



Ranch-level Economics of Prescribed Grazing in the West

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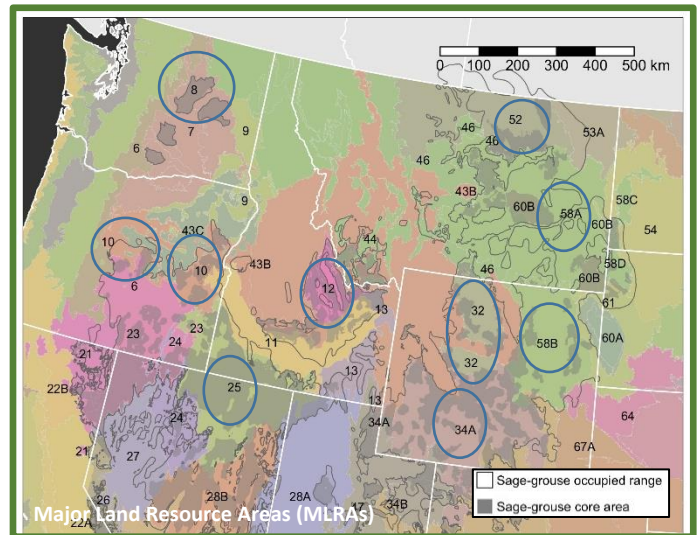
Introduction

Capturing potential gains from prescribed grazing as the result of increased cattle production requires the development of sophisticated models of cattle production dynamics. To begin filling this information gap, this study seeks to quantify and compare the impact on ranch profits from two prescribed grazing conservation practices: 1) rotational grazing and 2) rotational grazing plus rest. The Natural Resources Conservation Service (NRCS) offers both technical assistance and financial incentives for ranchers interested in adopting prescribed grazing programs, so understanding how these practices affect ranchers' bottom lines is critically important.



Methods

Major land resource areas (MLRAs) with sage grouse habitat were identified. Representative ranch types were identified from enterprise budgets for each major land resource area (MLRA). Public ranch types use rangeland managed by the federal or state government (Bureau of Land Management, United States Forest Service, and/or State), as well as private rangeland. Private ranch types operate solely on privately owned rangelands. Representative ranches were modeled as profit-maximizing operations, with a planning horizon of 40 years. The Net Present Value (NPV) of the ranch's



net cash flow was calculated using a 7% discount rate, averaged from 100 cattle sales price scenarios developed using Cattlefax price data.

Researchers then created impact models, working with a panel of NRCS advisors. Project size in acres was estimated from the number of Animal Unit Months (AUMs) given in enterprise budgets, vegetation production information detailed in Ecological Site Descriptions, and an assumed 25% Harvest Efficiency (HE) and a 70% water distance factor (WDF)¹. Following implementation of a prescribed grazing conservation practice, at least two new water developments were added to the model. Additional water developments were added if required to achieve 90% WDF. Fencing, water developments, and other costs associated with prescribed grazing were assumed to be supported through the Environmental Quality Incentives Program (EQIP) (3/4 of project costs) and by NRCS incentive payments. Since prescribed grazing also may result in harvest efficiency gains, two harvest efficiency scenarios are considered for each impact model -- no change, and 5% increase (i.e., 30% HE).

¹ A factor of proximity of cattle to a water source

Results

The representative ranch types shown to see a net gain under each HE scenario and prescribed grazing practice are presented in Table 1 (highlighted in green). If a 5% increase in HE results, all ranches in the MLRAs studied (with the exception of the smallest project size) return profit gains from adopting the rotation plus rest practice.

Table 1. Summary of changes, in both cattle production and the Net Present Value (NPV) of the ranch's net cash flow over 40 years, due to prescribed grazing program adoption. Results are shown according to the Major Land Resource Area (MLRA), ranch type, harvest efficiency (HE), and prescribed grazing program.

MLRA	State	Ranch Type	Project Size (Acres)	Impact (+/-)			Impact (+/-), with 5% HE Increase		
				Herd Size	Rotation NPV	Rest NPV	Rotation +	Rest NPV	Rotation +
8	WA	Lg. Priv.	25,002	+10%	+6%	+43%	+25%	+50%	+85%
		Lg. Pub.	9,656	+7%	+3%	+14%	+13%	+16%	+26%
		Sm. Priv.	1,976	+3%	-29%	-17%	+18%	-4%	+6%
		Sm. Pub.	1,587	+3%	-26%	-18%	+20%	-4%	+4%
10	OR	Lg. Priv.	24,069	+4%	+35%	+71%	+6%	+74%	+108%
		Sm. Priv.	3,006	+4%	-11%	+2%	+13%	+9%	+22%
		Sm. Pub.	1,987	+4%	-3%	+1%	+16%	+11%	+15%
12	ID	Lg. Priv.	13,733	+4%	+15%	+37%	+5%	+37%	+60%
		Sm. Priv.	8,950	+4%	+11%	+27%	+5%	+27%	+43%
25	NV	Sm. Priv.	7,319	+13%	+17%	+39%	+14%	+38%	+59%
32	WY	Lg. Pub.	15,389	+3%	+8%	+23%	+7%	+16.5%	+31%
		Sm. Priv.	9,789	+6%	+14%	+45%	+14%	+30%	+61%
34A	WY	Lg. Priv.	12,509	+8%	+13%	+40%	+13%	+34%	+60%
		Lg. Pub.	1,901	+1%	-2%	+0%	+2%	+1%	+3%
		Sm. Priv.	3,544	+2%	-8%	+6%	+4%	+4%	+17%
		Sm. Pub.	399	+0%	-5%	-4%	+1%	-4%	-3%
52	MT	Lg. Priv.	13,841	+30%	+28%	+51%	+50%	+44%	+65%
		Lg. Pub.	7,123	+7%	+130%	+154%	+15%	+147%	+169%
		Sm. Priv.	2,981	+1%	-5%	+10%	+6%	+5%	+20%
		Sm. Pub.	1,227	+8%	-6%	-2%	+24%	-2%	+3%
58A	MT	Lg. Priv.	12,946	+9%	+13%	+23%	+24%	+29%	+38%
		Sm. Priv.	3,651	+4%	+3%	+12%	+15%	+17%	+27%
58B	WY	Lg. Priv.	9,495	+6%	+10%	+17%	+10%	+25%	+32%
		Lg. Pub.	6,259	+1%	+1%	+5%	+3%	+8%	+12%
		Sm. Priv.	1,228	+2%	-58%	-29%	+10%	+9%	+39%

Conclusion

These results highlight profit and cattle production gains available to ranches within each MLRA from conservation program participation (Table 1). Raising awareness of these possible benefits of NRCS programs may promote program adoption. Further research is needed to know under what conditions HE gains occur and how the possible non-market and ecological benefits of prescribed grazing (not quantified here) affect program adoption and economic outcomes.

For additional information, please visit:
<http://sustainableangelands.org/projects/economics-of-sage-grouse-management/>