

# SELECTING COASTAL CALIFORNIA PRAIRIE SPECIES FOR CLIMATE-SMART GRASSLAND RESTORATION

## Study By:

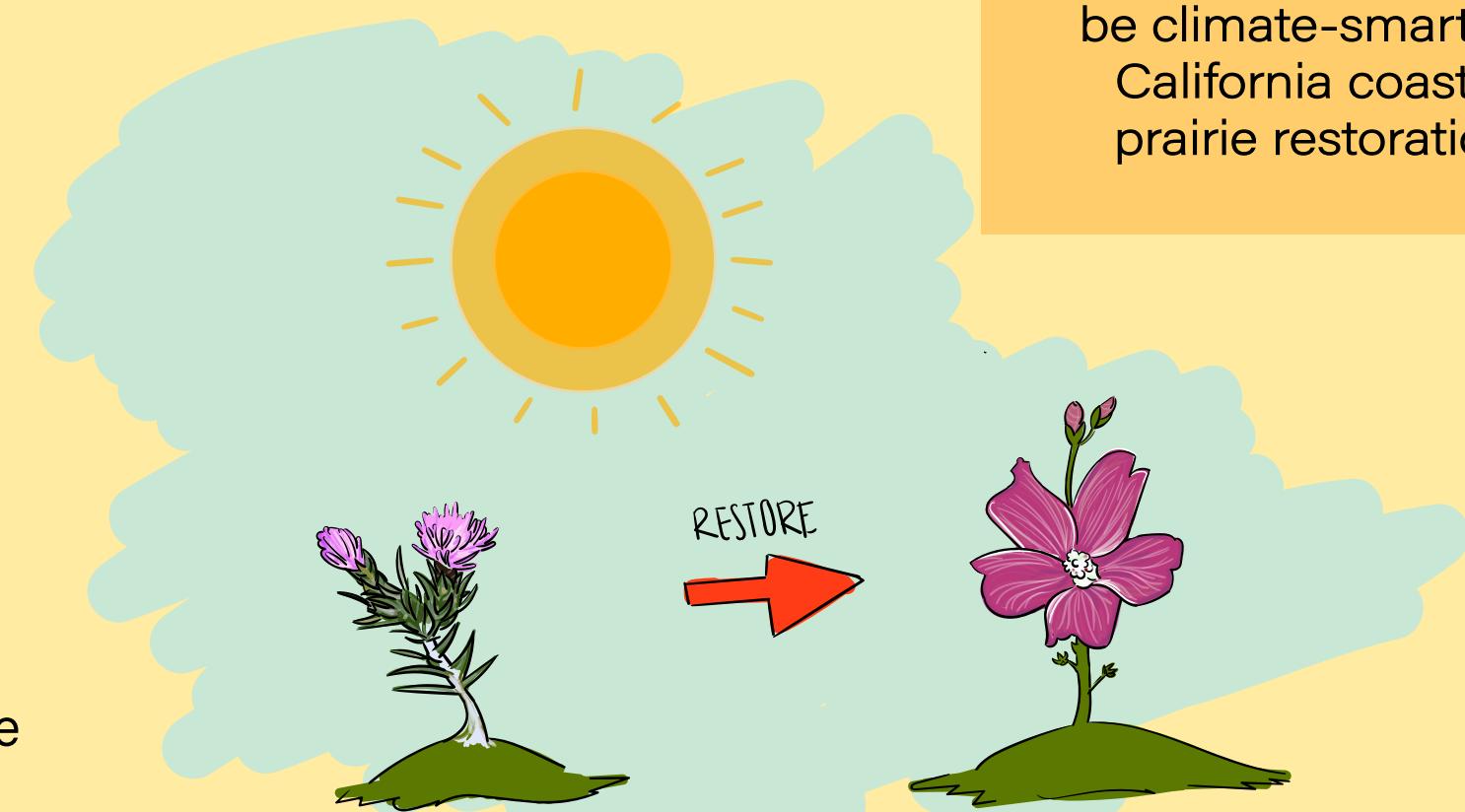
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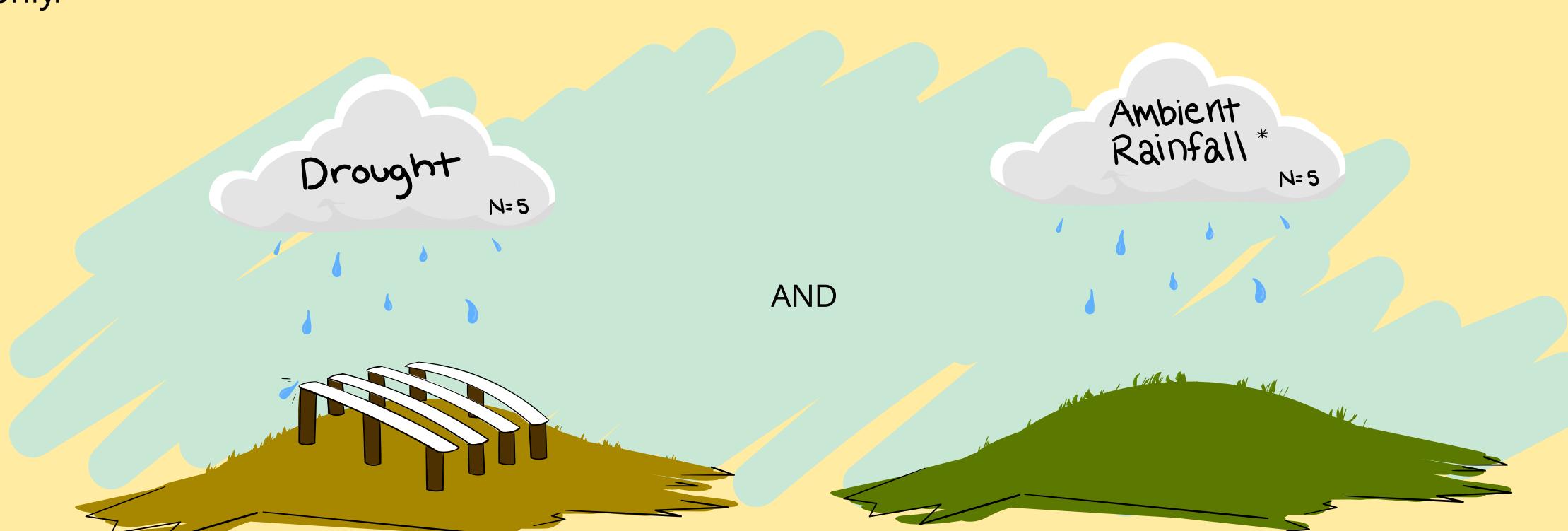


California's coastal prairies are diverse grasslands containing many native species. Mandated restoration of these grasslands is common because of the California Coastal Act of 1976. Native plant survival can be reduced due to increasing temperatures and drought frequency. This study focused on identifying climate-smart species that can withstand drier conditions.



## Experimental Design

Plots were planted with 12 native species that were selected to maximize life-form diversity. Plots were weeded in the first year only.



Drought manipulation was executed with drought shelters that exclude 60% of incoming rainfall. This simulated a 1-in-100-year drought based on historic Santa Cruz precipitation.

Younger Lagoon Reserve  
Santa Cruz, CA

\* The regular, unmanipulated rain patterns at the time of the study.

## Plant Traits Studied

### Survival



### Life Forms

- Rhizomatous forbs
- Shrubs
- Forbs
- N-fixers
- Bunchgrass



### Plant Cover

## Species Planted



*Sidalcea malviflora*



*Lupinus nanus*



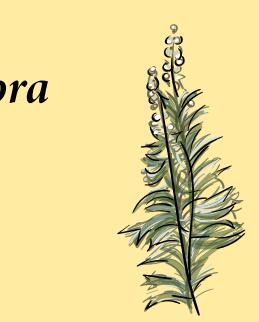
*Ericameria ericoides*



*Bromus carinatus*



*Achillea millefolium*



*Artemisia californica*



*Stipa pulchra*



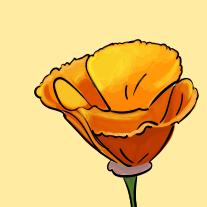
*Lupinus variicolor*



*Diplacus aurantiacus*



*Sisyrinchium bellum*



*Eschscholzia californica*



*Hosackia gracilis*

## Survivorship of Species

**Lowest Survivorship:** N-fixing

**Moderate Survivorship:** Bunchgrasses and shrubs

**Highest Survivorship:** Rhizomatous forbs

## Results & Management Recommendations

Rhizomatous forbs could be useful in establishing native cover to meet short-term restoration targets, especially in drought years



*Sidalcea malviflora*



*Achillea millefolium*

Bunchgrasses can persist after planting and some, such as *Bromus carinatus*, have high seedling recruitment

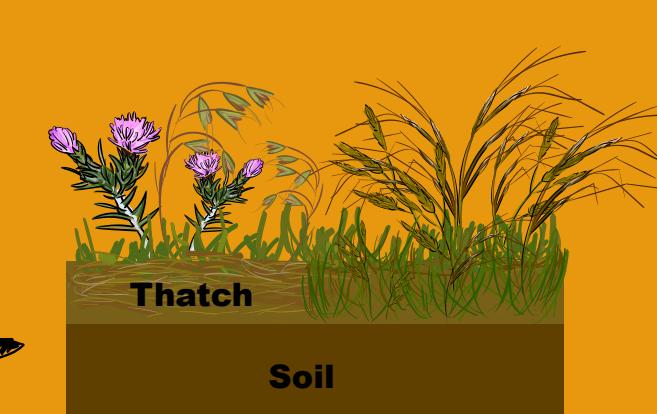


*Stipa pulchra*



*Bromus carinatus*

Thatch (dead plant material) removal also promotes higher native species cover



## Research Goal

Identify species that can be climate-smart for California coastal prairie restoration.

## Context Specific Species

Non-rhizomatous and N-fixing forbs require more management, resulting in lower survival in environments with drought and high competition.

