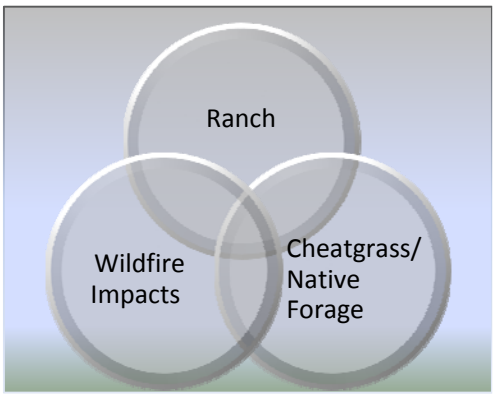
Ranch-level Impacts of Sagebrush-steppe Wildfires on an Eastern Oregon Ranch

Key characteristics of ranch simulation model

- Ranchers receive returns that go beyond profit (non-market benefits) and often stay in business until they pass it onto the next generation, sell it to someone else, or move onto other career alternatives (see Torell et al. 2001).
- Cattle sale prices (in 2005 dollars) are averaged (non-stochastic) to isolate wildfire impacts .
- Simulates livestock production decisions over a 40-year-planning horizon (7% discount rate) for a representative eastern Oregon 300 cow-calf ranch that is constrained by wildfire events.

Ranchers likely have a positive willingness to pay for effective cheatgrass treatment



Prescribed or wildfires that surprise the rancher result in a greater cost to the ranch than if able to plan ahead

- Reductions in herd size in anticipation of and immediately following a fire that precluded use of the public allotment for an assumed period of two years.
- Probability of moving out of the ranching businesses increases.

Key Implications

- Ranchers looking to the future likely have a positive willingness to pay for successful cheatgrass treatment on public lands that are in the reference state (regardless of the spring forage they may have to forgo).
- Adequate notice for treatment reduces costs for ranchers that can plan ahead and reduce herd size.

Ecological Data used in the model

- Public grazing allotment available forage quantities (reference state of ecological health) from cheatgrass and native grass were specified using herbaceous biomass data gathered on the Hart Mountain Grey Butte and Rock Creek study sites during the SageSTEP pre-treatment (control) year.
- Available forage on the public allotment was divided per season according to cheatgrass and native grass growth functions (USDA 1996).
- 20 to 40 year mean fire return interval assumed (MFRI associated with this level of cheatgrass invasion in this region).

Summary of Results for the ranch

- Downward pressure on the net present value of the income stream of the firm.

References

USDA, NRCS. 1996. Electronic Field Office technical guide. Available at: www.nrcs.usda.gov/Technical/efotg.

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