

PUBLIC GRAZING IN THE WEST: THE IMPACT OF "RANGELAND REFORM '94"

Jeffrey T. LaFrance¹

INTRODUCTION

The general public seems to believe that public lands ranchers pay substantially less for livestock grazing rights than do ranchers who lease similar privileges from private landowners. This impression contributed to the recent public range policy reform movement aimed at, among other things, a substantial increase in grazing fees on federal lands. But what are the differences in the costs of grazing on public and private lands? How do costs vary across states in the West? How will the fee increases proposed in the Rangeland Reform '94 (RR '94) initiative affect public lands ranchers, the Federal treasury, and the economies of the western states? How are these economic impacts distributed among public lands ranchers and between states? And how much is at stake? I will attempt to address these issues in this paper.

PUBLIC AND PRIVATE GRAZING FEES

Statewide average grazing fees on private lands are available for the years 1965 through 1992 for the eleven western states of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. Figure 1 compares grazing fees on federal and private lands for this period. The grazing fees in the figure have been adjusted for the effects of

inflation so that the amount for each price series in each year is comparable to the respective 1992 value for that series. The unit of measure for grazing fees in the figure, and throughout this paper, is dollars per animal unit month (AUM), where an animal unit month is defined as 26 pounds of dry matter grass per day (equivalently, 780 pounds of dry matter grass per 30-day month). Montana is included in the figure because private grazing fees in Montana historically have been consistently among the highest in the eleven western states. On the other hand, private grazing fees in Arizona historically have been generally among the lowest.

Figure 1. Real Private and Federal Grazing Fees, 1965-92.

(1992 \$ per Animal Unit Month)

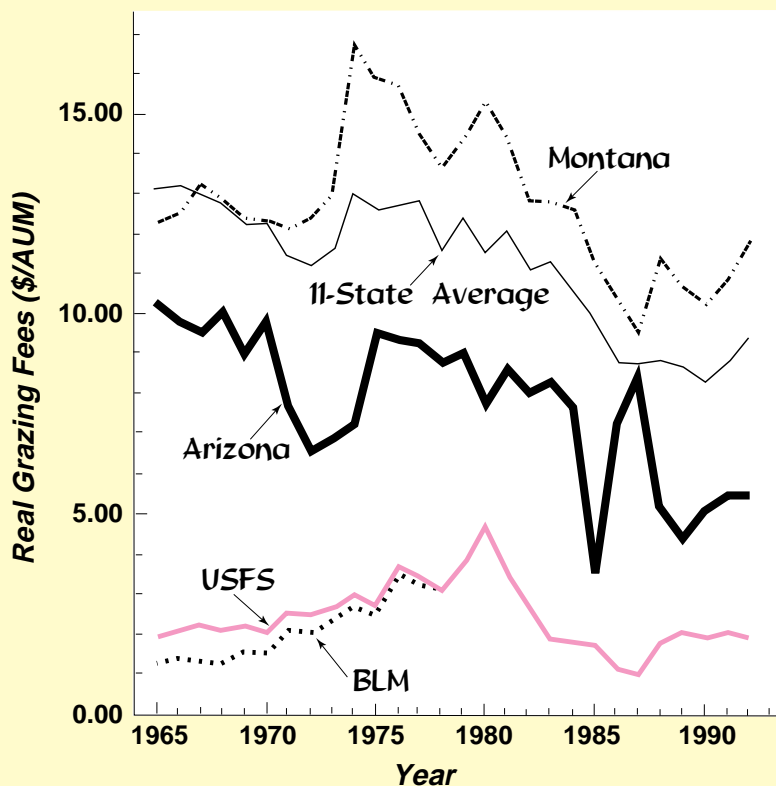


Figure 1 illustrates two aspects of the market for grazing rights in the western states. First, historically there has been, and continues to be, a substantial difference in grazing fees between the private

and public sectors. For example, real grazing fees for Forest Service (USFS) and Bureau of Land Management (BLM) lands have averaged only \$2.44 and \$2.21 per AUM, respectively, over the 28-year period from 1965 through 1992, while the average real private grazing fees for each of the eleven western states over the same period have been as follows: Arizona, \$7.80; California, \$13.70; Colorado, \$13.20; Idaho, \$10.90; Montana, \$12.80; Nevada, \$7.55; New Mexico, \$9.45; Oregon, \$12.00; Utah, \$10.45; Washington, \$13.10; and Wyoming, \$12.10. The eleven-state average real grazing fee on private lands over this period has been \$11.20 per AUM, nearly \$9.00 per AUM higher than real grazing fees on federal lands. Perhaps this provides some insight into the general public perception that public lands ranchers are being subsidized.

However, this perspective misses two aspects of the market for public grazing rights relative to the market for private grazing rights. First, private landowners often provide several rights and services to their grazing tenants that are not part of the bargain in public lands grazing leases. Since these services are costly to provide, their value is built into the competitive market price for private grazing rights. Second, because federal grazing permits can be bought and sold, they have a market value that represents an opportunity cost to public lands ranchers. The purchase price of a public grazing permit is as much a real cost to those ranchers as the initial capital investment required for the buildings, corrals, tractors, and other facilities and equipment necessary to operate their ranches.

The second aspect of the livestock grazing market illustrated by Figure 1 is the fact that there are large, consistent, and persistent differences in private grazing fees between states, ranging from a high of \$13.70 per AUM in California to a low of \$7.55 per AUM in Nevada. This implies that a substantial increase in federal grazing fees will have a much larger percentage impact on the value of a federal

grazing permit in the Desert Southwest (Arizona, Nevada, western New Mexico, and southeastern California) than, for example, in the Rocky Mountain region (Montana, Wyoming, and Colorado).

For example, the results that I present below suggest that, should the fee increases of the RR '94 initiative be fully implemented, two main effects on public lands ranchers in Arizona are likely in the long run. First, the net market value of federal grazing permits will fall considerably, and for some ranchers federal grazing permits eventually may become worthless. If economic conditions do not improve in the market for livestock over the long haul, then we may see an exodus of unprofitable ranchers from this sector of the livestock market in Arizona due to the higher grazing fees proposed in this initiative. Public lands ranchers in the other western states also will experience losses in income and wealth due to higher grazing fees and lower market values for their grazing permits. With the possible exception of Nevada, none of the other western states are as likely as Arizona to experience significant negative incomes for public lands ranchers or the exit of unprofitable ranchers from the industry. Let's now look at these issues in more detail.

LANDLORD SERVICES AND THE NET VALUE OF FORAGE

Private landowners usually provide many kinds of services and rights to grazing tenants that are not provided on public lands. These services often include, but are not always limited to, the following: (1) fencing, including initial investments and maintenance expenditures; (2) access to water, including the initial investment in water facilities and expenditures for maintenance and upkeep; (3) the exclusion of access to the grazing tract by individuals other than the grazing tenant and landowner; (4) hunting, fishing, and timber-harvesting rights; and (5) several miscellaneous other services such as periodic moving, checking, and supple-

mental feeding of the tenant's livestock. Frequent efforts to estimate the value of landlord services have been made in New Mexico over the last decade. Recent estimates by Torell and Doll (1991) and Torell and Fowler (1992) place the cost of landlord services to be \$1.88 per AUM for New Mexico in 1989, approximately 30 percent of the private grazing rate in New Mexico for that year. In 1992 dollars, this gives us a figure of \$2.10 per AUM in New Mexico as an estimate for the average cost to landlords for providing these services and rights to their grazing tenants.

I have estimated the cost of landlord services for the other western states in real 1992 dollars using two methods: (1) by assuming that landlord costs are 30 percent of the private grazing rate in all states; and (2) by assuming that real landlord costs are \$2.10 per AUM in all states. The first method implies that the net value of forage on private grazing lands is 70 percent of the private grazing fee. This assumption is supported by the fact that 30 percent of private grazing fees consistently has been the estimated cost of landlord services in New Mexico from a variety of methods and a number of studies over the past decade (Gray, et al. (1983), Fowler, et al. (1985), Torell, Ghosh, and Fowler (1988), Torell and Doll (1991), and Torell and Fowler (1992)). The second method is equivalent to assuming that both the cost of providing landlord services and the average level of services provided per animal unit month are uniform across states. It is useful to point out that, although the assumptions underlying the second method may not be completely valid, this method is useful as a basis for comparison and to evaluate the robustness of any conclusions we might draw from the first method.

The two methods produce the following range of estimates for the 1965-92 average real forage value per AUM in each state: Arizona, \$5.45-5.70; California, \$9.60-11.60; Colorado, \$9.25-11.10; Idaho, \$7.60-8.80; Montana \$8.95-10.70; Nevada, \$5.30-5.45; New Mexico, \$6.60-

7.35; Oregon, \$8.40-9.90; Utah, \$7.30-8.35; Washington, \$9.20-11.00; and Wyoming, \$8.50-10.00. The overall average real value of forage in the eleven western states appears to be between \$7.85 and \$9.10 per AUM for this period. These results suggest that the relative cost differences between public and private grazing are not as large as it may appear at first blush. We probably should be using a figure in the neighborhood of \$7.85 to \$9.10, rather than \$11.20, for the overall average net forage value on private grazing lands when making the comparison with federal grazing fees.

It is useful to compare private net forage values and actual federal grazing fees with the fee structure of the RR '94 proposal to develop a feel for the latter's likely economic impacts. The current method for setting grazing fees on federal lands is mandated by the Public Rangelands Improvement Act (PRIA; 1977). Under this act, and its temporary extensions in each year since 1985, federal grazing fees are determined by the formula

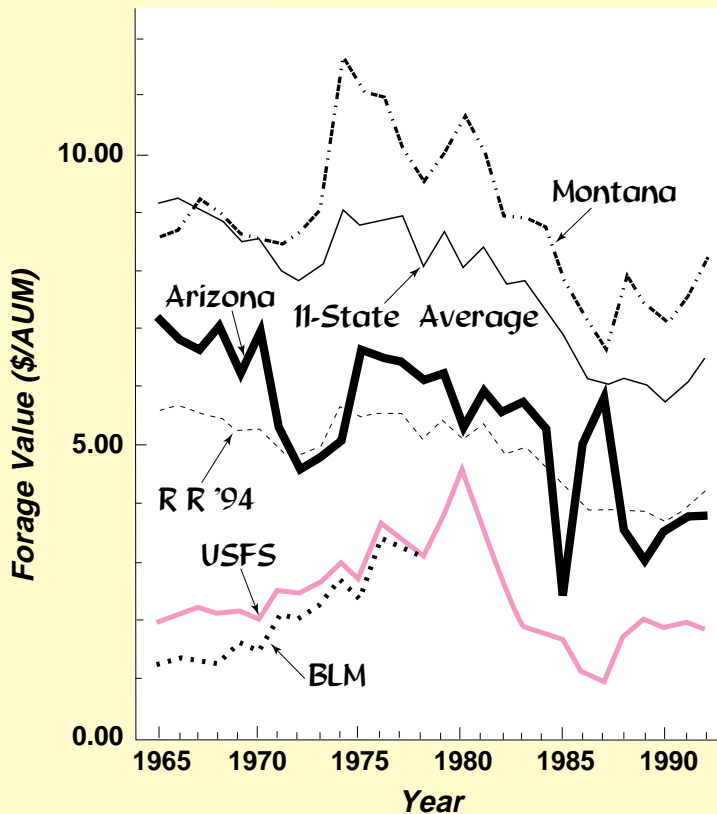
$$Fee_t = 1.23 \times (FVI_{t-1} + BCPI_{t-1} - (PPFI_{t-1}/100)),$$

where FVI_{t-1} is a forage value index defined as the eleven western state average private grazing fee in the previous year divided by the 1967 average private grazing fee; $BCPI_{t-1}$ is a beef cattle price index defined as the average price received for all beef in the eleven western states in the previous year divided by the 1967 average price received for all beef cattle; $PPFI_{t-1}$ is the index of prices paid by farmers in the previous year, with a value of 100 in the 1967 base year; and \$1.23 per AUM is the 1967 base year Federal lands grazing fee. This formula is applied uniformly across all states, to both USFS and BLM grazing lands, and has been in effect since 1978.

The method for setting grazing fees in the RR '94 initiative is given by the formula

$$Fee_t = 3.96 \times FVI_{t-1},$$

Figure 2. Net Forage Values and Public Grazing Fees, 1965-92.
(1992 \$ per Animal Unit Month)



where FVI_{t-1} is the weighted average private grazing fee (weighted by Federal AUMs) divided by \$8.67, which is the average private fee for the three-year period 1990-1992. In the new formula, private grazing fees for seventeen western states (the original eleven western states plus the six contiguous states to the east - North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, and Texas) are included in the calculations. The base fee of \$3.96 per AUM is the average minimum net forage value for grazing rights on federal lands obtained from two estimation methods: (1) a 1991 update of the 1983 appraisal of the value of livestock grazing on Federal lands in sixteen Western states; and (2) a 1991 update of the 1966 Western Livestock Grazing Survey. The appraisal update generated a range of estimated values from \$4.68 per AUM in the desert south-

west (Arizona, southeastern California, Nevada, and southwestern New Mexico) to \$10.26 per AUM in the northern plains (North Dakota, South Dakota, and northern Nebraska). The grazing survey update increased the PRIA base rate to \$3.25 per AUM for 1991. The base fee of \$3.96 per AUM in the new formula is the simple average of the two minimum forage value estimates of \$3.25 and \$4.68 per AUM.

Figure 2 illustrates the impacts that the RR '94 fee system would have had on federal grazing fees over the historical period 1965 through 1992. In this figure, net grazing fees for the private sector are calculated as 70 percent of the actual private grazing fees to estimate forage value net of landlord costs. Also in the figure are estimates of what federal grazing fees are likely to have been had the RR '94 formula been used over the past three decades. These estimates use the available eleven-state average private grazing fee rather than the full seventeen-state average because the latter figures are not available for the full historical time period. However, this should not create a significant bias in the results since the lion's share of livestock grazing on federal lands occurs in the eleven westernmost states.

Changing the method for setting federal grazing fees to the RR '94 proposal would have increased grazing fees considerably on federal lands over the past three decades. The average increase in USFS grazing fees is \$2.48 per AUM in constant 1992 dollars over the 28-year period, while the average increase is \$2.72 per AUM on BLM lands. This represents increases of approximately 100 and 125 percent, respectively, over the actual grazing fees for the two agencies. As should be expected, this figure is quite close to the estimated forage values of \$5.45 per AUM in Arizona and \$5.30 in Nevada. However, for each of the last five years in the available sample period, the RR '94 grazing fee is consistently higher than the estimated net forage value in Arizona. Perhaps this provides some

insight into the furor caused by the proposed increase in federal grazing fees to \$4.28 per AUM, as well as some level of understanding of the basis for the compromise proposal of \$3.45 per AUM by Senator Reid of Nevada in fall 1993.

If we take these estimates as reasonable, and if current economic conditions persist in the market for livestock, then it appears as though an increase of the magnitude proposed in RR '94 could lead to negative incomes for some (indeed, possibly even a majority of) public lands ranchers in Arizona. Furthermore, because the net forage value is less than the federal grazing fee, we would expect that the average market value of federal grazing permits will fall to zero and that unprofitable public lands ranching operations will eventually exit the industry in the state. However, according to my estimates, although public lands ranchers in the other western states will experience losses in income and wealth due to higher grazing fees and lower market values for their grazing permits, none of the other states are as likely as Arizona to experience significant negative incomes or the exit of unprofitable public lands ranchers from the livestock grazing industry.

HOW MUCH IS AT STAKE?

It is well-established that the relatively low price of grazing on public lands (the 1993 Federal grazing fee is \$1.86 per AUM) and the expectation that these low prices will continue into the future has led to a capitalized market value for public land grazing permits (Gardner (1962, 1963, 1989); Hooper (1967); Martin and Jeffries (1966); Roberts (1963); Torell and Doll (1991)). As part of their analysis of this issue, Torell and Doll estimated the real rate of capitalization for the relative cost advantage on public grazing lands to be

3.35 percent per annum, and also estimated that 85 to 90 percent of all current public grazing land permittees have purchased their public land leases from someone else. Thus, most public lands ranchers paid an initial investment cost for their federal grazing permits that absorbs, or at least partially absorbs, any benefits due to a relative cost advantage for grazing livestock on federal lands. Moreover, even those ranchers that have not purchased grazing permits from existing permittees face an opportunity cost associated with the income that is foregone by keeping rather than selling their permits in the open market. Any increase in federal grazing fees will lead to lower net incomes and a fall in the market value of federal grazing permits. The result is a wealth transfer away from public lands ranchers and towards the USFS and BLM coffers.

Table 1 reports estimates of the impacts of the RR '94 proposed fee increase on the value of federal grazing permits for each of the eleven western states. The cost estimates presented in the table were developed as follows. Figures for the total number of animal unit months and number of permittees on USFS and BLM grazing lands in each state for the fiscal year 1991-1992 were obtained from USDA, USFS (1992) and USDI, BLM (1992). The figures for total AUMs per

Table 1. Western States Federal Grazing Permits and Increased Annual Payments to the USFS and BLM under Rangeland Reform '94.

State	Number of AUMs		Number of Permits		Average Annual Cost / Permit			Statewide Cost per Year
	USFS	BLM	USFS	BLM	USFS	BLM	Weighted Average	
Arizona	1,057,895	684,664	498	838	\$5269	\$2222	\$3358	\$4,500,000
California	400,169	378,516	880	757	1127	1361	1235	2,000,000
Colorado	882,598	693,303	1151	1774	1902	1063	1393	4,100,000
Idaho	765,524	1,372,839	1162	2240	1633	1667	1655	5,600,000
Montana	516,863	1,317,677	1092	3873	1174	925	980	4,900,000
Nevada	258,679	2,487,130	186	723	3452	9357	8149	7,400,000
New Mexico	783,707	1,922,603	1125	2475	1728	2113	1993	7,100,000
Oregon	443,161	1,043,641	562	1431	1956	1984	1976	3,900,000
Utah	578,283	1,317,800	1232	1744	1164	2055	1686	5,000,000
Washington	112,692	26,377	171	331	1634	217	700	350,000
Wyoming	632,757	2,012,250	703	2748	2232	1992	2041	7,000,000
11 States	6,432,328	13,256,800	8762	18,934	\$2116	\$2269	\$2288	\$52,000,000

year were multiplied by the average fee increase of \$2.48 per AUM for BLM land and \$2.72 per AUM for USFS land obtained from the above analysis of differences in federal grazing under the historical and proposed fee systems. The statewide totals are the sum of the separate costs estimates for higher BLM and USFS grazing fees. The average cost per permittee is calculated as a weighted average, with the number of permits of each type (BLM and USFS) used as weights.

If we focus on statewide totals, or the aggregate figure for the entire west, we see that there really is not much money at stake for the overall economy or for any individual state. Indeed, on a per capita basis for the country as a whole, the issue boils down to a little less than 25¢ per person per year. However, due to the relatively small number of permittees - an average of slightly over 2500 per state - the stakes are considerably higher, amounting to a little less than \$2300 per permittee per year. For public lands ranchers that continue to graze on federal lands, this translates into an average reduction in the discounted present value of their net incomes of just under \$70,000 per grazing permit if we use the 3.35 percent per year discount rate from Torell and Doll. For Arizona, the comparable net loss in wealth is slightly more than \$100,000 per permit, while for Montana it is slightly less than \$30,000. The state with the public lands ranchers that have the most to lose appears to be Nevada, where the estimated loss in wealth associated with the RR '94 fee system is nearly \$250,000 per operator under RR '94.

CONCLUSIONS

The conclusions we can draw from this simple analysis are the following. First, there is a small number of individuals, something less than 30,000 public lands ranchers, that have a significant financial stake in the federal grazing fee issue. For some of these ranchers, the economic

impacts of the RR '94 proposal will be substantial enough to eventually lead them to close down their operations and exit the industry. Second, there appears to be a large variance in the economic effects across ranchers and between the western states. On the other hand, the grazing fee issue appears to matter very little financially to the rest of the country, both in terms of the Federal treasury and the overall total level of economic activity.

REFERENCES

- Fowler, J. M., L. A. Torell, J. M. Witte, and R. D. Bowe. "Private Land Grazing Transactions in New Mexico, 1983-84, Implications for State Trust Grazing Fees." New Mexico State University, Range Improvement Task Force Report 18, 1985.
- Gardner, B. D. "A Proposal for Reallocation of Federal Grazing Revisited." *Rangelands* 11 (1989): 107-111.
- Gardner, B. D. "A Proposal to Reduce Misallocation of Livestock Grazing Permits." *Journal of Farm Economics* 45 (1963): 109-120.
- Gardner, B. D. "Transfer Restrictions and Misallocation in Grazing Public Range." *Journal of Farm Economics* 44 (1962): 50-63.
- Gray, J. R., J. M. Fowler, and L. Foster. "Grazing Leases on Private Rangelands and Implications for Public Lease Fees." New Mexico State University Agricultural Experiment Station Research Report 487, 1983.
- Hooper, J. F. "Potential for Increases in Grazing Fees." *Journal of Range Management* 20 (1967): 300-304.
- Martin, W. E. and G. L. Jeffries. "Relating Ranch Prices and Grazing Permit Values to Ranch Productivity." *Jour-*

- nal of Farm Economics* 48 (1966): 233-242.
- Roberts, N. K. "Economic Foundations for Grazing Use Fees on Public Lands." *Journal of Farm Economics* 45 (1963): 721-731.
- Torell, L. A. and J. P. Doll. "Public Land Policy and the Value of Grazing Permits." *Western Journal of Agricultural Economics* 16 (1991): 174-184.
- Torell, L. A. and J. M. Fowler. "Grazing Fees: How Much Is Fair?" New Mexico State University, Agricultural Experiment Station Research Report Number 666, September 1992.
- Torell, L. A., S. Ghosh, and J. M. Fowler. "Economic Considerations for Setting Grazing Fees on New Mexico State Trust Lands." New Mexico State University, Agricultural Experiment Station Special Report 81, 1989.
- USDA. *Agricultural Prices, Annual Summary*. U.S. Government Printing Office, Washington D.C., various issues.
- USDA. *Farm Real Estate and Market Developments*. U.S. Government Printing Office, Washington D.C., various issues.
- USDA, USFS. "Grazing Statistical Summary: FY 1991." U.S. Government Printing Office, Washington D.C., 1993.
- USDI, BLM. "Public Land Statistics: 1991." U.S. Government Printing Office, Washington D.C., September 1992.
- USDA, USFS and USDI, BLM. "Rangeland Reform '94."

Department of Agricultural and Resource Economics¹
College of Agriculture
The University of Arizona
Tucson, Arizona 85721

FROM:

Arizona Ranchers' Management Guide
Russell Gum, George Ruyle, and Richard Rice, Editors.
Arizona Cooperative Extension

Disclaimer

Neither the issuing individual, originating unit, Arizona Cooperative Extension, nor the Arizona Board of Regents warrant or guarantee the use or results of this publication issued by Arizona Cooperative Extension and its cooperating Departments and Offices.

Any products, services, or organizations that are mentioned, shown, or indirectly implied in this publication do not imply endorsement by The University of Arizona.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, James Christenson, Director, Cooperative Extension, College of Agriculture, The University of Arizona.

The University of Arizona College of Agriculture is an Equal Opportunity employer authorized to provide research, educational information and other services only to individuals and institutions that function without regard to sex, race, religion, color, national origin, age, Vietnam Era Veteran's status, or handicapping conditions.