California Envirothon
2018 Current Topic
Western Rangeland Management: Balancing Diverse Views

Setting

The Sierra Valley is a large mountain valley located west of the crest of California's Sierra Nevada in Northern California. It rests approximately at 4,850 feet elevation, and is surrounded by mountains ranging in elevation from 6,000 to 8,000 feet. The huge valley is approximately 60 miles long (120,000 acres) with a number of small meandering tributaries. Average annual rainfall is less than 20 inches, most falling as snow. The scenery varies from conifer and aspen forests, to drier woodland forests, to a large valley covered with crops, pastures, and wildflowers in the spring. The valley floor has a grassland and sagebrush ecosystem and is the site of extensive freshwater marshes filled with cattails, bulrushes and alkaline flats that drain into the Middle Fork Feather River. Many species of wildlife make their permanent home in the valley, and a great number of migratory bird species stopover in the fall and nest in the valley in the spring. The watershed is the headwaters of the Feather River and where the State Water project begins for supplying water essential to rural and municipal water use and the agricultural productivity of California's Central Valley.

This sub-alpine valley includes small communities such as Sattley, Calpine, Sierraville and Loyalton. The valley floor is key to the local economy, producing crops, livestock, and irrigated pasture for cattle. Tourism also contributes to the local economy.

The Sierra Valley is a short distance from Truckee and Reno, Nevada. It has been a concern that this quaint little agricultural region could transform into a bedroom community of the nearby urban cities, thus changing the landscape, lifestyle, and economy. The valley is predominantly privately owned, by families that have called the valley their home for generations. A number of ranchers in Sierra Valley are interested in conservation easements as a means to preserve their family ranching tradition (learn more about conservation easements with the California Rangeland Trust or Feather River Land Trust). In fact, 13,120 acres of the Bar One Ranch, located in the valley, is under easement with the California Rangeland Trust (click here to learn more about this easement).

Fish and Wildlife

The Sierra Valley area bolsters a variety of wildlife, including songbirds, chucker, waterfowl, shorebirds, raptors and sage grouse. There are also mule deer, black bears, foxes, beaver, and German brown trout.

There are numerous examples of the coexistence of ranching and wildlife as cattle share pastures with deer and other wildlife. The benefits to natural resources from managed grazing is well known (learn more about this from the California Rangeland Conservation Coalition). The importance of this biodiverse region was recognized by key environmental organization for its rich variety of habitats (e.g., The Nature Conservancy, Feather River Land Trust, et al) who acquired land in the valley to be managed for a variety of public benefits such as wildlife habitat, sustainable agriculture, wetlands and water (learn more about the Sierra Valley Preserve here).

Most recently, gray wolves have returned to areas near Sierra Valley. The male wolf known as "OR7" was born into the Imnaha pack in northeastern Oregon. In the Fall of 2011, OR7 was the first wolf

occurrence in California in nearly a century. Since 2011, gray wolves have been seen in the vicinity of the Sierra Valley. This presents a new challenge to ranchers in dealing with protecting livestock from an apex predator. (Numerous articles on the topic can be found, including this feature story in a livestock publication, other resources are available from the California Department of Fish and Wildlife; environmental organizations or at the UC Rangelands livestock-predator interaction hub.)

Agriculture

A healthy and diverse ecosystem is key to a successful and sustainable ranching operation. Learn more about using ungulates (e.g cattle) to achieve desired ecological, social, and economic outcomes on California's Mediterranean Grasslands here. California rancher's number one priorities are forage production and livestock production, as they are in intrinsically linked.

Livestock production is the growth and raising of animals through eating forage, thus forage production is essential. Vigorous forage production requires adequate rainfall, irrigation, and healthy soils. More recently, there are new opportunities to help ranchers improve soils from the California Department of Food and Agriculture and the Natural Resources Conservation Service. Soil health can be improved through implementing best management practices (BMPs) such as rotational grazing.

Agricultural production in the watershed raises concerns about potential pollutants which can be detected in runoff from irrigated lands, such as pesticides, fertilizers, salts, pathogens, and sediment. When concentrations of these pollutants get too high or exceed water quality objectives, they can negatively impact the beneficial uses in the watershed, creating threats to public health, and harming wildlife and agricultural production. Extensive research and monitoring has been conducted to understand the extent of agricultural pollution in the watershed and develop BMPs for farmers and ranchers to produce goods without impairing the watershed (learn more here about livestock grazing, water quality, and BMPs from UC Rangelands). The work between the University of California and ranchers to improve working landscapes has been going on for decades. Historical research, collaboration and resources can be found at the UC Rangeland and Education Archive.

Ranchers who irrigate pasture in the valley need to comply with the Central Valley Irrigated Lands Regulatory Program (ILRP), initiated in 2003, to prevent agricultural irrigation runoff from impairing surface waters. This program is authorized through the California Water Code (Porter-Cologne Act). Under this program, growers have to develop Sediment Erosion Control Plans and must have a Nitrogen Management Plan in place. The importance of water quality and a watershed's physical integrity (e.g., bank cuts, erosion, fisheries habitat, etc.) on rangelands and for downstream users, has been a long-standing concern for regulators such as the State Water Resources Control Board and the U.S. Environmental Protection Agency (EPA) (Clean Water Act, Nonpoint Source Program). In 1995, through a USEPA grant, the California Rangeland Water Quality Management Plan was developed and adopted by the State Water Board. The University of California worked closely with ranchers to implement water quality plans on the ground.

Diverse Views

There are many ranching operations that rely on access to federally managed public lands for livestock grazing. California research has found that public lands grazing is essential for private lands conservation (learn more here). There are organizations dedicated to preserving multiple use management on public lands (e.g. Public Lands Council), while other interests believe public lands should be more compatible with uses such as recreational and watershed/habitat protection rather than uses such as

mineral extraction, timber harvest and grazing (here is one example). Some fear there cannot be multiple uses on public lands, while others disagree with this notion – grazing and recreation compatibility research.

Conflicts have arisen between federal agencies (e.g., Bureau of Land Management, U.S. Forest Service) and ranching operations over grazing on Western public lands. These include nonpayment of permit fees to graze cattle and managing for endangered or threatened species, wild horses or water quality (e.g., fisheries, wildlife, etc.). There is a movement within the ranching community which resists or rejects federally owned public land and demand these lands be returned to the state or private ownership (i.e., private property rights). While other ranchers realize, that if the government was to sell the land they fear they may not have the option or finances to purchase the ground they currently graze. Some environmental organizations want grazing eliminated from public lands and/or increase the permit fees to allow this use with strict oversight and enforcement of permit requirements.

Grazing Effects on Fuel Loads

After a five year drought in California, El Nino appeared for 2016-17 rain season and the summer of 2017 was the hottest ever recorded in California. The heavy rainfall produced an abundant growth of vegetation, mix with warm temperatures - the state saw one of the worst fire years in recorded history. There are numerous resources available on grazing to reduce fire fuel loads such as this one. Livestock can be used in a targeted, multi-species fashion to create fuel breaks, at the landscape scale to reduce vegetation that can carry fires (open landscapes) or the management of irrigated pastures that will prevent fires from continuing to spread.

Reducing Spread and Impact of Noxious Weeds

The direct annual cost to monitor and control invasive plants in California is $82 million and the indirect economic impacts are even larger. Despite disparate efforts, California's most noxious weeds are continuing to invade rangelands and other types of working landscapes. This highlights the need for approaches that maximize cost effectiveness of reduced-risk practices while promoting biodiversity. The RCD plays a key role in facilitating knowledge transfer of recent developments in the field of Integrated Pest Management (IPM) research and field application to land managers and practitioners to control invasive species on open spaces in California. A plethora of information on invasive species management can be found at the UC Weed Research Information Center.

Climate Change

Addressing climate change in agriculture is multifaceted. Grazing lands, for example, can sequester carbon learn (more here, here or more resources that can be found here). There is also research on practices such as compost application, to mitigate the effects of climate change (read about in this news article). Overtime, rangelands can change season of grazing uses, invasive species, water availability and many other dynamics of a grazing operation. Therefore, implementing an adaptive management approach to grazing operations is important to remain economically viable and sustainable over time.

Partnerships

In the Sierra Valley, ranchers may receive technical and financial assistance locally from the Plumas Sierra University of California Cooperative Extension, the Natural Resource Conservation Service, and the Sierra Valley Resource Conservation District. Ranchers across the state have worked with partners to improve the economic viability of their operations and enhance natural resources (for successful partnerships, see Grazing for Change, and the second edition of Grazing for Change).