

CNPS – California Grasslands White Paper Draft Outline:
November 26, 2008

The purpose of this white paper is to communicate the scientific needs associated with California grassland vegetation conservation, to highlight the current status and state of knowledge, and to communicate these issues to stakeholders and the public.

I. Introduction

- a. To clarify the important role and function of natural grassland and herbaceous vegetation in the California landscape.
 - i. Define annual and perennial grasslands of California.
 - ii. A major habitat type recognized by The Nature Conservancy.
- b. Increasing threats, high rates of loss.
- c. Lack of research/understanding on statewide grassland diversity.

II. State of knowledge

- a. Habitat Values/Ecosystem Function
 - i. Species richness in grasslands
 - 1. Regional diversity throughout the state.
 - ii. Habitat function - supporting wildlife including birds, mammals, invertebrates, plants, and special-status species
 - 1. Essential nesting/breeding and foraging grounds for animals
 - 2. Important for both spring and summer flowering plants
 - 3. Sensitive/critical habitat for special-status species
 - iii. Ecosystem functionality - water holding capacity, soil holding capacity
- b. How much is left and how different is it?
 - i. Estimate how much exists now and how much existed historically
 - ii. Estimate rate of disappearance
 - 1. Conversion to agriculture, urban development, etc.
 - iii. Discuss extent of biological change from historical grasslands
 - 1. Spanish reports
 - 2. Native American burning
- c. Impacts/Disturbance of CA grasslands
 - i. Habitat fragmentation
 - ii. Invasive plant and animal species
 - iii. Changes in burning regimes
 - iv. Global climate change

III. Current needs

- a. Create a baseline classification of herbaceous vegetation (grassland) types through analysis of richness and abundance of plant species.
 - i. Refine/identify conventional nomenclature for grassland vegetation
 - 1. Identify diagnostic and regionally specific species
 - 2. Consider persistence when designating diagnostic species
 - ii. Differentiate annual vs. perennial types
 - iii. Discuss issues with definitions of native vs. non-native grasslands

1. Identify thresholds for native grassland types that include > 1 factor
 - a. Include certain abundance and richness values of native species (based on a statistical criteria, not just >10% native abundance)
 2. Consider temporal (seasonal) status of species presence/abundance in data collection as an important attribute
 - iv. Identify currently known types and distribution of alliances and associations per each region
 - v. Identify rare and common grassland community types
 - vi. Identify rare plants and animal species / habitat types
 - vii. Correlate different geologic substrates and other environmental factors
 - viii. Conduct a gap analysis
- b. Mapping of herbaceous vegetation
- i. Discuss applications and limitations of mapping
 - ii. Translate classifications to mapping units
 - iii. Identify matrices of wetlands/upland and annual/perennial habitats
 - iv. Attribute grassland structure including density/cover, height, site impacts, degree of invasiveness, etc.
 - v. Model current and potential habitat types for predictive maps
- c. Surveying and Monitoring
- i. Discuss minimum standard guidelines that have been established by USFWS, CDFG, CNPS
 - ii. Standardization of protocols / guidelines (Appendix)
 1. How should grassland vegetation be classified and described?
 2. What data should be collected?
 - a. Complete plant list at the finest taxonomic level possible to determine richness, rarity and listing status
 - b. Overall cover by lifeform and species abundance
 3. What sampling method(s) should be used?
 - a. Transects (line intercept with plots)/relevés/stand-based RA
 - b. Dependent on overall purpose and on funding
 - c. Random or subjective placement of samples
 4. Area represented in survey (size)
 - a. Minimum # surveys/area?
 5. Timing and number of visits - considering annual (climatic) and seasonal variation
- d. Conservation framework
- i. Develop strong collaboration with other conservation / rangeland groups (e.g., California Native Grasslands Association, California Rangeland Conservation Coalition, NRCS, TNC, etc)
 - ii. Assess currently conserved and rangeland areas
 - iii. Assess threats to important areas within California

- iv. Develop strong and effective conservation actions and policies for grassland vegetation
- v. Promote conservation at different scales – statewide, regionally and at a local level
 - 1. Present regional/local examples of conservation strategies/protection
 - 2. Prioritize intact communities at a landscape scale
- vi. Address viability of patch size/area for conservation
 - 1. Including smaller patches as important for pollinators, etc.
- e. Identify existing research needs and conduct modeling / research on change in grasslands
 - i. Global climate
 - ii. Nitrogen deposition
 - iii. Major shifts or spread in species
 - iv. Management activities
 - 1. Grazing
 - 2. Burning
 - 3. Clearing, herbicide application, or other removal tools
 - v. Restoration/revegetation
 - 1. Establish control or goal that uses a regional intact habitat.

IV. Timeline / outcomes / funding

- a. Phase 1 (3 years) - Background research, data collection, mapping, and initial analysis
 - i. Comprehensive list of grassland alliances and associations
 - ii. Maps of grasslands in targeted areas
- b. Phase 2 (2 years) - Additional research, interpretation, modeling, and publications
 - i. Descriptions of grassland plant communities and habitat/ecosystem functions
 - ii. Conservation initiatives

Appendices:

- A. Current list of current grassland alliances and associations (MCV2)
- B. Guidelines / protocols for surveying herbaceous vegetation
- C. Guidelines and issues when mapping herbaceous vegetation

References:

California Grasslands: Ecology and Management
 Reassembling the Pieces: A strategy for maintaining biological diversity in California, 1992
 (Dan Airola, Jones and Stokes Associates)
 California's Fading Wildflowers – Richard Minnich
 CNPS Grassland Endnote Library
 (Gathered 2007-2008)
 TNC Ecosystem Services/Valuing Nature Framework