

DRAFT
California Native Plant Society
California's Upland Grassland Research and Conservation Project
Major Goals and Objectives:
February 2007

Major Goals:

- Clarify the role and function of natural grasslands and associated herbaceous communities in the natural landscape of California
- Inventory and map grasslands through assessment and analysis of the natural range of variability
- Develop a framework for representative conservation and restoration of California grasslands
- Discuss our findings with the public, and educate the public on the values of grasslands

I. Clarify the role and function of natural grasslands and associated herbaceous communities and identify grassland regions that require greatest conservation attention

Basic definition of California annual grasslands and perennial grasslands

- Set the parameters for the region for work to be done. Justify the statewide and regional specificity of the project based on lack of understanding and on high degree of loss and under-representation of habitat in reserve systems in “Valley/South Coastal Grasslands”. Also justify based upon other similar conservation research that is aimed at other herbaceous vegetation in the state (of other grassland ecosystems such as coastal prairie, wetland meadows, etc.) as a necessary and as yet un-occupied assessment niche.
 - Focus research on cismontane vegetation characterized by grasses and forbs native to California that is commonly termed “Valley/South Coastal Grasslands”
 - Note: Would exclude wetland habitats such as vernal pool bottoms, and exclude all vegetation that has a distinct overstory dominated by trees and/or shrubs (may choose to work on some savannas, etc)
 - Provide a general map for the upland grassland ecosystem, and identify the regional specificity
 - Prioritize target regions for the project (e.g., areas in which major impacts to upland grasslands may occur or have occurred, areas in which key stakeholders support the project)
- Distinguish key partners and stakeholders in the project
 - Identify people who are doing regional planning for conservation of “Valley/South Coastal Grasslands” (including in Natural Community Conservation Planning and Habitat Conservation Plans)

- Identify partners who have implemented research projects and monitoring / management practices (who have baseline or multi-year information on vegetation or species)
 - Identify key stakeholders that conserve or manage this ecosystem
 - Identify potential foundations, donors, other funding sources, and supporters for the project
 - Identify organizations and land-owners that have access to grasslands
- Review of existing data, interpretations, and descriptions of grasslands
 - Compile existing CNPS data with available data from outside sources
 - Identify conventional nomenclature for grassland vegetation and the known grassland types (e.g., alliance and habitat level designations)
 - Identify areas that have been surveyed or assessed versus areas that need to be surveyed / assessed within the project area.
 - Analyze survey data for the variation in diversity and abundance of native plant species (locally and regionally)
 - Provide a preliminary determination for how native grasslands should be defined for conservation strategies by presenting local examples
 - Write/publish an overview paper that defines “native grassland” and that details the importance of native species diversity as well as native species abundance
 - Identify target wildlife species that are found in this grassland ecosystem
 - Identify rare plants found in this ecosystem
 - Identify the rare grassland plant communities that are currently recognized
 - Identify invasive species that are potential threats to this ecosystem
 - Identify seasonal differences in the ecosystem (e.g., differences in composition and cover)
 - Identify inventorying and monitoring concerns
 - Identify importance of grasslands as rangelands

II. Inventory and map grasslands within a specified region and/or throughout the state by employing new sampling, mapping, and analysis through assessment and analysis of the natural range of variability

- Inventory vegetation to categorize the types and regional variation of grassland types (in a target location and/or statewide)
 - Collect data on grasslands in the spring for 3 to 5+ field seasons
 - Collect plot-based species data in peak spring phenology
 - Collect environmental data and soils data
 - Collect data repeatedly in one region for years 1 to 3 (based on a target region such as the Central Valley or Central Coast)
 - Collect data from additional areas in years 2 and 3 (based on broad gaps in data regionally) and in years 4 and 5+ (based on gaps statewide)

- Collect data on grasslands in the summer for 3 to 5+ field seasons
 - Revisit plots to collect plot-based species data in peak summer phenology
 - Collect data repeatedly in one region for years 1 to 3 (based on targeted region) and for years 3 to 5+ (based on larger region or statewide)
- Analyze grassland data to provide baseline definitions and mapping after 1 field season (from one target region of the state)
 - Analyze grassland data to derive a floristic classification at the alliance and/or association level in accordance with state and national standards
 - Differentiate annual and perennial grassland types
 - Identify structural differences in vegetation
 - Translate the classification into mappable vegetation units based on available aerial or satellite imagery (depending on scale of mapping)
 - Compare data from the different seasons (spring/summer)
 - Compare different geologic substrates and other environmental factors
 - Evaluate rarity of species and plant communities
- Re-analyze data after 3 to 5 field seasons (in target regions of the state)
 - Review revisits of plots during each field year (spring and summer) to distinguish annual variation within the target region
 - Analyze re-visits of plots over 3 years to distinguish local changes over time (between years that may have different climatic regimes)
 - Analyze larger area of revisits over 5 years to distinguish regional variability and changes
- Identify and promote wildlife uses and functions of California grasslands
 - Identify the main uses and functions of wildlife (e.g., mammal, bird, insect)
 - Establish the importance or values of wildlife as an integral component in the natural communities of grasslands
- Identify rare vegetation based on data collected
- Map vegetation to identify regional variation and rarity of grassland types (in a target location)
 - Baseline mapping of grasslands after 1 year of data collection and analysis
 - Delineate grassland types into polygons/stands at the alliance and habitat level
 - Attribute grassland polygons for structural characteristics (i.e., density, height) and for site impacts (i.e., degree of invasiveness, degree of clearing)

- Analyze map and survey data for rare vegetation types
 - Review mapped and surveyed types for types with limited distribution and regional locales
 - Rank grassland types for their regional and local rarity based on their range/distribution and area of coverage
 - Prioritize the grasslands for conservation value and management needs based on analysis
- Re-map after 3 to 5+ field seasons to capture fuller diversity of grasslands
 - Incorporate the 3 to 5+ year dataset to create a more complete map
 - Review ranking of types to update rarity ranks

III. Develop a framework for representative conservation and restoration of California grasslands based on nativity, biodiversity, rarity, and distribution of grasslands)

- Analyze grassland field survey data for management purposes (after 1st and 3rd year of data collection)
 - Identify the richness and diversity of native and non-native species (including both grass and forb species)
 - Identify areas and grassland types that are being impacted or replaced by non-native species
 - Identify structural components and potential floristic relationships
 - Differentiate native and non-native grasslands using both abundance and richness/diversity values
 - Update/revise nomenclature for grassland vegetation (especially for annual vs. perennial grassland types as well as the native/non-native)
 - Set thresholds for native grassland types with a certain amount of native species abundance and/or richness (based on a statistically criteria, not just >10% native abundance, and taking temporal status of collection of data into consideration)
 - Identify distribution of alliances and associations per each region
 - Analyze occurrences of rare taxa in alliances, associations, or regions
 - Analyze the invasive plant species occurrences within the dataset to come up with threat indices based on Cal-IPC ranking of noxiousness, etc.
 - Identify restoration potential in areas with impacted grassland types
 - Identify seasonal differences after 3 to 5+ years in vegetation based on species composition, abundance (percent cover), diversity, persistence, etc.
 - Identify regional differences in vegetation (e.g., suites of species Central Valley versus Central Coast)
- Analysis of grassland mapping data for conservation and management purposes upon having vegetation field data and mapping data within 4 years
 - Identify key areas that have high species richness and diversity for native and non-native species

- Identify key areas that have rare grassland types (based on map and survey data)
- Define conservation values of areas based on species diversity and rarity of grassland vegetation
- Identify key areas (using GIS) that have target wildlife species (e.g., birds, pronghorn antelope, kangaroo rats, kit fox) based on key floristic and structural elements of this grassland ecosystem
- Identify key areas (using GIS) that have rare plant species and multiple rare species
- Model the current and potential habitats for certain target (rare) species
- Compare the newly amassed information against historic information
 - Compare the current state of grasslands as compared to historic information on grassland extent, plant and animal species composition
 - Identify major species shifts or threats (e.g., invasive exotics)
 - Review different management regimes (e.g., fire, grazing, herbicide application)
 - Model the current and any past vegetation data for fire management considerations
- Work with other organizations to identify important conservation areas and land management activities
 - Work with the California Rangeland Conservation Coalition, Central Coast Rangeland Coalition, Cattlemen's Association, Point Reyes Bird Observatory, and other organizations to identify important areas for conservation
 - Work with The Nature Conservancy and other local conservancies on their conservation and management strategies for grasslands
 - Identify future management activities for best maintenance of grasslands (e.g., targeting of invasive species, identifying grazing strategies, evaluating burning regimes)
 - Provide a working set of recommendations to land managers on appropriate management regimes (with general comparison of grazed v. ungrazed; burned v. unburned)

IV. Discuss our findings with local, regional, and statewide decision-makers, and establish importance values for grassland conservation through conferences and other educational approaches

- Hold a scientific conference after year 1 to present CNPS' research approaches and issues surrounding rarity and conservation of grasslands
 - Convene a group of experts of grassland science and land management
 - Discuss the field sampling methods being employed in the project and other methods used to study grassland biodiversity
 - Discuss approaches to classifying vegetation
 - Discuss approaches to ranking vegetation statewide and nationwide
 - Discuss potential outcomes for conservation

- Hold at least two general conferences after years 2 and 4 to attract local land managers, planners, and land owners
 - Provide findings of project to local governments, regulators, and scientists
 - Provide findings to local land owners and managers
 - Emphasize positive collaboration towards conservation and restoration in different regions of the state

- Describe grassland resources through an interpretative booklet and reports
 - Publish findings on the local and regional variability of grassland resources
 - Provide illustrative guide to the major grassland types