

“Conservation Grazing: Grazing Management Planning, Monitoring, and Plan Adaptation for Endangered Species Habitat in California Annual Grasslands”



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CA Coastal and Valley Grassland Types (ecological)



Theories of Conversion of Calif. Grasslands from Native to Non-Native Plants: (also understories of related vegetation)

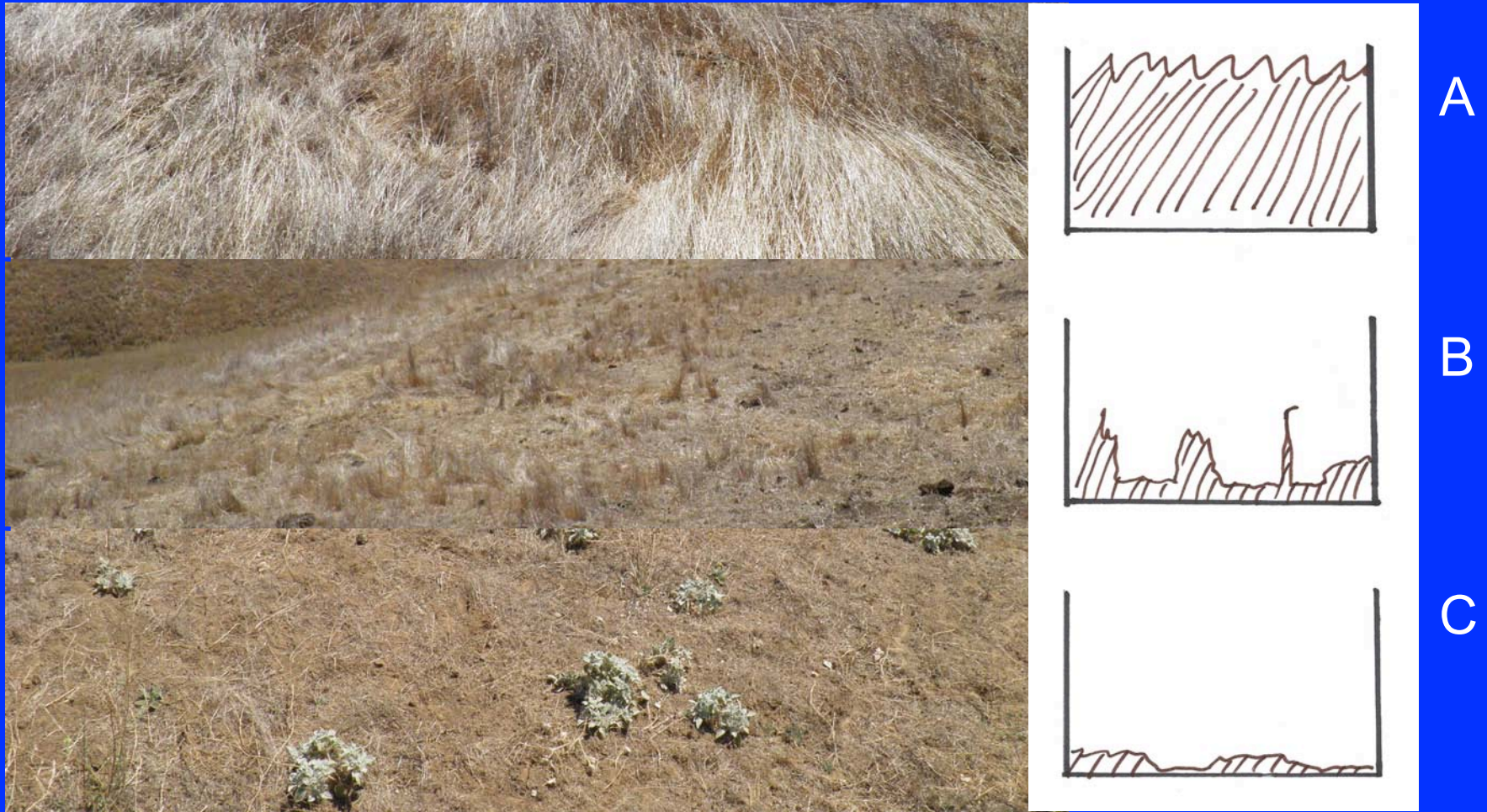
- Explorers versus settlers
- Ecological pre-adaptation
- Vulnerability to heavy grazing
- Grasshoppers
- Agricultural disturbance
- Soil erosion
- Reduced frequency and intensity of fire
- Combination (!)

Endangered Species Habitat (Ohlone Tiger Beetle, Bay Checkerspot Butterfly, San Joaquin Kit Fox, Burrowing Owl)

- Grazing facilitated their persistence since grassland conversion
- Exclusion of grazing has degraded or eliminated their habitat

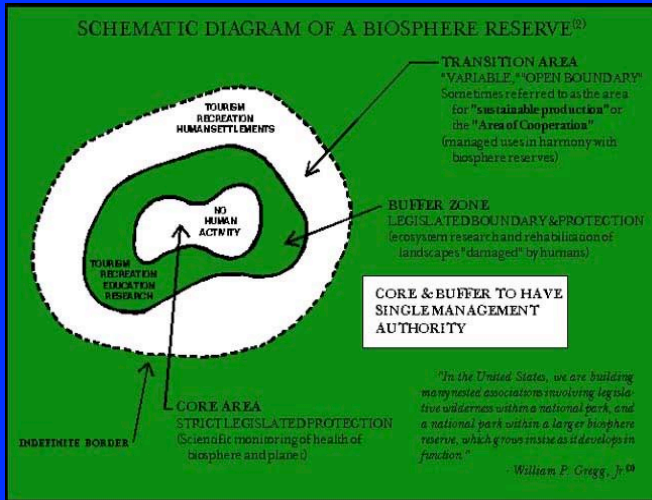


Habitat Structure in California Annual Grassland (Sept 2011)



Ungrazed (A), moderate grazing (B), excessive grazing (C)

Nature Conservation Theory Applied to California Rangelands—Regional Planning



- Reserve Design--U.N. Biosphere Reserve
- Sustainable Development--integrate/promote local economic and cultural activities
- Conservation by incentives instead of restrictions
- Support health and education programs

Challenges to California Rangeland Planners and Managers:

1. Mediterranean grasses and forbs highly adapted to intense grazing
2. History of grazing in Mediterranean and California (grazing now declining in CA)
3. If un-grazed or excessively grazed, habitat structure can be obliterated
4. Maximize benefits; minimize negative effects
5. Grazing most effective and economical tool, especially for large properties
6. Integrate conservation theory and practical experience—regional and ranch/park plans

Special-Status Species of California Grasslands

Disappearing California grassland native animals and plants dependent on functioning grassland habitat:

23 mammals

17 birds

9 amphibians

5 reptiles

? Invertebrates

479 plants



Scotts Valley Spineflower
Chorizanthe robusta var. *hartwegii*

Ohlone Tiger Beetle

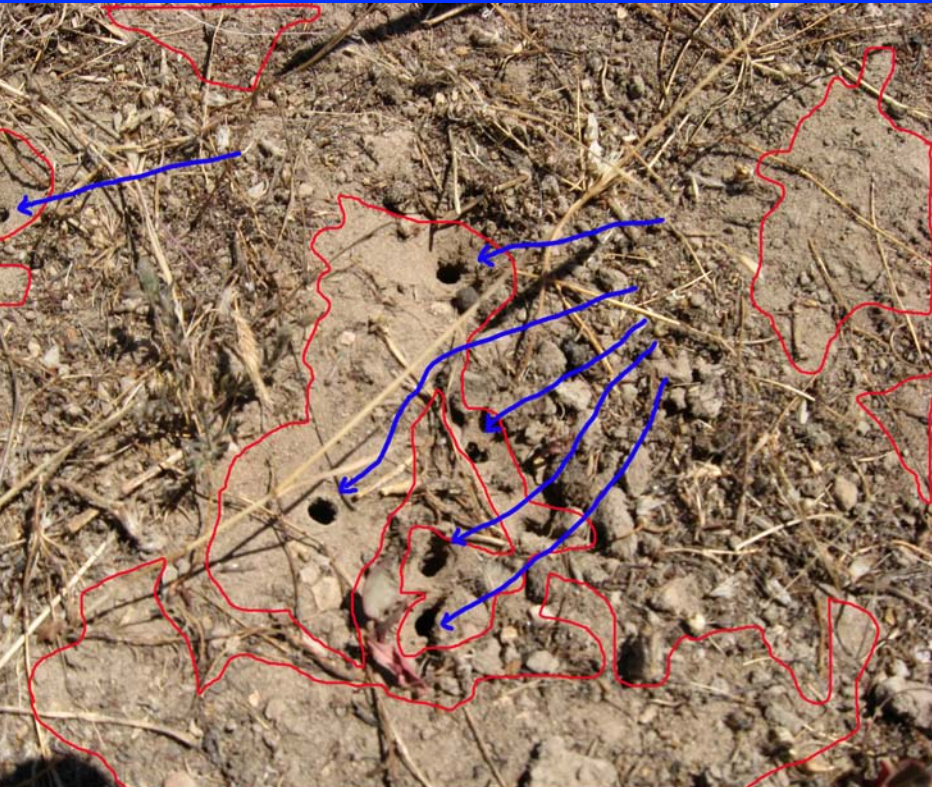
Cicindela ohlone (Coleoptera: Cicindelidae)

- Federal list—endangered (quickly moving toward extinction...)
- Dependent on appropriate management of grassland habitat, particularly livestock or human traffic, maintaining bare trails



Ohlone Tiger Beetle Habitat

- Coastal prairies on mid to high marine terraces, only in Santa Cruz County, CA
- Watsonville Loam soil
- Suitable bare ground for egg-laying, larval burrowing, and survival – open sparse grassland; livestock and recreation trails and dirt roads (no graveling); soil disturbance in diggings, scrapings; low litter/manure/hay “dust;” cow-pies)



OTB Study Questions:

- What are the correlations between habitat management practices and site occupancy?
- How do the soil properties and seasonal vegetation differ between occupied and unoccupied OTB properties (coarser scale)?
- Phase 2—How do these soil and vegetation characteristics differ within properties (finer scale)?

2010 Results:

1. Two main kinds of current management activities are most associated with OTB persistence—extensive moderate cattle or horse grazing OR moderate-frequency hiking and bicycling traffic.
 - All 17 formerly occupied OTB sites were historically grazed by cattle.
 - Recently extirpated OTB sites had grazing removed or changed (to horse stable facility) AND lacked moderate-frequency recreation.

Ohlone Tiger Beetle

Extirpated—no recreation, no grazing, dense high-thatch grassland, little bare ground



Ohlone Tiger Beetle

Extirpated—hiking trails (low use), no grazing, dense high-thatch grassland, and encroaching shrubs



Ohlone Tiger Beetle

Occupied—continuous extensive cattle grazing, hiking trails (low use), gophers, and ranch roads



Ohlone Tiger Beetle

Occupied—hiking/biking trails (moderate use), mowing, maintenance roads, and no grazing



Ohlone Tiger Beetle

Occupied--extensive horse grazing, trailing (horse traffic with weed-whacking), low grass with little thatch



Preliminary 2011 Results:

- Unoccupied sites had higher cover of vegetation or high non-native perennial grass cover.
- Occupied sites had the least amount of vegetation cover and most bare soil.
- All sites with less than 5% bare soil were unoccupied.
- Objectives of management should be to maintain an average of 50% bare soil on roads and trails and an average of 12% bare soil in grassland areas.
- Grazing will probably be more effective at maintaining bare ground on trails, whereas weather is probably the primary driver of vegetation cover and bare ground in grassland areas.

Planning Approach—Ranch/Park:

1. Based on best-available science--scholarship and reliance on experts, including ranchers;
2. Maximize benefits to special resources, minimize impacts, and maintain sustainable livestock operation;
3. Define objectives and performance standards, not tactics or specific practices;
 - Must be feasible and flexible for livestock operation, with incentives for cooperation;
 - Plan will be a comprehensive reference document for managers; and
 - Plan will be adaptable based on efficient monitoring.

Grazing Management Plan

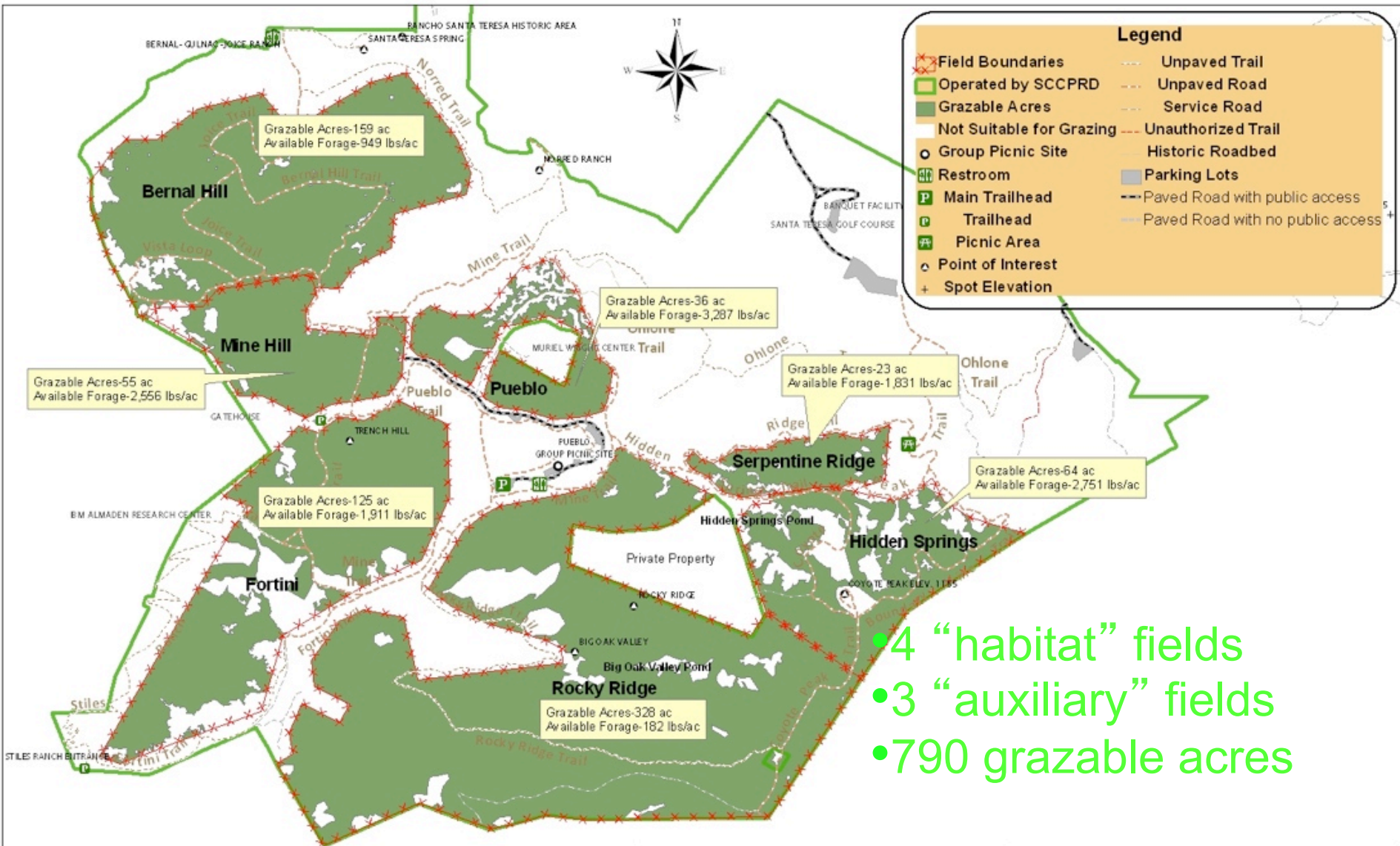
Santa Teresa County Park, San Jose, California



Prepared by
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October 12, 2011



- 4 “habitat” fields
- 3 “auxiliary” fields
- 790 grazable acres



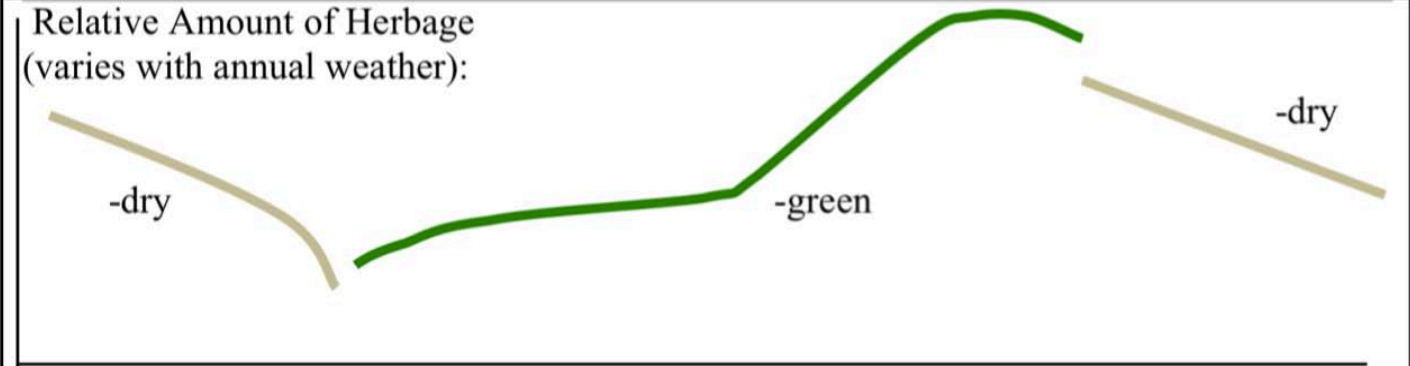
This map generated by the County of Santa Clara Department of Parks and Recreation. The GIS files were compiled from various sources. While deemed reliable, the Department assumes no liability.

Title:	Grazing Capacity Map-Santa Teresa County Park
Date:	March 7, 2011

Comments:	
Created By:	DRocha
Scale:	0 265 530 1,060 1,590 2,120 Feet

Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
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Grassland Forage Production



- * requires minimum residual mulch for optimum grass production
- * requires abundance of seed production and persistence of viable seed bank from summer to autumn (for animal food and grass reproduction)

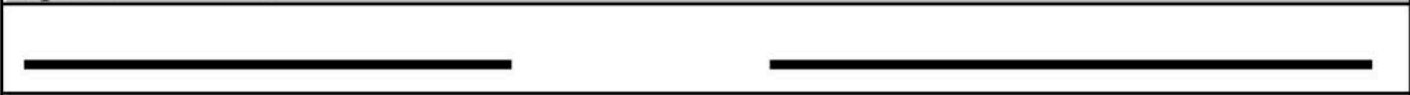
San Joaquin Kit Fox

- * requires populations of ground squirrels and their burrows for refuge and reproduction
 - * requires adequate seed production for prey populations
- favored by low grass
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Special Animal 2



Special Animal 3



Special Animal 4



Grazing Management Plan Outline

1. Introduction
2. Summary of Current Conditions Affected by Grazing or Other Management
3. Management Goals, Objectives, and Performance Standards
4. Predicted Effects and Desired Conditions
5. Grazing and Related Management Prescriptions
6. Sustainability--Incentives and Contingencies for Operations
7. Monitoring of Conditions and Planned Effects on Resources Related to Grazing; Adaptation
8. Implementation Schedule, Personnel, and Responsibilities
9. Assumptions and Recommended Supplementary Planning
10. Literature Cited

Sources of Grazing Management Planning Information

Handouts:

- Conservation Grazing Management Planning Purposes and Plan Elements
- Conservation Grazing Management Plan Outline
- Rangeland Conservation Funding Sources for Grazing Operations—technical and financial assistance to rangeland owners and livestock operators for conservation from federal and state agencies
- Sources of Additional Technical Information on Ecology and Management of California Grasslands
- Brochure on CRMs from Calif.-Pacific Section, Society for Range Management