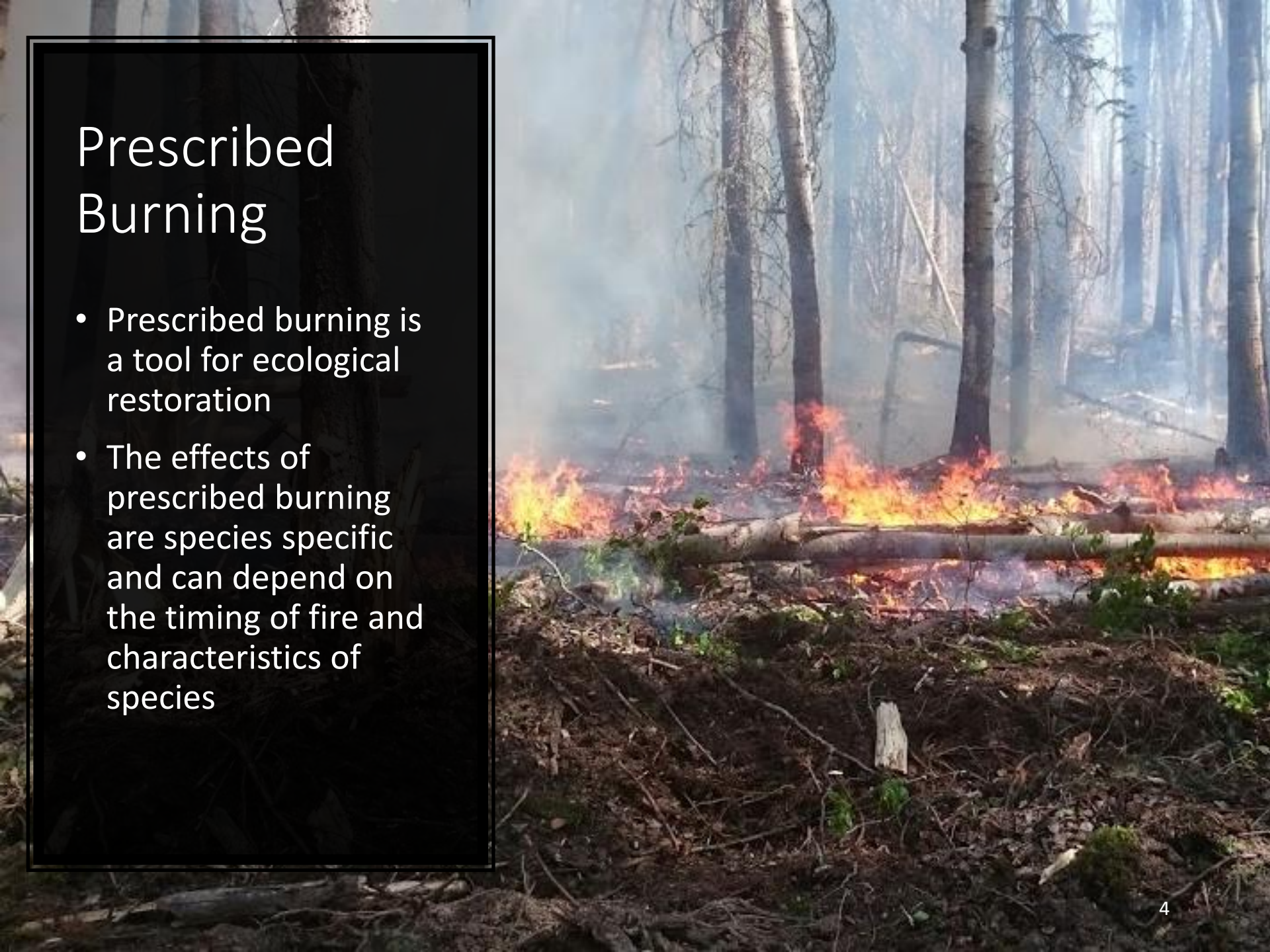
Response of Invasive Plants to Prescribed Burning

Gabrielle Hindley
B.Sc. Biology
M.Sc. Student in Ecological Restoration
SFU|BCIT
ghindley@sfu.ca

Overview

- Why study invasive plants and prescribed burning
- Characteristics of Dalmatian toadflax and spotted knapweed
- Study Area – Kenna Cartwright Park
- Methods of study
- Results
- Management Implications
- Summary

Why fire ecology?



Prescribed Burning

- Prescribed burning is a tool for ecological restoration
- The effects of prescribed burning are species specific and can depend on the timing of fire and characteristics of species

Kenna Cartwright Park
Study Area
N
0 0.4 0.8 1.6 2.4
Kilometers
GRASSLANDS
KAMLOOPS AIRPORT
Kamloops
Extent Map
0 4 8 16
Kilometers

Study Area

Dalmatian Toadflax (*Linaria dalmatica*)

Spotted Knapweed (*Centaurea stoebe*)

March 2017

June 2017

September 2017

Considering the Climate in 2017

Methods

Methods

Three treatments

- Prescribed burn
- Hand-pulling
- Control

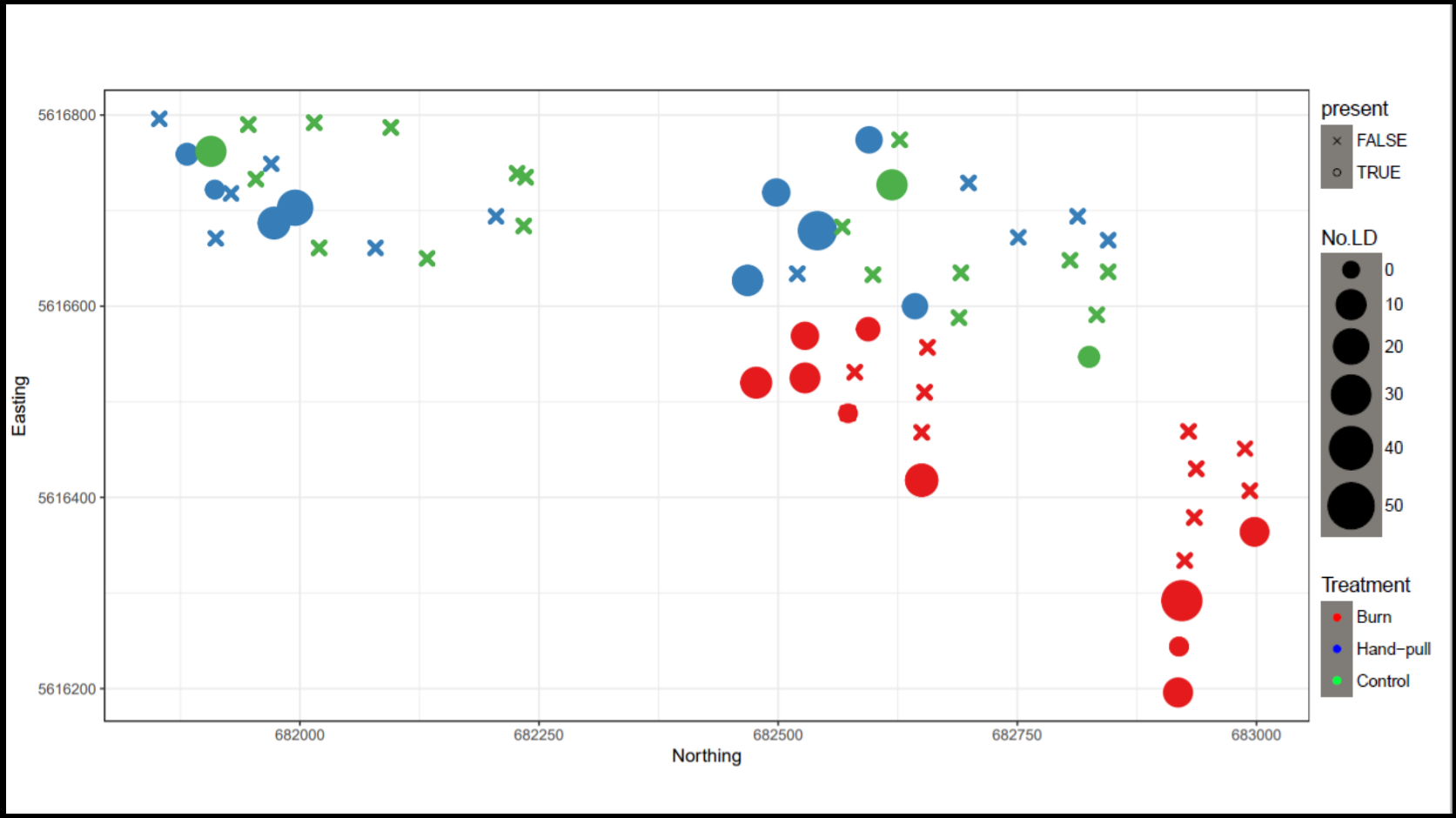
Three survey periods

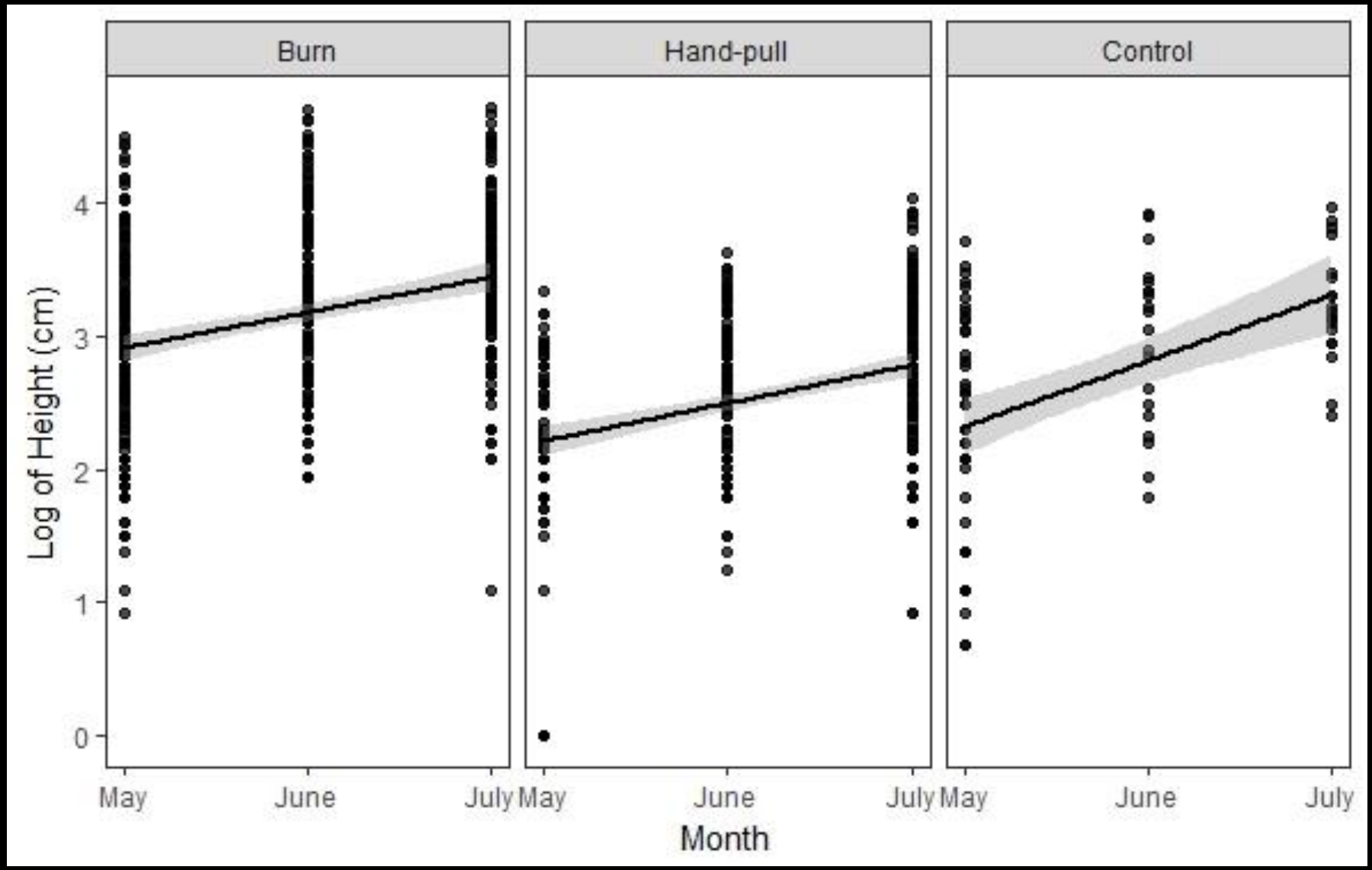
- May
- June
- July

Measured:

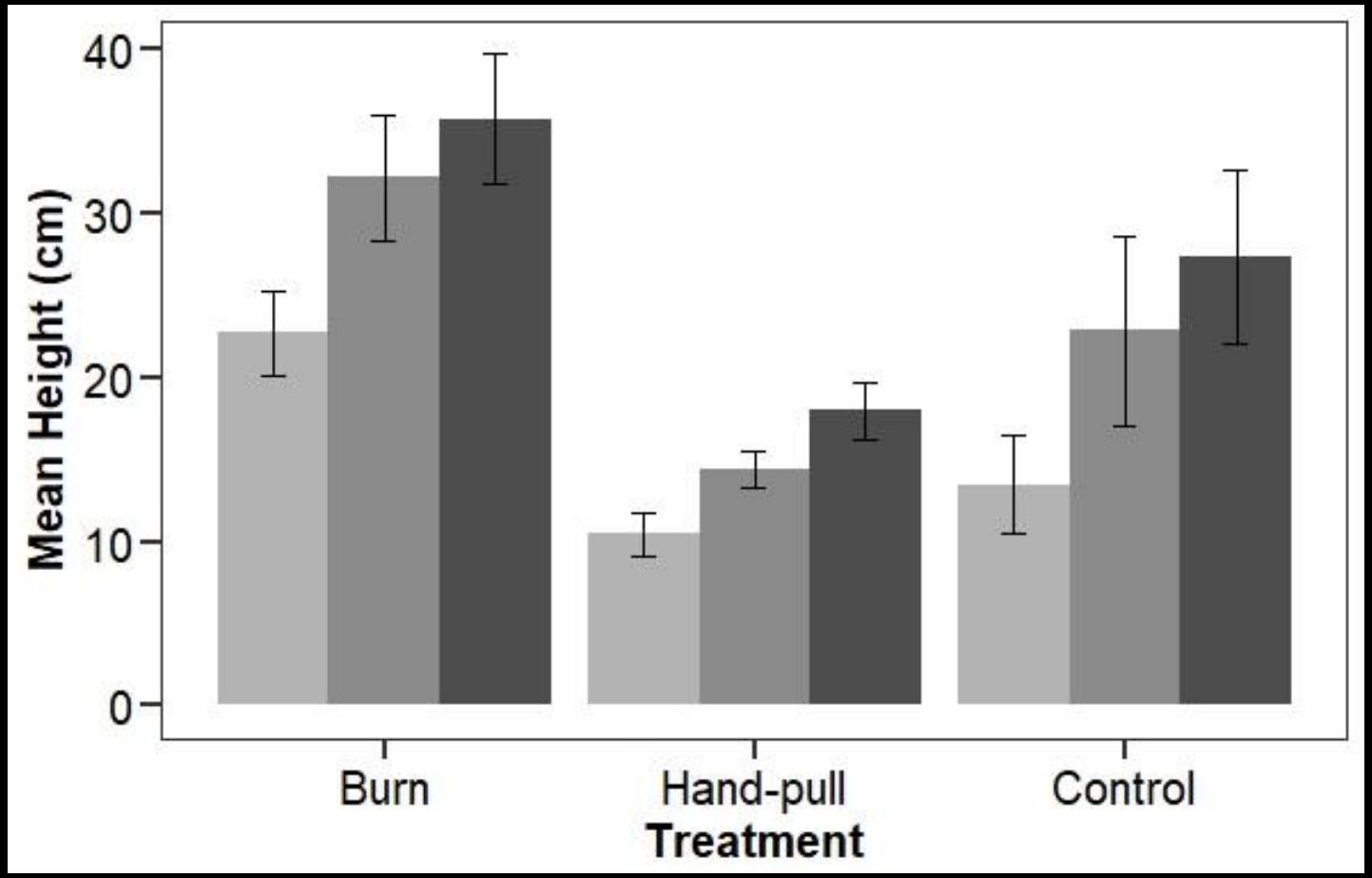
- Stem density
- Height of individuals

Spatial Occurrence of Dalmatian Toadflax

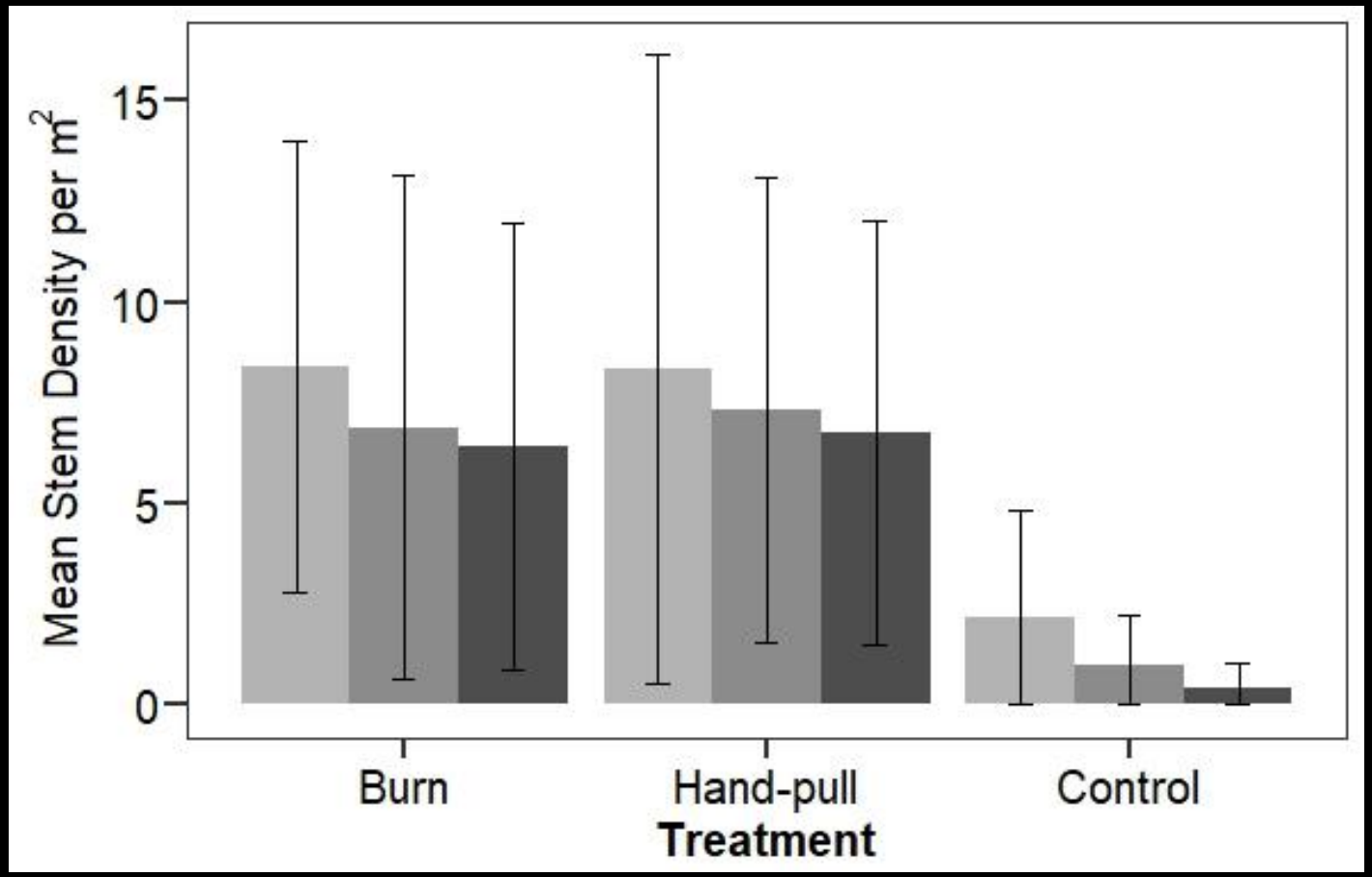




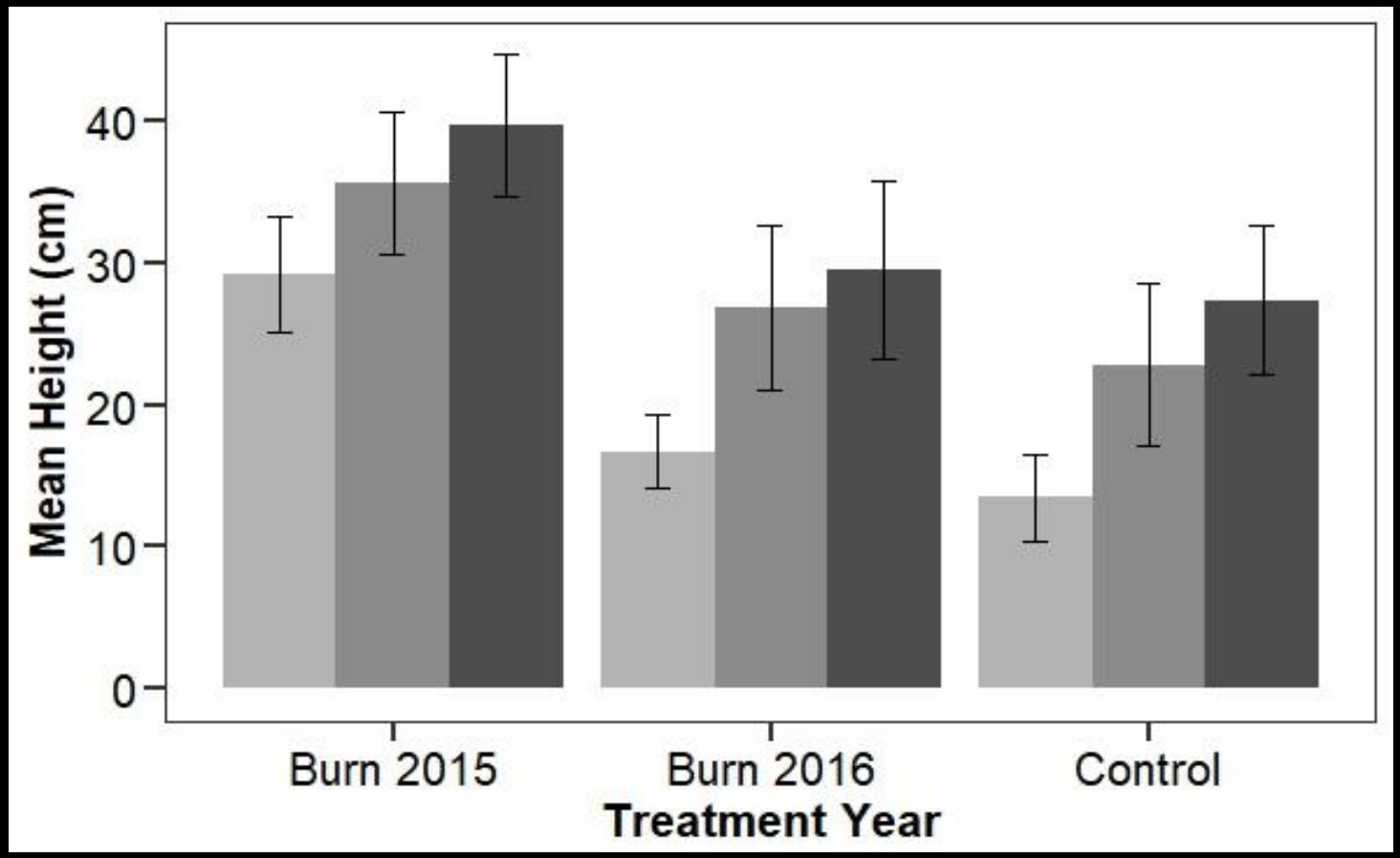
DALMATIAN TOADFLAX – GROWTH RATE



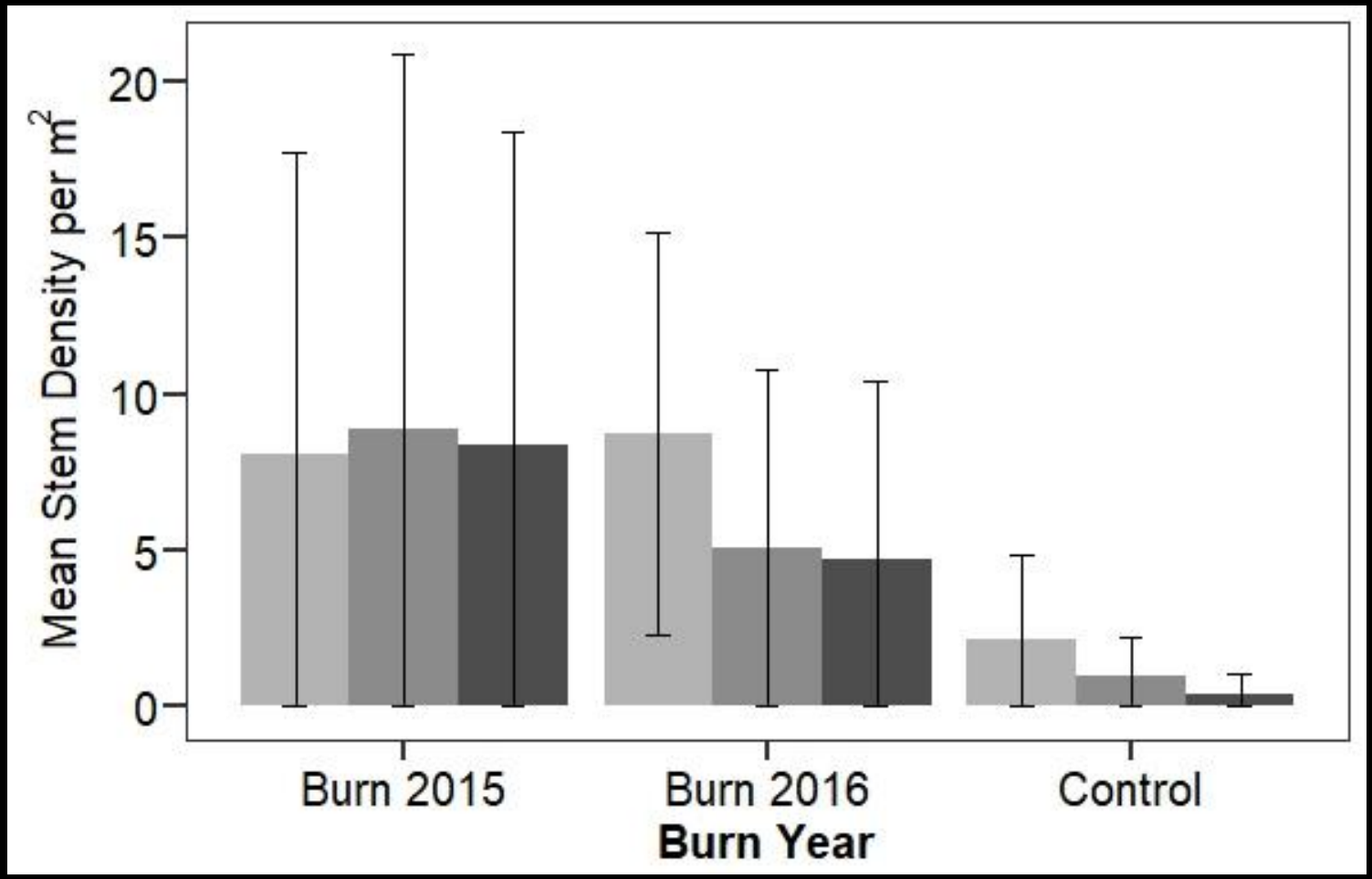
Dalmatian Toadflax - Height



DALMATIAN TOADFLAX - DENSITY

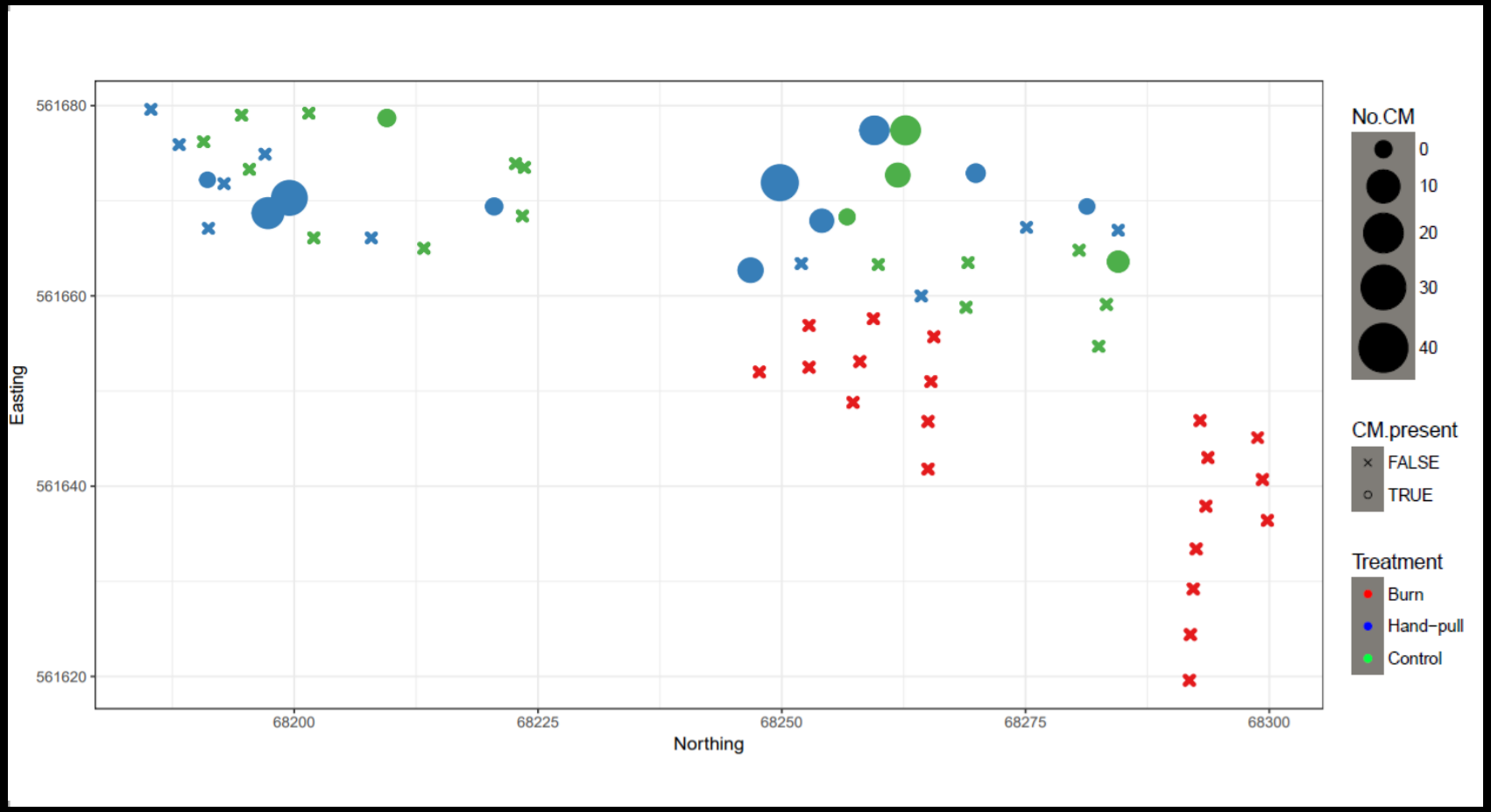


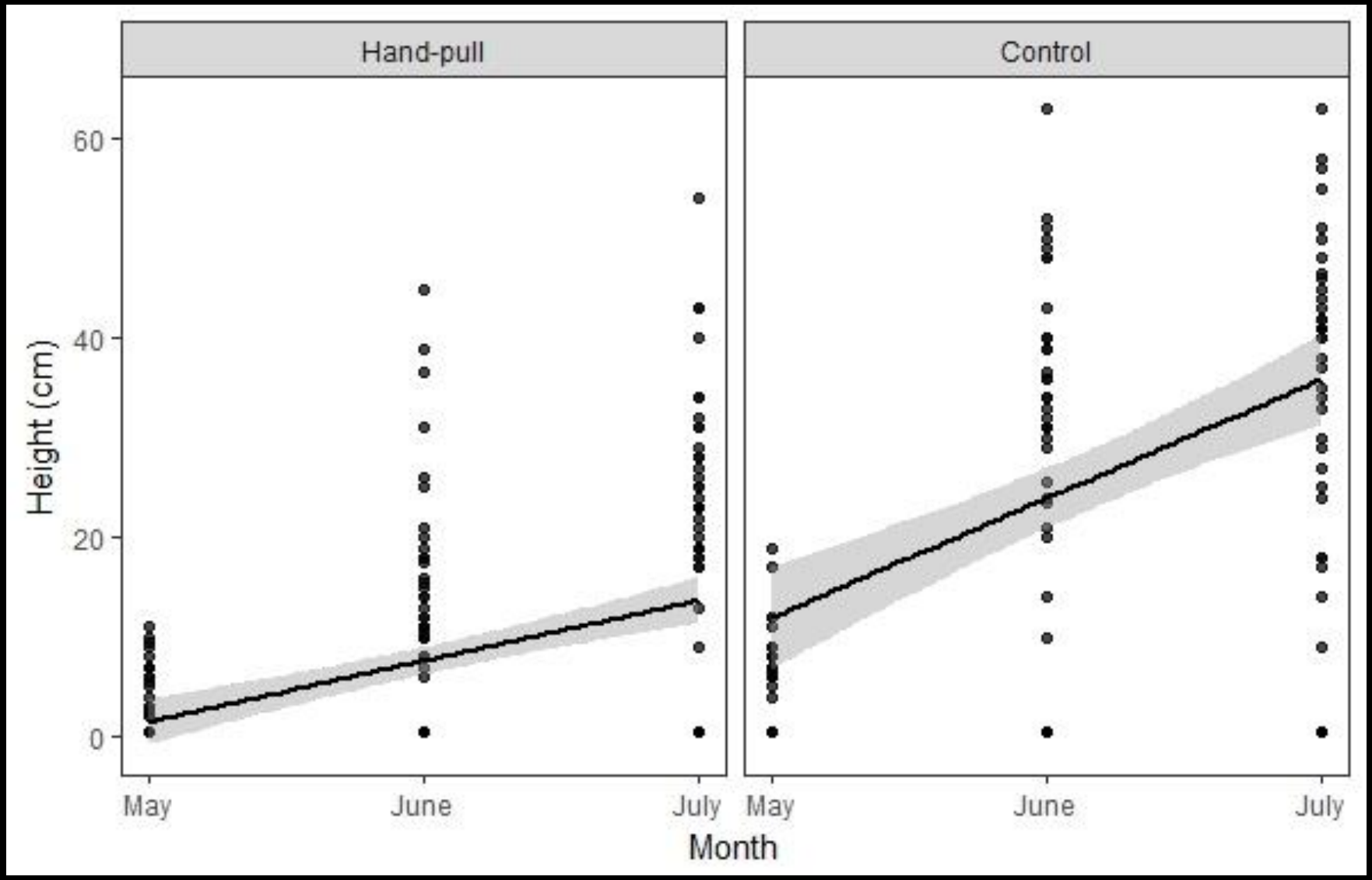
Dalmatian Toadflax – Burn-year



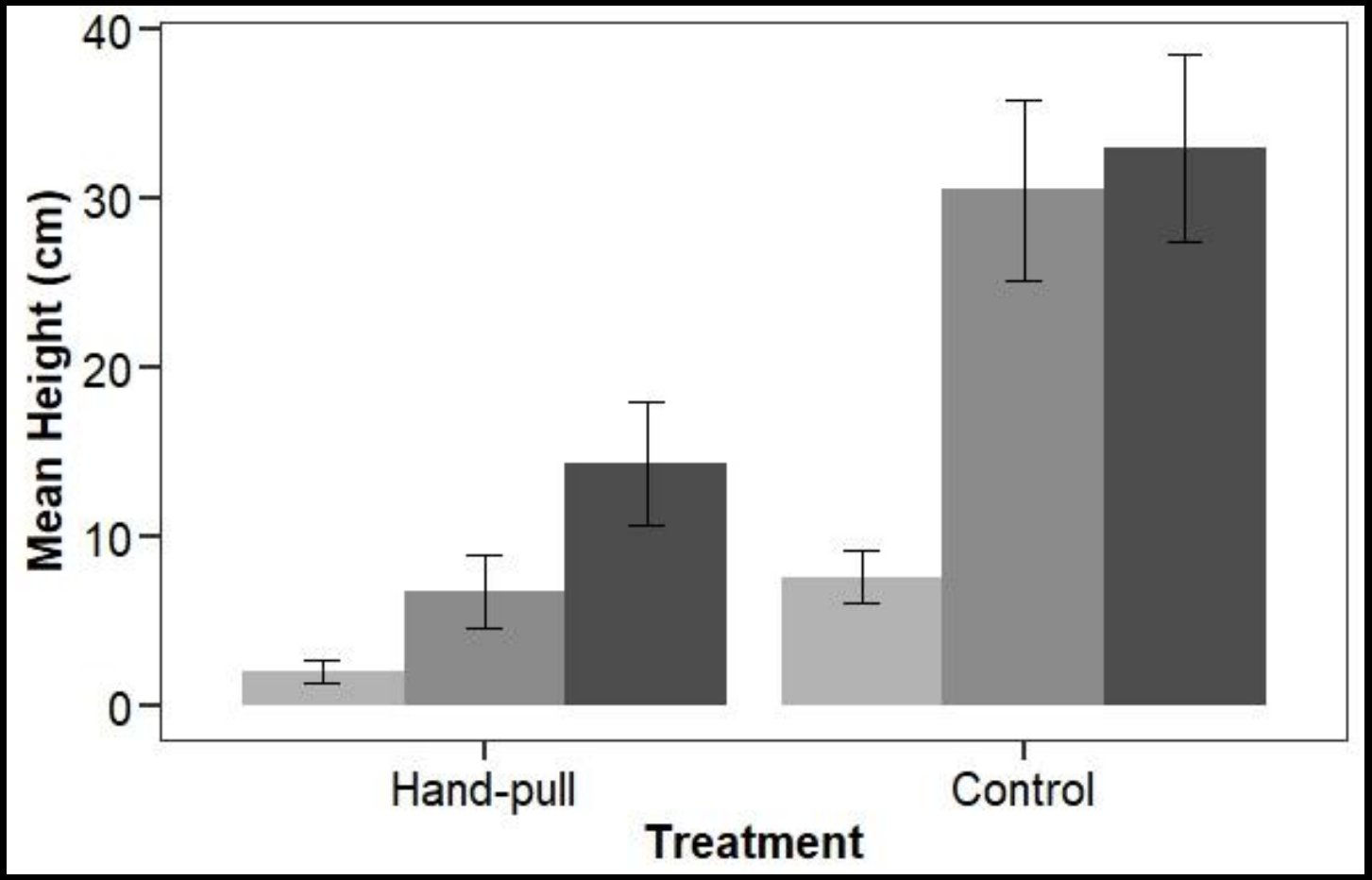
DALMATIAN TOADFLAX – BURN-YEAR

Spatial Occurrence of Spotted Knapweed

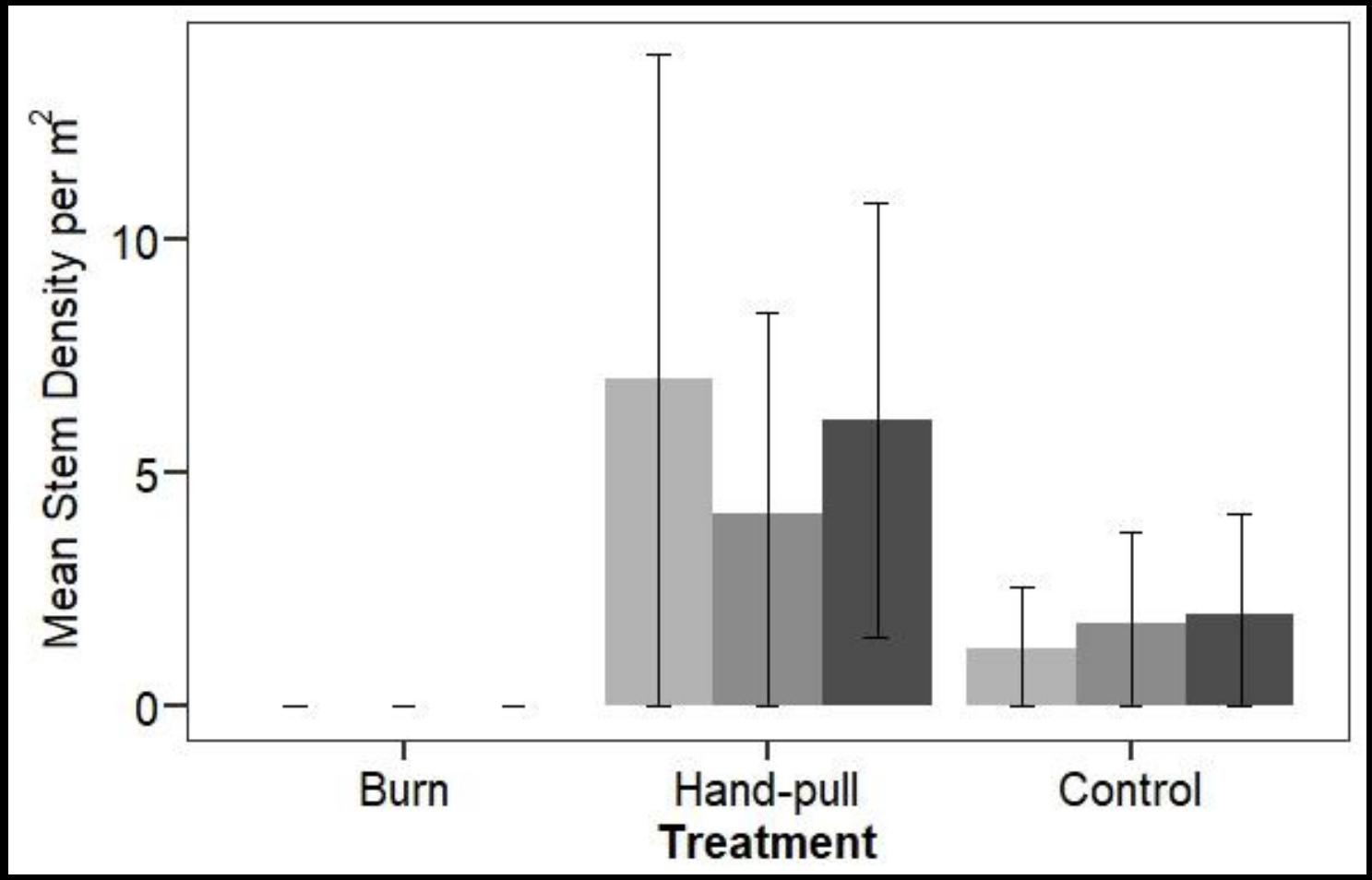




Spotted Knapweed – Growth Rate



Spotted Knapweed - Height



Spotted Knapweed - Density

Relevance to Ecological Restoration

- Treatments not effective for Dalmatian toadflax
- Treatments effective for spotted knapweed
- Wildfire recovery

Moving Forward

- Incorporate more studies with management practices
- BACI
- Foster a relationship between institutions and industry
- Invasive species management plans necessary in rehabilitation of wildfire events

Summary

- Must understand the specific effect of burning on species of interest
- Burning might be effective for spotted knapweed
- Burning not effective for Dalmatian toadflax
- Need more long-term BACI studies

Acknowledgements

- Scott Harrison
- Kirsten Wourms
- Casey Hawkey, Nolan Buis, and Jillian Caissie

THANK-YOU