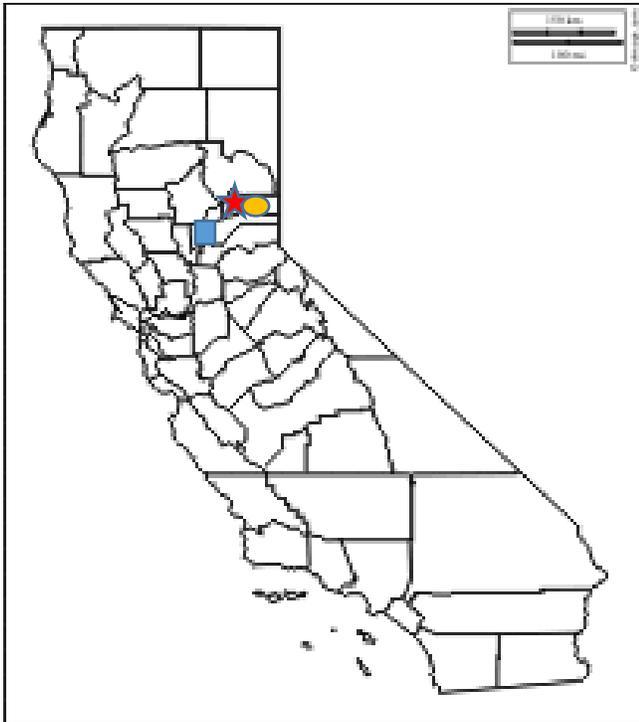


Scenario

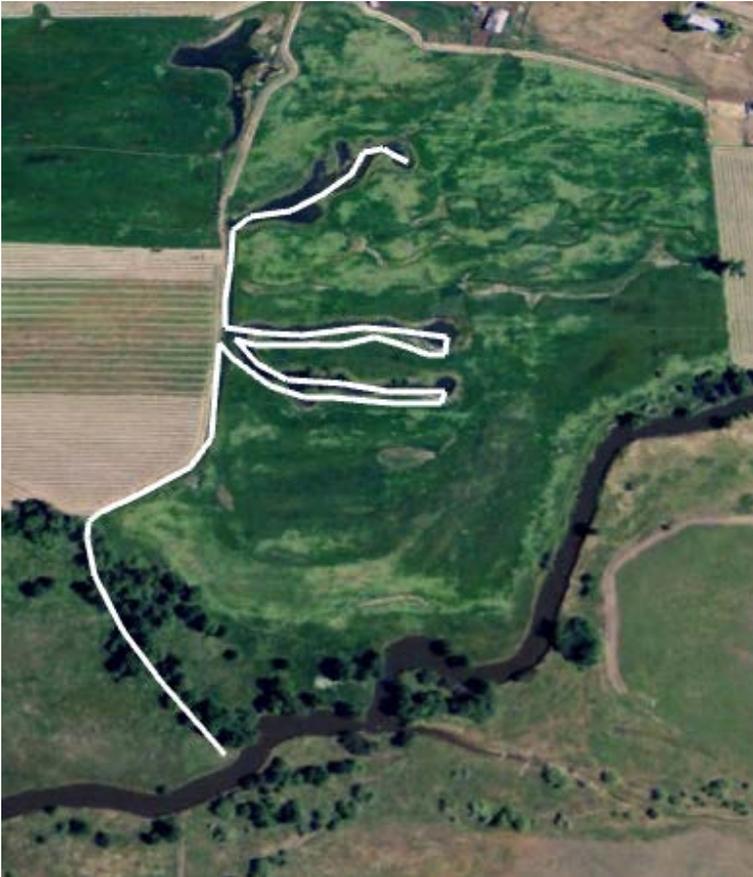
As staff resource professionals to the Sierra Valley Resource Conservation District (RCD), the Paul family is seeking your advice and knowledge to develop a holistic rangeland management plan. The Paul family's ranching operation currently has cattle on their Sierra Valley irrigated pasture from May through the middle of November. In addition, about 50% of their cattle are on a US Forest Service Allotment from June-September, adjacent to their irrigated pasture. In the winter months, the cattle are on annual grasslands in the foothills of the Sacramento Valley in Yuba County. This varies during drought and extreme high snowfall years.



- ★ Paul Ranch Sierra Valley Irrigated Pasture
- US Forest Service Grazing Permit – adjacent to irrigated pasture
- Yuba County Winter Pasture



- Paul Ranch – Property Outline – 106 acres
- ★ = Headquarters: House, shop, horse barn, hay barn and cattle corral.
- US Forest Service Grazing Allotment



Irrigation Diversion – white line is course of irrigation diversion, the diversion is from Little Creek.



Little Creek, this is a major tributaries contributing to the Middle Fork Feather River within the Sierra Valley Watershed.

The 106 acres of irrigated pasture typically has been a season long continuous grazing use. The Paul family has heard lots of news about the benefits of rotational grazing and know their neighbors are having favorable results. As part of the management plan, prepare a rotational grazing system for the ranch that improves natural resources and maximizes livestock production. The plan should address carbon sequestration and climate change mitigation, including the ability of the ranching operation to reduce fire fuel loads that can lead to catastrophic fires.

The Sierra Valley has a rich diversity of wildlife. The Paul's would like to have an inventory of what wildlife species are likely to be on the ranch (e.g. raptors, deer) and Best Management Practices (BMP's) which can support biodiversity and potential projects to improve or restore habitat on the ranch. Additionally, beavers have impaired their irrigation system, provide options to allow beavers on the ranch without stopping water flows.

The plan should further address the migration of gray wolves into the Sierra Valley. There are advocates in the region excited to see wolves back on the landscape and advocate protection. Ranchers are fearful of the loss of livestock to the apex predator. The Paul's would like to know measures they can implement to mitigate or avoid potential wolf-livestock interactions on their ranch. Additionally, they are interested in how they can share their concerns and perspective about ranching with the presence of gray wolves with their neighbors and other organizations who support the recovery of this endangered species. Develop a proposal for the RCD and the Paul family to improve communication and working relationships among stakeholders with different views and opinions on managing and conserving the gray wolf. Stakeholder groups have been formed in other regions to share information, concerns, and non-lethal methods to manage this species (e.g., guard dogs such as the Great Pyrenees).

The plan shall include goals and measures for restoring and protecting fish and wildlife habitat, improving water quality, cultivating biodiversity and sustaining economic viability of the ranching operation. The RCD staff should also recommend specific on-farm water stewardship practices to reduce, control or mitigate erosion and sediment runoff (e.g., implementing a rotational grazing system), provisions for enhancing wildlife habitat including (e.g. creation of cross fencing and riparian pastures), and practices to manage the supply of water (e.g. flood irrigation efficiency practices such as soil moisture monitoring). Moreover, sage grouse exist in the uplands public allotment surrounding the irrigated pasture. The plan should address the protection and improvement of their habitat by recommending BMPs.

The plan must identify and inventory erosion in all its forms and the associated sediment loads (e.g., high, medium, low), and recommend management practices for reduction and prevention. The plan should include a section on sediment and erosion management for compliance with the Central Valley Regional Water Quality Control Board's Irrigated Lands Program. As the landowner applies nitrogen to increase pasture productivity, the plan should take into account and address nitrogen management. When considering nitrogen fertilizer applications, it is important to consider the Four R's of Nutrient Management: **Right product/source, Right rate, Right time, Right place.**

At the request of the Paul family, the plan's scope shall include findings of the quality of the rangeland soil and whether there are soil quality issues beyond loss of soil material by erosion. This must cover compaction of layers near the surface, infiltration reduction, nutrient loss or imbalance, infestation of weeds or pathogens, excessive wetness, and loss of organic matter. Prepare a list of common weeds for the irrigated pasture and tools for controlling the species on their ranch.

The Little Creek is listed as an impaired waterbody (Clean Water Act, Section 303(d)) for sediment and temperature (i.e. exceeding water quality objectives). The RCD is working with landowners in the Sierra Valley to improve the health of the watershed. Develop a BMP implementation plan for the ranch to help improve water quality in the creek by reducing temperature and minimize sediment loading in the watershed from their grazing operation.

The Paul family is a multigenerational ranching operation, like many others ranchers in the Sierra Valley. Due to the close proximity to urban centers of Reno and Truckee, and pressures to sell, they are interested in learning more about opportunities to sell a conservation easement or mitigation easement on their ranch as a long term conservation strategy. The RCD staff should investigate opportunities to perpetually protect the ranch (including grazing cattle) through a conservation easement with organizations such as the Feather River Land Trust or the California Rangeland Trust. The family is also interested in knowing if there are opportunities to sell a mitigation easement or develop a mitigation bank on their ranch that would allow them to continue ranching while providing or

protecting habitat (e.g., wetlands, sage grouse) for a state or federally listed threatened or endangered species.

In addition, the family is keenly interested in forging public/private partnerships to protect and restore the watershed collaboratively and holistically. They are interested in available technical and financial assistance from trusted public entities such as the University of California Cooperative Extension and USDA-Natural Resources Conservation Service - Farm Bill programs (e.g., Environmental Quality Incentives Program). The Paul family wants to know more about available grants funded by the revenue from the California's California Climate Investments (CCI) Fund that reduce greenhouse gas emissions while providing additional benefits to California communities. They are interested to know if they are eligible for funding of projects they wish to implement as part of the rangeland conservation plan. They want the RCD's recommendations of resource agency specialists and their technical assistance to advance implementation of their rangeland conservation plan (e.g., site-specific erosion analysis on the ranch, cost-sharing, management practices, invasive species control, aerial photographs, soil surveys).

Offer any other options for consideration by the Paul Ranch to improve their family business. Items such as drought contingencies, beef marketing to maximize returns, livestock diversification or other items you think could improve the ranch. Be sure to incorporate how the irrigated pasture, winter annual rangelands and Forest Service Allotment are intertwined to the ranching operation. Your challenge is to be creative in finding solutions to improve the ecological values at the ranch while improving livestock grazing. Be logical in addressing solutions that can be implemented on the ranch to enhance natural resources while producing livestock (remember the family income is from selling cattle) and to be economical. Suggest options that implement your ideas on the ground and identify additional revenue for the family. As the final step, be sure to provide a marketing plan on how the RCD could share the success of the project with funders, the public and other ranchers in their region.

Lastly, a feedback mechanism, such as monitoring, is necessary and important to inform and/or confirm the effectiveness of the selected suite of practices the Paul family will implement to minimize sedimentation, reduce nutrient loading, improve water conservation stewardship, maintain economic viability and enhance biodiversity. They want the RCD to recommend the variety of methods for monitoring such as forage production, photo-monitoring, and BMP effectiveness monitoring to be included in the rangeland conservation plan.