

Here are the topics I am covering in the range chapter, along with a brief description of each:

- The Resource Base: rangeland vegetation types, productivity and water quality
- Management Context: ownership and uses, rangeland conversion, federal grazing policies and allotments
- The Range Livestock Industry: livestock numbers, operational costs and income
- Management Initiatives: rangeland certification (if relevant), diversification, landowner and conservation organizations
- Landowner Assistance Programs: Williamson Act status, technical and financial assistance
- Priority Landscapes: rangelands at risk of conversion, rangelands with deteriorating conditions due to exotics and/or vegetation changes

We are using an adaptation of the Montreal Process criteria as one of the underlying themes for the chapter. I was not able to convince others to use the Sustainable Rangelands Roundtable criteria. Here are the criteria and indicators (so far, your comments welcome and appreciated):

#### Criterion 1: Conservation of Biological Diversity

- Not covered in this chapter

#### Criterion 2: Maintenance of Productive Capacity of Rangeland Ecosystems

- Rangeland area by vegetation type
- Percent and area of surface water bodies on rangeland with impaired water quality.
- Rangeland productivity
- Rangeland ownership and uses
- Rangeland conversion (vegetation types and land uses)

#### Criterion 3: Maintenance Of Rangeland Ecosystem Health And Vitality

- Not covered in this chapter

#### Criterion 4: Conservation And Maintenance Of Soil And Water Resources

- Percent and area of surface water bodies on rangeland with impaired water quality.
- Number of acres under voluntary range water quality management plans

#### Criterion 5: Maintenance Of Rangeland Contribution To Global Carbon Cycles

- Not covered in this chapter

#### Criterion 6: Maintenance And Enhancement Of Long-Term Multiple Socio-Economic Benefits To Meet The Needs Of Societies

- Number of livestock on rangeland
- Income and costs associated with traditional cow-calf or sheep and goat livestock operations on rangelands

- Global demand (e.g. prices) for cattle and sheep products
- Diversification of income producing uses on rangeland

#### Criterion 7: Legal, Institutional And Economic Framework For Rangeland Conservation And Sustainable Management

- Federal grazing policies and use of allotments
- Area of rangelands under conservation ownership or co-management by conservation organizations
- Number of acres under voluntary range water quality management plans
- Amount of rangeland covered by Williamson Act contracts
- Technical and financial assistance programs available to ranchers

Some other general questions:

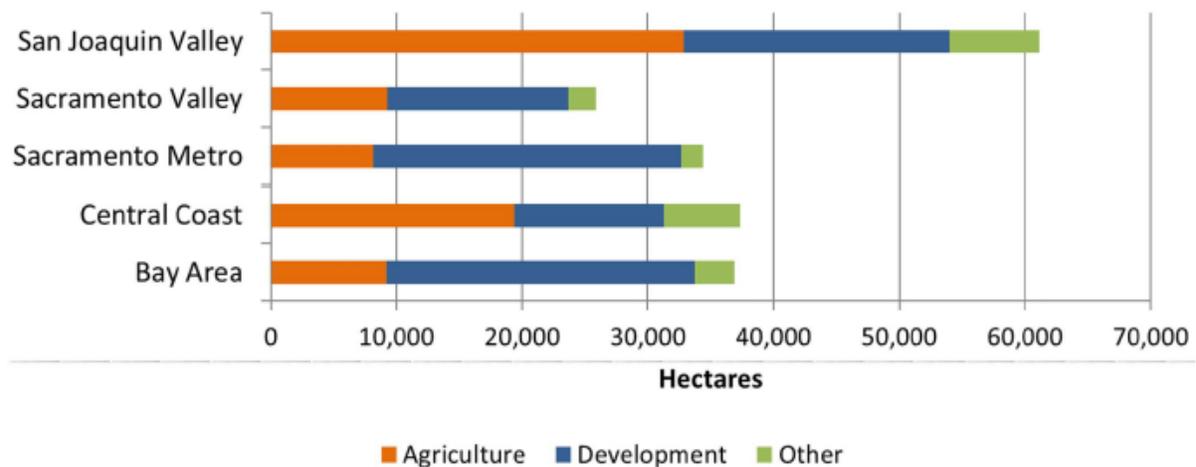
- What is the minimum parcel or herd size for an economically viable operation (not a rhetorical question)? We are trying to understand how and why ranchers stay in the business. Also, what constitutes significant fragmentation?
- Do you know of some examples of ranchers diversifying their operations and income sources?
- Do you have any information on the number of ranches in the state?
- Do you have any information on the number and acreage of conservation easements affecting ranches?
- To what degree do ranchers depend on USFS and BLM leases?
- Any other issues that you feel need to be addressed?

#### Conversion of Grazing Land (Preliminary Results)

##### **Land Use and Social Impacts on Range Management**

Conversion of rangeland to other uses continues to affect the availability of land for grazing. Some observers have expressed particular concern about conversion of rangeland into intensive agricultural uses such as vineyards, orchards or irrigated fields. These conversions appear to be concentrated in the central coastal counties, San Joaquin Valley and counties north and south of San Francisco Bay. The 2003 Assessment estimated that between 42 and 84 thousand acres/year of rangeland were converted to other land uses in the years between 1982-2000. It was further estimated that an additional 1.4 million acres of rangeland would be converted by land development between 2010-2040. In a recent study, Cameron et al (2014) used time series GIS data and determined that over 484 thousand acres were converted from rangeland in a 33 million acre study area between 1984 and 2008. Nearly half of that conversion was to residential and commercial development and 40 percent was to intensive agricultural uses (Figure X).

**Figure X: Regional Land Conversion Patterns**



Source: Cameron et al. (2014)

Of the remaining rangelands in their 33 county study area, 4.5 million acres (24 percent) were protected against further conversion in fee title ownership or conservation easement held by a public agency or private conservation organization. In contrast, nearly 7 million acres (38 percent) of the rangeland area had no conservation status and was potentially subject to conversion to alternative land uses. Roughly the same amount of land (37 percent) was temporarily protected from conversion to development through enrollment in the Williamson Act (Cameron et al. 2014). It should be noted that the Williamson Act does not prevent conversion to more intensive agricultural uses. Moreover, subventions from the state to offset the foregone property tax revenues to counties from the Williamson Act contracts were suspended as of 2009 (see discussion on the Williamson Act in a following topic).

The California Department of Conservation Farmland Mapping and Monitoring Program (FMMP) conducts evaluations of changes in land use on agricultural lands throughout the state. It has been doing this since 1982. The most recent evaluation addressed land conversions between 2008-2010 (California Department of Conservation 2014). FRAP conducted an analysis of FMMP data available for the period of 1992-2010 to determine the amount of land converted from rangeland vegetation to urban development. FMMP land use categories GL (grazing land) and FLI (farmland of local importance) were combined with category OL (other land, including natural vegetation considered rangeland) to conduct the analysis. OL may include lands other than grazing land such as gravel pits, feed lots and low-density residential development but the inclusion of these lands did not contribute to a significant effect on the estimates. The results indicated that between 1992-2010 over 480 thousand acres of potential grazing land was converted to urban development. Nearly half of that conversion occurred in southern California. The San Francisco Bay and San Joaquin Valley regions accounted for 27 percent of the change. About 8 percent of the change occurred in the Sierra Foothills region. The conversion of potential grazing land to urban development

averaged around 27 thousand acres/year. The yearly change peaked in 2000-2006 and declined substantially during the recession of 2008-2010.

The results of the analysis of FMMP data cannot be compared directly to either the analysis presented in the 2003 Assessment (yearly change ranging from 42-84 thousand acres/year) or the work of Cameron et al (2014) (19 thousand acres/year converted to either urban or intensive agricultural uses) because of differences in the time frame of analysis and study areas. More detailed analysis of sub-regional data over comparable time periods might reveal differences or similarities in estimates. For the purposes of this chapter it suffices to draw the following conclusions from the three sources:

- Conversion of grazing land to urban development is occurring primarily in the southern California Counties and to a lesser extent, in the San Francisco Bay and San Joaquin Valley regions.
- Conversion of grazing land to intensive agriculture is occurring primarily in the San Joaquin Valley and Central Coast regions.
- In some instances, intensive agricultural uses may revert to potential grazing land (fallow fields) due to market conditions or limitations on water supply. This is not considered a permanent change.
- The impacts of land conversion may be locally significant. The impacts on the range livestock industry in the aggregate are unknown.

Conversion of rangelands to either intensive agriculture or land development may have impacts that are not associated with range livestock operations. These may include losses of habitat for wildlife, increased demands for water and power, loss of open space amenities and increased emissions of greenhouse gases.