

Cows? In California? Rangelands and Livestock in the Golden State

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On the Ground

- Most of the livestock forage in California is produced in the Mediterranean climate zone, despite a long summer dry period.
- There are also cold desert steppe and warm desert zones, and montane range, and both fall- and spring-calving cattle herds.
- Leased land, public land, irrigated pasture, supplements, by-products, and feeds round out the annual forage calendar.
- The Mediterranean zone has been termed a “critically endangered eco-region” and a “global biodiversity hot spot.”
- Grazing benefits some of our rarest rangeland species and finest landscapes, and diverse interest groups are cooperating to support ranching.

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Cows in Surprising Places: A California Round-Up Story

Setting out to conduct an interview for a research project, we met the rancher, our subject, outside a small ranchette in the foothill woodlands of the Sierra Nevada. There was not much time to communicate with him before we were simply assigned to our posts, stationed a few paces apart along a winding rural road, evidently to block or guide some creatures that were about to emerge from behind the house. Along with my students, a visitor from China was with us, and there is no telling how livestock are wrangled in the deserts of western China—she was looking for guidance, and looked kind of worried. In fact none of us knew what was going to transpire. Suddenly a group of cows and calves—about half a dozen—came trotting around the corner, gave us a skeptical look, and headed right for the loading chute. They knew the drill!

Afterwards, we found out that our “cattle boss” grazes his animals on more than 30 different leased bits and pieces of rangeland, including exurban backyards, moving them from one parcel to another as the grass runs out. He markets his grass-fed beef direct and in local grocery stores. Later we watched a sports utility vehicle drive on to the home ranch and pick up a beef purchase. The buyer seemed to enjoy the setting and the transaction as much as the product. This rancher is part of the fascinating, adaptive new generation that is pursuing rangeland production, and a decent living, in a transforming state. In this paper we offer an introduction to rangelands and livestock production in the “Golden State.”

Hills of Gold and Green

California is known as the Golden State because of the Gold Rush, but also because the grasslands covering rolling hills and valleys around Sacramento and much of the state turn gold in late spring when the soil dries, and stay that way until late fall, when rainfall causes the annual grasses to germinate and grow. In the Mediterranean climate region of the state, deciduous and evergreen oaks, and patches of chaparral, reflect variations in soil, topography, and history (Figs. 1 and 2). Once actively managed by native Californians, in less than 300 years the California landscape has been “reengineered” by livestock grazing, cultivation, fire suppression, and the introduction of exotic species. The state has been referred to as a “critically endangered eco-region” because of habitat loss and conversion.¹ Ranch lands are increasingly important to diverse interest groups for habitat conservation. Rangeland managers strive to understand and work within this dynamic situation.

Grazing is California’s most extensive land use. The state has more than 40 million ha of land, of which nearly 23 million ha can be considered rangeland.² Approximately 47% of these rangelands are owned by the federal government and another 12% by other public agencies. Three major livestock production zones can be defined based on climate: the Mediterranean zone, with cool, wet winters that support a fall–winter–spring growing season, and very dry summers; the cold desert zone, where elevations are greater than 1,000 m and sagebrush communities and pinyon–juniper woodlands are characteristic, and the growing season is late spring–sum-



Figure 1. The golden hills just east of the San Francisco Bay with oaks and chaparral.

mer; and the warm desert zone, where the Mojave and Sonoran deserts extend into the southeastern state, with warm temperatures year round and vegetation responding to periods of rainfall in any season (Figs. 2–4).

By some estimates more than 80% of the livestock forage is produced in the Mediterranean climate zone, from about 4.5 million ha of annual grass-dominated grasslands and 2.1 million ha of hardwood woodlands with an annual grassland understory^{3,4} (Fig. 2). More than 80% of these lands are privately owned.⁴ Highly variable rainfall means forage dry weight typically varies from 500 kg/ha to 3,000 kg/ha from year to year, but averages about 2,000 kg/ha. It is drier and warmer in the south; northern or higher-elevation areas are colder and wetter. The cold Pacific Ocean creates a cooler and moister climate near the coast. Heterogeneous soils, along with precipitation patterns, cause high spatial variation in forage production.

The scattered oaks typical of the region's hardwood woodlands create a moister microclimate and litter that can increase production, influence species composition, improve forage quality, and extend the period of green forage. If trees are too dense, they may be thinned, but a canopy cover of 50% or less does not tend to suppress forage. There is much literature on overstory-understory relationships, afforestation, and factors influencing oak regeneration and recruitment, including grazing.^{5,6}

Calving and lambing is usually in fall to minimize the disadvantages of the long (5 months or more) dry season of the Mediterranean climate and take advantage of the mild winters and high quality and quantity of spring growth, but spring and winter calving is not uncommon. Supplemental feeds, selling of calves, irrigated pasture, leased pastures, and stock movements north and to higher elevations help cope with unpredictability and the summer dry period. Transhumance to the Sierra Nevada and northern mountains for summer forage began in the mid-19th century, when booming mining towns created a demand for meat that brought hordes of stock into the state. Grazing on government and leased private land is

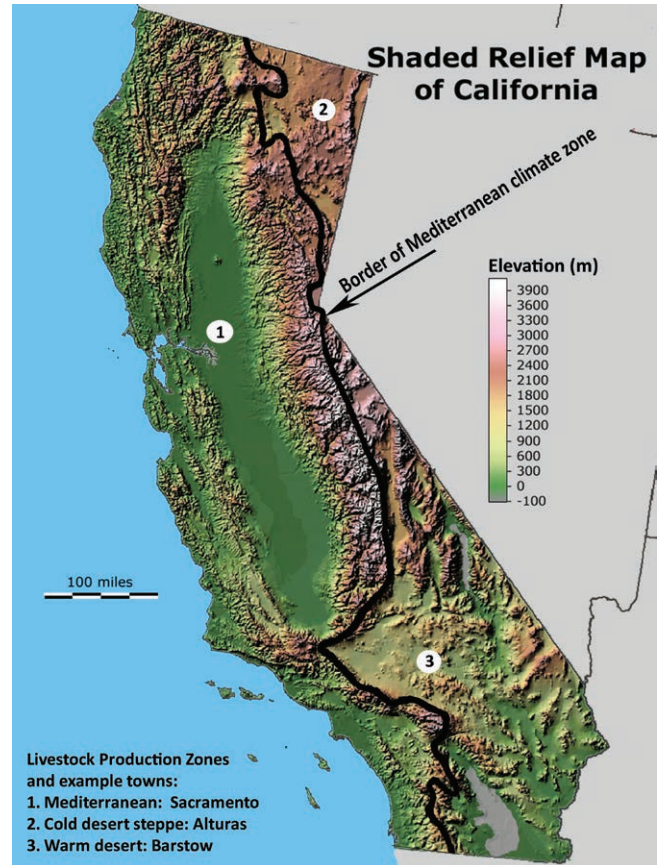


Figure 2. California relief map, modified from *The National Map*.²⁴

common, with government land often around a third to half of the rangeland portfolio, though this is often comprised of a variety of nonfederal public ownerships.⁷

East of the Sierra and to the north, the cold desert steppe region extends from the Intermountain West into California, where livestock practices are more similar to those in Nevada (Figs. 2 and 4). Spring calving is common and more than 75% of the 2 million ha of sagebrush grasslands and pinyon-juniper woodlands are federally owned.⁴ Summer grazing on Forest Service montane meadows and winter grazing on Bureau of Land Management (BLM) range complements private ground. In the warm desert region, the vast majority of the more than 9 million ha of desert range (Fig. 2) is federally owned,⁴ and range is often grazed under BLM grazing permits using ephemeral forage, shrubs, and significant stands of native perennial grasses at higher elevations on suitable sites. In these two regions, dependence on federal lands for 7 months of grazing from spring through fall is common. Winters are classically spent on lowland meadow pastures or crop stubble with hay supplementation. On federal lands, grazing competes with management for recreation, wildlife conservation, water storage facilities, massive solar projects, and mining.

Livestock Production

In the Mediterranean climate zone, grazing using residue management is encouraged by public advisory agencies such

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