

The Importance of Federal Grazing Allotments to Central Sierran Oak Woodland Permittees: A First Approximation¹

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Abstract

The interlinkage of privately owned foothill oak woodlands and federal grazing permits in the central Sierra Nevada is examined. Knowledge of the viability of the range livestock industry is important to large-scale conservation of hardwood rangelands in the Sierran foothills. Because ranches in the Sierra often use USDA Forest Service grazing allotments, efforts at land conservation may be influenced by Forest Service grazing decisions. We conducted in-depth interviews with Sierra foothill ranchers with federal grazing permits, asking what they would do if their allowable forage use was reduced. We found that replacing the lost forage with other leased lands is the most common solution anticipated by ranchers. Reducing the size of the herd is another strategy ranchers were willing to consider. Diversification and quitting ranching were the least popular coping mechanisms, and selling the ranch was in between. Decision-makers and conservation groups must take these strategies and the problems they pose into account when developing programs for private ranchlands. As it was found that almost all ranchers in the study leased some of the land they used, the continued availability of leased land, public and private, is likely to be a factor in the sustainability of central Sierran ranches.

Introduction

Statewide, ranchers own about 37 percent of the private land in California, about seven and a half million hectares of grasslands, woodlands, and shrublands (Forero and others 1992). Around 70 percent of the oak woodlands of California are grazed by livestock (Huntsinger and Hopkinson 1996). Much of this land is worth far more as residential development or vineyards than as grazing land. Recently, conservation and stewardship groups have become interested in incentive-based programs for conservation of these lands in the low-intensity agricultural use of ranching. Incentive-based programs for private rangeland conservation hinge on the ability of the owners of these lands to continue to support themselves, and their degree of motivation to remain in ranching. The California Cattlemen's Association, The California Rangeland Trust, and the Sierra Nevada Alliance jointly sponsored this research out of a common interest in the future of ranchland and working ranches in the western Sierra foothills, one of the fastest-growing regions in the State (Duane

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1996, Ewing and others 1988). The sponsors feel that with fewer and fewer large working ranches left in the Sierra foothills, and thus fewer large tracts of undeveloped open space, identifying the factors that affect the sustainability of these ranches and the woodlands they use is important. This study focuses on the potential interlinkage between use of publicly owned summer range and ranch sustainability.

While large public tracts exist in the State's forests and deserts, other vegetation types, like oak woodlands and annual grasslands, are predominantly in private hands, part of income-producing or speculative enterprises (Ewing and others 1988). Because ranching demands use of extensive acreages, ranches tend to be large compared to farms and residential properties. Collectively and locally, then, the land-use decisions that ranchers make have large-scale effects on the landscape. Unfortunately, there are many threats to working ranches and the open ranges that they support. Previous work has identified estate taxes, heirship issues, increasing property taxes, the marginal status of the range livestock industry, conflicts with urban neighbors, and fragmentation of grazing lands as pressures affecting ranch sustainability in California's grasslands and woodlands (Hargreave 1993, Johnson 1998, Liffmann and others 2000). One less well-understood, but potentially crucial factor, for a Sierran ranching operation is access to summer forage when oak woodland and annual grassland ranges lose nutritive quality. Many ranchers in the Sierra foothills use USDA Forest Service grazing allotments for this portion of their annual grazing cycle.

Ranchers who use Forest Service montane forage are practicing a pattern of livestock grazing common throughout the pastoral world, and notable in California since the 1850s. "Transhumance" is the herding of animals from the lowlands in winter to the uplands in the summer, as described in the Swiss Alps by Sorre (1950). Changes in elevation correspond to changes in rangeland cover types, each of which is suitable for livestock grazing at different times of the year. In California, winter lowland range is generally valley and foothill grasslands and oak savanna, while the summer uplands are usually mountain meadows. This system allows a rancher to range feed the herd all year round, using the naturalized and native grasses and shrubs. Such use of mountain range in the Sierra predates the establishment of the National Forests in 1906, but was institutionalized and controlled through the granting of summer grazing permits by the Forest Service.

A summer grazing permit specifies a time of year, number of livestock, and often, a system of grazing for the rancher holding the permit, known as the "permittee." Numbers, timing, and duration can be changed by the Forest Service temporarily or permanently as deemed necessary to protect resource values or to meet other demands on the land. Over time, livestock numbers and length of time allowed for grazing on Forest Service lands have declined from peaks reached during the 1920s, and they continue to decline. Studies of western livestock permittees have found ranchers overall to be strongly committed to ranching. Though needing to make sufficient income to continue, they are strongly motivated by lifestyle and the non-monetary benefits of ranching (Gentner 1999, Rowe and others 2001, Tanaka and Gentner 2001).

Methods

The project concentrates on Forest Service grazing permittees of the Tahoe, El Dorado, and Stanislaus National Forests. Participants include ranches in 11 counties in and around the central Sierra foothills and valley, with some owning land or leasing outside the study area. The counties were Sutter, Yuba, Sacramento, San Joaquin, Stanislaus, Tuolumne, Calaveras, Amador, El Dorado, Placer and Nevada counties. The ranchers interviewed had an average head count of 329 (minimum of 64 and a maximum of 880, n=19) and owned an average of 1,731 acres (minimum of one and a maximum of 7,731 acres, n=11). One rancher ran only sheep on the Forest Service allotment, though he did run cattle on private land.

We chose an intensive case study approach using in-depth interviews of permittees and a standardized survey instrument. The project began during the winter of 2000 and is guided by an advisory committee, including representatives of the study sponsors, other conservation organizations, University of California Cooperative Extension, experts in economics, and conductors of related previous research. Surveys were pretested and then reviewed by the study advisory committee and other experts before they were administered. The interviews generally took two to three hours and a written portion was left behind to be filled out and sent back to us. Some topics and questions were developed to correlate with a similar recent study in the Rocky Mountains by E. Tom Bartlett and Helen Rowe at Colorado State University (Rowe and others 2001). The results reported here are responses to three questions adapted, with a few alterations, from the study done by Bartlett and Rowe.

All three targeted Forests supplied lists of their permittees, creating a master list of 60 ranchers. During the end of the summer and fall 2000, 25 interviews were initiated and 19 written portions returned (83 percent of the 23 valid and completed interviews). The questions analyzed here are all from the written portion of the survey so the total responses are 19, about a third of all the permittees in the study area and representative of permittees in this region. Response numbers can be smaller than 19 for some questions because a few participants opted not to answer particular questions.

Results

The first question we review here asked participants to rate how important different reasons for using the Forest Service allotment were to them. The next question asked the permittee to choose the strategy he would implement to compensate for a reduction in forage by the Forest Service of 25 percent, 50 percent and 100 percent. A related question asked the participant to outline in more detail the strategies envisioned for each reduction level. The third question asked ranchers directly about the likelihood of selling their ranch. Finally, respondents were asked about the financial consequences the participant expected to experience due to changes in federal allotment access.

The summertime availability of Forest Service range with high elevation green forage proved an important motivation for ranchers for using their allotments. Almost all, 95 percent, of permittees rated green feed “more important” and “highly important” as a reason for using their Forest Service allotment (*table 1*). The cost or lack of alternatives, economic sense, and lifestyle were rated as more or highly important by a strong majority of respondents. Convenience was rated as more or

highly important by nearly two-thirds of the respondents, while nearly two-thirds of respondents rated the tradition associated with going to the mountains as not important.

Table 1—Permittee responses to the question, “How important to you are the following reasons for using your central Sierran Forest Service allotment(s)?” in 1999.

n=8	Not or somewhat important	More or highly important
Green feed (n=17)	1 (6 pct)	16 (95 pct)
Cost of alternatives is higher (n=17)	2 (12 pct)	15 (88 pct)
Lack of another alternative (n=18)	3 (17 pct)	15 (83 pct)
Makes most economic sense in your current situation (n=18)	2 (11 pct)	16 (89 pct)
Lifestyle: the pleasure of ranching at higher elevations (n=18)	2 (12 pct)	16 (88 pct)
Convenience (n=19)	7 (37 pct)	12 (63 pct)
Tradition, previous owners used the permit before you (n=14)	9 (64 pct)	5 (36 pct)

Ranchers were asked to choose possible compensation strategies for different reduction levels in Forest Service forage. The exact question asked was: “If the Bureau of Land Management or the US Forest Service were to permanently decrease the allowable forage by either 25 percent, 50 percent, or 100 percent on your permit(s), what would be your most likely response or responses?” We allowed respondents to circle more than one response for each reduction level.

The response choices were:

1. *Continue* ranching without change = You can continue your current operation without change.
2. *Sell* your ranch = You would sell all or part of your ranch. You might leave ranching altogether or buy a ranch elsewhere.
3. *Stop* ranching = You would hold on to the ranch but stop ranching. You might lease the ranch out to someone else.
4. *Reduce* production = You would cut back on livestock production, reducing your herd.
5. *Replace* federal forage with other forages = You would replace public forage loss with other forage sources, avoiding any reduction.
6. *Diversify* ranch production = You would diversify your ranch operation.
7. *Employment* off ranch = You would supplement your income by pursuing more or better paid off-ranch employment.

Most ranchers chose reductions in production and replacement of forage as the most popular solutions for all the different reduction levels (*fig. 1*). With a 25 percent reduction many felt they could continue their business as they do now. One point to note is that selling the ranch, while not the most popular solution for any reduction level, gains in importance as the reductions increase in severity. Additionally, selling the ranch is always more popular than diversification. More than a third of respondents marked selling the ranch as a strategy if the Forest Service reduced their

grazing completely. Nevertheless, a majority indicated they would attempt to replace the forage or reduce the herd at the 100 percent Forest Service reduction level.

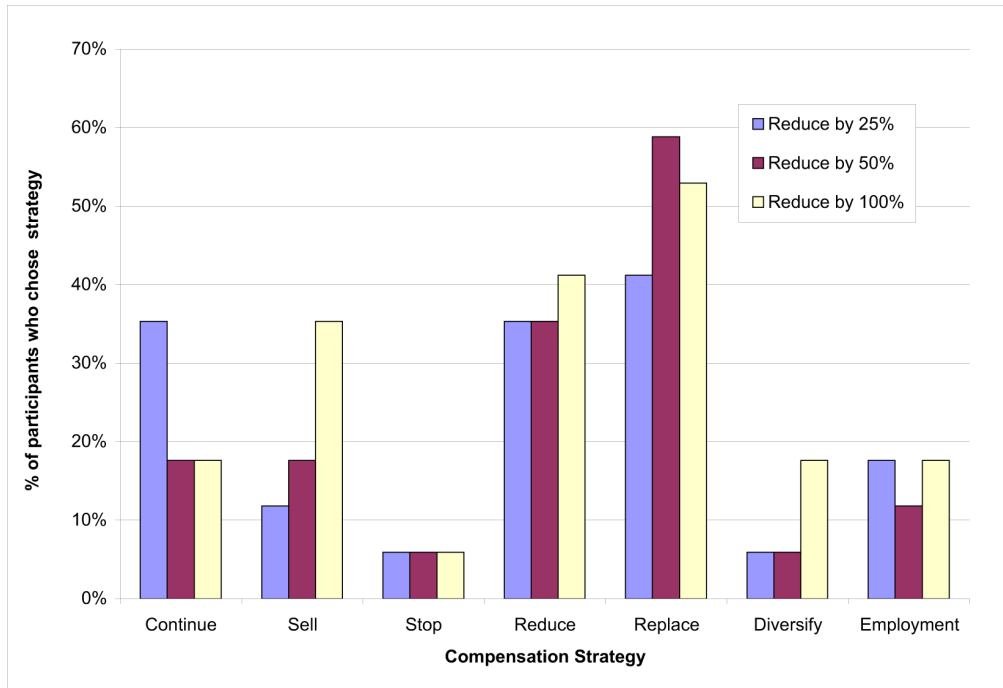


Figure 1 Compensation strategies central Sierra ranchers say they would choose if their Forest Service grazing allotment were reduced by 25, 50, or 100 pct (n=19).

Next the participant was asked to describe in more detail the strategies they would use to cope with reductions in permitted grazing. Not all the respondents who answered the first question completed this part, but those that did mostly outlined strategies of forage replacement. Potential plans for finding another allotment or private ground were mentioned, though the difficulty of finding private forage was highlighted in a few cases. Overall the changes resulting from a 25 percent reduction were not severe. The strategies outlined in response to 50 percent and 100 percent reductions were similar, and more severe, which could imply that the 50 percent reduction level might be a threshold after which using the allotment is not so practical for many ranchers.

Balancing the costs of working up in the mountains against the money made from it was brought up as important in the response decision. One participant mentioned that at 25 percent reduction they thought they could still justify the expense of working up on the allotment, and would find replacement forage for the extra animals. Another rancher responded that when using Forest Service summer range, they are not able to supplement their income with off-ranch employment due to the time required to work the cattle in the mountains. Consequently, if they continue using the mountain range, potential compensation with off-ranch income is limited.

One respondent discussed diversification options as a possible coping method at the 100 percent reduction level. The rancher listed ideas such as new crops or on-ranch vacation marketing, but also described all the difficulties with those options (insurance, land-use regulations, large initial capital outlay). One participant even

mentioned fudging on the numbers on his allotment as a solution at all of the three reduction levels. With a 50 percent reduction, another mentioned that he might be able to sustain the ranch by grazing down the Forest Service range a little farther. A ranch that leases out forage to other ranchers said that it would have to lease out less and less of that land to others as reductions moved from 25 percent to 100 percent on the Forest Service allotment, therefore losing income from the leasing enterprise.

A complication apparent in some of these scenarios is the intermingling of public utility land and private land owned or leased by the rancher using the allotment with the Forest Service allotment land. At the 100 percent reduction level, one respondent mentioned subdividing his own land within the allotment boundaries as a way to gain some income. Another rancher mentioned a private lease associated with the Forest Service range and answered that her response would be dependent on the actions of that landowner. One respondent mentioned selling his land holdings within the allotment boundaries if he faced reductions at the 100 percent level.

We then asked the participants about what types of things they might do on their private land in response to forage reductions on Forest Service permits. One question specifically addressed the strategy of selling the ranch, but there were few responses indicating that this was a desirable outcome (*table 2*). The majority of the answers indicate that most of these ranchers do not intend to sell their ranch, but are committed to their land and to ranching. Many of the participants chose not to answer the question, so the sample size is much lower.

Table 2—Likelihood of selling all or part of the ranch in response to grazing reductions on Forest Service allotment, central Sierran permittee, 1999.

Please indicate the likelihood of using the following strategies on your private land:	Very or somewhat unlikely	More or very likely
Sell the ranch - leave ranching entirely (n=10)	10 (100 pct)	0
Sell the ranch - buy a ranch elsewhere (n=9)	7 (78 pct)	2 (22 pct)
Sell part of the ranch - continue ranching (n=10)	8 (80 pct)	2 (20 pct)
Sell part of the ranch - discontinue ranching (n=9)	9 (100 pct)	0

Finally, permittees were asked “How well do you think your strategies would compensate for public forage loss?” and were given a choice of 3 possible responses (*table 3*). Within the small group that answered the question, most of these ranchers felt that their strategies to compensate for a loss in Forest Service forage would cause them to have a net loss in income (62.5 percent n=8, *table 3*). It is intriguing that there are a few ranchers who believe they could make more money without the allotment.

Table 3—How well do you think your strategies would compensate for public forage loss?

n=8	Number of respondents that chose the option:
I could make more money	2 (25.0 pct)
I would have a net loss of income	5 (62.5 pct)
I would have an initial loss but after a few years I could regain present status	1 (12.5 pct)

Discussion

Economics, a perceived shortage of replacement forage, and lifestyle are all important reasons why ranchers continue to use Forest Service mountain allotments (*table 1*). The first two of these reasons to graze on Forest Service land, green feed and economics, are reflected in the compensation strategies listed by ranchers as responses to Forest Service grazing reductions.

Replacing Forest Service forage is the most desirable option for permittees if permitted grazing is reduced (*fig. 1*). If finding alternative forage at a reasonable price proves impossible, then reducing head is the next choice for the permittees in this study. Cessation of ranching and diversification were the least popular strategies to cope with reduced public land grazing. Most important for those interested in conserving open space or ranching is the relative popularity of selling the ranch, especially in comparison to diversifying. While overall, ranchers seemed highly reluctant to consider selling their ranches, most of the participants believe that they would choose to sell the ranch, or part of it, before they would diversify their income sources (*table 2*). Ranchers in the study indicated that if they were to sell land, they would either sell the whole ranch and move to ranch elsewhere, or sell part of the ranch and continue to ranch.

When respondents described their strategies, replacement was again the most frequently cited solution. Though not addressed in this study, the common assertion by many involved in the local industry is that there is no land left to lease. Most Forest Service permittees do not have enough private land to support their existing herd in both the summer and the winter. Even those that do have enough land reported that if they stopped using the allotment, they would have to take that land out of another enterprise and use it themselves, therefore depriving some other rancher depending on that forage. This kind of a scenario would compound the competition for non-federal leases. Many of the ranchers we spoke with talked of the intense competition already apparent for grazing land. There were stories of lessors being approached annually by ranchers looking for leases and offering to pay more money. All but one of all the permittees in the study leased non-Forest Service land already. In some cases another solution for a loss of forage could be additional feeding of hay or other feeds, though these generally cost more than leased range.

In the summer of 2001 we interviewed ranchers without Forest Service leases, though a few of them had held Forest Service permits in the past. The compensation strategies these ranchers used in response to losing their Forest Service allotment were somewhat similar to those proposed by current permittees. Two ranchers purchased more land, one outside of California. One ranch reported that making this change did not increase costs, though he now shipped cattle out of state, but the other found that increases in hauling and labor meant increased costs. The other ranch that discussed compensation strategies reported that they reduced cattle numbers and felt that their business is better off now because of the change. The decrease in head brought down their costs since they no longer have to lease as much land.

This shows that the most popular compensation strategies anticipated by current permittees have succeeded for some ranches in the past. We did not interview ranches that lost their permits and then went out of business, so we missed that point of view. When we asked non-permittees if they found it difficult to find adequate forage for their cattle, 12 out of 14 felt that it was difficult, no matter what the time of year. At this point we don't know if there is enough forage available in the central

Sierra to serve the total ranch demand if all permittees were to attempt to replace their summer Forest Service forage.

Conclusions

Ranchers use Forest Service forage because in their opinion it is a financially wise decision and it plays an essential role in their forage supply calendar (*table 1*). These ranchers believe that using Forest Service forage makes the most economic sense in their situation. Additionally, the allotment affords them the ability to leave the foothill/valley home ranch or lease and go to green feed. The lifestyle associated with living in the mountains during the summer is also popular with permittees (*table 1*).

Attempting to replace Forest Service forage appears to be the most common solution to reductions in grazing anticipated by this group of permittees (*table 2*). Replacement would entail two relevant changes: cost and availability. The changes in costs due to altering location, buying feed, purchasing land, and paying a fee for an alternative summer lease are not discussed here. Availability of replacement forage is undocumented for the study area as far as we have discovered, but is commonly assumed to be low. All of the non-permittees we interviewed leased some private lands, and felt it was difficult to find enough. The next most popular solution to reductions in grazing on Forest Service land is reduction in herd size.

Noteworthy for those interested in conserving open space and ranch lands, the option to sell the ranch is not a popular option (*table 2*). For the most part, the ranchers that are still in business have been weeded out through an attrition process and are likely to have a strong commitment to ranching (Hargreave 1993). As *table 3* indicates, very few of these ranchers believe it is likely that they will sell their ranch. Those that do indicate the possibility of selling are intent on staying in the business, but either think it is likely they will sell some of their land and continue ranching, or sell the whole ranch in the study area and make a go of it elsewhere.

Working ranchers, like those interviewed for this survey, are at risk from many different angles. Reduction in Forest Service grazing is one potential problem. For proponents of ranching in the western foothills and valleys of the Sierra Nevada, these results imply that availability of replacement summer leases is important for the future of ranching in the Sierran foothills. The ranchers we interviewed are highly committed to ranching, and would benefit greatly from a more stable forage availability situation than they face either with the Forest Service or competing for the alternative leases.

Further study might include an analysis of the amount of grazing lands in the study area, their present use, and likely future. What portion of rangeland in these counties is linked to Forest Service grazing allotments is a subject of our ongoing study. Most of the ranchers in this study also had private leases, and we do not know the trajectory of that forage supply. It is possible that some grazing leases are on land being held for speculative real estate purposes, and will go out of grazing use relatively soon. Existing tax incentives mean that those anticipating development in the long term can keep taxes lower by leasing land for grazing and keeping in agricultural use in the meantime. Additionally, a serious look at the feasibility of diversification strategies and a marketing or educational campaign to ranchers might ease the competition for replacement forage while also offsetting lost income.

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References

- Duane, T. 1996. **Human settlement 1850-2040**. In: Sierra Nevada ecosystem project, final report to congress, vol II assessments and scientific basis for management options, Centers for Water and Wildland Resources Report No. 37. University of Davis, CA; 11: 235-360.
- Ewing, R. L.; Tuazon, R. T.; Tosta, N.; Huntsinger, L.; Marose, R.; Nielsen, K.; Motroni, R. 1988. **California's forest and rangelands: growing conflict over changing uses**. The California Forest and Rangeland Resources Assessment, Forest and Rangeland Resources Assessment Program, California Department of Forestry and Fire Protection. Sacramento, CA: Anchor Press. 348 p.
- Forero, Larry C.; Huntsinger, Lynn; Clawson, W. J. 1992. **Land use change in three San Francisco bay area counties: implications for ranching at the urban fringe**. J. Soil and Water Conserv. 47: 475-480.
- Gentner, Bradley J. 1999. **Characteristics of public land grazing permittees**. Corvallis: Dept. of Agr. and Res. Econ., Oregon State Univ.; MS Thesis.
- Hargreave, Timothy. 1993. **The impact of a federal grazing fee increase on land use in El Dorado County, California**. Berkeley: University of California; Energy and Resources Group; 68 p. Masters thesis.
- Huntsinger, Lynn; Hopkinson, Peter. 1996. **Sustaining rangeland landscapes: a social and ecological process**. J. Range Mgt. 49(2): 167-173.
- Johnson, Sharon G. 1998. **Oaks at the edge: land use change in the woodlands or the central Sierra Nevada, California**. Berkeley: University of California; 267 p. Ph.D. dissertation.
- Liffmann, Robin H.; Huntsinger, Lynn; Forero, Larry C. 2000. **To ranch or not to ranch: home on the urban fringe**. J. Range Manage. 53: 362-370.
- Rowe, Helen T.; Bartlett, Thomas E.; Swanson Jr., Louis E. 2001. **Ranching motivations in 2 Colorado counties**. J. Range Manage. 54: 314-321
- Sorre, Max. 1950. **Les fondements de la géographie humaine**. Librairie Armand, Paris 2, no. 1.
- Tanaka, John A.; Gentner, Bradley J. 2001. **Response of public land ranchers to policy changes**. In: Torell, L. A., Bartlett, E. T.; Larranaga, R., editors. Proceedings of a symposium sponsored by Western Coordinating Committee 55, current issues in rangeland resource economics, annual meeting of the society for range management; 2001 February; Kona, Hawaii, 35-46.