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Ecology and Management of Annual Rangelands Series

Part 4: History of Range Livestock Production

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Publications in this series:

Two centuries of grazing and agriculture in California have greatly altered both the extent and character of the state's rangelands. Approximately 14 million acres of the state are now under cultivation or occupied by urban and industrial areas. The greater part of this area—probably as much as 12 million acres—was originally in the California prairie and woodland plant communities, and hence it was predominantly grasslands. Within the remaining grasslands, the most striking change has undoubtedly been the replacement of the native perennial grasses by annual plants, mostly introduced from the Mediterranean region of the Old World (see the second publication in this series, *Ecological History*).

This publication reviews the history of range livestock production. Range livestock production developed as an enterprise with the colonization of California by the Spanish and their formation of ranches or ranchos, and it expanded rapidly during early statehood. The development of improved animal management and range management practices ensured that the industry would continue its dominance in California agriculture throughout the twentieth century and into the twenty-first century.

SPANISH ERA

Although Christopher Columbus imported European livestock to the New World in 1493, Spanish colonists did not bring cattle to California until they landed in San Diego and established the first California mission in 1769. Two hundred head of cattle arrived by overland routes during that year (Starrs 1989). Missions were built along the length of California as colonizing agents of the Spanish government. They occupied most of the lands in the coastal region held by the Spaniards, although they were not intended to be permanent. Additional missions followed in rapid succession; and by 1823 a chain of 21 missions extended along the coast from San Diego to Sonoma. Burcham (1957), citing Robinson (1948), estimated that more than 400,000 cattle, 61,600 horses, and 300,000 sheep grazed on the pastoral empire of the missions.

The Spanish never extended their livestock husbandry into the Central Valley of California, but the local Indians acquired animals from the missions and drove them into the San Joaquin Valley. By 1819, they were breeding their own stock (McCullough 1971). Many of these animals escaped, resulting in large feral herds. McCullough (1971) cites numerous reports that sighted herds of wild cattle and horses in the Sacramento Valley in 1849, the area around Petaluma in 1838, and other parts of Sonoma County in 1851.

MEXICAN ERA

Mexico achieved independence from Spain in 1821, and California came under control of the Mexican government. The 1824 Mexican Colony Law established rules for petitioning for land grants in California; and by 1828, the rules for establishing land grants were codified in the Mexican *Reglamento* (Regulation). These Acts sought to break the monopoly of the missions, and they also paved the way for additional

settlers to come to California by making land grants easier to obtain. The procedure included a *diseño* (a hand-drawn topological map) to define the area. The Mexican Governors of Alta California gained the power to grant state lands, and many of the Spanish concessions were subsequently patented under Mexican law.

Through the Secularization Act of 1833, the Mexican government repossessed most of the lands that had been provided to the missions by the Spanish crown. Secularization was implemented between 1834 and 1836. The government allowed the mission *padres* to keep only the church, priests' quarters, and priests' garden. A commissioner would oversee the crops and herds, while the land was divided up as communal pasture, a town plot, and individual plots for each Indian family.

Although the original intent of the secularization legislation was to have the property divided among former mission Indians, most of the grants were made to influential *Californios* of Spanish background. The Mexican grants were provisional and came with a series of conditions. The boundaries had to be officially surveyed and marked. The grantee could not subdivide or rent out the land. The land had to be used and cultivated. A residential house had to be built within a year. Public roads crossing through the property could not be closed. If the provisional conditions were not met, the land grant could be denounced by another party who could then claim the land. From 1821 to 1846 more than 800 grants of land were made by the Mexican government. About 20 percent of the land grants went to foreigners, who facilitated a land boom that foretold the boom that was to come (Starrs 1989). During June and July of 1846, a small group of American settlers rebelled against the Mexican government and proclaimed California an independent republic. The republic was short lived, as the U.S. military began to occupy California, and it joined the union in 1850.

CALIFORNIA GOLD RUSH

On January 24, 1848, James Marshall discovered gold at Sutter's Mill on the South Fork of the American River near Coloma. California would change dramatically as 100,000 immigrant miners and fortune seekers poured in from all over the world during the first 20 months following the discovery of gold. By the mid 1850s, more than 300,000 people had arrived. The population of San Francisco and Sacramento increased and turned these cities into boomtowns. This burgeoning population needed food, creating an enormous demand for meat, and thus causing California cattle numbers to quadruple and sheep numbers to increase more than sixtyfold between 1850 and 1860 (Burcham 1957). Large quantities of meat were now in demand at various mining communities and in the rapidly growing metropolitan centers of San Francisco, Sacramento, and Stockton. This strong demand for meat, in conjunction with an extremely limited local supply of cattle, resulted in large numbers of livestock moving into California from Mexico, Texas, and other southwestern states.

Demand for meat resulted in an abrupt shift from the rancho's semi-wild herds (raised mainly for their hides and tallow) to meat production for profit by American entrepreneurs. Prior to 1848, California cattle were commercially valuable only for their hides and tallow, and the average price of full-grown steers seldom rose above $4 a head. An enormous and ever-expanding demand for beef raised the price of cattle to levels never before dreamed of in the isolated territory, destroying the existing balance of economic and cultural values, and transforming the ungainly Spanish black cattle into four-legged gold nuggets. In response to the urgent demand for livestock in the mines and the new cities of San Francisco and Sacramento, the custom of slaughtering cattle for their hides and tallow immediately gave way to the more profitable practice of driving the animals to market to sell as beef on the hoof.

Tens of thousands of cattle were driven up the coast valleys and the San Joaquin Valley to market, until the extension of Southern Pacific rail lines to southern California made the practice obsolete. The cattle lived off the country they traveled through, usually after the completion of winter rains, when the new grass was well established. The average herd of 700 to 1,000 animals might be a month on the trail from the southern ranchos, traveling about 10 or 15 miles

a day. The owner might lease land near the market area, where the stock could rest and fatten at the conclusion of the drive, or might sell cattle to agents or buyers who traveled out from the larger cities to inspect and purchase entire herds at the point of departure.

Cattle prices rose immediately in response to the unprecedented demand, and they continued to rise for nearly 7 years. Beef cattle sold for as much as $75 a head in San Francisco, or up to $30 or $40 per head when purchased at a distant rancho. Newcomers told of the extravagance with which the *Californios* disposed of their new-found wealth and expressed shock and dire warnings that their improvidence in failing to restock their herds would cause them grief in the near future. In fact, the *Californio* corner on the beef market was soon disrupted with the arrival of midwestern and eastern beef brought in from Missouri by entrepreneurial young drovers. By the end of 1853, 62,000 head of cattle had entered the state over the main immigrant roads, and they were pastured in the San Joaquin and Sacramento Valleys while awaiting market. The sheep industry also grew during this period. By 1855, cattle prices were declining, in part because of the growth of the sheep industry in California. By 1856, cattle prices had dropped to $16 to $18 per head. *Rancheros* (owners of the ranchos) found themselves heavily in debt and totally unprepared for the staggering interest rates charged by American lenders. Mortgaged ranchos were lost, and the Hispanic identity of California diminished as the subdivided ranchos changed in character to predominantly New England-style farmsteads. The intolerable economic situation was worsened by a succession of disastrous seasons bringing unprecedented floods and killing droughts.

California was ideal cattle country, with unending miles of green grass carpeting the hills with the annual winter rains. When the rains ceased in April, cattle found an abundance of nutritious pasture in the dry filaree and bur clover that covered the ranges. Beginning in 1862, however, a series of climatic misfortunes paved the way for a major revolution in the dominant economy of the state. Prolonged rains began in December 1861, causing floods that paralyzed business and travel and drowned thousands of head of cattle, destroying possibly a fourth of the state's taxable wealth. The Central Valley became an inland sea with runoff from the Coast Ranges and Sierra Nevada. The loss of cattle throughout the state ran to about 200,000. When the rains finally ceased, they had produced a rich and luxuriant pasturage that fattened cattle and increased stock in an already overburdened market. The great flood, however, was followed by 2 years of unparalleled drought. Cattle prices dropped lower and lower as the drought continued, and enterprises such as that of the wealthy stockmen Miller and Lux purchased starved cattle from the ranchos at $8 per head. A few months later, cattle were routinely slaughtered for the trifling value of their horns and hides.

In the beginning, gold panning was the main method of finding gold, but by the end of the Gold Rush in 1855, panning had been replaced by industrial methods that displaced miners. The Gold Rush was over, and many weary miners headed home; but others liked what they saw and stayed. Those who stayed found the land unbelievably productive, and ultimately California's great wealth came not from its mines but from its farms. California, with its diverse population, achieved statehood in 1850, decades earlier than it would have without the Gold Rush.

Many established themselves in agriculture, and some built empires. Probably none were more successful than Hugh Glenn and Henry Miller. Hugh Glenn came to California from Missouri to find his fortune in the gold fields but immediately realized there was greater fortune to be had by providing goods and services to the miners. Hugh Glenn ran a livery stable in Sacramento and delivered goods to miners. Glenn eventually raised cattle on a ranch in Yolo County along the north side of Putah Creek, but in 1868 he purchased 45,000 acres and began cultivating grain on 6,000 acres, earning him the nickname of the Wheat King of California. Glenn County bears his name (Scheuring 2010).

Henry Miller arrived in San Francisco in 1850 and started a butcher business, eventually going into partnership with Charles Lux in 1858. The operation was headquartered in Los Banos and played a major role in the development of the San Joaquin Valley in the late 1800s and

early 1900s. Miller figured out that putting up vast amounts of hay was crucial to surviving periodic droughts in California. Buying up ranchos devastated by floods, droughts, and low cattle prices allowed the enterprise of Miller and Lux to become one of the largest cattle producers in California and one of the largest landowners in the United States. Their enterprise owned 1,400,000 acres of rangeland and farmland in California, Nevada, and Oregon (Scheuring 2010).

The livestock census in 1850 documented that there were only about a quarter of a million cattle in the state. However, by 1860, over one million cattle were present, with about 40 percent in the Sacramento and San Joaquin Valleys. The gold boom brought an increase in sheep from one million in 1859 to 4.1 million sheep in 1870 and 6.9 million in 1880. Beef cattle numbers were about 1 million in 1870, dropping to 916,000 in 1880 and rising to 1.25 million by 1886 (Stewart 1936).

Floods and Droughts

Most lowlands of the Central Valley are prone to flooding, especially in the old Tulare Lake, Buena Vista Lake, and Kern Lake beds. The Kings, Kaweah, Tule, and Kern Rivers originally flowed into these seasonal lakes, which would expand each spring to flood large parts of the southern San Joaquin Valley. Flooding was common in the Central Valley, with major floods devastating Sacramento as early as 1850. Flooding also occurred along rivers flowing from the Sierra Nevada due to hydraulic mining at locations in the foothills. Beginning on December 24, 1861, and lasting for 45 days, the largest flood in California's recorded history occurred, reaching full flood stage in different areas from January 9 to 12, 1862. The entire Sacramento and San Joaquin Valleys were inundated for an extent of 300 miles, averaging 20 miles in breadth. State government was forced to relocate from the capital in Sacramento to San Francisco for 18 months. An estimated 200,000 cattle died in the flood.

Major public works projects beginning in the 1930s sought to reduce the amount of snowmelt flooding by the building of large dams. Even with these large and small dams, however, flooding has continued to occur into the 1980s and 1990s. In 2003, it was determined that Sacramento had both the least protection against flooding and one of the highest risks of flooding in the country. Congress then granted a $220 million loan for upgrades in Sacramento County. Other counties in the Central Valley that face flooding often are Yuba, Stanislaus, and San Joaquin. Following the floods of 1862, there were 2 years of unparalleled drought. Cattle prices dropped lower and lower as the drought progressed. Enterprises such as stockmen Miller and Lux purchased starving cattle from ranchos at $8 per head. Later into the drought, cattle were slaughtered for the value of their horns and hides. Some estimate that a million animals may have been lost from the flood of 1862 and the drought that followed. Only those who had the means to drive cattle to the Sierra Nevada or to Oregon were spared nearly absolute losses. Large cattle and sheep operations, like Miller and Lux, were able to recoup their losses and expand their land holdings by buying out ranchos devastated by the floods and drought that followed. When the drought ended, the cattle business was no longer a dominant force in California's economy.

Another drought occurred in 1898, and at least eight multi-year periods of low precipitation have occurred in California since 1900. Droughts that exceed 3 years are uncommon, though occurrences in the past century include 1929 to 1934, 1947 to 1950, 1987 to 1992, and 2011 to 2015. While only 2 years in length, the drought of 1976 and 1977 was one of the driest on record. Severe droughts in 1850 to 1851 and 1862 to 1864, together with other factors, have been implicated in the conversion of the former native perennial grassland to a grassland dominated by annual grasses and forbs (D'Antonio et al. 2007).

AGRICULTURAL ERA

At the beginning of the Gold Rush, livestock production was concentrated along the central coast, stretching north to San Francisco. As demand for grazing land increased, the ranches moved into the Central Valley. Many livestock ranches of the nineteenth century were large operations such as those of Miller-Lux, Tejon, the Kern County Land Company, Flint-Bixby, Irvine, Stearns, and Hearst (Olmstead and Rhode 2003). During the 1870s, these and other ranches recovered from the floods and drought of the 1860s. As livestock production recovered, many ranches turned to sheep production, feeling that this class of livestock was better suited to the semiarid climatic conditions. By 1900, California was the nation's leading wool producer (Burcham 1957). The increase in sheep production led to conflicts between cattlemen and sheep ranchers. During these "range wars," ranchers fought against ranchers, sometimes destroying livestock, hay, and corrals. And they fought and even killed each other over the control of valuable rights to grazing and water. Following the drought of the 1860s, many ranchers began to grow forages, such as alfalfa, in the Central Valley. It was for storage, to use during dry years. This led to the development of irrigation in the Central Valley, and the conflicts over water soon followed (Scheuring 2010).

The Homestead Act of 1862 facilitated the development of family farms in the arable valleys, and crop production increased and diversified. The 1880s became known as the "Decade of Wheat," and Hugh Glenn was internationally recognized as the "King of Wheat" in what would become Glenn County (Wickson 1923). As crop production gradually increased in the central and coastal valleys, range livestock production was pushed into the Sierra Nevada foothills and the Coast Range, where it became stabilized. Ranchers were left to drive their animals to mountain ranges to find summer pasture (Burcham 1957). Cattle production gradually increased from 1880 to 1910, when cattle numbers reached 1.6 million (Burcham 1957) and rangelands became decimated by the volume of cattle grazing them.

As crop production increased in the arable valleys, animal trespass became an issue. Open range laws in California were created in the 1800s, requiring that small property owners and farmers be responsible for building fences to keep grazing cattle and other livestock off their property. All or parts of some California counties (Shasta, Modoc, Lassen, Trinity, and Siskiyou) were defined as grazing counties, where livestock were allowed to graze at will, on what is referred to as free-range land.

In all other parts of California, livestock must be fenced into pastures and denied the right to roam outside those enclosures. California law described a "lawful fence" as one sufficient to prevent livestock from getting in or out of the enclosure. It suggested three-wire barbed wire fence with solid posts set no more than a rod (16.5 ft) apart. The law also required the top wire of the fence to be no less than 4 feet above the ground. Fences constructed of any material that met or exceeded the capacities of the three-wire barbed wire fence were allowed.

Before the Gold Rush, most beef cattle were unimproved native cattle, but during the 1850s ranchers began to import eastern cattle to cross breed with the native cattle. European Herefords, Angus, and other breeds gradually dominated the California beef herds. Over the decades ranchers improved productivity of their cattle by improving the genetics of their cow/calf herds. Livestock production practices also became more specialized with the marketing of younger animals and feedlot fattening (Ewing et al. 1988). In the beginning, ranchers maintained a cow herd and reared the calves to market weight on rangeland with little or no additional feeding. During the twentieth century, ranchers began to market stocker or feeder calves, which other ranchers would raise to market weight on rangeland and often on irrigated pasture in the valley. Other ranchers developed on-ranch feedlots that were the forerunners of today's large feedlot industry. During this period, rates of gain increased and the market age of calves decreased from close to 3 years of age to around 1 year of age today. Further improvements in range livestock production included the beginning of systematic grazing systems and range

Figure 1. Rangeland soil erosion in California's Coast Range during the 1930s.

improvements such as water development, brush control, seeding, and fertilization.

Nutritional deficiencies in rangeland forage, especially during summer and fall, limited herd and individual animal production on California's annual rangelands. Important research by the University of California, starting in the 1920s, investigated the causes of seasonal and regional variations in carrying capacity, the causes of mortality or deformity in newborn calves, and the lack of protein and certain vitamins and minerals during part of the year (Scheuring 2010). Dr. Harold Guilbert became nationally known for his work on vitamin A. Studies of mineral and protein requirements led to routine supplementation of these nutrients (Wagnon et al. 1959).

When Congress passed the Homestead Act in 1862, there was plenty of land and no need to manage or administer the public lands. However, western public rangelands were often overgrazed because of these policies designed to promote the settlement of the West, combined with a lack of understanding of these arid ecosystems. After 1875, with the growth of cattle kingdoms and continued westward migration of homesteaders, conflicts arose over the use of public lands. The Public Lands Commission of 1880 recognized impending difficulties among public land users. While the commission's recommendations were never adopted, it did identify the need for special legislation to address grazing land specifically and to classify it for best possible use. In 1905, another Public Lands Commission suggested that federal grazing districts be created, but little was done (Ross 1984). The U.S. Forest Service was created in 1905 to manage 68.3 million acres of national forest lands. In response to requests from western ranchers, Congress passed the Taylor Grazing Act of 1934. This led to the creation of grazing districts, in which grazing use was apportioned and regulated. This act sought to "stop injury to public grazing lands and provide for their orderly use, improvement and development." It did this by leasing the public grazing lands to ranchers, who could provide hay and water on their nearby private lands. In 1946, the General Land Office merged with the U.S. Grazing Service to form the Bureau of Land Management (BLM). The BLM now manages about 245 million acres in the United States.

Prolonged heavy grazing took its toll on the annual rangelands during the late 1800s and early 1900s. In 1932, Walter W. Weir reported on erosion in California (Weir 1932). While he focused mainly on land clearing and cultivation practices, he also implicated grazing in the widespread loss of soil in the Coast Range and Sierra Nevada foothills. From 1932 to 1938, researchers at the newly established San Joaquin Experimental Range photographically documented erosion on rangeland in many of California's counties (fig. 1). In 1936, Congress enacted the Soil Conservation and Domestic Allotment Act, which allowed the government to pay farmers to reduce production in order to conserve soil and prevent erosion. This led to the development of the Soil Conservation Service, now called the Natural Resource Conservation Service (NRCS).

Once the range livestock industry moved to the foothills and mountains, it became relatively

stabilized. By the 1950s, the range cattle industry, while centered in the foothills of Monterey, San Luis Obispo, Santa Barbara, Fresno, Kern, and Tulare Counties, had spread to every county of the state except San Francisco. Summer transit of cattle and sheep to high elevation meadows and rangeland with green forage was standard in many operations, and beef cattle production was one of the leading agricultural commodities in the state.

ERA OF LIMITS AND OPPORTUNITIES

For most of its history, the annual rangeland livestock industry went about its business without much outside influence, but that would change in the twentieth century. Urbanization would encroach into rangelands, and societal concerns about the condition of public lands, wild horses, pesticide use, predator control, endangered species, and water quality would result in public policies that restricted how land was used by the range livestock operations. On the positive side, ranches would be recognized for the open space they provide, and livestock grazing would become a practice for managing fire hazard and endangered species.

Concerns about livestock grazing impacts began to surface in the 1970s. Degraded range condition, riparian and stream channel impacts, habitat losses, and degraded aesthetics in recreational areas were among the concerns, especially on public lands administered by the USDA Forest Service and USDI Bureau of Land Management. In response, these agencies began to modify the terms and conditions of grazing permits and leases. Stocking rates and season of use on some public land grazing allotments were reduced, and environmental monitoring of grazing impacts on public lands increased. In many cases, ranches had to reduce the number of head they took to forage sources at high elevation on public lands. Eventually some ranches abandoned their public land leases. Many annual rangeland livestock operations filled the resulting summer forage gap by staying on annual rangelands and increasing the use of supplemental feed. Some reduced herd size, and others leased privately owned summer pasture.

Initially these policies mainly affected public lands, but, by the 1980s, the Clean Water Act and Endangered Species Acts would begin to influence the use and management of private lands. Some private lands that were critical habitats were purchased by government and nongovernment agencies, and often grazing was removed from these parcels. To avoid impacting threatened and endangered species on private land, ranches changed season of use and grazing intensity. Because water quality issues were commonly linked to livestock distribution, many ranches implemented water developments, fencing, and other practices to reduce livestock residence time near riparian areas and stream systems.

Public policy also affected vegetation management practices. Until the 1970s, ranchers burned woody vegetation to reduced fire hazard and increase forage. However, to combat the state's rising air pollution, California's Air Resources Board began to restrict fire permits, especially in urban areas. This continued to the point where, by the twenty-first century, it was almost impossible to burn in many areas of the state. Chemical control of woody vegetation was also impacted when the use of 2,4,5-T (Agent Orange) was restricted by the USDA in the 1970s and terminated by the EPA in 1985.

Public policy has also mandated changes in predator control practices. The sheep industry was particularly impacted by the loss of effective control methods. At the beginning of the twentieth century, sheep numbers in California were estimated to be about 2.2 million head (Wagner 1989). By 1930 sheep numbers had increased to about 3 million. Following World War II, sheep number declined to about 1.8 to 2 million in 1950 and 1960. Between 1960 and 1970, sheep numbers decreased to 1 million or less. By 2000, sheep numbers were under 600,000. From the start of the twentieth century to the end, sheep numbers in California declined by more than 70 percent, and U.S. numbers dropped 86 percent. While predator losses account for part of this decline, low lamb prices and decreased demand for wool were also contributing factors.

Coyotes account for more than 50 percent of sheep losses. Gee et al. (1977) reported that in 1974, coyote predation alone may have reduced gross U.S. sales by $27 million, or 9 percent. In 1999, the direct loss from predation on sheep

and lambs was estimated at $16.5 million, just over 3 percent of gross sales. In 1975, the United States spent $11 million on lethal measures to control animal damage (Gee et al. 1977). In 1998, California's Proposition 4 outlawed several lethal tools used by the USDA Wildlife Service to control predation losses. Since then, sheep producers have had to rely on nonlethal methods, such as guard dogs, to help reduce predation losses. In 1999, U.S. farmers and ranchers spent $8.8 million on nonlethal methods to prevent predator loss of sheep and lambs.

The Twenty-First Century

California ranching in the twenty-first century is diverse, with ranchers owning or managing approximately 38 million acres of privately and publicly owned rangelands. Most ranches are family owned and operated, and many are managed by the fourth, fifth, and sixth generation. However, many of these ranches are smaller than in the past, and cattle and sheep numbers are lower than in earlier centuries. While the range livestock industry has been impacted by changes in public policies, the twenty-first century has brought new opportunities. Protection of land from development, use of grazing as a vegetation management tool, and development of niche markets for range livestock products have resulted in new opportunities for livestock and grazing managers. Recognition that ranches provide open space adjacent to urban areas has increased the value of private land management by the public.

Conservation Easements

Protecting rangeland vegetation, wildlife habitats, and ranching from urbanization has become a priority for a diverse group of rangeland interests, including ranchers, conservation groups, open space organizations, municipal utility districts, and many others. While these diverse groups do not always agree about specific management strategies and objectives, they all recognize a collective interest in protecting rangelands and the ecosystem services they provide. Often, placing a conservation easement on a property guarantees that the heirs will be able to maintain the land as grazing land and open space. Financial benefits can include income (if the conservation easement is sold by the landowner), as well as estate and tax benefits.

Prescribed Grazing

As the public and environmental regulations demand reduction in the use of pesticides, contract grazing to manage vegetation has presented livestock producers with a new opportunity to increase income. Several sheep and goat producers now have thriving contract grazing businesses that manage vegetation to reduce fire hazard and control weeds in urban areas, vineyards, orchards, and forest plantations. Recognition that grazing can be used to manage biodiversity and wildlife habitat has given rise to the practice of targeted grazing.

Targeted grazing (see the eighth publication in this series, *Grazing Management*, ANR Publication 8547) is the application of a specific kind of livestock at a determined season, duration, and intensity to accomplish defined vegetation or landscape goals. The major difference between good grazing management and targeted grazing is that targeted grazing refocuses the output of grazing from livestock production to vegetation and landscape enhancement. With targeted grazing, the land manager must have a clear vision of the desired plant community and landscape, and the livestock manager must use livestock to target the desired vegetation outcomes to achieve the management goals. Thus, targeted grazing requires knowledge of vegetation and landscape dynamics as well as livestock husbandry and animal behavior (Launchbaugh et al. 2006).

Niche Markets

Niche markets are developing to meet consumer demands for safe and healthy foods. Grass-fed, drug-free, and organic beef and sheep command higher prices and provide opportunities for ranchers to increase profit. Several California ranchers produce a value-added, ranch-raised, grass-fed product, with the goal of selling beef for a higher price. The scale of operation can vary between a few head per year to a company marketing thousands of head annually. Grass-fed or other niche beef products can increasingly be found in natural food stores, restaurants, and farmers' markets.

In 2007, the Agricultural Marketing Service (AMS) established a voluntary standard for a grass-fed (i.e., forage-fed) livestock marketing claim. With the establishment of this voluntary

standard, livestock producers may request that a grass-fed (forage-fed) claim be verified by the U.S. Department of Agriculture (USDA). Verification of this claim is accomplished through an audit of the production process in accordance with procedures that are contained in Part 62 of Title 7 of the Code of Federal Regulations (7 CFR part 62), and the meat sold from these approved programs can carry a claim verified by the USDA.

Changing the business structure of the ranch from selling live animals to merchandising meat requires a new set of skills and knowledge. Beef producers must enjoy dealing with people and be comfortable marketing the family ranch experience. It also requires knowledge in food safety, marketing, and meat quality.

Livestock production on California's vast rangelands was the earliest agricultural enterprise as Spanish explorers began to develop permanent settlements. The influx of people during the Gold Rush catapulted California to the world stage, and range livestock production played a big role in feeding a rapidly increasing population. As the Gold Rush subsided, agriculture became the new mother lode for many gold seekers; and California developed into a world force in agricultural production, with range livestock production being a large contributor to the state's agricultural economy. In this era of limits, the range livestock industry is adjusting practices and making significant contributions to the conservation of land and wildlife habitat.

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