



California's Coastal Prairies

A PROJECT OF THE SONOMA-MARIN COASTAL PRAIRIE WORKING GROUP



Ecology

GRASSLAND PROCESSES

Many grassland organisms have traits and strategies that allow them to deal with and often take advantage of the coastal prairie environment. To better understand the challenges that these species face, consider the following general description:

Coastal prairies are low-growing – usually less than a meter in height - in areas with summer drought, fog, and frequent and often dramatic disturbances, such as fire, grazing, and burrowing.

This simple description of the coastal prairie environment identifies a suite of challenges for living in coastal prairie: lack of shelter, drought, grazing, soil disturbance, and fire. Some species may avoid unfavorable conditions, while others tolerate, or even depend on these processes for persistence.

DISTURBANCE, A HALLMARK OF GRASSLAND ENVIRONMENTS

Grasslands are increasingly regarded as disturbance-dependent ecosystems that require disturbance to persist. All plant communities experience disturbances and perturbations, such as fire, flood, drought, trampling, and insect outbreaks. Intuitively, one would think that disturbance is something to be avoided, but disturbance can have both positive and negative effects. Some types of disturbance keep shrubs and trees from invading, and others may create environments the prompt germination and seedling growth of grassland plants. For example:

Fire destroys standing vegetation but clears thatch, recycles nutrients, creates openings for seedlings and destroys colonizing shrubs and trees.

Digging can destroy roots, bulbs, and tubers. Some grassland wildflowers, however, benefit from this disturbance since large bulbs are broken into smaller pieces and spread during this disturbance, creating more space for plants to grow.

These observations have led some researchers to propose that without disturbance California grasslands would be taken over by woody species and eventually disappear (Biswell 1989:195).

TYPES OF DISTURBANCE

There are three main factors to consider when thinking about disturbance:

- ▶ Type of disturbance (e.g., fire, grazing, digging)
- ▶ Intensity of disturbance
- ▶ Return interval, or time between disturbance events

Variation in these factors can have highly variable effects on coastal prairie organisms.