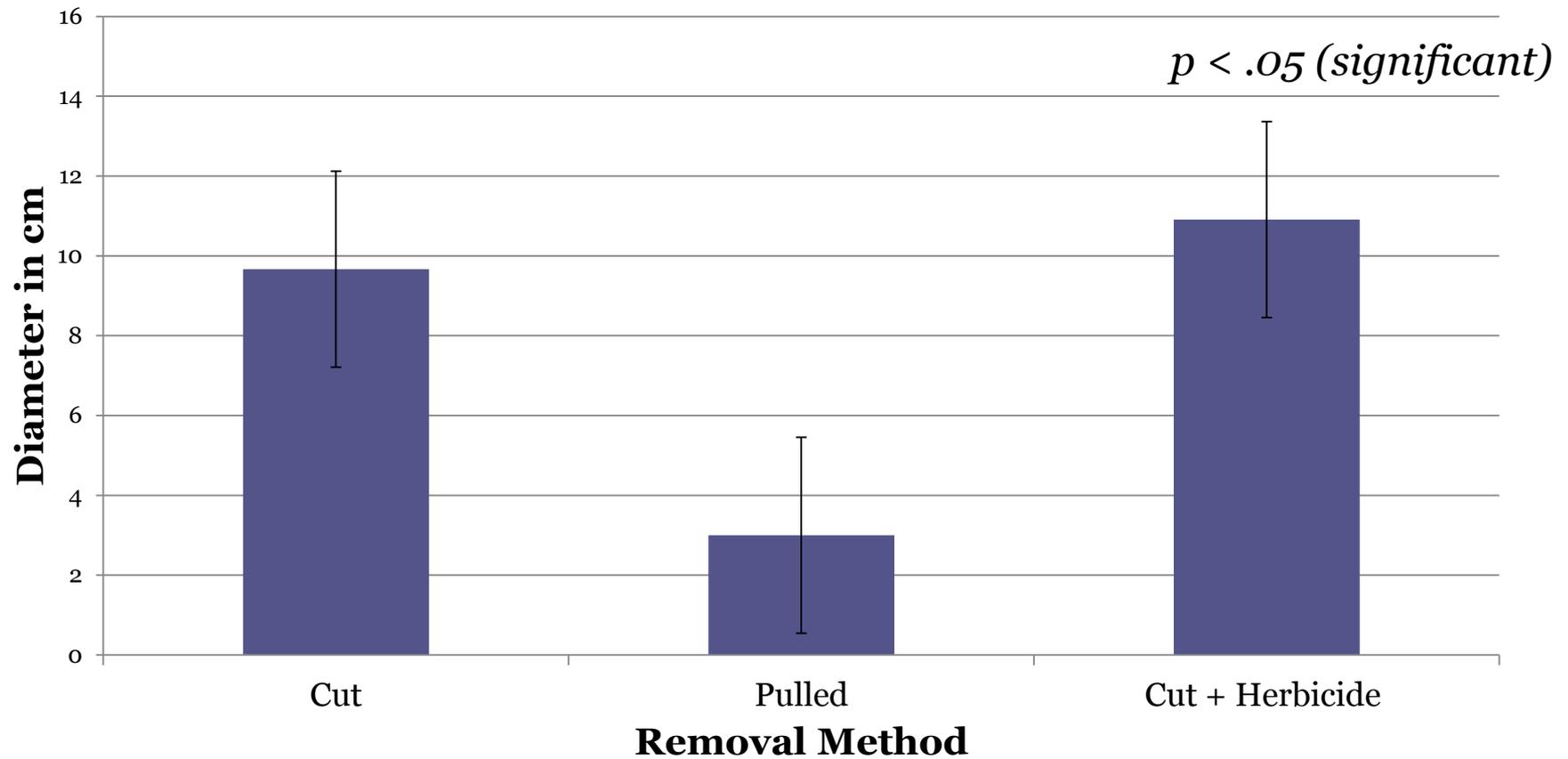
Growth off of cut stump



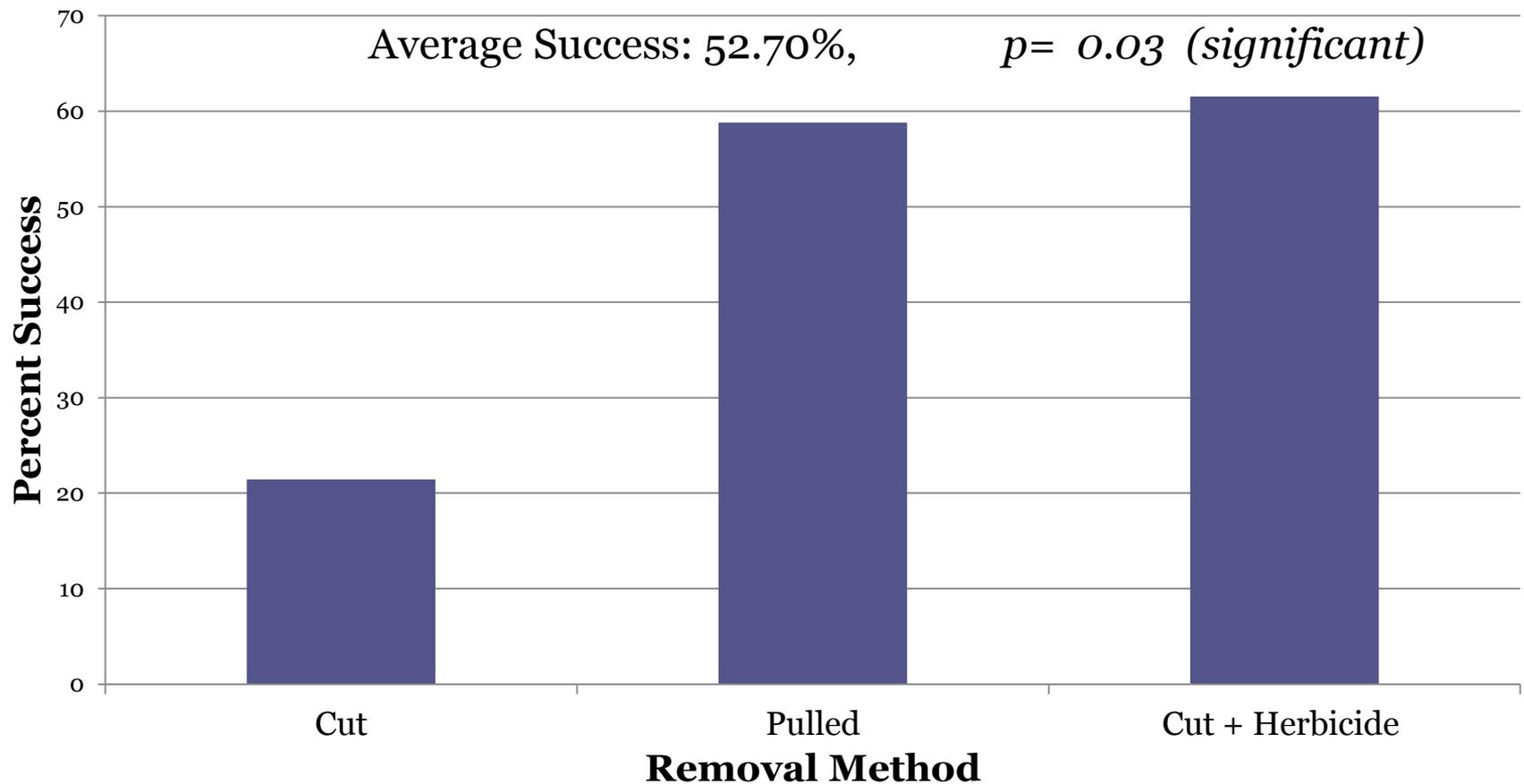
Sprout near a pulled site



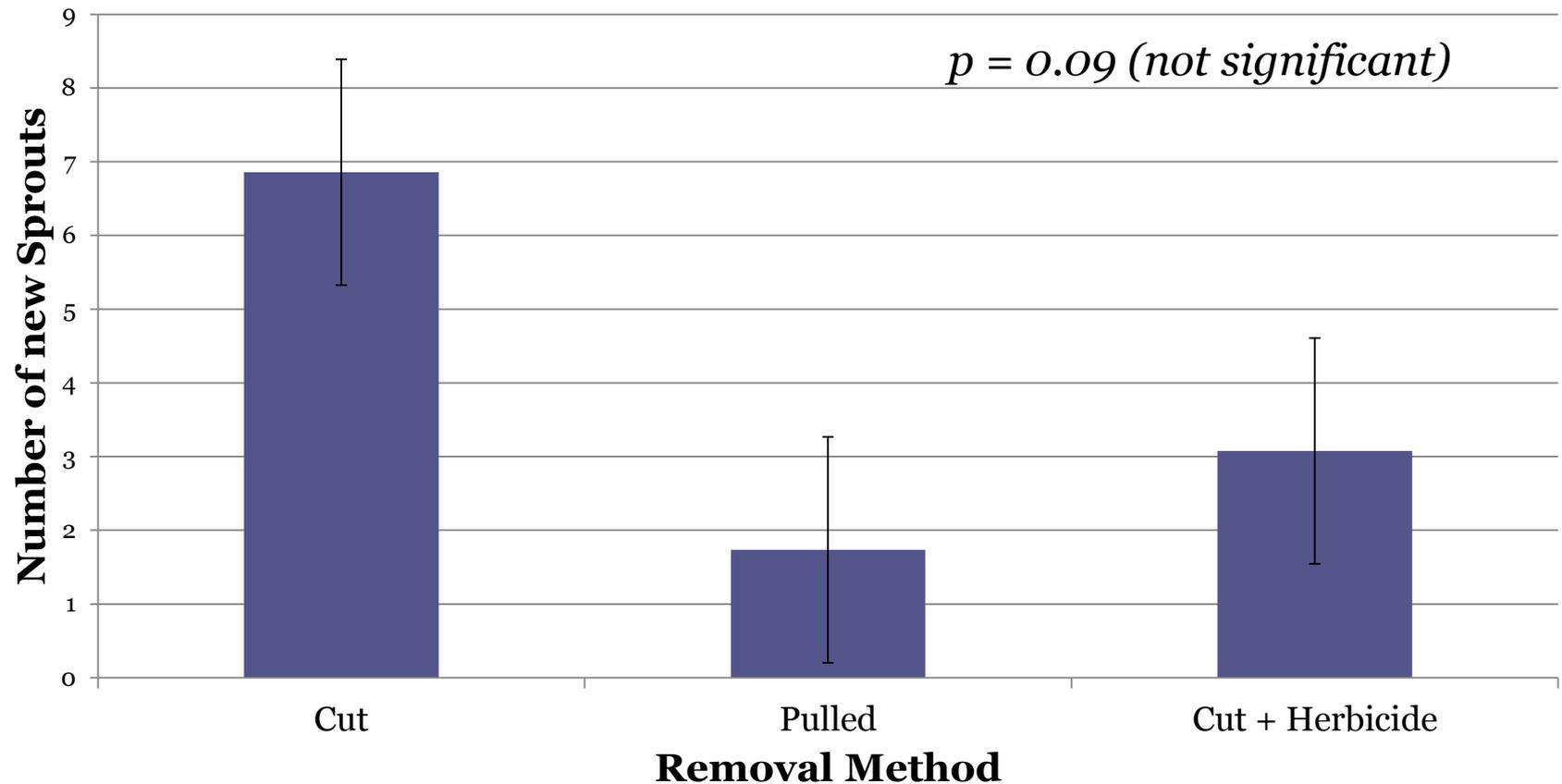
# Original Base Diameter



# Results: Percent Success (no sprouts)

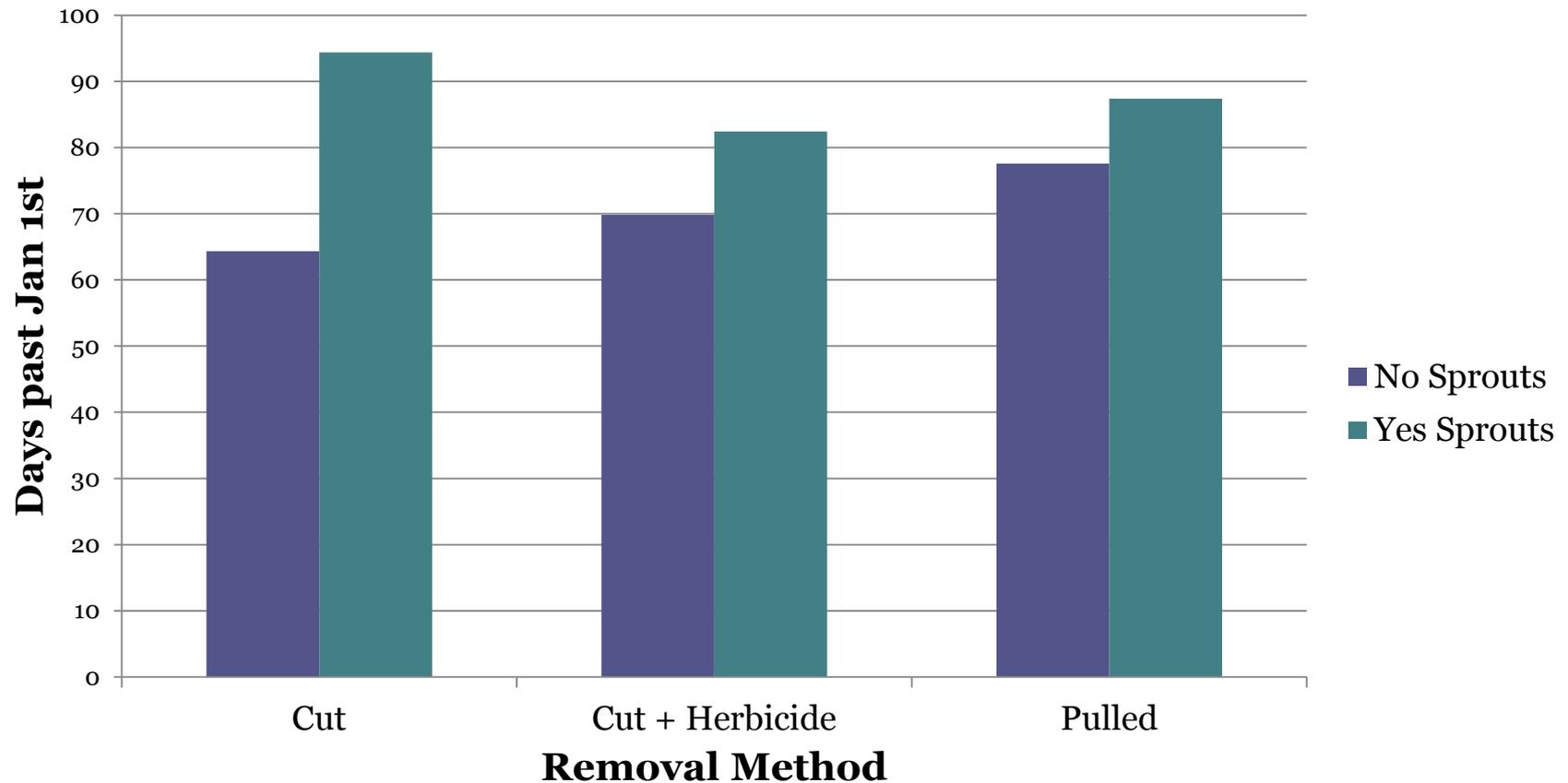


# Results: Number of Sprouts

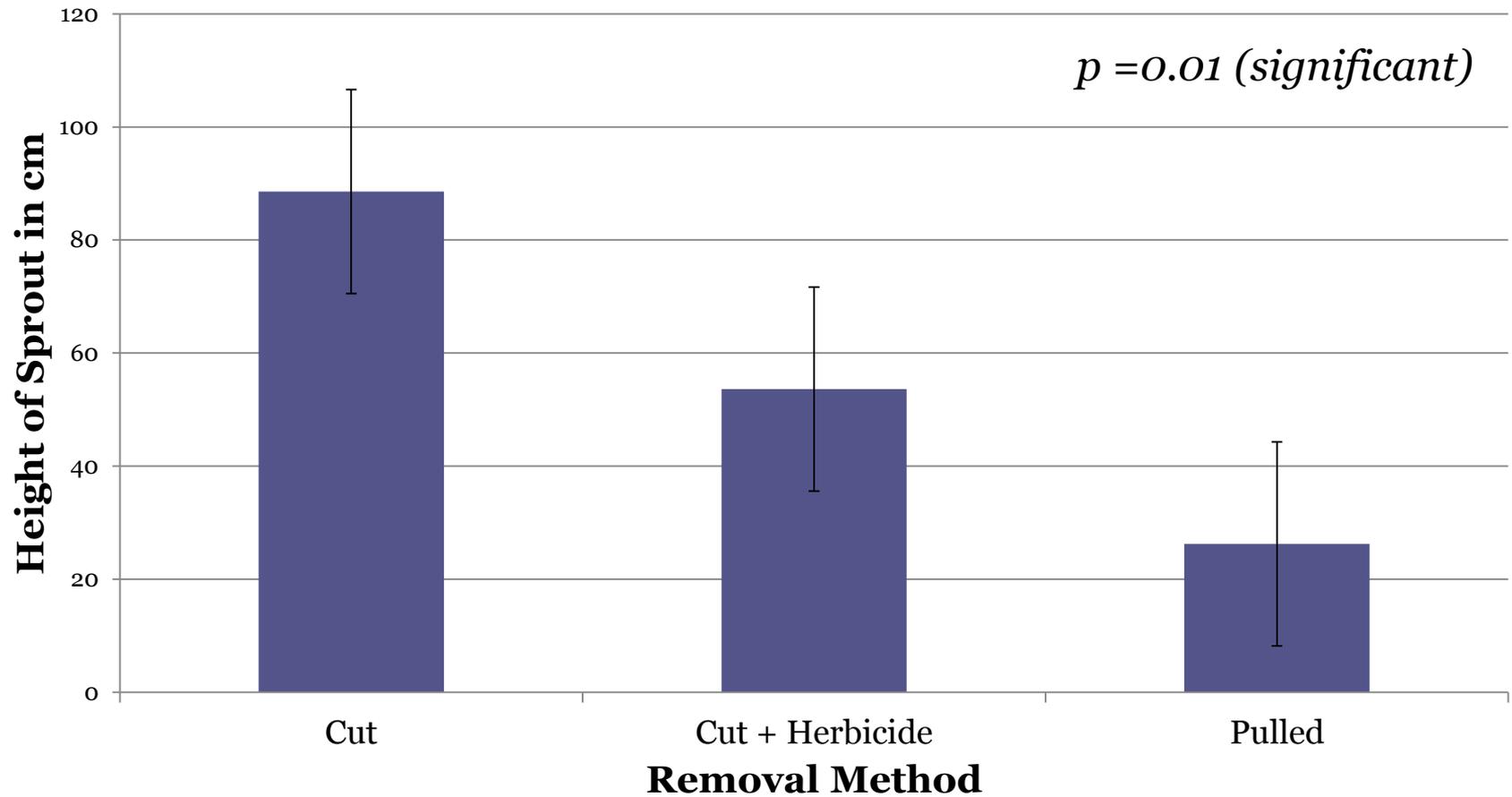


# Results: Date of Removal

*p=0.03 (significant)*



# Results: Sprout Height



# Results: Logistic Regression

- Method of removal:  $p=0.024$ 
  - Pulling and cutting + herbicide more successful
- Original base diameter:  $p=0.010$ 
  - Greater success with smaller trees
- Removal date:  $p=0.047$ 
  - Greater success in winter than spring
- Success of removal can be predicted when combining all above factors
  - 70.3% of the time

# Conclusions

- Small holly (< 7 cm basal diameter) can be effectively removed by pulling in approximately 60% of cases
- Larger holly should be cut and treated with herbicide, not simply cut
- Cutting at base and treatment with a commonly available herbicide (18% glyphosate) is effective in many (~60%) but not all cases
- Early treatment of an infestation, when trees are smaller, is likely to be more successful
- Removal should be done in winter
- Re-treatment is likely necessary for eradication
- A ounce of prevention ...

# Questions? Comments?

Thank you for your time!

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