

# Effectiveness monitoring of riparian plantings in the interior Columbia Basin streams

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# AEM Program Categories

LW/ELJ/Boulders

Complete Barriers

Riparian Planting

Invasive Plant  
Removal

Floodplain  
Reconnection

Partial Barriers

Bank Stabilization

Cattle exclusion



# Riparian Planting Questions

- Did treatment (planting and invasive removal) lead to increases in native species abundance and diversity?
- Did treatment lead to increased cover of native woody plant species?
- Did treatment lead to increased riparian condition (e.g., structure, shade)?



# Study Design

## Extensive Post-treatment (EPT)

Control



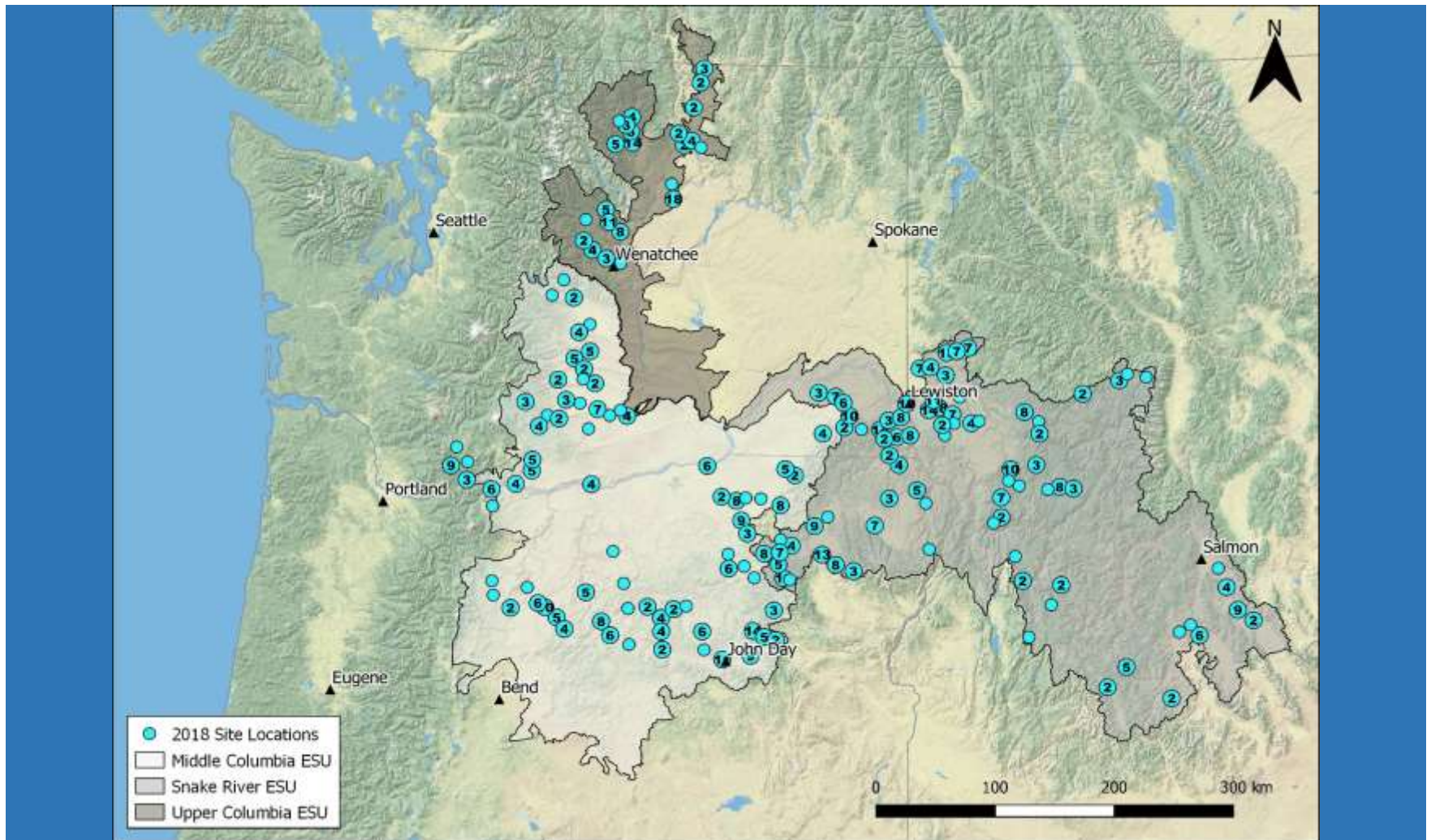
Treatment



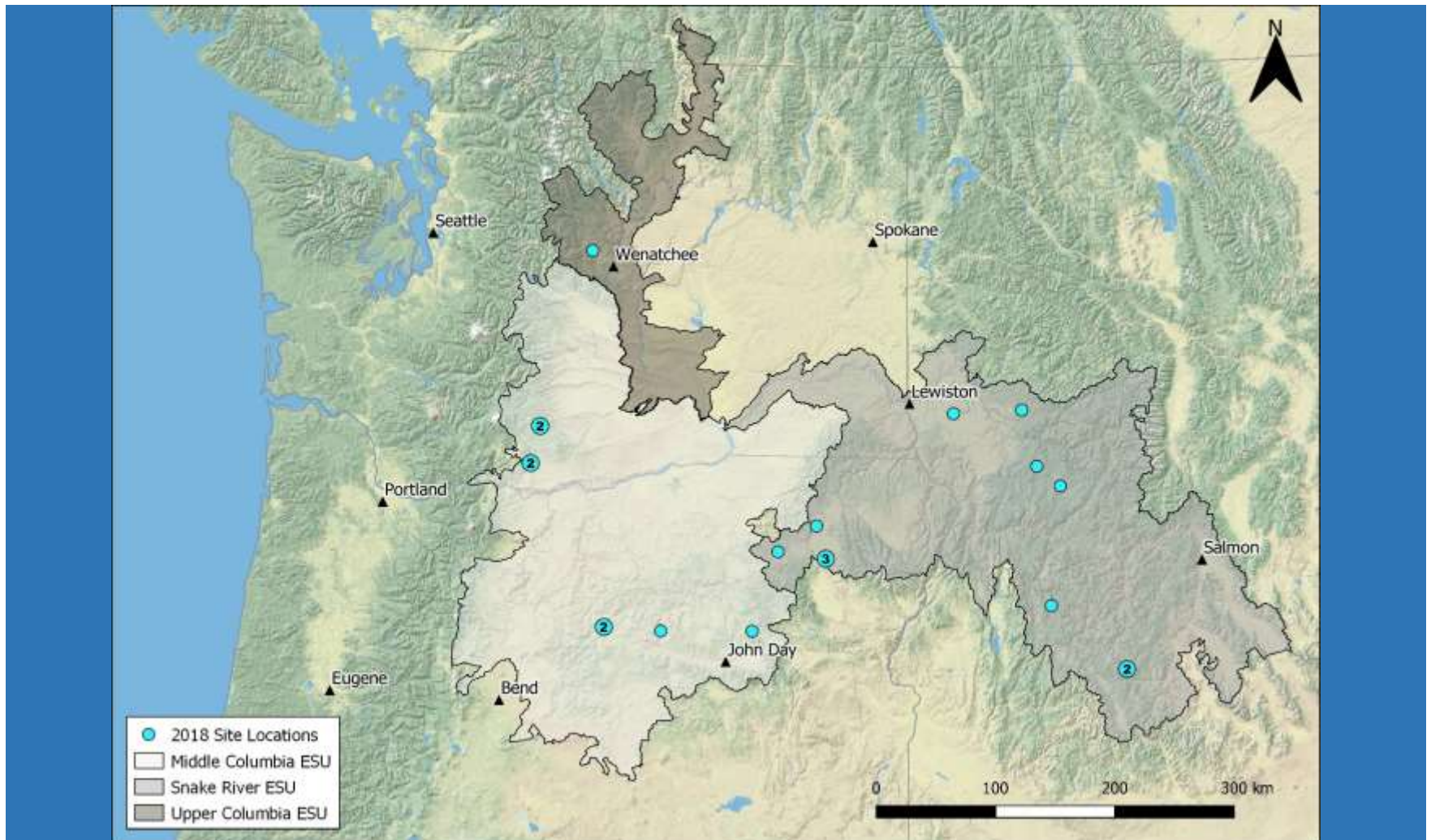
Paired treatment-control reaches



# Site Selection

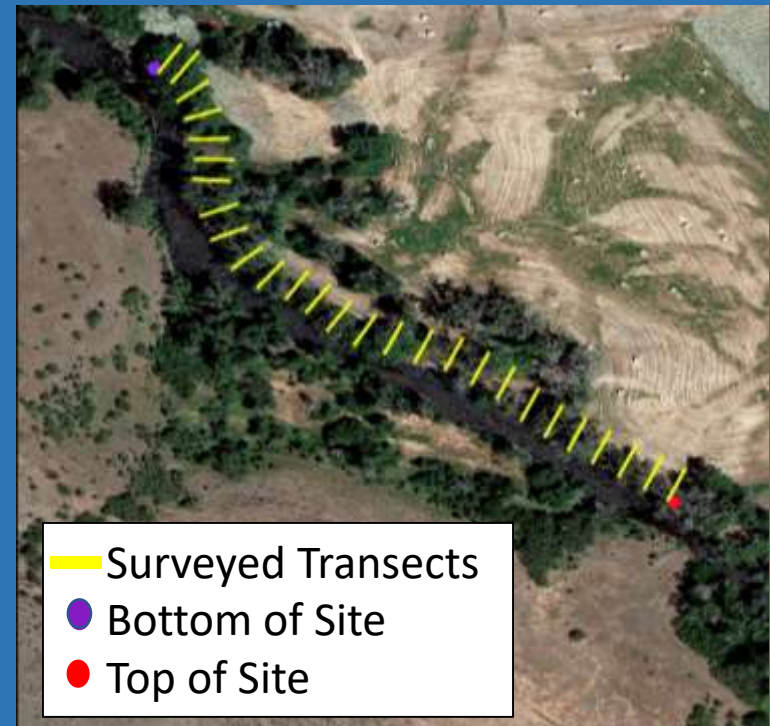


# Riparian Planting Projects



# Site Set Up

- Reaches 20x bankfull width in length
- 15 – 60 transects based on site length
- 2 m wide belt transects
- Transects perpendicular to active channel from active channel boundary to edge of planting
- 5 m – 20 m transects



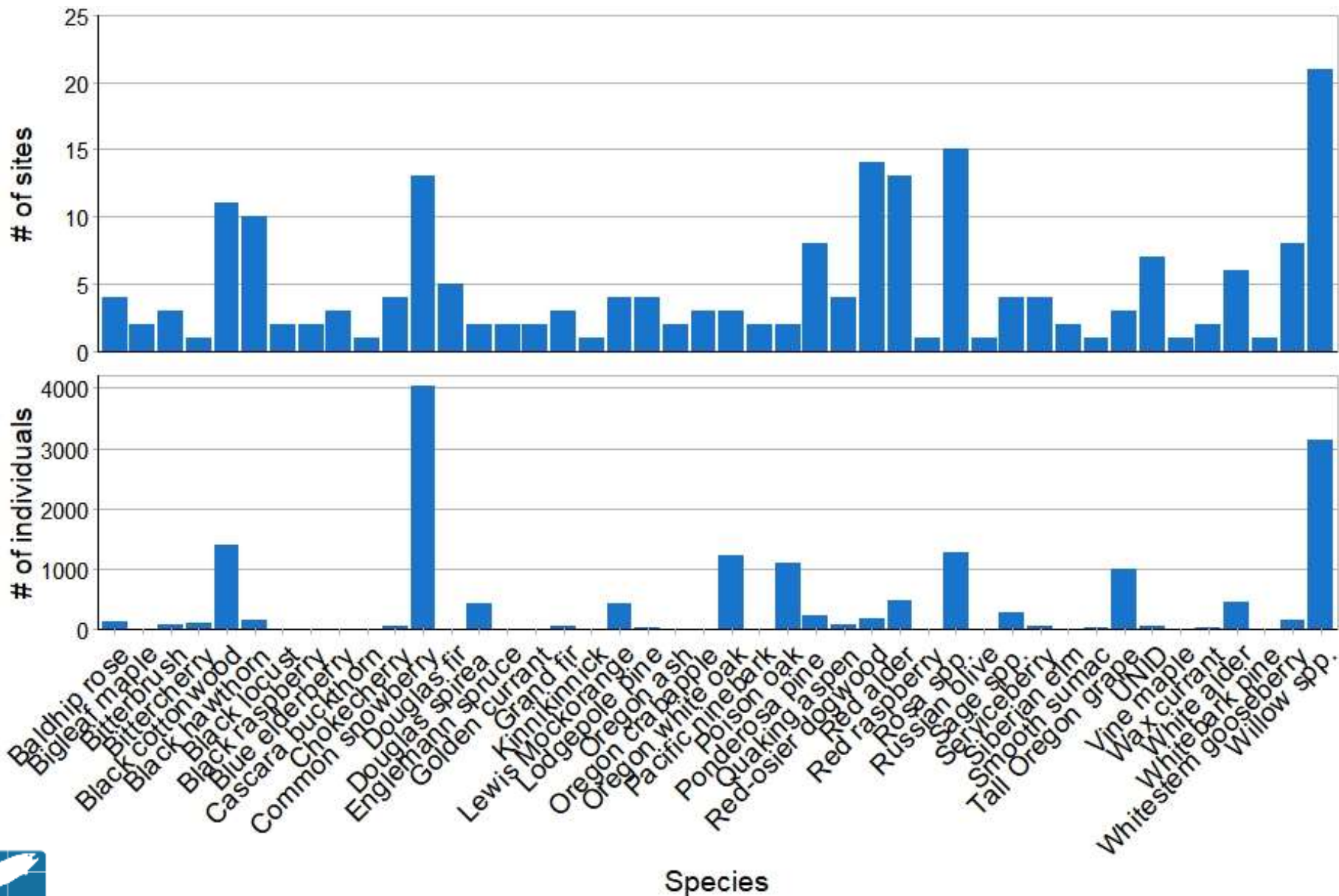
# Methods

- Counts and heights of individual woody plants
  - Evidence of planting or watering
  - Alive/dead, bud browse, beaver damage
- Forb/grasses cover
- Vegetation structure and cover
  - Herbaceous <1 m
  - Shrubs 1-5 m
  - Tree >5 m
- Canopy closure
- Bankfull width/depth

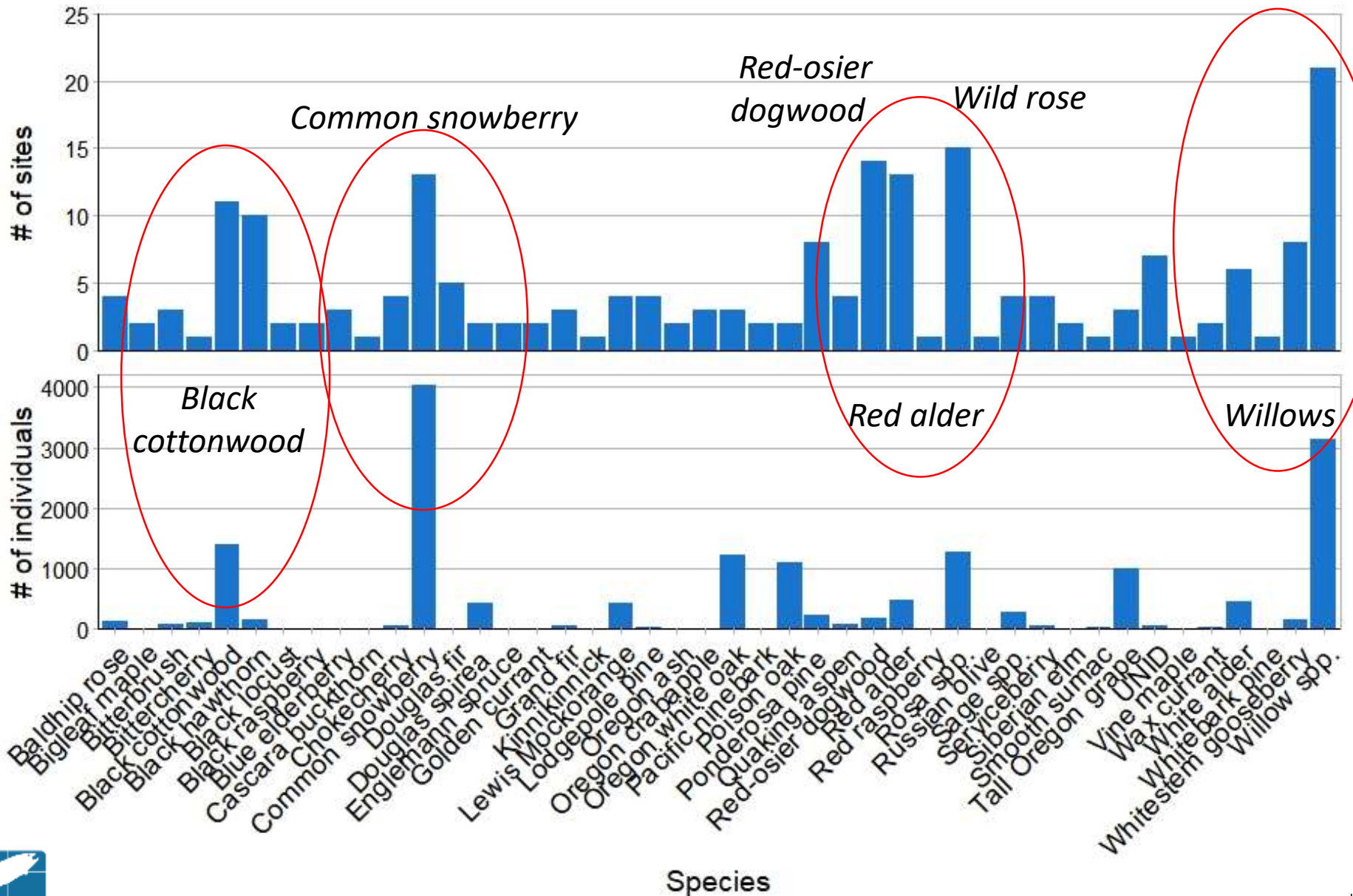




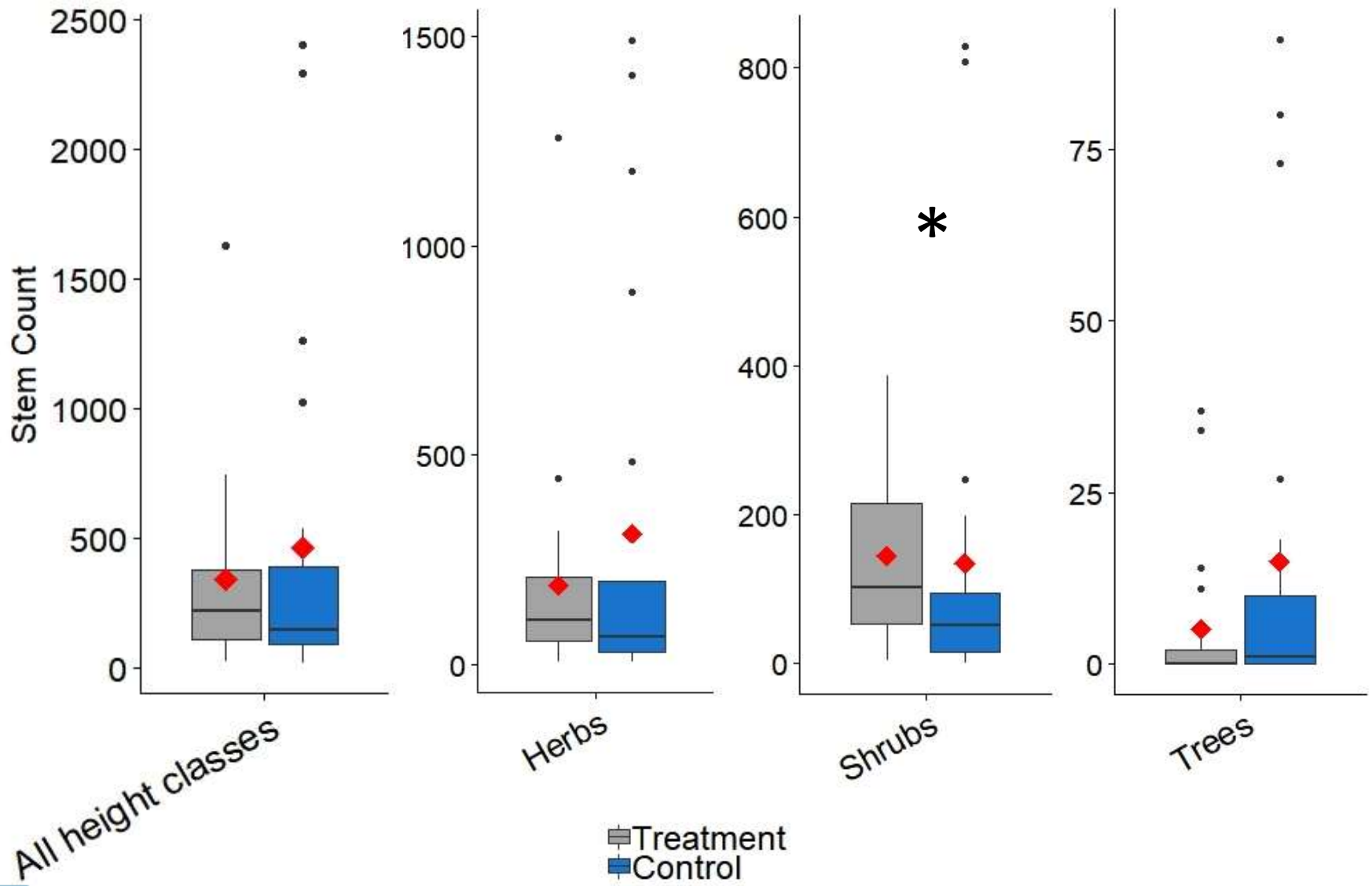
# Results



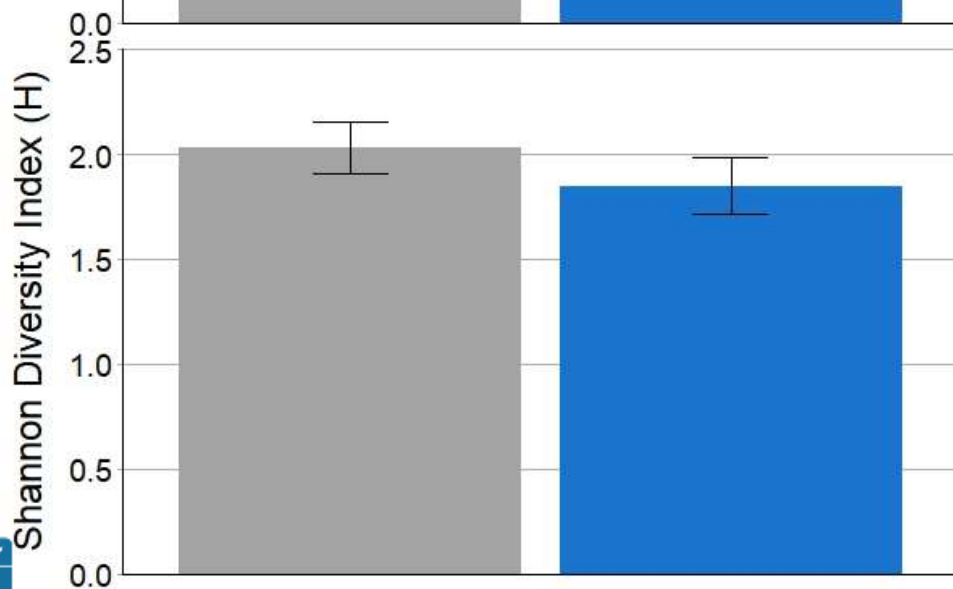
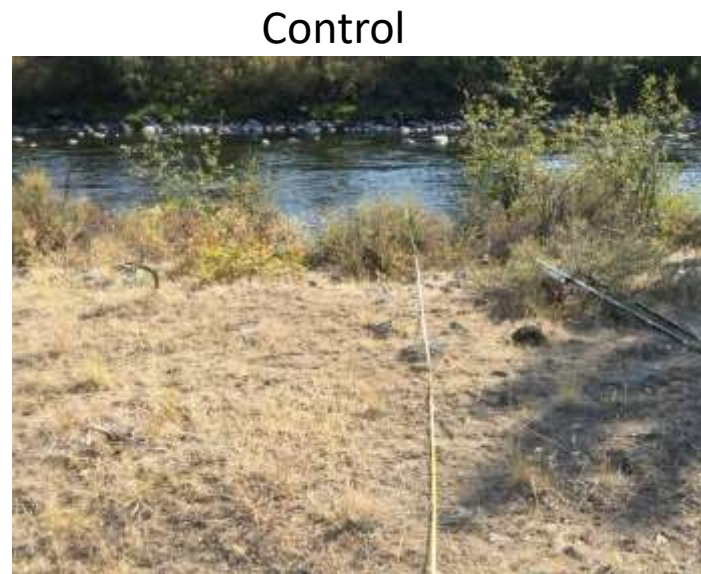
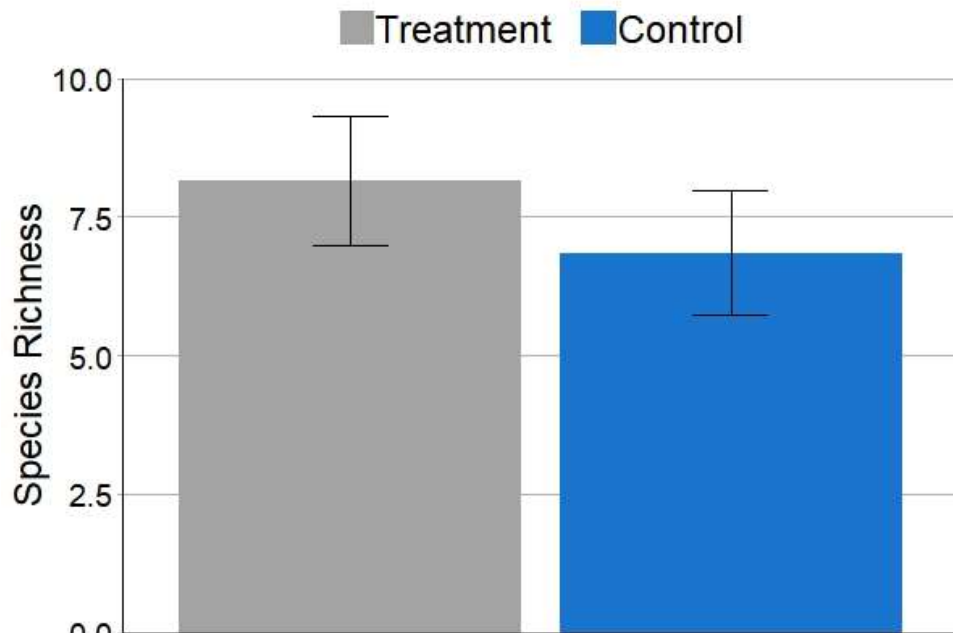
# Results



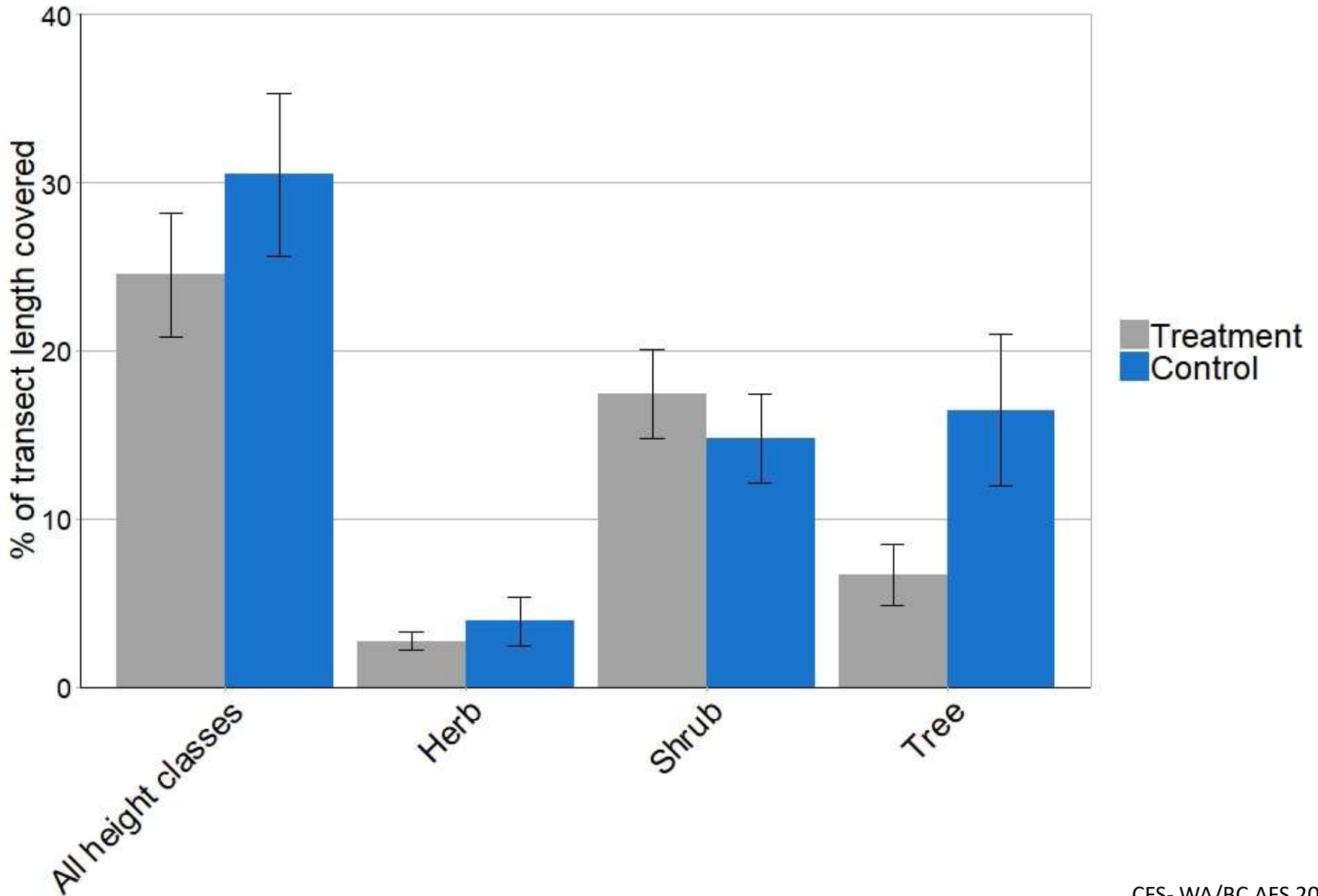
# Woody Stem Counts



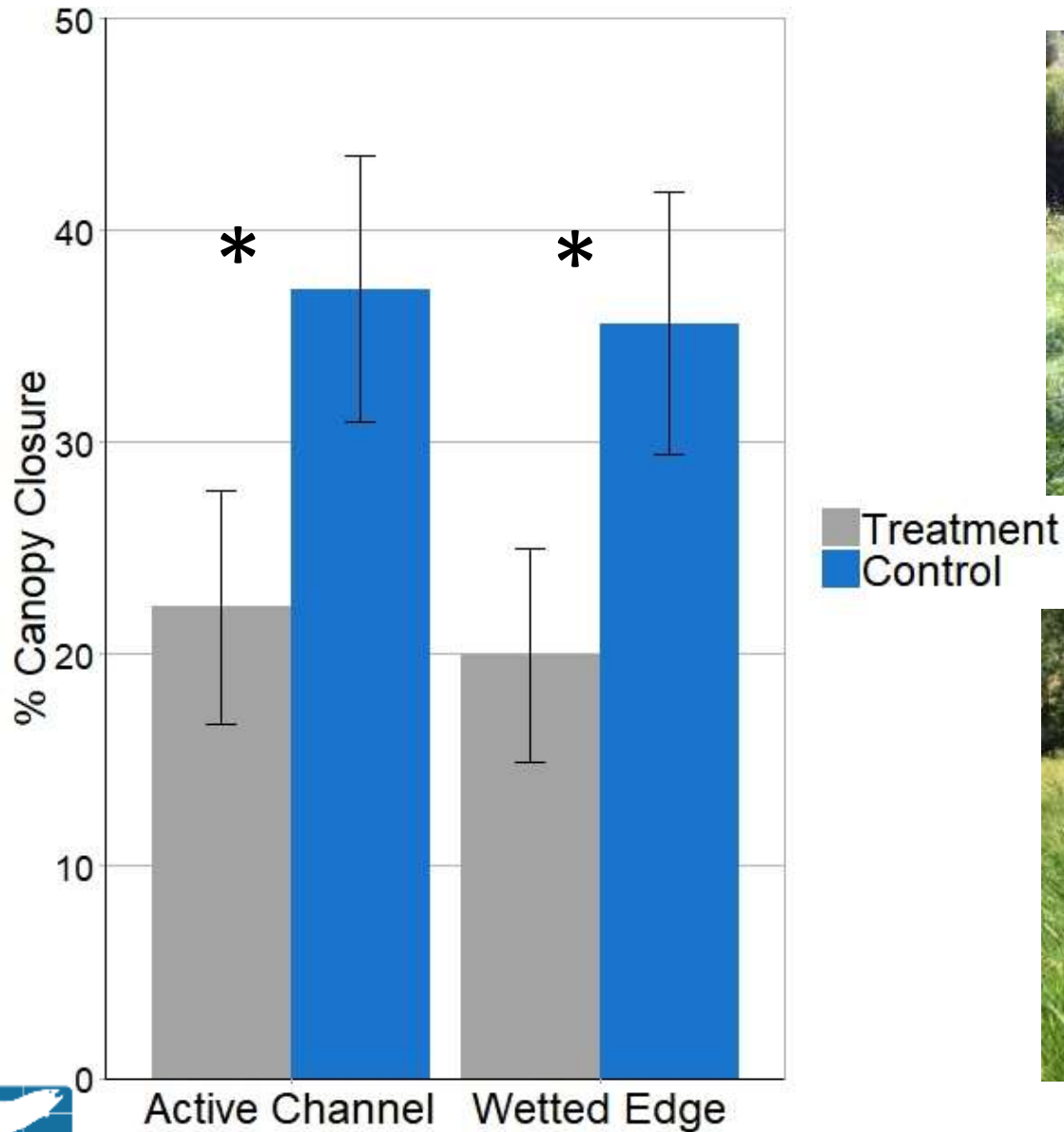
# Species Diversity



# Species Cover



# Canopy Closure



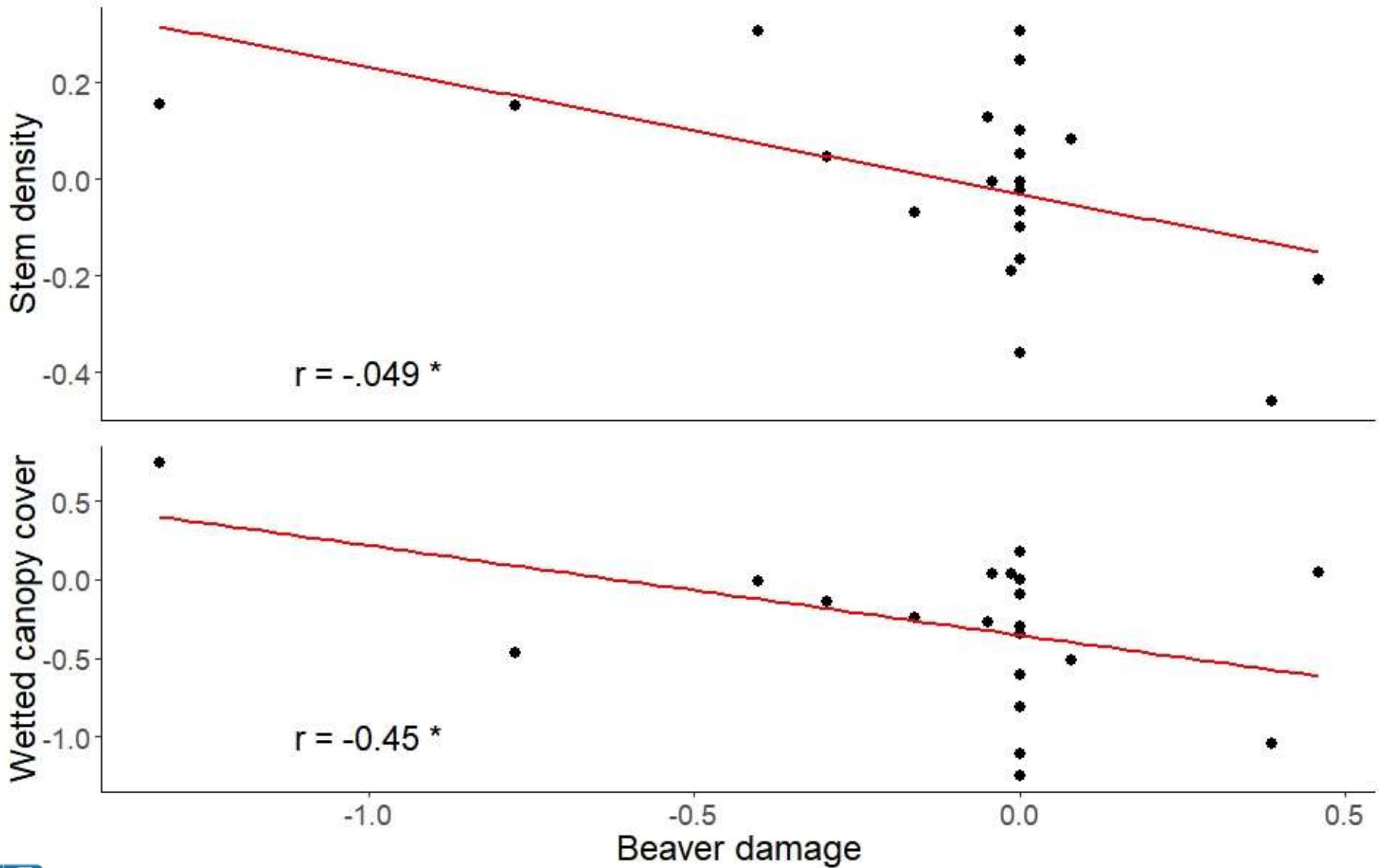
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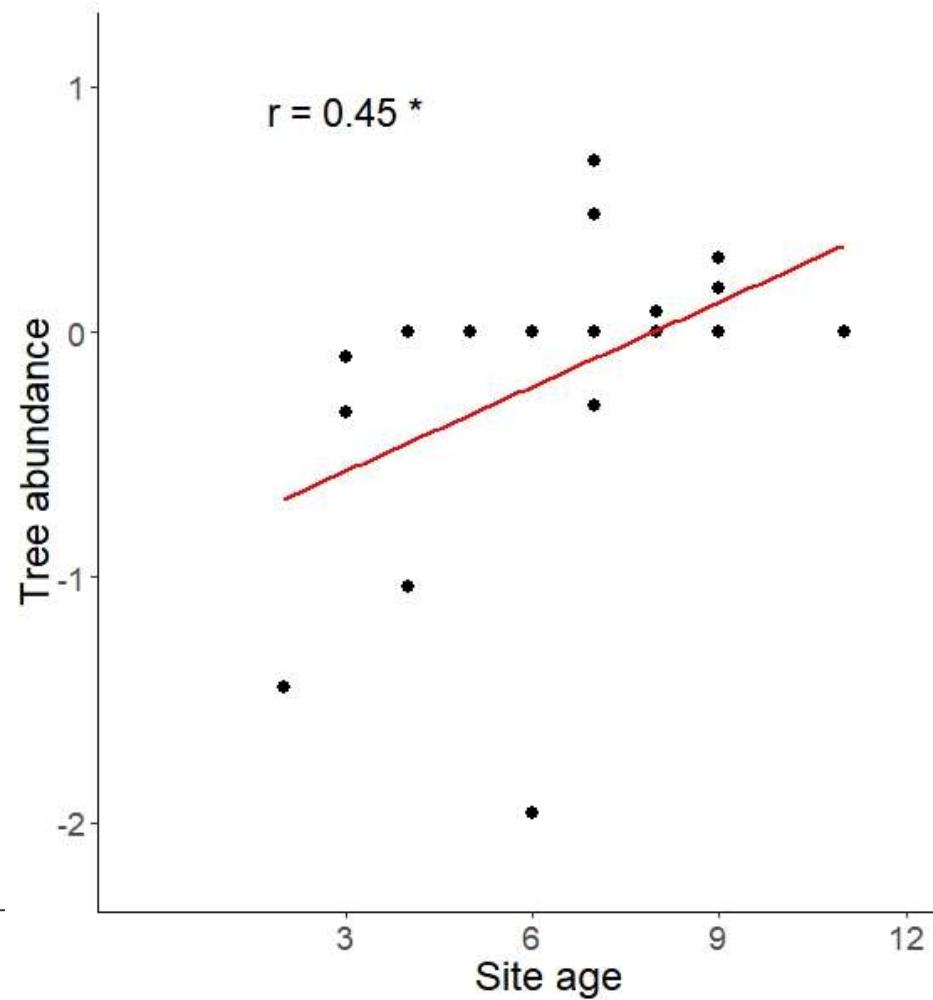
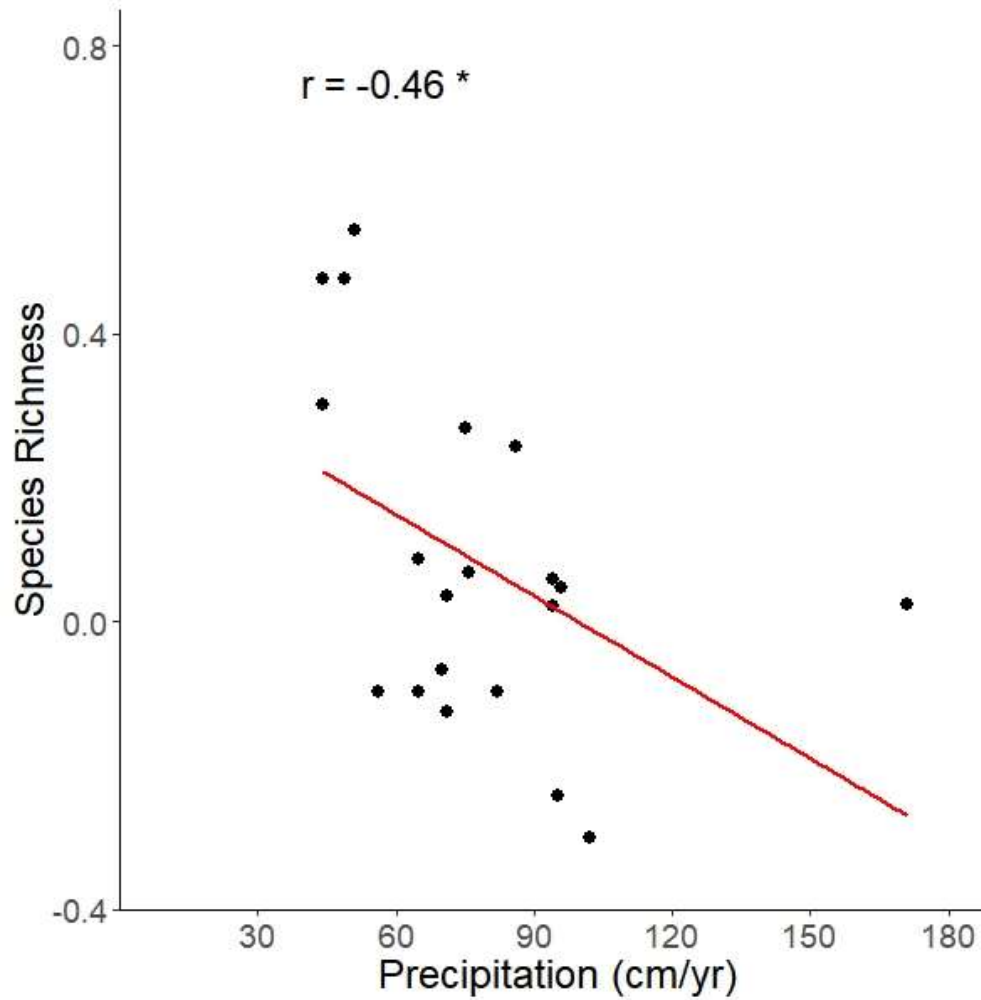
Treatment



# Correlations



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# Riparian Planting Summary

Preliminary results suggest:

- Increases in shrub abundance and cover
- No significant differences for tree, herb, or woody plants overall for abundance and cover
- Site age may limit tree abundance
- Precipitation and predation may impact success



# Next Steps

- Finish monitoring 9 planting sites (30 total) and 30 invasive removal and planting sites
- Target sites in the Upper Columbia ESU
- Stratify by planting type, watering/maintenance, predation protection
- Use these results to inform future riparian planting monitoring



# Acknowledgements

- BPA Project Number 2016-001-00, Contract #71969
- Numerous staff including but not limited to BPA, NOAA, WDFW, DOT, ODFW, IDFG, Mid-Columbia Fisheries Enhancement Group, Chelan County Natural Resources, Cascadia Conservation District, Trout Unlimited, land owners, and numerous project sponsors throughout the Columbia Basin including Nez Perce, Yakama, Warm Springs, Umatilla, Shoshone-Bannock, and other tribes.



# Questions?

