



CONSERVATION PLANNING AND POLICIES FOR CALIFORNIA GRASSLANDS

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Introduction

Goals

The goal of this project was to identify policies, at the federal, state, and county level, and assess their effects on the management and conservation of California grasslands. Our findings are synthesized in a chapter of the University of California Press book Ecology and Management of California Grasslands (in press).

Significance

Grasslands are one of the most human-altered terrestrial ecosystems in California. Native perennial grassland types make up less than 1% of state grassland, with the balance being dominated by exotic annual grasses. Even so, grassland provides important habitat for many threatened and endangered species. In addition, sensitive elements such as vernal pools are often interspersed in grasslands.

In spite of our impressive knowledge of grassland ecology, large expanses of habitat are still being degraded, fragmented, and converted. Although grasslands occupy nearly 11 million acres of California, only 4% of extant California grasslands are in formally designated reserves. Finally, because 88% of California grasslands are privately owned, land use and land management policy resides primarily at the county and local levels, where information concerning treatment of grasslands is lacking (Table 1).

Ownership Type	Grassland Area (acres)	Percent of Total Grasslands in California
Private	9,462,200	88.08%
Federal	759,427	7.07%
Military	227,305	2.12%
State	131,517	1.22%
Other	162,819	1.52%

Table 1 – Ownership of grassland habitat in California

A considerable need exists for a comprehensive assessment of the current state of California grassland ecosystems and their fate given a dynamic and rapidly growing population.

Methods

We conducted in depth web and literature searches to accomplish these goals. Much of our effort went into compiling and synthesizing local data from several counties with significant grassland coverage (Figure 1). These data included structured phone interviews and general plan documents.

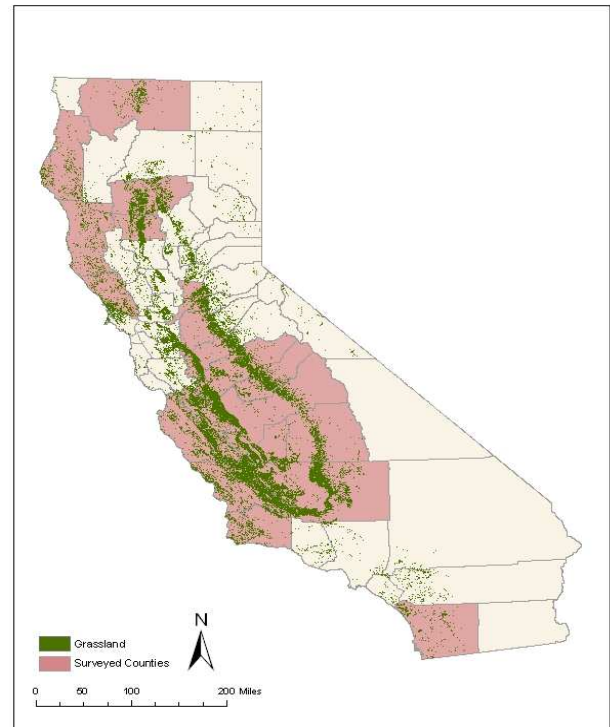


Figure 1 – Grassland distribution and counties studied

Why Grasslands?

In California, grassland ecosystems are heavily altered by human activity. Most state grasslands are dominated by exotic annual grasses, and native grasslands are relatively rare. Still, grassland is an important habitat type for many threatened and endangered species, including San Joaquin kit fox, Stephens’ kangaroo rat, and California condor.



Policy Profile

The policies that we determined had the potential to impact grassland conservation are organized according to whether they originate at the federal, state, or county-level (Table 2).

	Mechanism	Features
Federal	Endangered Species Act (ESA)	Prohibits take or destruction of critical habitat for federally listed grassland associated species.
	Clean Water Act (CWA)	Can protect vernal pool habitat, if under federal jurisdiction.
State	California Endangered Species Act (CESA)	Prohibits take or destruction of critical habitat for state listed grassland associated species.
	California Environmental Quality Act (CEQA)	Evaluates environmental effects of projects and requires mitigation for significant impacts.
	Williamson Act	Prevents development on agricultural land for at least 10 years.
County	General Plan	Recognition of the biological importance of grasslands in general plans can set the stage for increased conservation.
	Agricultural zoning	Prevents housing development and some agricultural uses are compatible with grassland habitat.
	Open space zoning	Provides weak controls on development, though a small amount of this land is strongly protected (conservation easements, etc.).

Table 2 – Hierarchy of examined policies

Federal laws

Endangered Species Act

The U.S. Endangered Species Act (ESA) plays a prominent role in California grassland conservation and management. Currently 74 grassland-dependent species, including 9 vertebrates, 14 invertebrates, and 49 plants, are listed as threatened or endangered under the ESA. However, the ESA only provides protection for plants on federal lands. The number of federally listed species in each county ranges from 0 to 18.



Figure 2 – The federally listed California tiger salamander, © Gerald and Buff Corsi, California Academy of Sciences

Section 10 of the ESA provides exemptions, permits, and exceptions to the act’s prohibitions, including permitting of incidental take. The Secretary of Interior can issue an incidental take permit in conjunction with the development of a habitat conservation plan (HCP) prepared by the applicant, an approach used extensively in California to mitigate incidental take of grassland-dependent endangered species.

Clean Water Act

The Clean Water Act section 404, which regulates fill of jurisdictional wetlands, is administered by the Army Corps of Engineers. Wetlands and vernal pool wetlands in particular can occur in or near grassland habitat, potentially increasing protection of grasslands. Federal jurisdiction over isolated wetlands and ponds was rescinded following the Supreme Court’s 2001 SWANCC v Army Corps of Engineers decision. However, many of California’s vernal pools, for example those at the University of California’s new Merced campus, are still considered “waters of the United States” due to surface connections through swales and thus come under federal authority and section 404 processes. Those not connected are under jurisdiction of the State which may delegate responsibility to local regulatory bodies.

State laws

California Endangered Species Act

The California Endangered Species Act (CESA) complements the federal ESA by protecting species in the state not covered by the federal ESA. However, the CESA definition of take does not include “harm” or “harass,” and CESA extends protection of listed plant species onto privately owned lands. Natural Community Conservation Plans (NCCPs) serve the same function under CESA that HCPs serve under the ESA, the main difference being that permitting is through the California Department of Fish and Game (CDFG) rather than the USFWS. While HCPs and NCCPs are generally similar, there are a few differences. In particular, HCPs under ESA require mitigation of impacts to the maximum extent practicable, while NCCPs require mitigation to be roughly proportional to take.

Currently 58 grassland-associated species are listed under CESA. Of these species, 13 are vertebrates and 45 are plants. There are no state-listed grassland-associated invertebrates. The number of State listed species present per county ranges from 0 to 11.



California Environmental Quality Act

The California Environmental Quality Act requires that projects be reviewed to ensure they will not cause a significant environmental impact. Generally, significant environmental impacts as defined under CEQA must either be avoided or mitigated. CEQA allows counties to set thresholds of significance when determining significant environmental impact. Furthermore, counties can create resource protection ordinances with specific thresholds that can be used as the thresholds of significance in CEQA. A further analysis of how to use the cumulative impact section of CEQA could be used to mitigate the effects of development of grassland ecosystems.

California Land Conservation (Williamson) Act

The Williamson Act empowers county governments to offer contracts to private landowners to preserve land for agricultural and open space use under ten year contracts. In exchange, landowners receive a reduced property tax assessment for the duration of the contract. Of the nearly 27 million acres of agricultural land in California in 2002, nearly 11 million acres – or about 11% of California – is held under Williamson Act contracts as non-prime farmland, which is used primarily for less intensive agriculture such as grazing, and has the capacity to protect grassland from conversion.

Local planning documents

County General Plan documents

Counties have authority to create policies and ordinances that dictate land use. These policies are specified in general plan documents, which the state requires counties to create and maintain. The mandatory plan elements of highest significance to grassland conservation are the land use, open space and conservation elements. Many counties choose to combine two or more of these elements into a single section of their general plan.

Our assessment of these policies is based on a review of sixteen readily available general plans. Within these plans, nine of the open space elements, ten of the conservation elements, and four of the land use elements recognized the biological significance of grasslands generally, or native grasslands specifically. In addition, eleven surveyed counties had optional agricultural elements, of which four discuss grasslands with regard to rangeland and other low-intensity agricultural uses.

Zoning Ordinances

Counties implement the policies in their general plans through zoning ordinances. Zoning ordinances are implemented according to the goals and policies found in general plan elements. The zoning types most likely protect grassland from conversion are those that promote large lot size or low housing densities such as open space, agriculture, and very low density residential as these leave much of the habitat intact. In current general plans more than 80% of grasslands fall in one of these three categories, with 54% of grasslands presently zoned for agricultural use and nearly 20% zoned for open space (Table 3).

Zoning	Grassland Area (acres)	Percent
Agriculture	7,831,093	53.25%
Open Space	2,991,640	20.34%
Very Low Density Residential	1,888,981	12.84%
Low Density Residential	1,316,524	8.95%
Other	14,467,465	4.62%

Table 3 – Proportion of grassland in major zoning types

Private Conservation Initiatives

Financial incentives are playing an increasingly important role in the protection and management of privately owned grasslands. Public agencies and conservancies such as The Nature Conservancy, the Trust for Public Land, the California Rangeland Trust, and dozens of county and local land trusts have already invested hundreds of millions of public and private dollars to protect grasslands through conservation easements and outright acquisition.

To a large extent the future of California grasslands depends on these and other private land management priorities and approaches, including tax incentives, direct funding, technical assistance, regulatory streamlining, ecosystem services, and incentives.

Conclusion

A large number of policies currently operate to influence the future of grasslands in California. Regulations such as ESA and CESA focus on biological management, while policies in county general plans and zoning ordinances focus primarily on agricultural management, which is a less rigorous and long-lasting form of protection. Non-regulatory financial incentives protect land from conversion through acquisition and easements, which can have a wide range of management goals.



The association of grasslands with wide ranging endangered species like the California condor and San Joaquin kit fox, as well as locally important species such as Stephens’ kangaroo rat and Bay checkerspot butterfly has led to the establishment of large grassland reserves in many areas of the state undergoing large-scale development, with the trend being towards larger, sub-county or county-wide biological conservation programs. The ESA and CESA are currently the major drivers of biologically-oriented grassland protection in urbanized and urbanizing areas of California.



Figure 3 – Native *nassella pulchra*, © 2005 Michael L. Charters, Sierra Madre, CA

At the county level grasslands are viewed primarily as an agricultural resource. County zoning ordinances can prevent development of grasslands by regulating land use. Because of the extent of privately owned grassland area zoned as open space or agriculture, this provides a substantial level of protection from higher intensity land uses and urbanization. Still, agricultural and open space zoning designations are a less reliable and non-permanent source of protection, since the management goals of these areas may not align with the goal of protecting the ecological integrity of grasslands. This can cause grasslands to become preferred areas for development given increasing restrictions on development in prime farmland, oak woodlands, and coastal sage scrub communities.

Because the majority of grassland in California privately owned, private conservation initiatives are seen as one of the most important methods of future protection. NGOs can help to meet biological goals for grasslands by incorporating management practices into easement contracts, thereby involving private landowners in management decisions while affording recognition of the biological importance of grassland ecosystems.

Citation

Jantz, P. A., B. F. L. Preusser, J. K. Fujikawa, J. A. Kuhn, C. J. Bersbach, J. Gelbard, and F. W. Davis. In Press “Conservation Planning and Policies for California Grasslands.” In *Ecology and Management of California Grasslands* edited by M. Stromberg, C. D’Antonio and J. Corbin. Berkeley: UC Press.

Major Findings

The most direct and long-term conservation of California grasslands comes from the ESA and CESA and the protection that they provide for threatened and endangered species as well as critical habitat. However most grassland in California is privately owned, and is zoned for open space or agricultural land uses. In the absence of federal or state regulation these zoning designations provide a significant measure of protection from urbanization, though non-biologically oriented management goals mean that the degree of this protection can be variable and relatively short-term.

Many other habitats, such as wetlands and oak woodlands, as well as prime farmland, receive special protections while grasslands generally do not. This can drive future growth away from protected habitat types and land uses, forcing it onto non-prime farmlands, which are often composed of grassland. By recognizing the biological significance of grassland ecosystems, counties could do more to protect grassland habitat and associated species.