**CA Envirothon 2013
Current Issue:**

**Sustainable Rangeland Management: Achieving a balance between Traditional Agricultural Uses with Non-Agricultural uses on California Rangelands**

**SCENARIO**

##### The Rancho San Joaquin began its existence with a 40 acre homestead in 1918. Over the next 35 years, the family expanded the ranch to the current 4,500 acres. The expansion was accomplished by purchasing fee title surrounding homesteads.

Over the last 95 years the ranch has stayed in the family. With passing generations, ownership has been fragmented. Currently eight family members hold equal undivided interest in the property. They equally share in the income, taxes and insurance. None of the family members live on the ranch. They reside in urban areas near Los Angeles and San Francisco. All have successful careers in public sector jobs with the ranch being their only involvement in a private enterprise. None have worked on the ranch, only visiting during the annual spring family picnic and occasionally hunting deer, quail, doves, turkeys and pigs.

The climate is Mediterranean, with about 19 inches of rain falling from October or November to April or May. Winters are cool and wet, with frequent frosts and monthly mean temperatures between 39 o and 50° F. Elevation ranges from 700 to 1700 feet above sea level, with most of the area between 1,000 and 1,500 feet. Exposures are generally southwesterly. The area drains into a small tributary of the San Joaquin River. Summers are hot and dry, with maximum daily temperatures commonly exceeding 100 °F and monthly mean temperatures ranging from 75o to 80° F.

Upland residual soils occupy approximately 94 percent of the ranch. They are from coarse grained granitic bedrock. Soils on slopes are shallow, residual, granitic and generally of the Ahwahnee series. Soils in swales are deeper and are alluvial and generally of the Visalia series. Slope and swale soils have a relatively low water-holding capacity. Granitic outcrops are common on slopes. Soil depth is highly variable at any location, but depth mainly is well below 2.5 feet. Percent moisture equivalent is from 14 in the first 8 inches below the surface to 13 at 3 feet. Organic matter content is low, from 2.7 percent in the upper 8 inches to 0.8 at 3 feet. The pH values are about 6.3 through the profile.

The ranch contains open woodland dominated by oaks (blue and interior live oaks) and Gray pine with scattered shrubs and nearly continuous cover of herbaceous plants. Swales occur in low areas between rises. Dominant shrub species include ceanothus (both wedgeleaf ceanothus and chaparral whitethorn) and manzanita. One tree, California buckeye, and four shrubs (bush lupine, coffee berry, red berry and poison oak) are common. Herbaceous plants are generally annuals, including grasses (e.g., soft chess, foxtail fescue, slender wild oats, ripgut brome, red brome and Mediterranean barley) and various legumes (little head clover, white tip clover, tom cat clover and Spanish clover). Broadleaf filaree, popcorn flower, tarweed, turkey mullein and smooth cats ear are common forbs. Perennials, primarily rushes, are found in the bottomlands. Native perennial bunchgrasses are uncommon and occur on north slopes, including pine bluegrass, melic grass and purple needle grass. Long term herbage production is 2400 pounds per acre with a range from 1,000 pounds to 3,400 pounds per acre.

One of the dominant overstory tree species, blue oak, is characterized by mostly older age-class trees. There are very few young seedlings or saplings in the understories of existing oak stands. Seedling recruitment is insufficient to maintain current stand structure due to unreplaced mortality of older trees. This is a concern not only for wildlife habitat values but for forage quantity and quality for livestock grazing. This condition is not unique to this ranch - but is found throughout most of the blue oak range in CA.

Historically, the family raised 250 Hereford and Shorthorn cross-bred cattle yearly on the ranch. The cows calved in the fall. Calves were weaned in the spring, held over until the following spring and sold as yearlings. Cows and yearlings were supplemented during the inadequate dry and green forage period with a protein supplement and oat hay. Mineral salt was provided yearlong. Supplemental protein and salt were placed to aid animal distribution. The fall calving operation followed the annual grassland cycle of germination in the fall with inadequate dry forage, early winter inadequate green forage, late winter and spring with adequate green forage.

The current lease holder grazes 300 head of sale barn mixed breed cattle yearly on the ranch. The cows calve any time during the year and are marketed depending on weight and current price. Supplemental protein is provided occasionally and plain salt is provided adjacent to water troughs.

The current ranch facilities are run down and in need of repair and maintenance. Livestock are concentrating in intermittent streams, swales and around livestock handling facilities. Medusa-head grass has invaded the ranch. Cocklebur has invaded along streams and Mexican whorled milkweed occupies wet areas next to springs. The corrals and holding facilities are covered with mallow and horehound. Feral pigs frequently root up swales, along creeks, and under oaks. Roads and trails are rutted and eroding. Approximately 25 percent of the ranch receives heavy grazing, reflected by low levels of residual dry matter (RDM) and approximately 30 percent of the ranch receives light grazing reflected by high levels of RDM.

The majority of the family members embrace the values of the California Range Land Trust, with one member primarily concerned with personal profit. The majority of family members are concerned about the ranch’s perceived rangeland health, profitability and ecosystem services. They have agreed to change and invest personal income equally into a rangeland management plan addressing their concerns. They have agreed to four management alternatives the plan will, hopefully, help address.

The first alternative is to continue owning the property, sharing income and personally investing time and money to accomplish plan recommendations.

The second alternative is to continue owning the property, sharing income, personally investing time and money and participating in the USDA Natural Resources Conservation Service Environmental Stewardship cost share programs to accomplish plan recommendations.

The third alternative is to continue owning the property, sharing income and placing a Conservation Easement on the property to accomplish the plan recommendations.

To respond to the need of the family member primarily concerned with personal profit, a fourth alternative was developed to split the property into eight equal parcels for sale in the future, sharing income, personally investing time and money to accomplish plan recommendations.

**ASSIGNMENT:**

As a team of Certified Rangeland Managers, the family has contracted with you to provide a rangeland management plan for the ranch for the amount of $50,000. You have been advanced $25,000 to prepare an initial draft to be discussed with the family before proceeding to the final product. This will provide an opportunity for additional family input into the plan, refining goals and identifying a management alternative from the four described in the scenario.

Based on your analysis of the ranch in this initial draft plan, the family has asked you to address, at a minimum, the kind and class of livestock, season of grazing, stocking rate, grazing system, range improvements and monitoring approach which would be necessary to achieve rangeland health, profitability and ecosystem services. They would like to know your rationale and the strengths and weaknesses of your recommended plan. In addition, they would like to know which management alternative best allows them to accomplish the recommended range management plan. Please include your rationale in selecting the management alternative and the strengths and weaknesses of your selected alternative in accomplishing the plan goals of rangeland health, profitability and ecosystem services.