



Ranch Owner Perceptions and Planned Actions in Response to a Proposed Endangered Species Act Listing[☆]



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ABSTRACT

The Gunnison sage-grouse (GUSG) is an iconic species recently proposed for protection under the Endangered Species Act (ESA). In Colorado's Upper Gunnison River Basin, ranchers own the majority of water rights and productive river bottoms as well as approximately 30% of the most important GUSG habitat. This project used mixed-methods interviews with 41 ranch owners to document how ranchers perceive the proposed ESA listing and how they plan to respond to a listing decision. Results show that ranchers support on-the-ground GUSG conservation but are concerned about listing implications. Ranchers are most concerned about their ability to manage public and private lands productively and continue permitted grazing on public lands. If the species is listed, landowners plan to decrease participation in conservation strategies, including plans to adopt conservation easements, participation in conservation programs, and willingness to allow access to private lands for GUSG monitoring. Landowners also express plans for increased sales of land and water, which could have negative consequences for GUSG habitat. This research suggests that changes in the application of the ESA could lead to beneficial conservation outcomes. These changes include increased transparency, ability to exclude stable populations from listing under the ESA, and commitment to work with local bodies if the species is listed. This project demonstrates the importance of qualitative research for understanding the indirect and unintended effects of species protections in an increasingly interconnected world.

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Introduction

Private lands provide crucial habitat for the conservation of endangered species. Unfortunately, the potential for an Endangered Species Act (ESA) listing in the United States often creates concern and resistance to federal interference among landowners, even though they may be supportive of species conservation (Conley et al., 2007; Sheridan, 2007). What are landowners' reasons for negative interpretations of ESA listings, and how might these interpretations influence their conservation-relevant behavior? We interviewed members of active ranching families in the Gunnison Basin of southwest Colorado before the listing decision of the Gunnison sage-grouse (*Centrocercus minimus*) to gauge their perceptions of and planned actions in response to the proposed listing. Such research about social systems is critical for understanding the feedbacks between livelihoods and conservation in an increasingly interconnected world, as well as for designing more effective conservation policies (Sayre, 2004).

Since the passage of ESA legislation in 1973, ecological understanding has shifted from a paradigm of balance and equilibrium of nature to one of resilience, including thresholds and nonlinear dynamics (e.g., Scheffer, 2009). Climate change may modify ecological processes such that certain species become extinct despite designation as endangered species (Steffen et al., 2007; Thomas et al., 2004). The ESA, however, requires that listing decisions be based solely on biological information about the species, with no consideration of the social ramifications of these listings until the designation of critical habitat (United States Government, 1973). There is increasing recognition of the tight coupling and feedbacks between ecological and social systems (Chapin et al., 2009; Clark and Dickson, 2003). In this paper, we explore whether policies formulated to address ecological components (species) may have unintended consequences for human communities, whose individual or collective actions might then change ecosystem patterns (management practices, land and water use) and, in turn, affect the target species.

Almost all (90%) endangered species in the United States rely on private lands for habitat (General Accounting Office, 1994), and in the Gunnison Basin, > 30% of the important habitat for Gunnison sage-grouse (GUSG) is on private lands. Conversion from working ranches to small-acreage amenity properties is a threat to many wildlife species across the western United States (Gosnell and Travis, 2005; Gosnell et al., 2006). In the Gunnison Basin, two-thirds of the properties > 100 acres in size are owned by individuals whose primary residence is

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outside the Basin, representing 48% of all private land (Gunnison County Assessor, 2012 and Saguache County Assessor, 2012). Shifts from ranching to other types of land use can have negative implications for biodiversity (Maestas et al., 2001) and habitat improvement projects (Plieninger et al., 2012). Fragmentation into smaller land units can affect GUSG directly (Oyler-McCance et al., 2001) or indirectly through an increase in predation by pets or creation of predator movement corridors (Haegen et al., 2002). Landowner decisions will therefore affect GUSG populations. To understand these potential feedbacks, this paper focuses on perceptions and planned actions of landowners before a listing decision.

Although they may view wildlife positively, long-time rural landowners often resist government regulation (Layden et al., 2003), particularly ESA listings, because some view it as a tool to remove grazing from public lands (Conley et al., 2007). Conley et al. (2007) found that opposition to ESA listings is correlated with negative perceptions of the federal government, rather than actual number of listed species on the allotments or potential for restrictions on those allotments. Despite incentives, a portion of landowners refuse to participate in conservation efforts due to normative pressure from their peers (Sorice et al., 2011). However, successful examples of programs that assist private landowners in managing for rare and at-risk species exist (e.g., Sorice et al., 2012; U.S. Fish and Wildlife Service [USFWS], 2008).

Although there is concern that the threat of ESA listings may lead landowners to destroy habitat to prevent increased regulation (Bean and Wilcove, 1997), landowner responses to listings have rarely been studied. One study shows that after listing of the Preble's meadow jumping mouse (*Zapus hudsonius preblei*) in 1998, landowners were split about their willingness to manage for conservation and were less likely to allow monitoring (Brook et al., 2003). Our study expands prior analyses to explore how a listing decision may impact land and water sales, as well as conservation actions. It combines qualitative and quantitative methods to explore the context-specific reasons why ranchers might oppose a listing decision. We also explore ranchers' baseline perceptions of their livelihood to better understand the contribution of potential GUSG listing to general livelihood stressors.

Site Description and Methods

Site Description

GUSG are currently found south of the Colorado River in Colorado and Utah in seven discrete populations (Fig. 1). GUSG are sagebrush obligates that depend on sagebrush for winter forage and rely on sagebrush cover year-round. They have habitat needs that vary by season and lifestage. For instance, they have high fidelity to breeding sites, require mesic areas for brood-rearing, and use exposed sagebrush areas during winter. Between 1958 and 1993, an estimated 20% of sagebrush-dominated landscapes on which GUSG depend were lost (Oyler-McCance et al., 2001). The largest remaining GUSG population (estimated 4799 grouse) resides in the Upper Gunnison River Basin (Jackson and Seward, 2015). This current estimate is an increase of 801 birds from 2014 (Jackson and Seward, 2014). Although this population has been stable for the past 12 years, the USFWS has expressed concern about the other smaller satellite populations due to interacting threats including fragmentation, land conversion, and increased predators (USFWS, 2013a). Since completion of this study, the USFWS listed the GUSG as threatened under the ESA. The decision to list as threatened, rather than endangered, was partially a result of their consideration of local efforts (USFWS, 2014).

The Gunnison Basin has a long history of GUSG conservation efforts, first organized under the Gunnison Basin Local Working Group formed in 1994 and later incorporated into the Gunnison Basin Sage-Grouse Strategic Committee in 2005. The community has created local and regional conservation plans (Gunnison County Sage-grouse Local Working Group, 1997; Gunnison Sage-grouse Rangewide Steering Committee, 2005),

helped to bring in more than \$30 million for direct conservation actions (J. Cochran, personal communication, July, 2012), and adopted land-use regulations to protect and conserve GUSG and their habitats. In addition, many local ranchers have changed grazing management practices, fenced riparian areas, and placed conservation easements on > 50 000 acres in the Gunnison Basin (Gunnison Ranchland Conservation Legacy, 2015). Many of these actions have been taken in an effort to preclude the need to list the GUSG under the ESA.

The primary land use in this region is cattle ranching, which occurs on 96% of private lands and 89% of national forest lands (Cheng, 2006). Private ranchlands are typically lower elevation pastures that are irrigated during the spring and summer to produce hay used to overwinter cattle. Ranchers rely on public lands during the spring and summer, and cattle return to private lands in the fall after haying. The average ranch size is 900 acres (Gunnison County, 2013), while the average public land used by each operation is > 17 000 acres (Bureau of Land Management, 2012; United States Forest Service, 2012). Large private parcels, which often abut public land, provide critical GUSG habitat. Grouse use the margins of hay fields during brood-rearing, and several large breeding areas are on hay meadows. Ranchers also own the majority of water rights (F. Kugel, personal communication, 2012). The cumulative decisions of individual ranchers may impact GUSG populations that rely on these landscapes. In two prior studies in this region, we assessed vulnerability of land-based livelihoods to climate change (Knapp, 2011) and documented local knowledge of GUSG from both formal and observational experts (Knapp et al., 2013). During the first study, many ranchers spoke of potential land and water sales based on the increased difficulty of ranching in the area if the grouse were listed (Knapp, 2011). Since this study was conducted, GUSG has been listed as threatened under the ESA (USFWS, 2014). In the discussion section, we address the results of this study in light of recent events.

Methods

We were interested in speaking with local owners of large ranches in the Gunnison Basin. We obtained a list of landowners who owned > 100 acres from the County Assessor and removed landowners with addresses > 60 miles outside the Basin's borders. We checked the resulting list with several individuals familiar with the ranching community to remove individuals not actively involved in agricultural production. We were interested in speaking with local agricultural owners as they have the vast majority of public land grazing permits and are economically dependent on land in the basin and thus may be most impacted by a listing decision. This process resulted in 89 potential participants.

We mailed an introductory letter and followed with two phone calls or, if phone was unavailable, a postcard to set up interviews. Of the 89 potential participants, we were unable to find accurate contact information for 12 and 5 declined to speak with us. When asked why they declined, they said that they were not in town (2), did not enjoy interviews (2), or were busy (1). From this population (72), we wanted to obtain a sample that was representative of size and type of operation, while prioritizing those with public lands permits and larger private land ownership. We prioritized these individuals because they may be most affected by a listing decision, and their responses to the listing may also have the largest impact on regional land and water dynamics. Individual interviews from this potential population were chosen on the basis of these criteria (representativeness, while prioritizing larger landowners), their response to our contacts, and their availability. We conducted 41 in-person interviews in November 2012 that ranged from 40 minutes to an hour and a half and stopped conducting interviews when new interviews were no longer providing additional information. Our effective sample size represents 57% of potential participants and is broadly representative of the ranching community in the Upper Gunnison Basin in terms of size and type of operation (Table 1). We conducted a nonresponse bias survey with a subset (10) of the population (31) that we were unable to speak with and found that nonrespondents did not

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