

**Management of a coastal bluff community invaded by *Oxalis pes-caprae* with low concentrations of glyphosate.**



Lewis Reed<sup>1\*</sup>, Suzanne Olarnik<sup>1</sup>, and Tim Hyland<sup>2</sup>

<sup>1</sup> University of California Bodega Marine Reserve

<sup>2</sup> California State Parks, Santa Cruz District





Image from: <https://www.pinterest.com/pin/535083999450661806/>





Image from: <https://baynature.org/article/a-natural-history-of-that-little-yellow-flower-thats-everywhere-right-now/>

# Overview

- Background
- Experimental methods
- Preliminary results
- Discussion/next steps

# *Oxalis pes-caprae*

- Sour grass, Bermuda buttercup, soursob
- Geophyte native to South Africa
- Life history
  - Early phenology
  - Sterile flowers in most of introduced range
  - Asexual reproduction by bulbils
  - Tuber

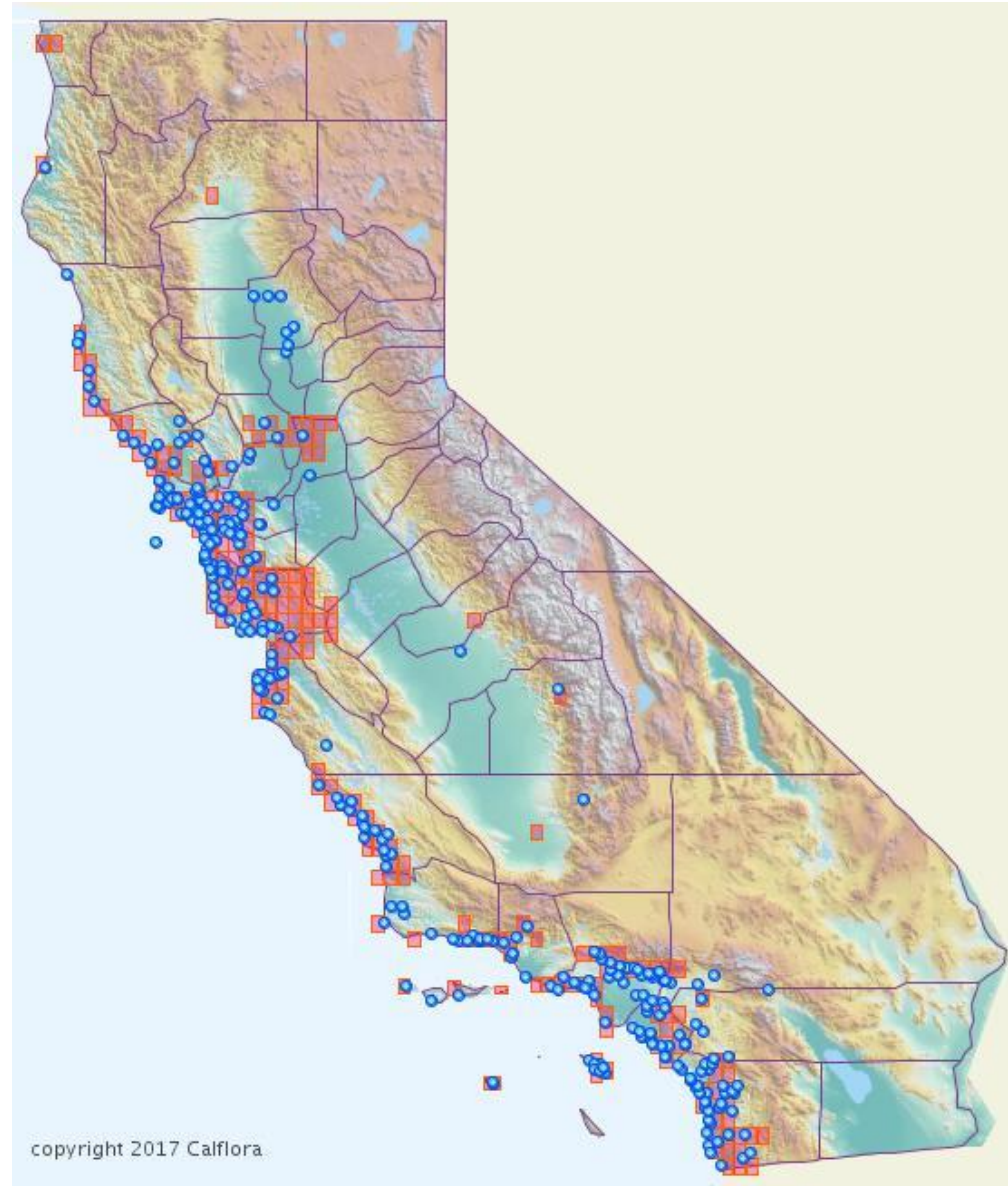


Image Credit: Jo-Ann Ordano © California Academy of Sciences



# *Oxalis pes-caprae*

- Introduced to many Mediterranean regions of the world
- Thriving in coastal communities of CA
- Dispersal?



# Management Strategies

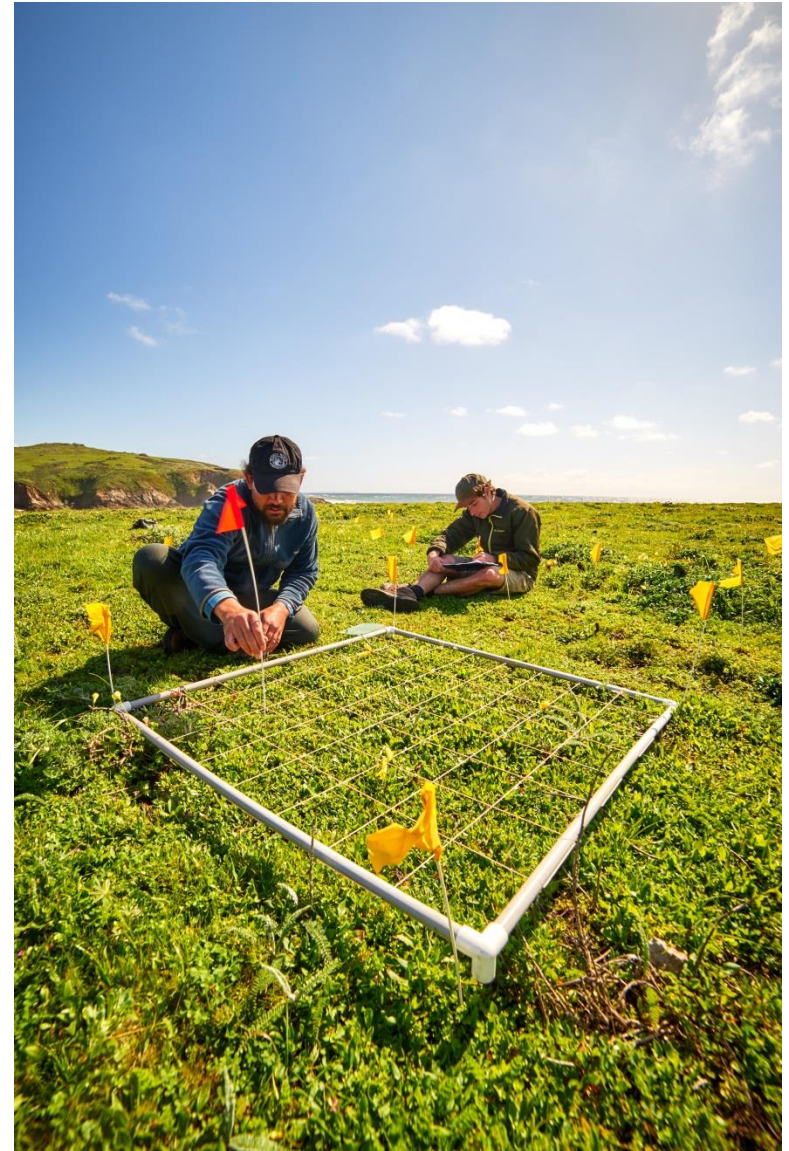
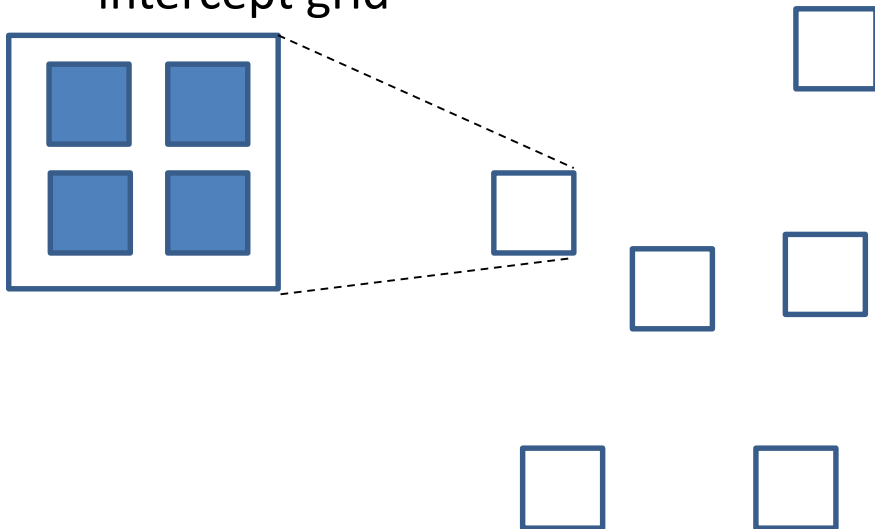
- Mechanical
- Cultural
- Biological
- Herbicide
  - Glyphosate?





# Experimental Design and Methods

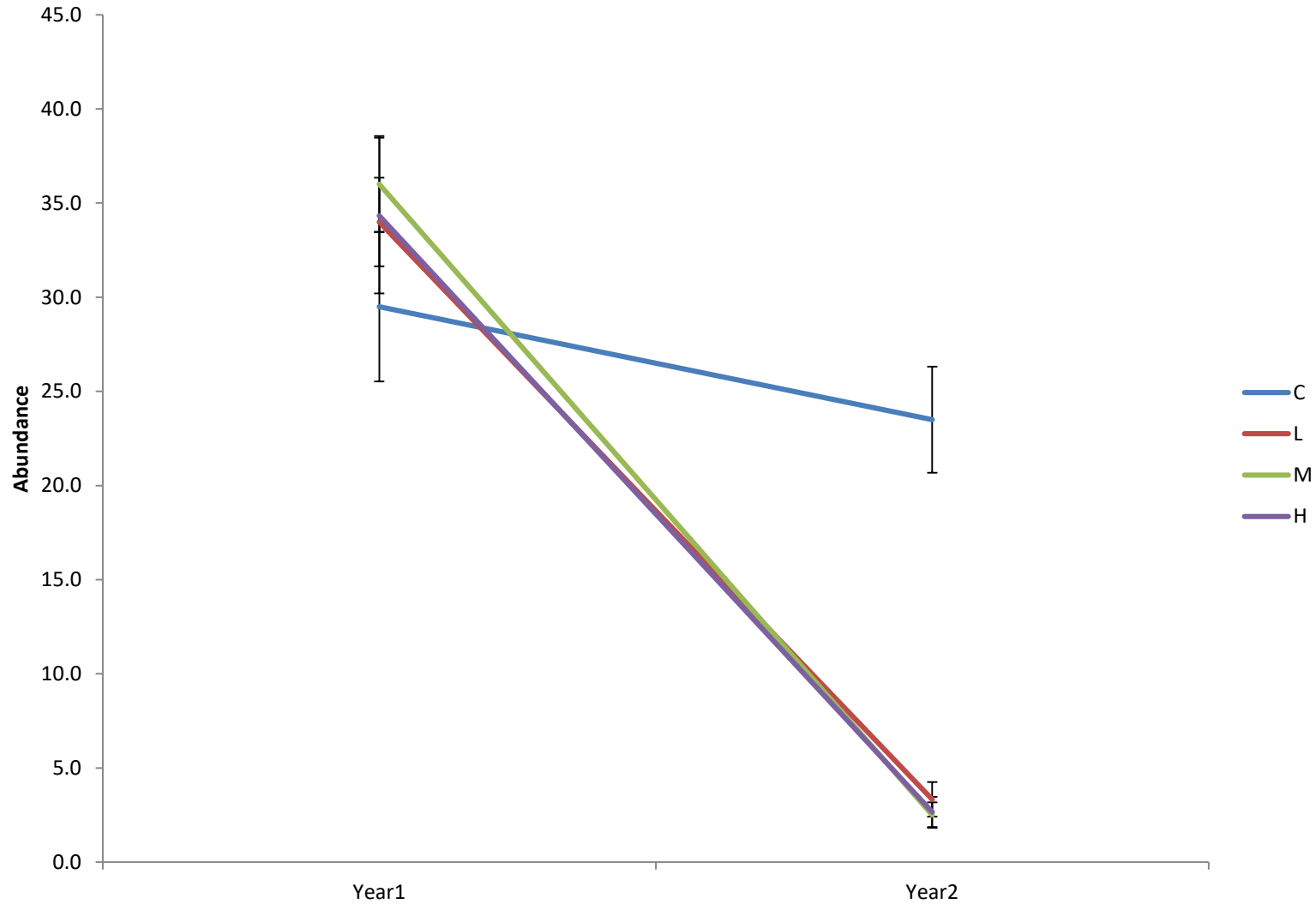
- Randomized block design
- 4 treatment levels
  - Control (0%), low (0.13%), med (0.26%), high (0.52%)
- 6 replicates
- Repeated measures
  - Baseline and 1-year post treat
- Species composition using point intercept grid





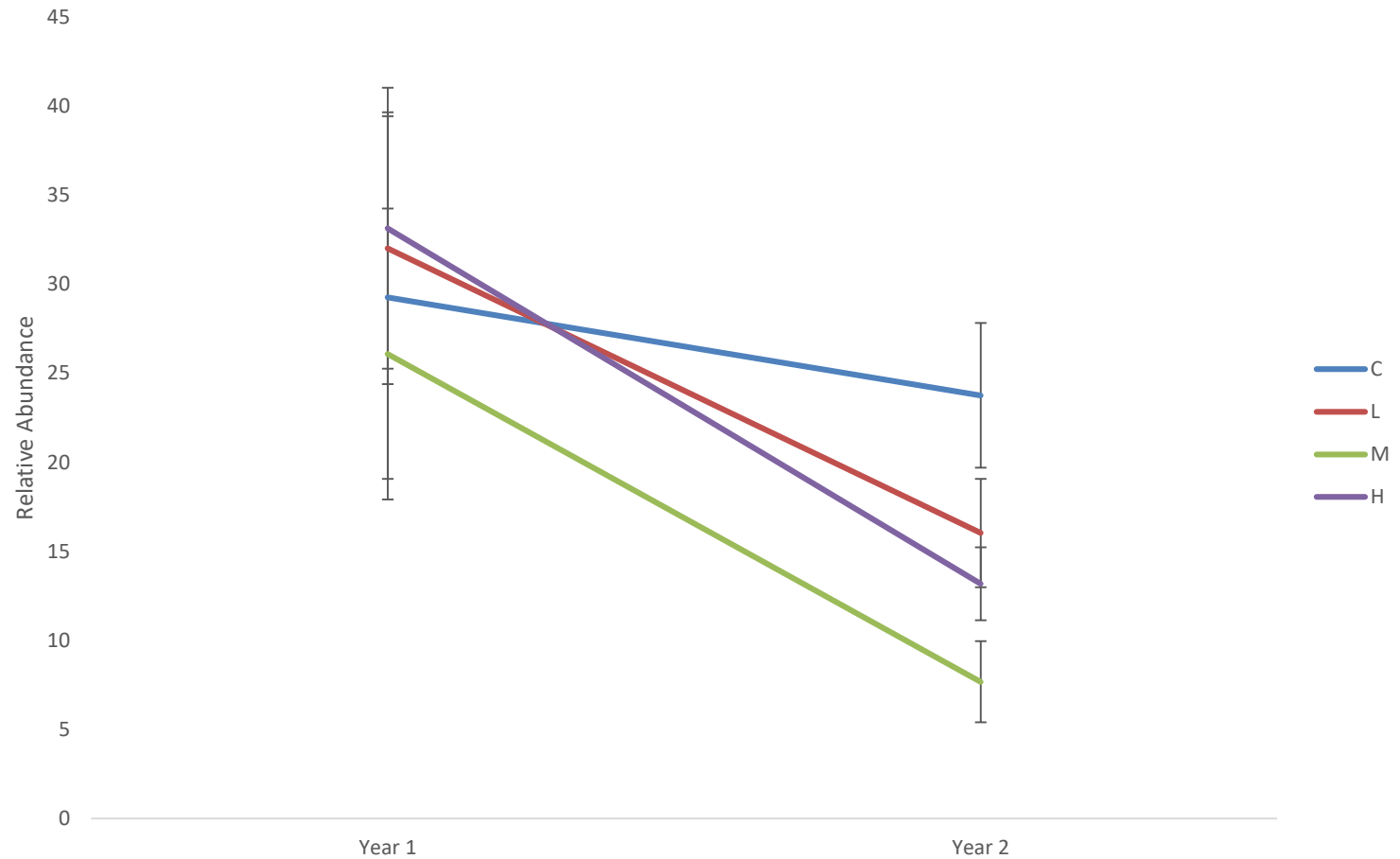
# Results: Oxalis

## Oxalis Response to Glyphosate Application



# Results: Non Target Species

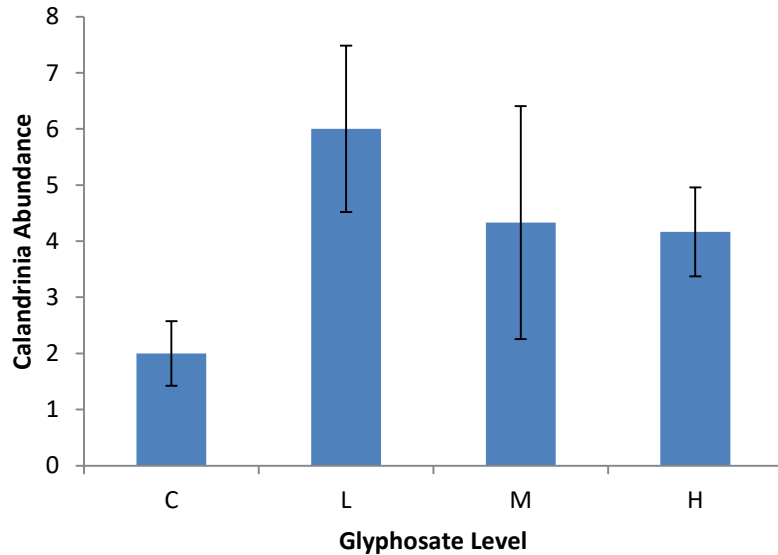
Native Community Response



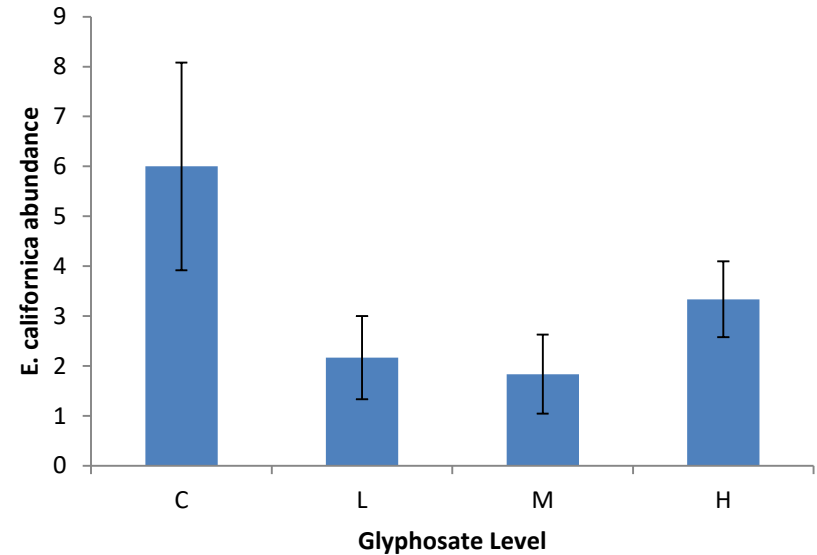


# Results: Non Target Species

**Calandrinia Response to Four Levels of Glyphosate**



**Eschscholzia Response to Four Levels of Glyphosate**













# Discussion

- General findings
- Short comings in design and application
- What's next?
  - Proceeding with management
  - Future research
    - Bio assay
    - Phenology



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**Thank you!**

**Lewis Reed  
Bodega Marine Reserve  
University of California Davis  
lkreed@ucdavis.edu**