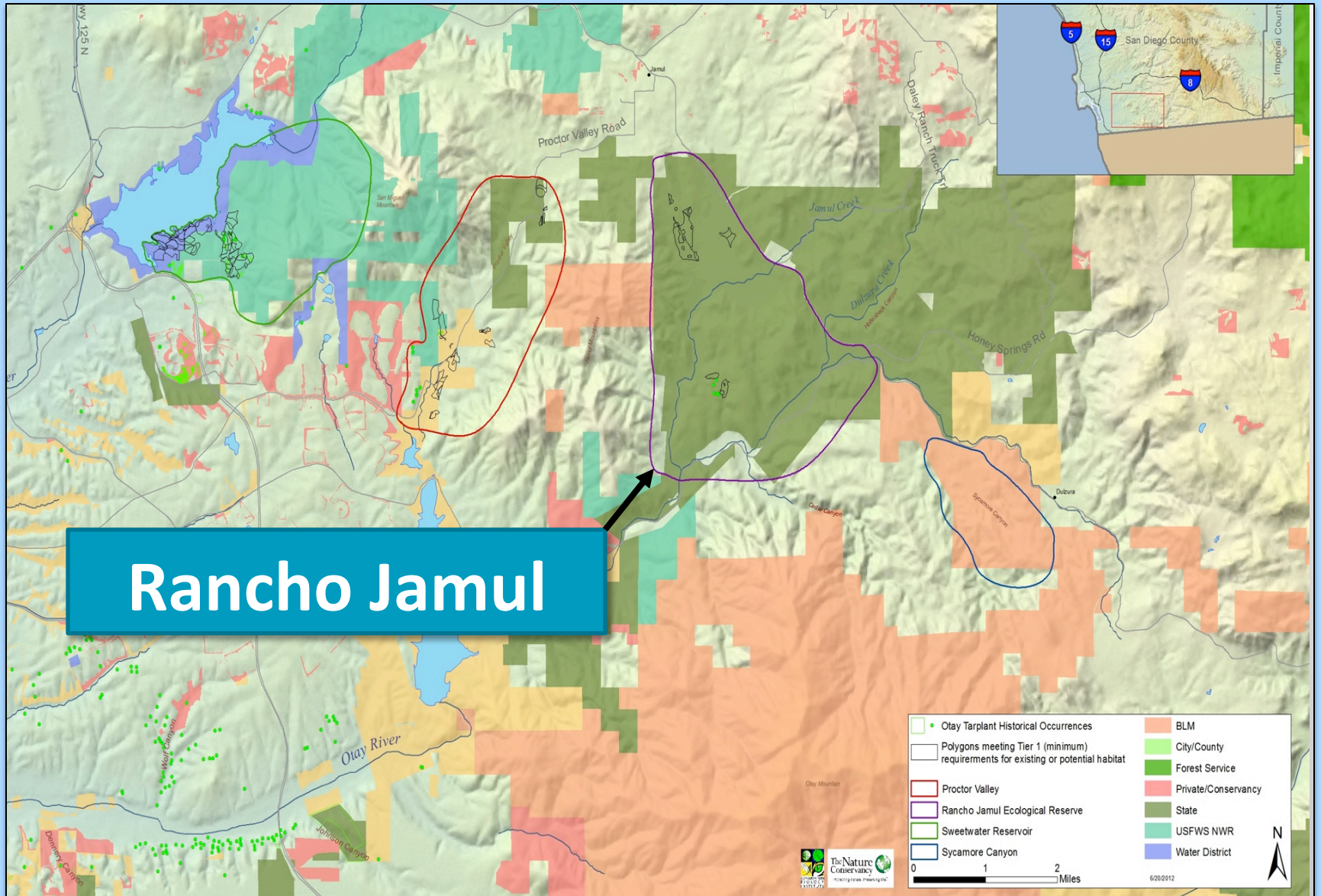


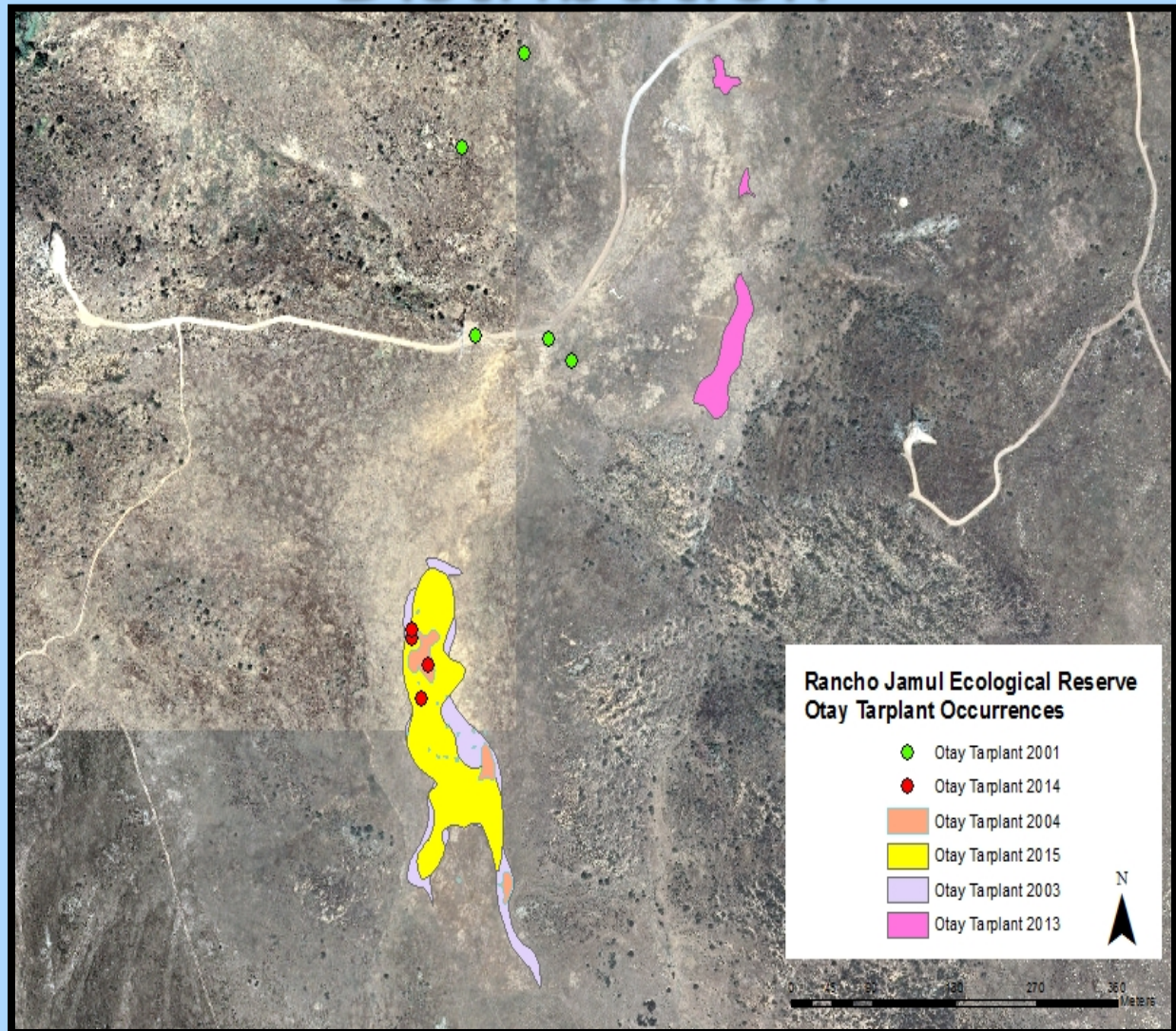
Historic Otay Tarplant Population Recovery







Historic Otay Tarplant Distribution





Target Species



Goal: Stimulate OTP seedbank response.



Target Habitats



Photo by: Kris Preston



APPROACH AND METHODS

Pre-burn

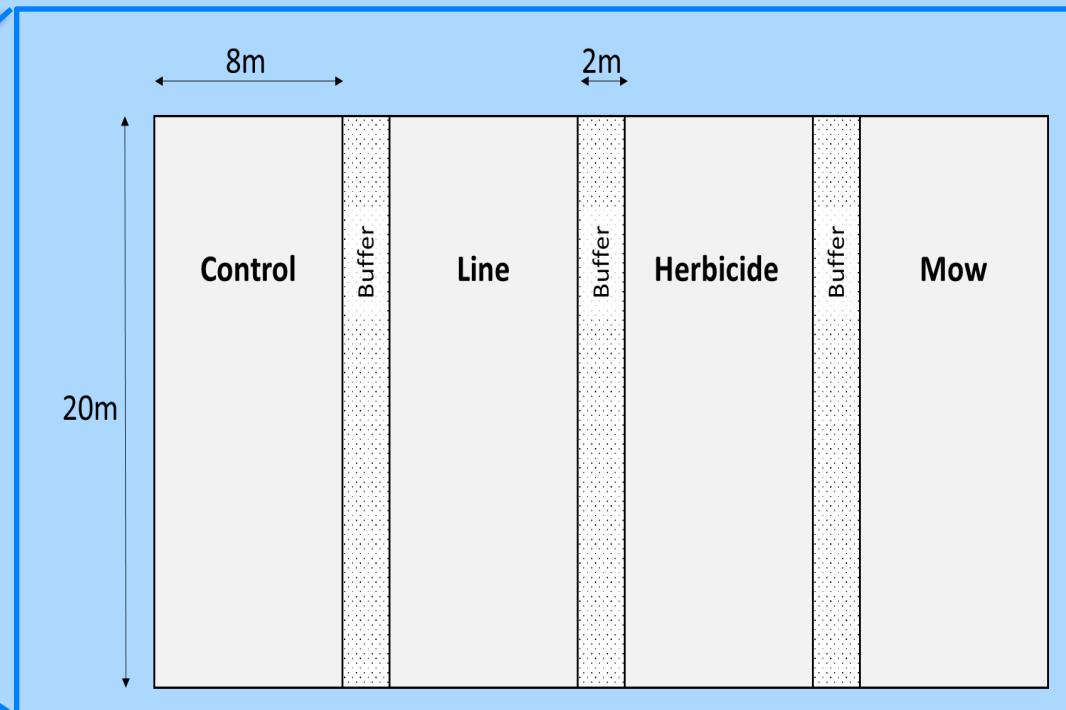
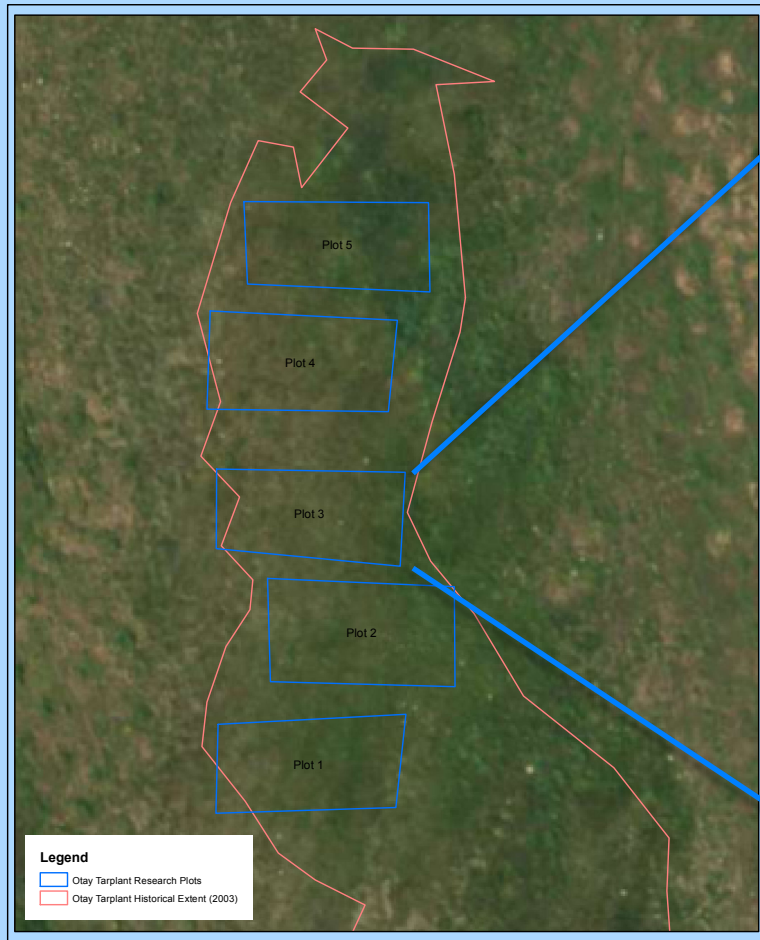


Post-burn



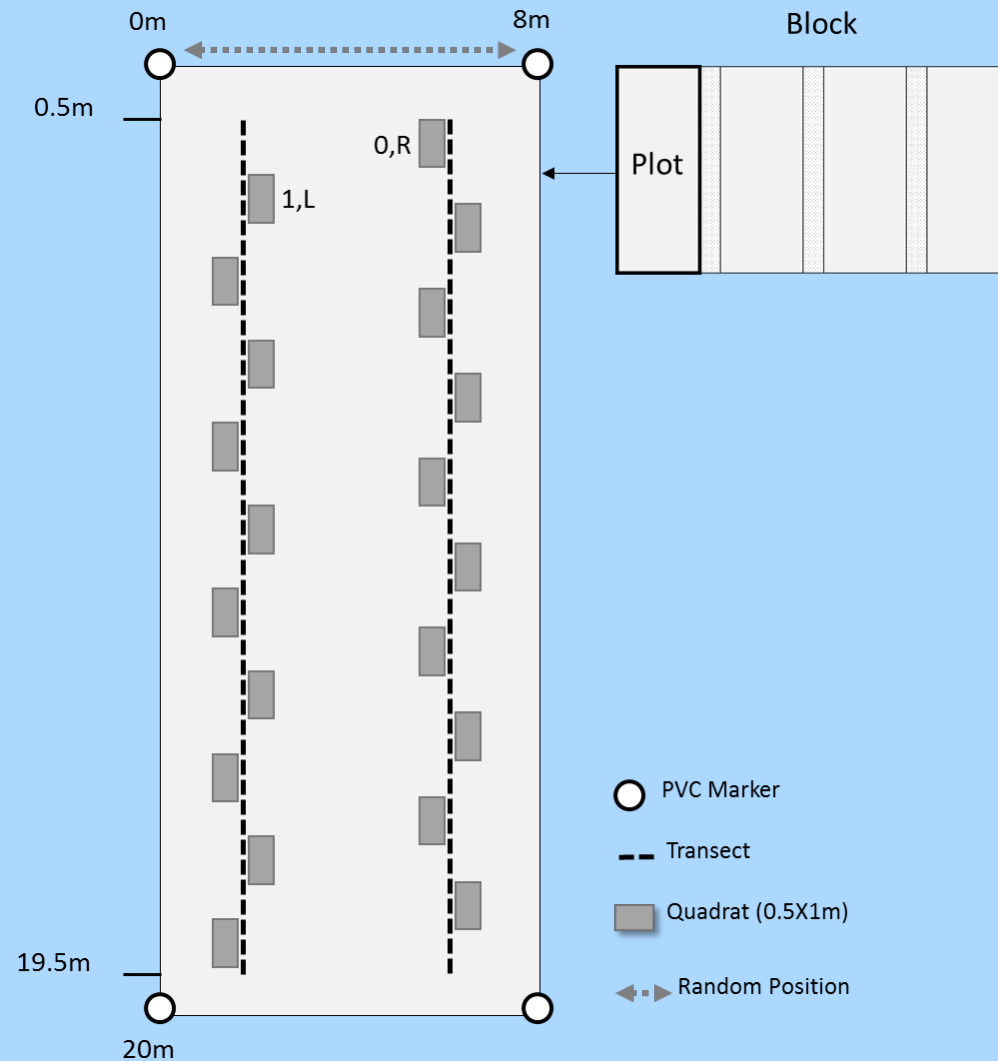


Experimental Design





Monitoring Methods





Treatments



Photo by: John Ekhoﬀ

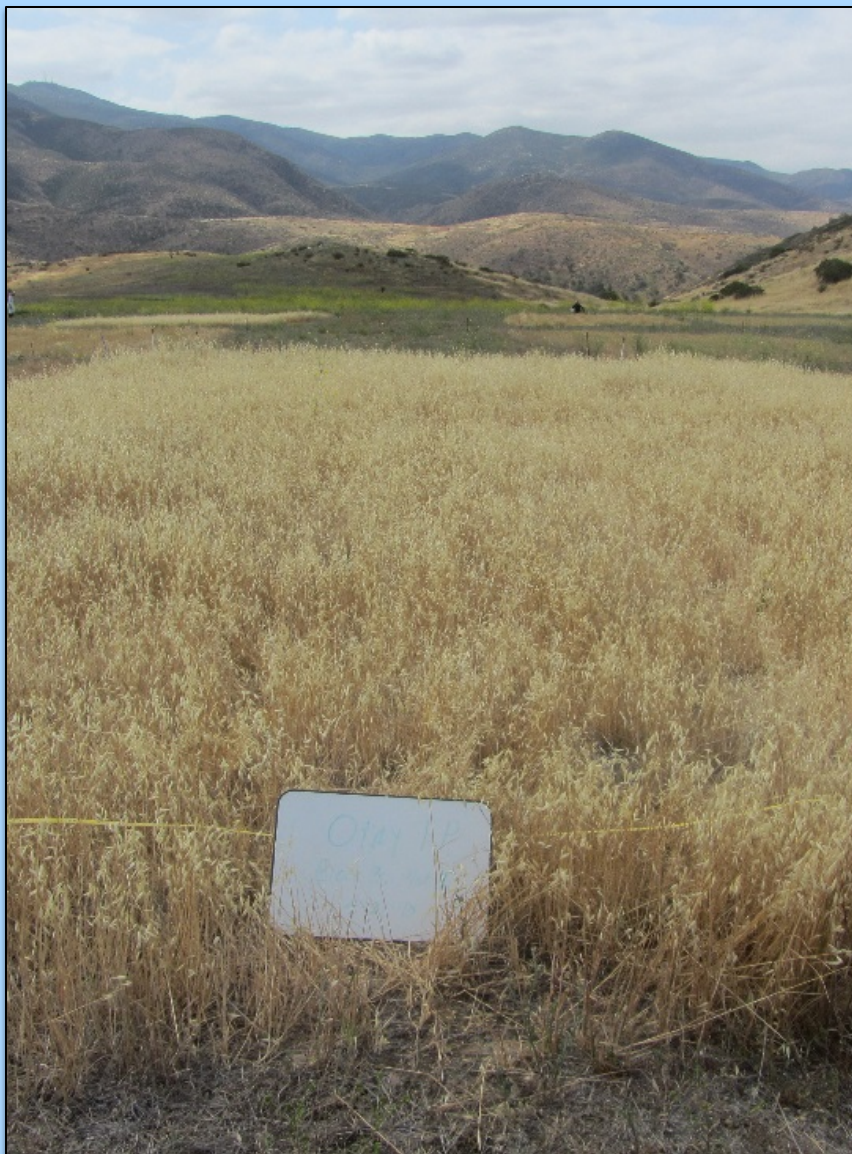


Photo by: John Ekhoﬀ



Photo by: John Ekhoﬀ

Control



Mow



Line Trim



Herbicide



Treatments

Control

Mow

Herbicide





RESULTS



Before



After

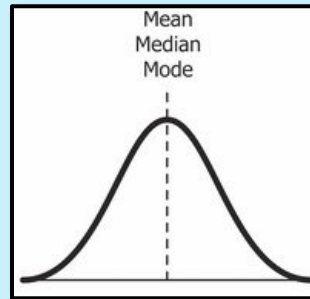




Data Analysis

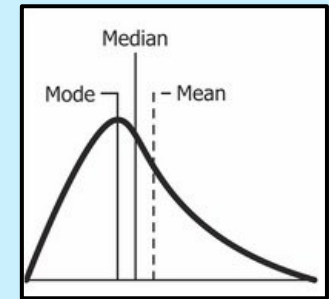
RANOVA

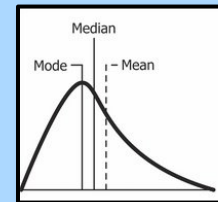
- **Normally distributed data**
- **Accounts for time/space**
- Nonnative Richness
- Native Richness
- Nonnative Grass (Wild Oat) Cover
- Bare Ground
- Litter



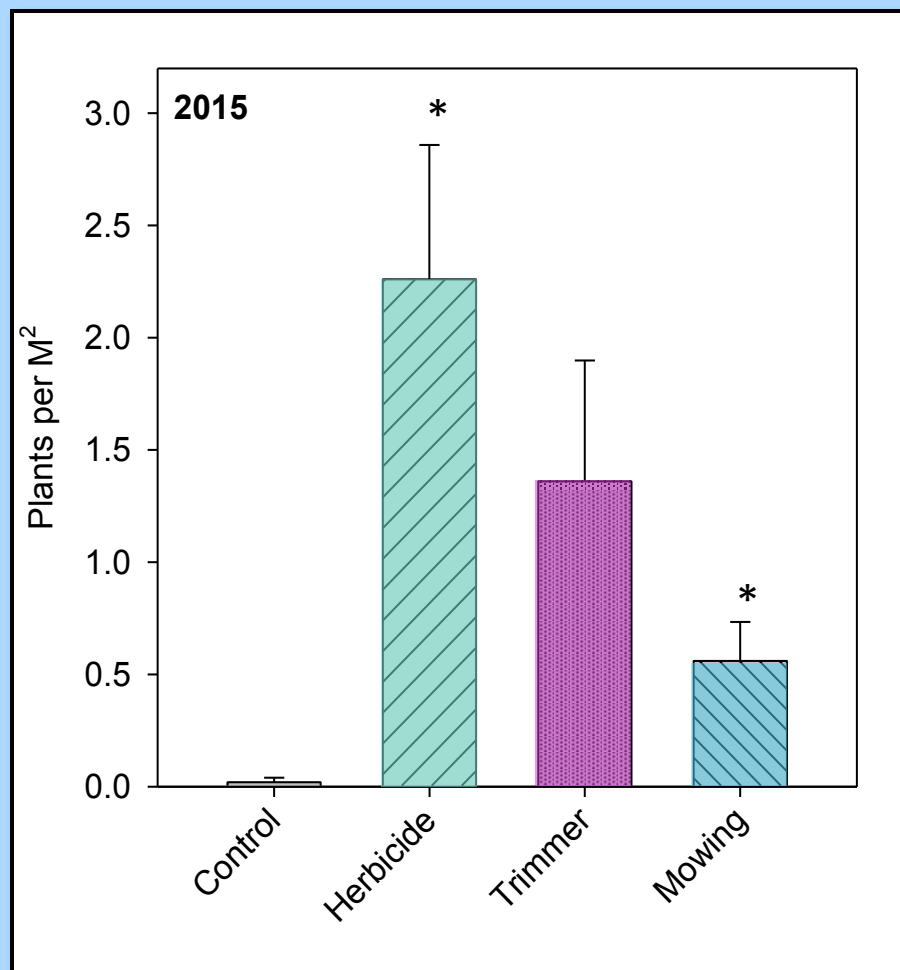
Kruskal-Wallace

- **Skewed data**
- **Treatment only considered**
- 2015 Otago Tarplant Density
- Nonnative Forb Cover
- Native Forb Cover
- Native Grass Cover





2015 Otago Tarplant Density





1,600 plants!

Herbicide

67%



Line Trim

14%



Mow

13%



Control

<1%





Size and Fecundity

Line Trim

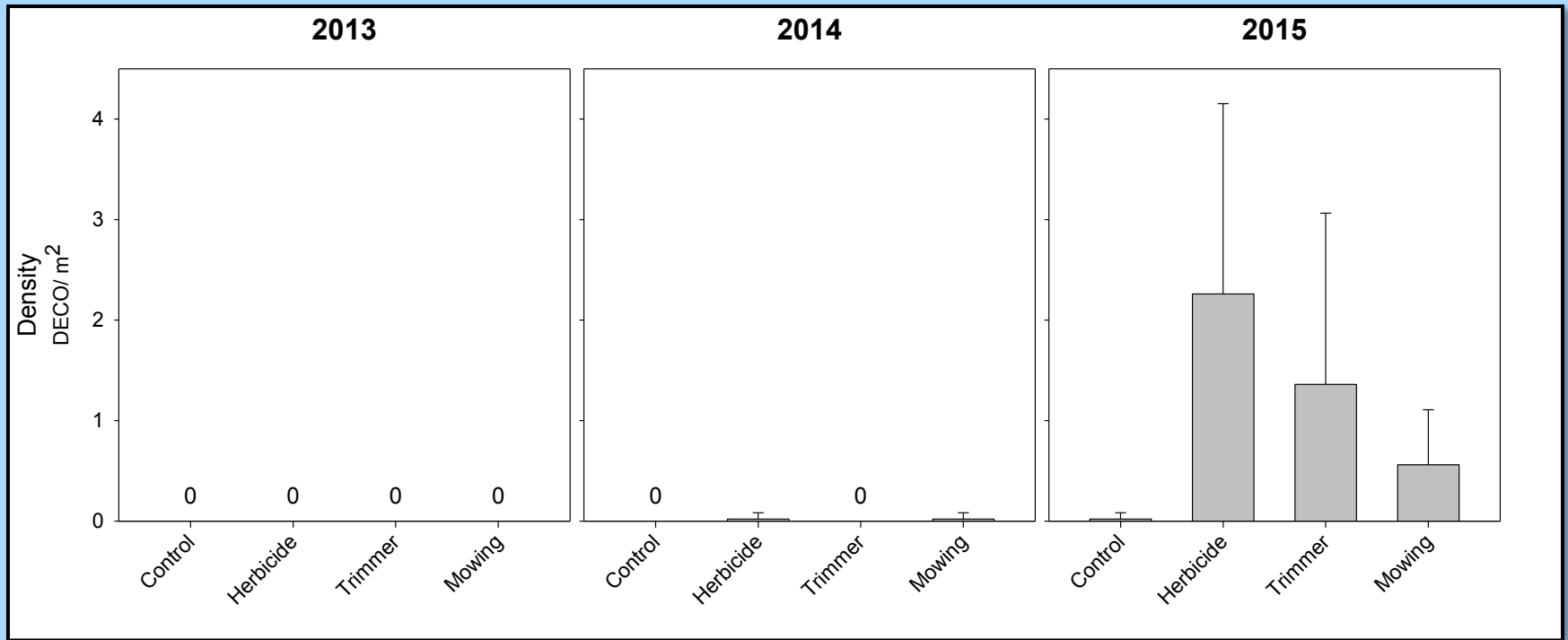


Herbicide





Biological Lag



Site Totals:

2013

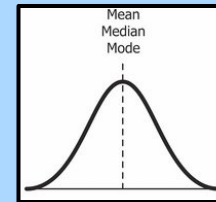
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2014

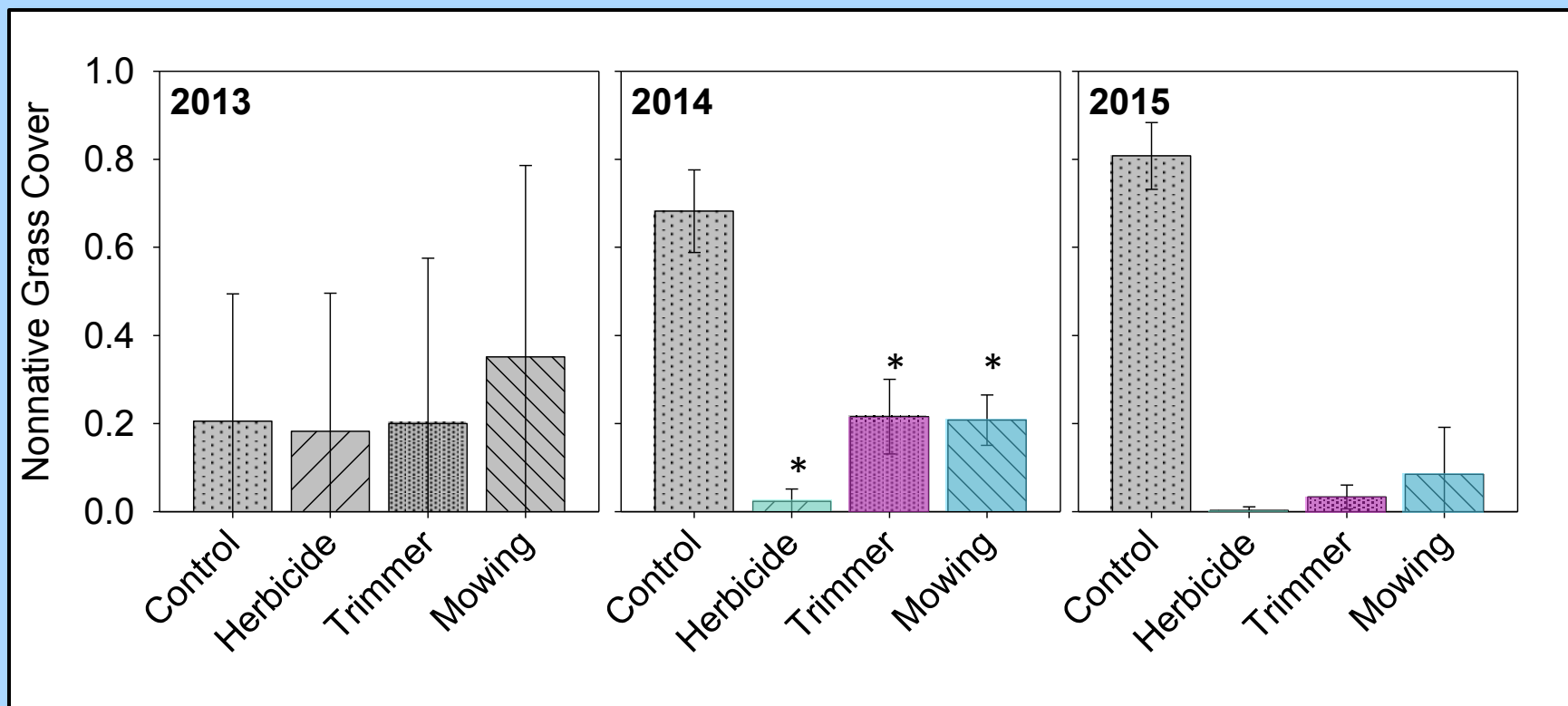
11

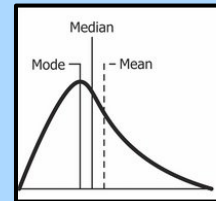
2015

Thousands!

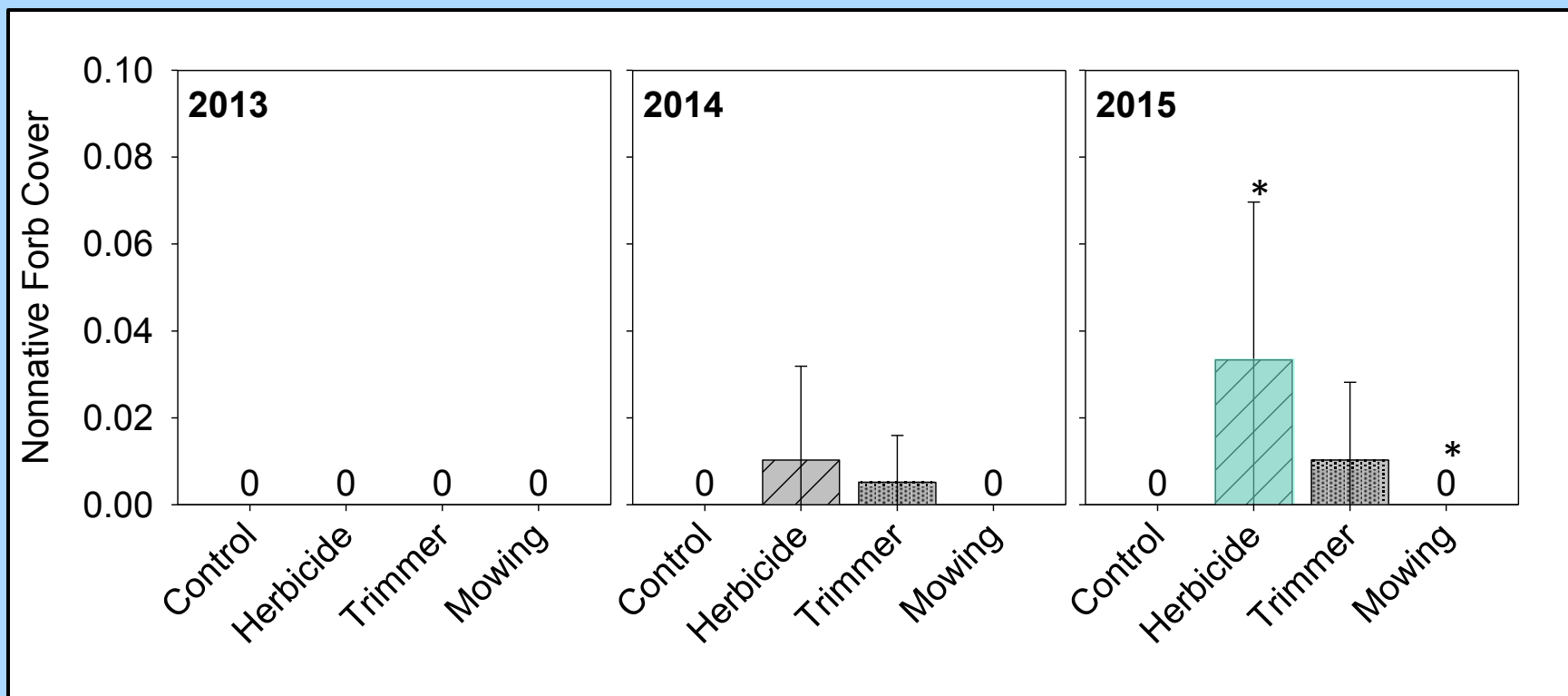


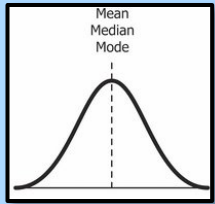
Nonnative Grass Cover



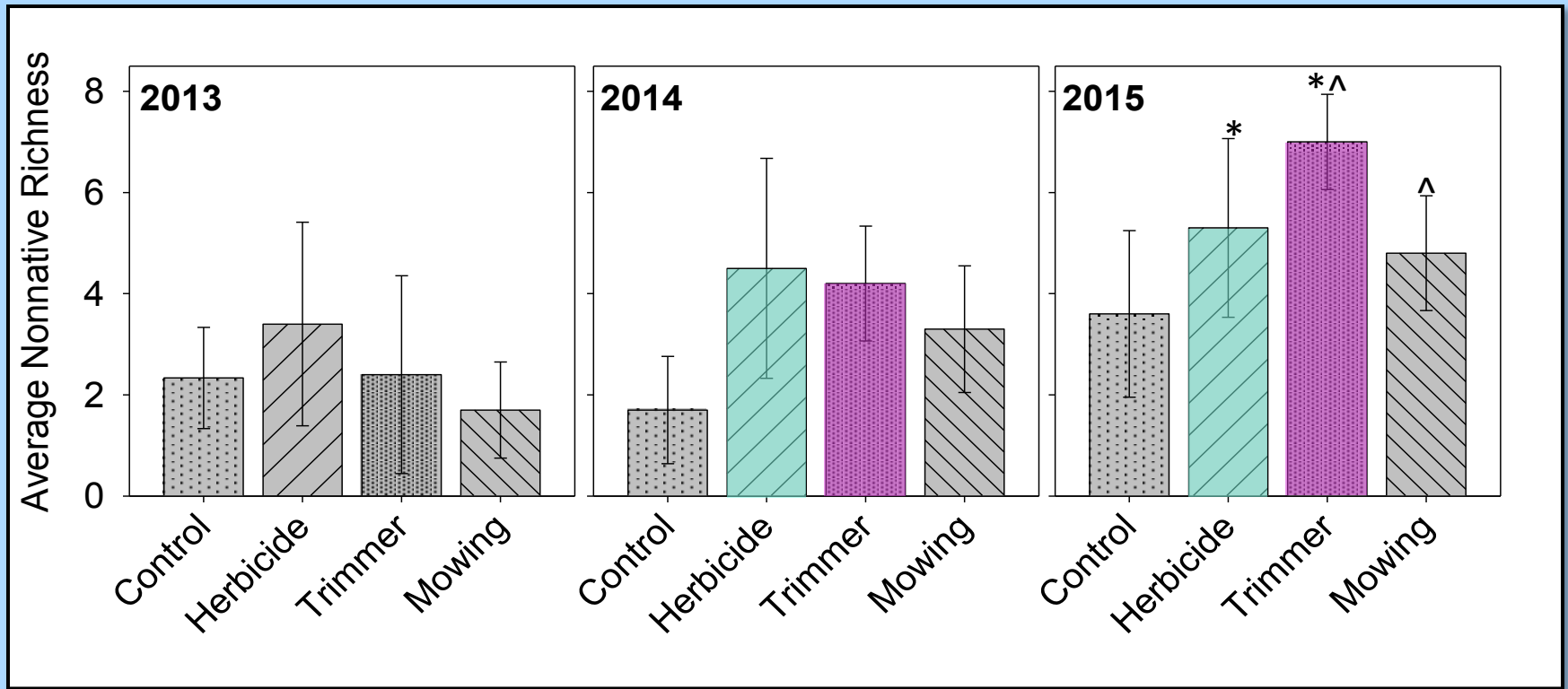


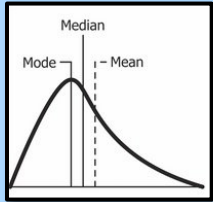
Nonnative Forb Cover



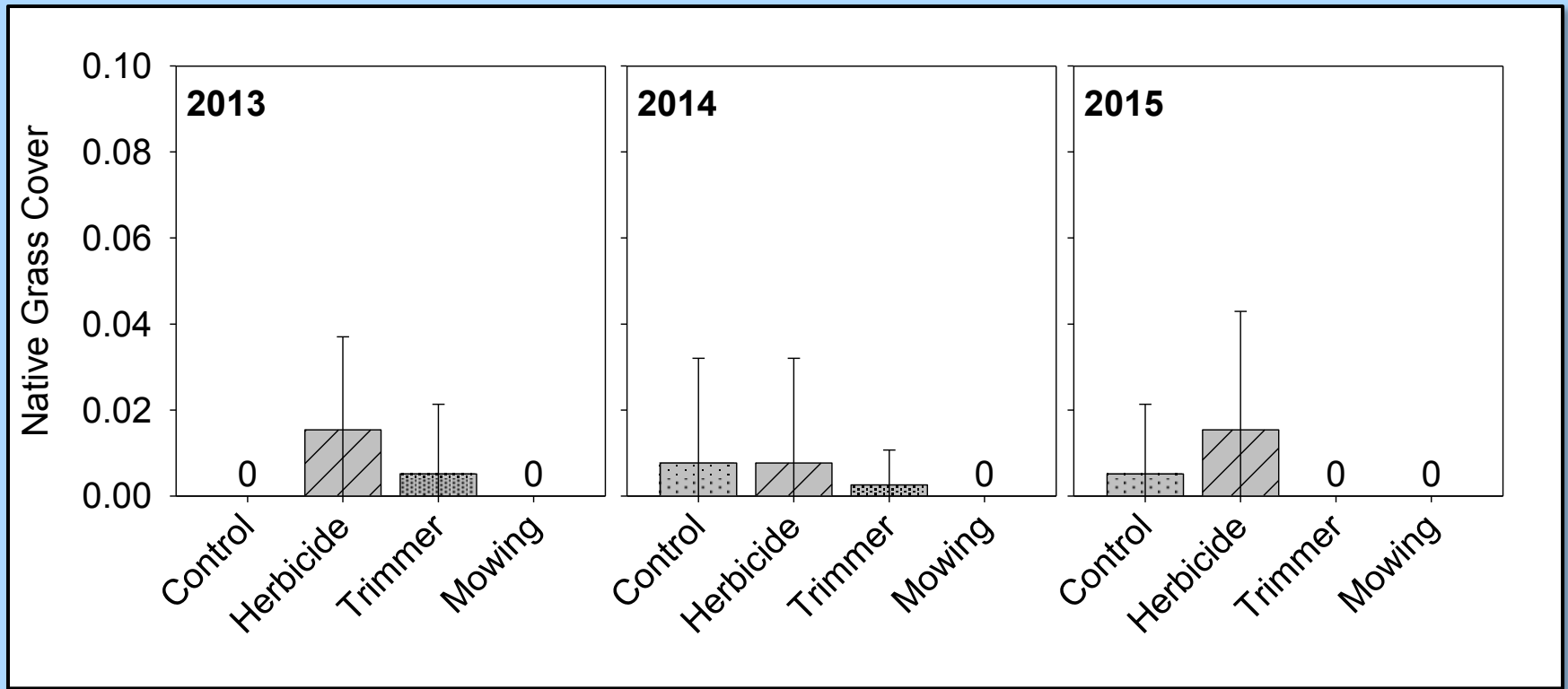


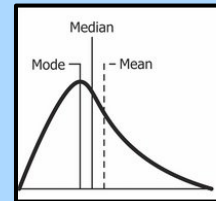
Nonnative Richness



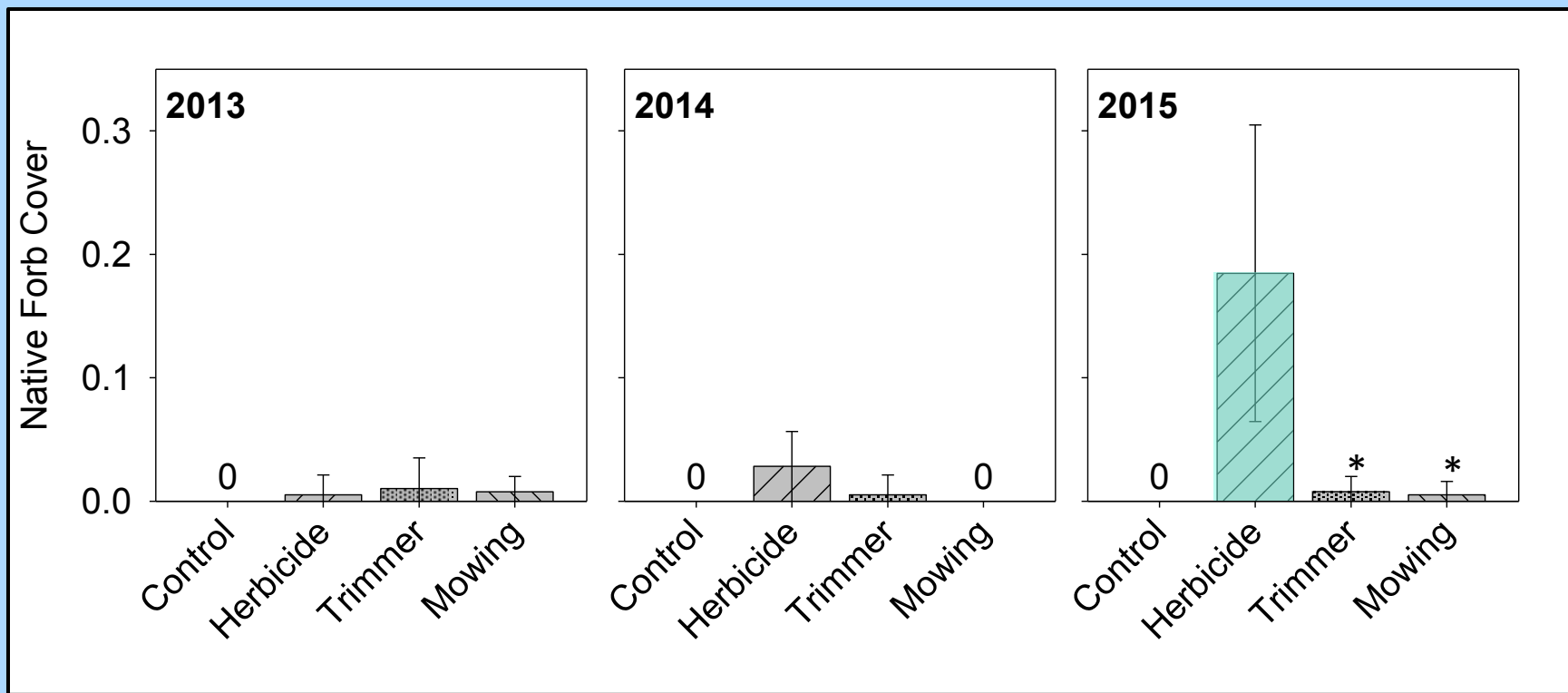


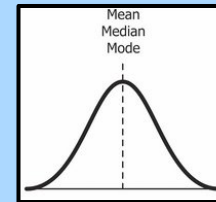
Native Grass Cover



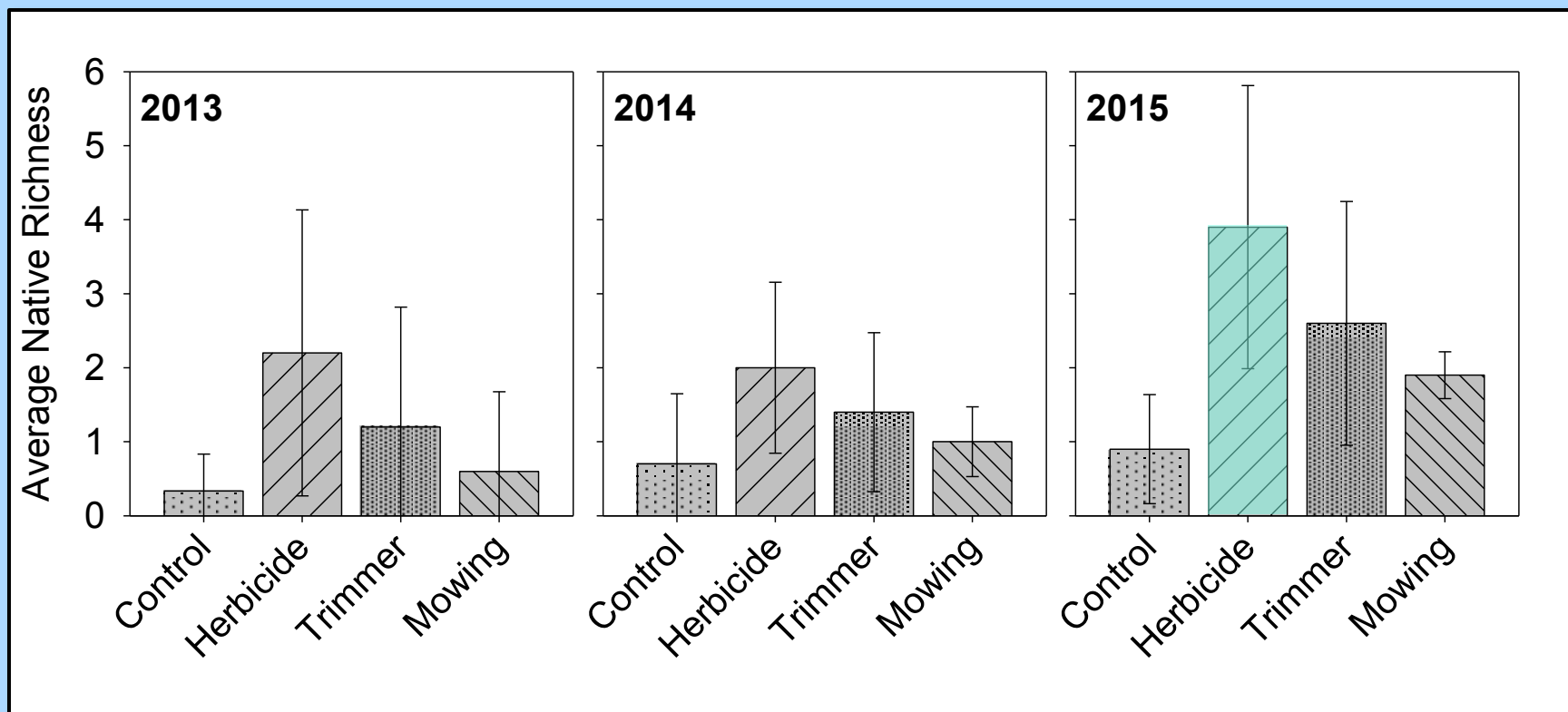


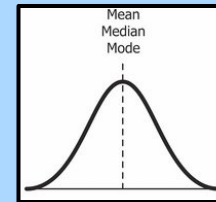
Native Forb Cover



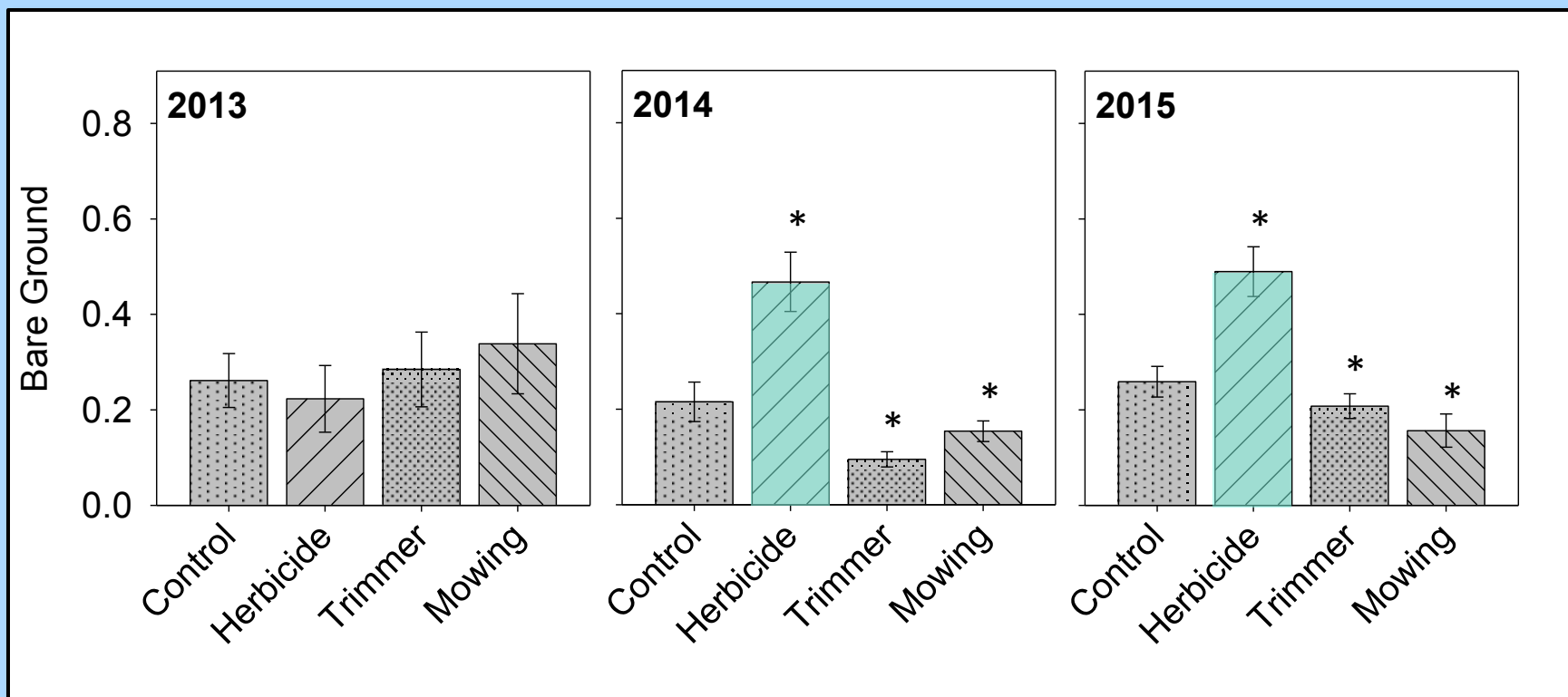


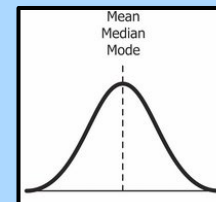
Native Richness



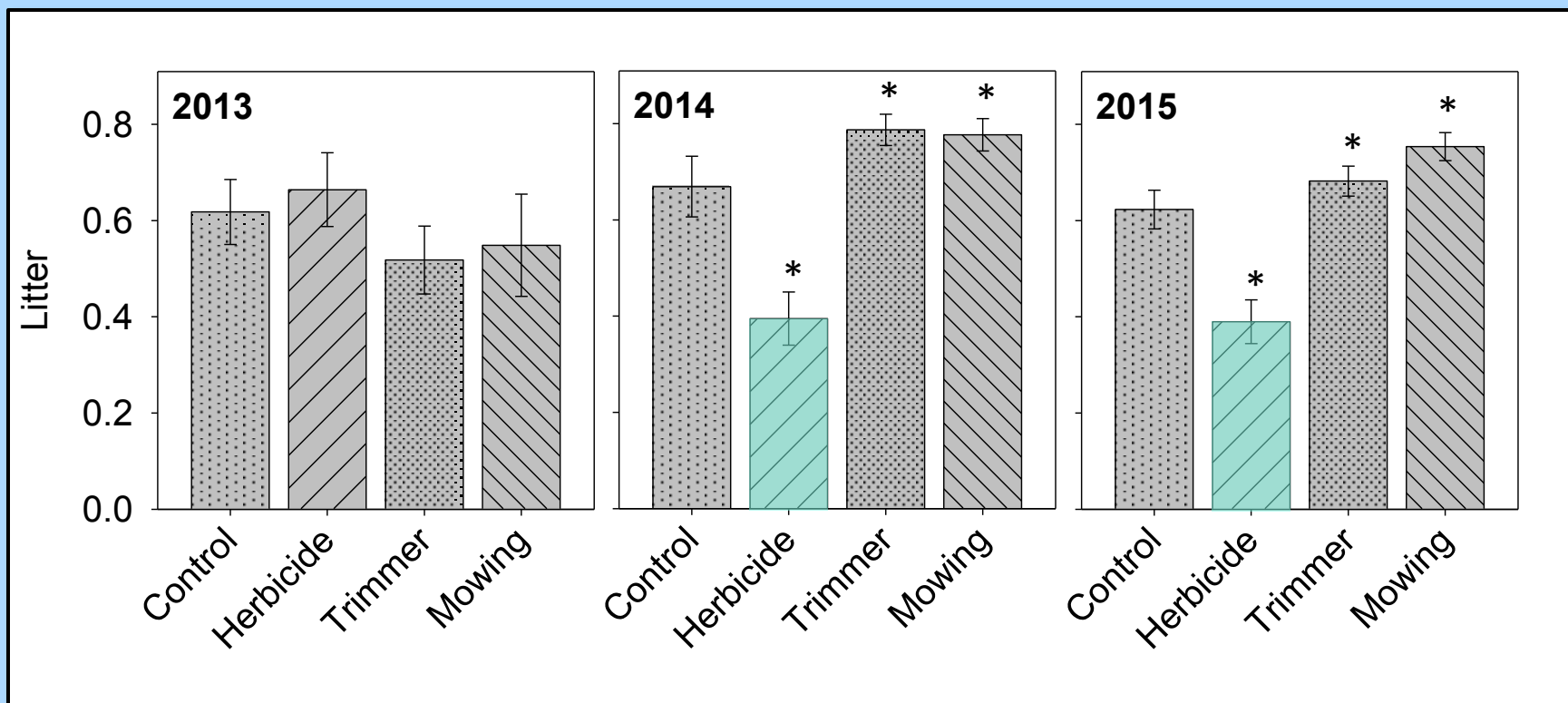


Bare Ground





Litter









SUMMARY



Effort and Cost

Method	Hours per acre	Cost per acre	Relative Result	Relative Cost
Herbicide (ATV + Back Pack)	7.16	\$86-\$308		
Herbicide (Back Pack Only)	12	\$144-\$516		
Mow	2.9	\$35 - \$125		
Line Trim	7.5 (2 people)	\$180 - \$645		



Summary

- Herbicide is the preferred treatment (post-burn)
- Some level of treatment is better than no treatment
- Treat for multiple years
- Perpetual habitat maintenance



Project Partners

