

SELECTING COASTAL CALIFORNIA PRAIRIE SPECIES FOR CLIMATE-SMART GRASSLAND RESTORATION

Research Goal

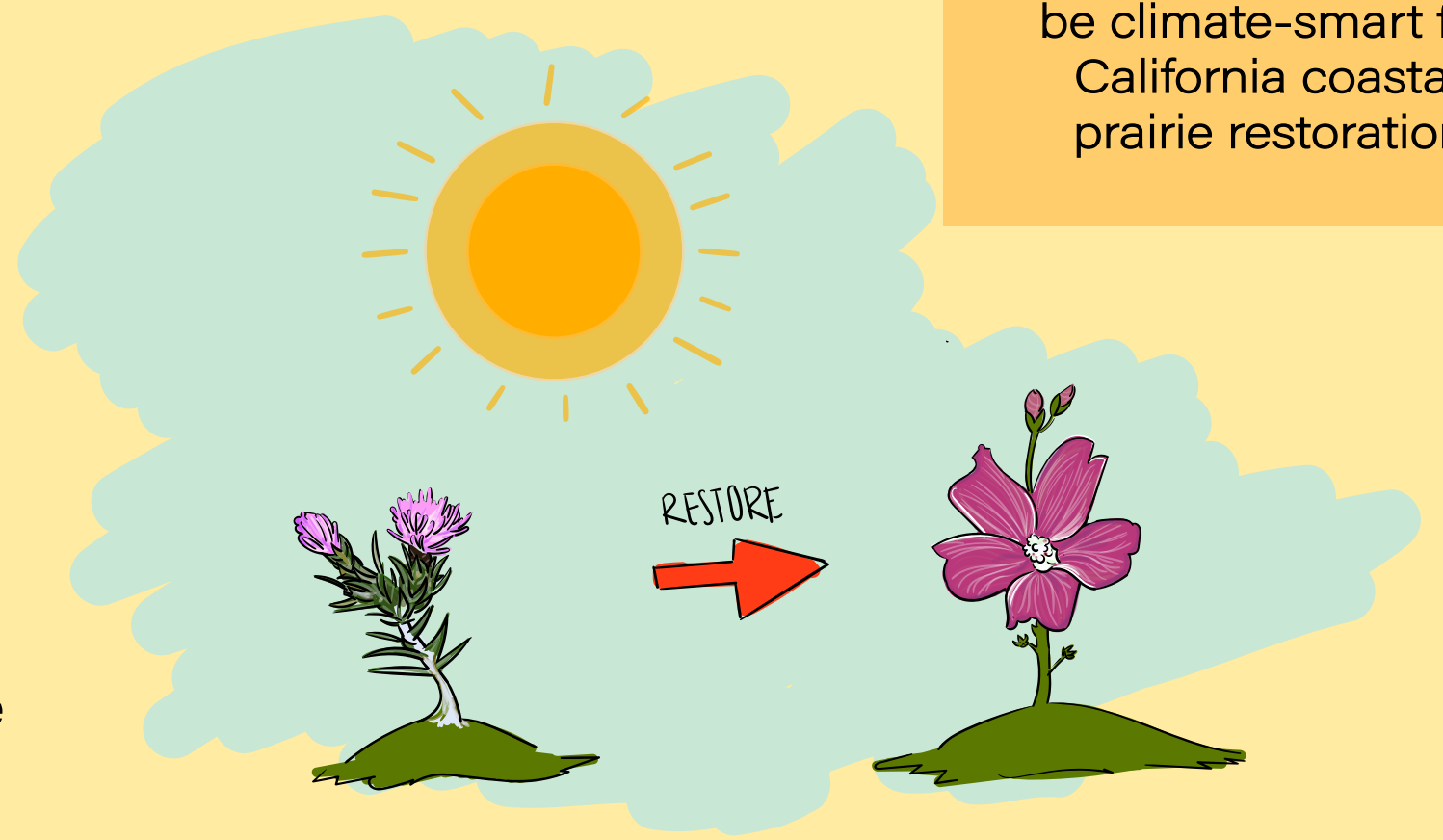
Identify species that can be climate-smart for California coastal prairie restoration.

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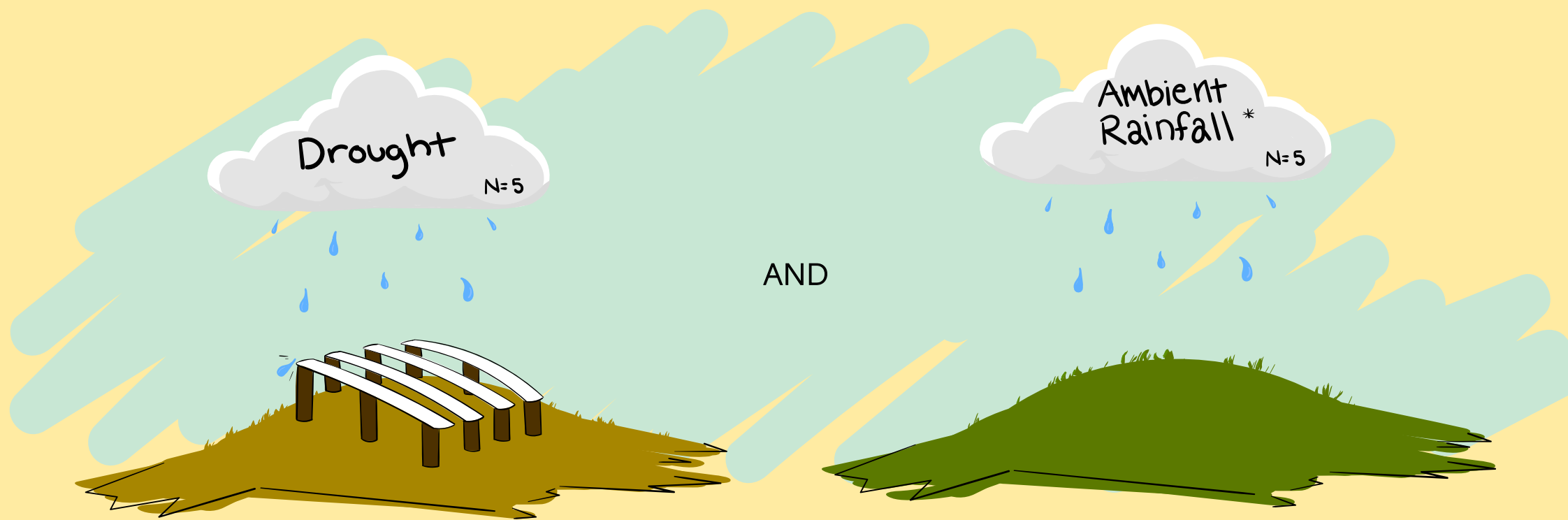
California's coastal prairies are diverse grasslands containing many native species. Mandated restoration of these grasslands is common because of the California Coastal Act of 1976. Native plant survival can be reduced due to increasing temperatures and drought frequency. This study focused on identifying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

Experimental Design



**Younger Lagoon Reserve
Santa Cruz, CA**

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.

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

Plant Traits Studied

Survival



Life Forms

- Rhizomatous forbs



- Shrubs



- Forbs



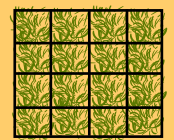
- N-fixers



- Bunchgrass



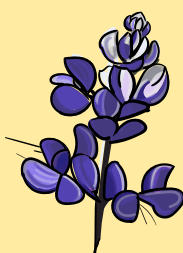
Plant Cover



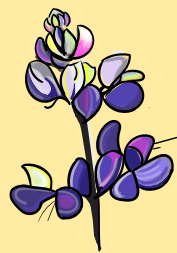
Species Planted



Sidalcea malviflora



Lupinus nanus



Lupinus variicolor



Ericameria ericoides



Bromus carinatus



Achillea millefolium



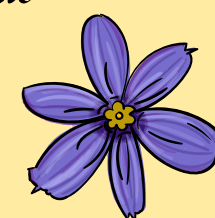
Artemisia californica



Stipa pulchra



Diplacus aurantiacus



Sisyrinchium bellum



Eschscholzia californica



Hosackia gracilis

Survivorship of Species

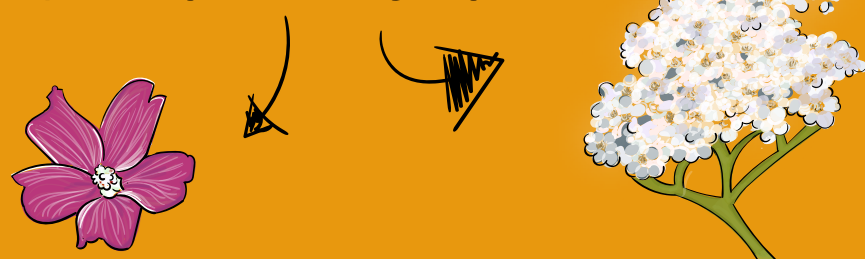
Lowest Survivorship: N - fixing

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

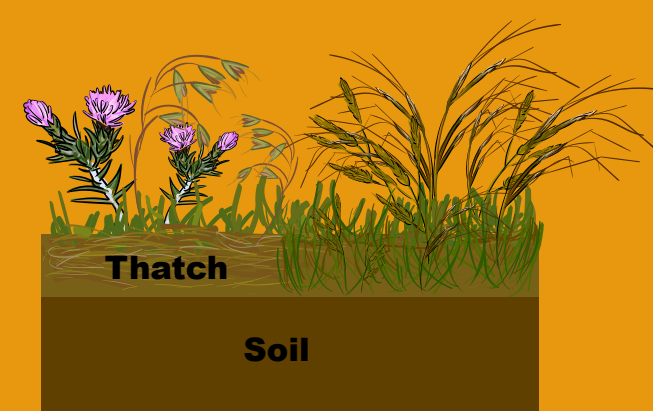
Bunchgrasses can persist after planting and some, such as *Bromus carinatus*, have high seedling recruitment



Stipa pulchra

Bromus carinatus

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



Thatch

Soil

Context Specific Species

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

