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Rural and Regional Economic Aspects
of Livestock and Wildlife/Fisheries
Use of Rangelands in the West

by

Darwin B. Nielsen and E. Bruce Godfrey

This paper was presented at a workshop on Livestock and Wildlife/Fisheries Relationships in the Great Basin held in Reno, Nevada, May 3-5, 1977.
Western rangelands, both public and private, are important sources of forage for domestic livestock and grazing wildlife. In addition, the actions of both groups of animals have an impact on nongrazing wildlife and fish. Common use of the range resources by all these animals is the normal pattern. Over time, all of these uses have meshed together in some mix that has been influenced by biological forces as well as by the changing demands of man. In recent years, increasing demands by man for almost all uses of the rangelands of the West has made the allocation of resources to the various uses very difficult.

Early in the settlement of the West, grazing was the main use made of the rangelands. As a result, most rural communities in the West have been characterized as "cow towns". This long history of use has some interesting implications. First, most ranchers believe that they have a vested interest in the federal lands that have historically been a part of their base property. Thus, allocations that favor other uses are commonly viewed as actions that are "taking something that is mine". Furthermore, unlike the past, many present-day federal employees managing
federal lands do not come from a rural background, particularly members of planning teams which represent nontraditional disciplines. They are often viewed as outsiders who have come "to tell us how to manage the land". In addition, there are reasons that federal land administrators may not personally view domestic cattle raising favorably--e.g., cattle baron images fostered by TV and movies, a vested interest in nongrazing uses, and an attitude that federal lands do not make an important contribution to the total supply of meat.

A second major reason why historic use is important concerns the dependency of local ranchers on federal lands. Some ranchers have twelve-month grazing permits which make them totally dependent on federal lands. Other ranchers have both BLM and FS permits which make them heavily dependent. Even if ranchers only have a three- or four-month grazing permit, they usually are more dependent than the length of time on federal lands would indicate. For example, a summer grazing permit allows the permittee to free his meadowland and/or farmland for the production of hay or other forage crops to feed his animals for the other months of the year. Thus, a three- or four-month dependence may be just as important as an eight- or twelve-month dependence on federal lands.

The often quoted aggregate figures on the importance of federal lands to livestock production, three percent of total U. S. forage consumption and 12 percent of forage consumption in 11 Western states, are misleading. [12] Most federal lands are not grazed twelve months of the year. Thus, a more meaningful comparison would be to compare federal grazing with total forage consumption during the average grazing season. If the average grazing season is assumed to be six months, then the federal lands would supply six percent of the total U. S. and 24 percent
of the total forage needs during the grazing season in the 11 Western states. The importance of federal rangelands is not equally distributed. [8] For example, federal lands provide 49 percent of the forage AUMs in Nevada on a twelve-month basis. If the average grazing season is six months, federal lands would provide 98 percent of the grazing in Nevada. On the six-month basis, federal lands provide 56 percent of the forage in Utah, 54 percent in Arizona, 34 percent in Idaho, and four percent in Washington, to mention a few.

Ranchers are not the only people that depend upon the federal lands for their livelihood within rural communities of the West. [10] Many businesses in local communities are oriented toward this segment of the industry. Those businesses (e.g., motels, restaurants) that are not directly dependent on the ranching industry often depend upon the local ranching community for much of their labor force--part-time employment off the ranch by some members of the family is not uncommon. Thus, many firms that cater to "outside uses" would probably not be able to remain in business if the ranching industry was lost. All Western states and rural communities are not equally affected by ranching, however. For example, in 1963, livestock farms and ranches employed more persons than any other industry in Wyoming, New Mexico, and Nevada. The livestock industry was the second largest employer in Montana, Idaho, and Colorado, and third in Utah and Oregon. [12]

In summary, many ranching communities and rural economies are dependent on livestock and the continuation of livestock grazing on federal lands. These communities undoubtedly receive economic stimulus from other uses of federal lands such as hunting and fishing, but the ranchers
are there year-round and not only provide an economic stimulus but provide the human resources needed to make the communities viable places to live.

As many of you are aware, ranching has not been a high profit operation. Ranchers have received low returns for many years. This has resulted in a significant phenomenon in the ranching community. Many ranchers have not had annual earnings that were high enough to pay annual costs. Each year they got further behind in the repayment of their intermediate credit. After a few years, credit agencies, such as the Production Credit Association, informs the rancher that they cannot carry him any longer. The rancher knows his land has been increasing in value so he goes to a long-term credit agency, such as the Federal Land Bank, and refines his properties. With the money he gets from his new long-term loan, he pays off his intermediate creditors and they carry him on into another similar cycle. This type of situation has kept many ranchers in the business over time. If land values stop increasing or decline, there will be serious financial problems in the ranching community.

The above mentioned phenomenon not only has kept ranchers in the business much longer than current ranch earnings would dictate, but it has helped support the local community and rural economy. Thus, to some extent, rural economies and ranching communities are living off of increasing land values. How long this phenomenon can and will continue no one knows; but if and when the bubble breaks and there is some evidence that suggest that increases in land prices are diminishing, there will be major adjustments in rural communities in the West.
These historic low returns have resulted in ranch consolidation and decreasing rural populations. These low returns have also resulted in pressure to remove livestock from federal lands—an acceleration of the historic pattern (i.e., grazing use has declined during the past 30 years while all other uses have increased).

Let us look at some of the expected economic consequences of removing all livestock from federal rangelands. Obviously, the rancher would lose any value his grazing permits had and/or any values capitalized into private commensurate properties. If he is to remain in the livestock business, he would have to replace the federal grazing lost with grazing from the private sector. There are not nearly enough AUMs of forage available in the private sector within reasonable distances of federal permittee's lands to be a significant source of replacement forage. Thus, permittees who lose federal grazing would have to shift other cropland to forage production, increase the productivity of private rangelands by improvement, or reduce the size of their livestock herds.

When ranchers are forced to reduce the size of their herds, their incomes go down much more than their expenses go down. Reductions in herd size due to the loss of federal grazing would be of such a magnitude that many would probably be forced to leave the business. As ranchers leave the livestock business, there will be economic stress put on related businesses in rural areas unless other opportunities are provided to keep these people in the community. At least three types of businesses would be affected: (1) those which supply materials to operate a ranch; (2) those which supply consumable goods to ranch families; and (3) those which purchase the products produced on ranches.
These businesses would be impacted at about the same rate as ranchers reduced production due to loss of federal grazing. [2,5]

Local county tax revenues would also be decreased if grazing was discontinued on federal lands. In the past, part of the grazing fees were returned to counties where the lands were located. The tax burden per dollar of income is usually the heaviest in rural counties. These counties would be put in even tighter financial positions if they lost these funds. Property tax collections would be decreased if commensurate property values decreases significantly.

As one use substitutes for another use, we usually find the marginal rate at which they substitute for each other changes. As livestock AUMs of grazing are given up for increased big game use, it requires more and more livestock use be given up per unit of increase in big game use. Therefore, at the present time, the cost of increasing big game use at the expense of livestock grazing may be very high, not because of the relative values of the two uses but because the rate at which they substitute for each other has changed. Furthermore, some questions can be raised that recreation demands will not increase as rapidly in the future as they have in the past. If President Carter's proposal to tax gasoline and/or high gas consuming vehicles is implemented, the cost of driving large mobile homes and 4 x 4s will increase dramatically. Even if this policy is not implemented, the amount of disposable income available for recreational pursuits will decline as a result of increasing costs of energy. Furthermore, empirical evidence indicates that the demand for most forms of outdoor recreation is income elastic. Thus, as disposable income decreases, the amount of recreation demanded should decrease by a larger percentage—a phenomenon that will be common if growth in the economy decreases.
One must realize that changes in the use of the federal lands is a two-edged sword because wildlife and other related recreation use of federal lands would also have an impact on rural communities. It is obvious that there has been a fantastic increase in the amount of expenditures for food, clothing, equipment, fuel, etc., used in the hunting and fishing recreational activity furnished on federal lands. But does this use contribute to local regional or national economic growth? This is a difficult but relevant question because the net social value of the federal land resource is quite different if their use results in additions to total recreation expenditures than if not. Furthermore, it is yet to be demonstrated that the total expenditures on recreation would be raised if grazing were discontinued on federal lands. It is possible that big game herds might be increased to some degree, but in most areas of the West, the chief constraint on big game populations is winter range. A relatively large proportion of this crucial rangeland is privately owned. If grazing was stopped on federal lands, big game production would probably increase in quantity and quality but how significant the increase would be is not known. The opportunity costs of such a move could be very high and the net effect on game animals may be significantly altered depending on what happens to ranchers' private properties. If the land ends up in condominiums or summer homes, any joint use of the land by big game animals could be lost or decline as a result of lost habitat, human harassment, and poaching by a larger human population in the area.

There is much evidence that indicates that all increases in expenditures for hunting and fishing do not benefit business firms in rural
areas where the hunting and fishing takes place. [1,6,7] Marion Clawson has estimated that in visits to national parks, national forests, wildlife refuges, federally-owned reservoirs, and state parks, more than half of the total expenditures were made in the home community of the recreationists, about a quarter of the total was spent en route, and less than a quarter is spent at the recreation site. [4]

More recent studies are even more bleak.

The economic impact of recreation developments on local economies will be slight even under optimum conditions because: 1) The incidence of expenditures of recreation users will accrue to the major metropolitan centers, 2) the multiplier effect from new dollars spent by recreationists in local economies will be low in comparison to major metropolitan centers..., and 3) a comparative disadvantage in providing goods and services lies with the urban areas at present and will not improve in the future. [9]

If this is true, even large increases in recreation activities may not materially benefit the local rural businesses. There will undoubtedly be sizable increases in business activity; for example, expenditures in Salt Lake City for Utah fishermen who fish in Idaho or Wyoming or expenditures in California for hunters who go to Nevada or Utah, but it will not filter down to the rural areas where grazing losses occur.

It also seems that the costs accruing to local government for providing many kinds of services to visiting hunters and fishermen will rise and perhaps sharply. Whenever large numbers of people come together, there are problems of law enforcement, traffic control, garbage disposal and sanitation, and increased requirements for public services such as transportation, electricity, and potable water. The federal government assumes much of the responsibility for these services but by no means
This is yet another area that must be researched to determine what increases in cost might be expected and how to meet them. Thus, there seems to be evidence that suggests that further increases in recreational use in lieu of grazing may be very shortsighted, particularly from the point of view of local communities in the West. Secondly, empirical evidence suggests that these costs are generally born by local citizens through property taxes and that they have lower per capita incomes. Thus, an increase in recreational use may result in costs being born by the poor to support benefits received by the rich.

The recently passed Organic Act also contains many policies which will affect all users of the public land and the local communities which depend on them. Another one of these policies that reflects the federal government's attitude with respect to user charges is expressed by the Office of Management and Budget. This policy indicates that:

Where a service (or privilege) provides special benefits to an identifiable recipient above and beyond those which accrue to the public at large, a charge should be imposed to recover the full cost to the Federal Government of rendering that service including the cost of collection and administration. Where federally owned resources or property are leased or sold, a fair market value should be obtained. Charges are to be determined by the application of sound business management principles, and so far as practicable and feasible in accordance with comparable commercial practices. [11]

Ranchers who use federal lands for grazing have had 200-300 percent increases in grazing fees over the last eight years, yet there has been no attempt to charge any of the other users (with the exception of mining) which compete for the rangeland. Based on the 1966 grazing fee study and increased costs since 1966, the costs to ranchers of using federal
grazing lands is about $8 per AUM (Table 1). Furthermore, this cost does not include any return on the value of the permit. The question of whether the government should charge all users of the federal land is open to discussion. However, contentions arise when the organizations representing one group of users who pay nothing testify in favor of raising user fees to a maximum for another user group who use the same resource.

User charges are being attempted on some uses of outdoor resources that may set new precedents. For example, the Navaho Indian tribal council requires all photographers going on the reservation be registered with the tribal council. If photographs taken on the reservation are later sold, the council specifies that a percentage of the sale value be given to the Navaho tribe. If one is caught in violation of this user charge, he will not be issued a new permit to photograph on the reservation.

Another question that continues to be discussed relative to big game and domestic grazing uses is whether private land owners should be compensated for use of their lands by game animals. There is more agreement that they have a just claim for compensation than there is for how to make fair payments and who should pay private landowners. It would be interesting to know what would happen to big game production in the 11 Western states if private landowners had an incentive to improve their resources for game production. If research conducted in Texas—a state having essentially no public land—is indicative, one would expect private landowners to manage lands in a manner that would favor game populations.
Table 1. Nonfee Costs of Grazing Federal Lands (Up-dated with 1976 (July) index numbers)

<table>
<thead>
<tr>
<th>Item</th>
<th>1966</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lost animals</td>
<td>$0.60 \times 1.76 \text{ (meat animals-prices received)} = $1.06</td>
</tr>
<tr>
<td>Association fees</td>
<td>0.08 \times 1.99 \text{ (production items)}</td>
</tr>
<tr>
<td>Veterinarian</td>
<td>0.11 \times 2.09 \text{ (wage rates)} = 0.23</td>
</tr>
<tr>
<td>Moving livestock</td>
<td>0.24 \times 2.13 \text{ (autos &amp; trucks)} + 2.09/2 \text{ (wage rates) 2.11 ave.} = 0.51</td>
</tr>
<tr>
<td>Herding</td>
<td>0.46 \times 2.09 \text{ (wage rates)} = 0.96</td>
</tr>
<tr>
<td>Salting &amp; feeding</td>
<td>0.45 \times 2.06 + 2.13/2 \text{ (auto &amp; truck, feed)} \text{ (2.10 ave.)} = 0.95</td>
</tr>
<tr>
<td>Travel</td>
<td>0.32 \times 2.13 + 1.89/2 \text{ (auto &amp; truck, fuel &amp; energy) 2.01 ave.} = 0.64</td>
</tr>
<tr>
<td>Water</td>
<td>0.08 \times 1.99 \text{ (production items)}</td>
</tr>
<tr>
<td>Fence maintenance</td>
<td>0.24 \times 2.09 + 2.14/2 \text{ (wages, building &amp; fencing)} = 0.51</td>
</tr>
<tr>
<td>Horse cost</td>
<td>0.16 \times 2.06 \text{ (feed)} = 0.33</td>
</tr>
<tr>
<td>Water maintenance</td>
<td>0.19 \times 2.09 + 2.14/2 \text{ (wages, building &amp; fencing) 2.12 ave.} = 0.40</td>
</tr>
<tr>
<td>Dev. depreciation</td>
<td>0.11 \times 3.02 \text{ (interest rates)} = 0.33</td>
</tr>
<tr>
<td>Other cost</td>
<td>0.13 \times 1.99 \text{ (production items)}</td>
</tr>
<tr>
<td><strong>TOTAL NONFEE COST</strong></td>
<td><strong>$6.50</strong></td>
</tr>
</tbody>
</table>

$6.50 + $1.60^1 = $8.10 total cost of Forest Service grazing.
$6.50 + $1.51^2 = $8.01 total cost of BLM grazing.
$6.50 + $2.21^3 = $8.71 estimated cost in 1980.

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1. 1976 Forest Service grazing fee.
2. 1976 BLM grazing fee.
3. 1980 BLM & FS projected grazing fee.
This would not be the only impact resulting from the implementation of fees for all users. First, it is likely that some recreational use, like some grazing, will be priced away--i.e., the value of the recreation is less than the fee that would pay for the costs of collection. Secondly, fees for the use of federal lands may suddenly make many private recreational developments profitable. These private developments could then contribute to the tax base and incomes accruing to local communities. Thirdly, the federal government would probably return a portion of the fees collected to the local communities. This could have a significant impact on local community finance. For example, Clawson [3] estimated that revenues from the use of federal lands would increase approximately fourfold (1963) if all uses paid for at least a portion of benefits received. Thus, the future holds some promise for local communities dependent upon federal lands but the path may be bumpy as some uses will increase while others decrease if the policies indicate above become reality.

Being outside the wildlife science discipline allows one some naïveté that might be denied one within the group. With this in mind let me discuss some aspects of wildlife management that appears to bring new problems and challenges to one in this discipline. Management implies that one has a goal in mind and that one is going to manipulate a resource in some way to achieve this goal. It is not clear to an outsider what the goal is of wildlife management. Is it maximum production of wildlife for hunting and fishing? Or has the nonconsumption (antihunter) uses of the wildlife resources become the dominant force and thus brought about a change in the goal of wildlife management. Is the discipline faced with a multigoal future and thus the problems of meeting goals that can and often are in conflict with one another?
In closing, one more thought should be added to this topic. Up to this point, food production has not been mentioned. We have had a history of food abundance in this country and our problems have been with how to deal with surpluses. Some questions can be raised, however, concerning the possibility of this trend continuing. Changes are coming because of population, high energy costs and scarcities, food exports as a partial offset to high oil imports in our balance of trade, and environmental protection constraints on the production process to mention a few. It is not inconceivable that sometime in the future rangeland use decisions for both livestock and wildlife will be significantly influenced by how these resources can meet this country's demand for food and fiber.
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