Cross-Jurisdictional Management of a Trophy-Hunted Species

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Abstract. Gray wolves (*Canis lupus*) are managed for competing uses in the Greater Yellowstone Ecosystem (GYE). Tourism benefits Yellowstone National Park (YNP) visitors while trophy hunting benefits hunters outside of the park. We investigate the policy scope of gray wolf management across jurisdictional boundaries by incorporating three foundations of the behavioral ecology of wolves: refuge-seeking behavior, optimal foraging group size and territoriality. Tradeoffs between and within consumptive and non-consumptive human benefits and wolf population fitness and life history indicators are quantified as a set of elasticities, providing clear implications to resource managers. Our approach highlights that hunting intensity affects the provision of consumptive and non-consumptive human benefits across jurisdictional boundaries and ought to be managed accordingly. We also show that population levels are an incomplete indicator of species fitness, which may depend on how hunting policies impact underlying group ecology. Our findings suggest traditional optimization approaches to wildlife management may lead to suboptimal policy recommendations when the boundaries on the natural system are oversimplified. Highlighting the human element of wildlife management, we show that understanding tourist and hunter responses to wildlife population abundances is critical to balancing provision of consumptive and non-consumptive human uses.

Keywords: behavioral ecology, competing uses, elasticities, gray wolves, wildlife management.