



Jaguar Critical Habitat Designation Causes Concern for Southwestern Ranchers

By Colleen M. Svancara, Aaron M. Lien, Wendy T. Vanasco, Laura López-Hoffman, Scott A. Bonar, and George B. Ruyle

On the Ground

- The designation of jaguar critical habitat in April 2014 in southern Arizona and southwestern New Mexico created concern for livestock ranchers in the region.
- We interviewed ranchers to understand their concerns with the jaguar critical habitat designation and their attitudes toward jaguars, wildlife conservation, and resource management in general.
- Ranchers we interviewed were concerned about direct impacts of designated critical habitat on ranching, as well as possible alternative agendas of critical habitat advocates and issues specific to the borderlands region.
- The ranchers were less concerned about the presence of jaguars but were more concerned about possible limiting effects of the Endangered Species Act (ESA), distrust of government entities, and litigious environmental groups.
- To maximize effectiveness, government agencies should work to foster trust in the ranching community, be cognizant of sensitive issues specific to the region that may challenge endangered species conservation goals, recognize the opportunity to work with ranchers for endangered species management, and provide outreach about implications of the ESA.

Keywords: attitudes, concerns, Endangered Species Act, endangered species management, human dimensions, jaguar critical habitat, key informant interview, southwest, wildlife conservation.

Rangelands 37(4):144–151

doi: 10.1016/j.rala.2015.05.003

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How does the implementation of federal endangered species policy affect ranchers' attitudes toward, or willingness to conserve, habitat for wildlife? How do ranchers' concerns about the consequences of new regulations relate to their opinions more generally of endangered species or conservation policy? To begin to answer these questions, we interviewed nine key leaders in the southeastern Arizona ranching community to learn about their perceptions and opinions with regard to critical habitat designation—per the U.S. Endangered Species Act of 1973 (ESA)¹—and about its effects on livestock grazing.

Critical habitats comprise areas designated by the U.S. Fish and Wildlife Service (USFWS) containing preferred landscape features (i.e., food, water, cover or shelter, distance from humans) for threatened and endangered species. In our study, we interviewed selected ranchers about their views of the recent critical habitat designation for the jaguar (*Panthera onca*). Although we did not directly investigate the factors that might influence ranchers' attitudes, we found that ranchers' attitudes toward the endangered species policy do not necessarily reflect their attitudes toward wildlife conservation in general or toward jaguars specifically.

The ESA is the primary federal law protecting threatened and endangered species in the United States. Many private landowners are apprehensive of endangered species inhabiting their land because of possible government oversight or additional regulations that might arise from enforcement of the ESA.² Ranching permit holders in the Southwest—those who hold federal permits to graze livestock on designated areas of public land—generally believe that the ESA has negative effects on ranching operations.³ However, although ranchers might feel burdened by the ESA, many of them care about the fate of threatened and endangered species.³

Because most ranches in the Southwest encompass vast, open landscapes with interconnected and diverse habitats, ranchers have the capacity to play a significant role in

providing habitat for wildlife and protecting species—amplifying the role of ranchers and rangelands in conservation across the region. Our study shows that resource managers and other individuals or groups concerned with promoting wildlife conservation—government agencies, nongovernmental organizations, or private foundations—need to understand ranchers’ perspectives and concerns about endangered species, as their views are more complex than is often presumed. Resource managers can use this knowledge to build trust, connections, and partnerships. This study is a first step in understanding and bolstering communication with ranchers in southwestern United States.

In that regard, our study is the first to document how the designation of jaguar critical habitat affects ranchers’ attitudes about jaguars and concerns about endangered species policy—and the reasons underlying those concerns.

Implications of the ESA for Ranching in the Southwest

Under the ESA, it is illegal to “take” a species listed as threatened or endangered. To “take” is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect,” and includes “significant damage to species habitat, or to attempt to engage in any such conduct.”¹ The USFWS is tasked with enforcing the ESA. The USFWS can designate critical habitat to protect species’ habitat from degradation or extreme alteration, such as development. As mentioned above, critical habitat is a formally designated area containing physical or biologic elements that are essential to a threatened or endangered species’ conservation.¹ Under the ESA, any action authorized, funded, or carried out by federal agencies that would hinder continued existence of threatened and endangered species or adversely affect or modify habitat is prohibited within critical habitat.¹

Grazing in western United States occurs on a combination of federal, state, and private lands. Private land is subject to the ESA, primarily prohibiting “taking” of an endangered or threatened species. Ranchers with federal grazing permits or state leases are subject to myriad regulations, including additional ones related to the ESA. Because grazing permits are federally issued, if an endangered species is discovered on public grazing lands, there may be additional regulation for the related ranching operations because of the ESA. For example, the USFWS has restricted livestock from certain public areas in southeastern Arizona that are deemed essential for such endangered species as the Gila chub (*Gila intermedia*).⁴

In addition to prohibiting take on private land, additional regulations may apply to private land, such as when federal funding has been used to complete a ranch improvement project. In legal terminology, this is referred to as a “federal nexus.” When a federal nexus is present, private landowners must consult with the USFWS before undertaking range management plans or construction projects.

Since ranchers must manage public allotments—and in some cases their private land—to meet state and federal

requirements, any additional regulation or oversight due to the ESA can be controversial.

Jaguar Critical Habitat

Historically, jaguars existed in Arizona, California, New Mexico, Texas, and possibly Louisiana.⁵ As recently as 1963, jaguars in Arizona were sighted as far north as the Grand Canyon.⁵ Since then, all sightings in Arizona have been of males concentrated in the southern part of the state.⁵ Five, possibly six, male jaguars were seen in the region between 1996 and 2011.⁵ Jaguars in the United States are thought to be part of a larger population located in Mexico.⁵

Jaguars were listed as endangered in the United States in 1997. The USFWS designated critical habitat for jaguars in April 2014. The designated area ranges from the Baboquivari Mountains in southern Arizona to the San Luis Mountains in southwestern New Mexico (Fig. 1). The designation could affect the activities of numerous entities and individuals, including federal agencies, recreationists, hunters, developers, ranchers, and landowners.

Because over three-quarters of endangered species rely on habitat found on private land, private landowners, whether they intend to or not, play an essential role in endangered species conservation.⁶ Therefore, understanding ranchers’ opinions regarding wildlife and the policies created to protect wildlife is important for federal agencies and policymakers seeking to implement comprehensive and effective endangered species conservation. Our study aims to contribute to improving this understanding.

Interviewing Ranchers

We used the key informant interview method^{7,8} to obtain detailed information from leaders in the ranching community in southern Arizona and southwestern New Mexico. This approach is commonly used in ethnographic anthropologic studies, whereby key individuals (i.e., community leaders) are purposely selected to derive in-depth information about an issue of special concern.^{7,8} Key informant interviews can consist of small numbers of participants (sometimes with sample sizes as small as 1)⁹ because of time and budget constraints, or the intensity of the method. Even constrained by this limitation, these types of interviews have provided valuable information for anthropologic⁷ and environmental policy studies.¹⁰ However, they have not been used as frequently in studying the human dimensions of wildlife conservation. Our study shows how the key informant interview might be applied in a contentious management setting for endangered species conservation.

Interview Design

We conducted interviews with nine key informants—leaders in the ranching community—to understand their attitudes, concerns, and perspectives about jaguars and critical

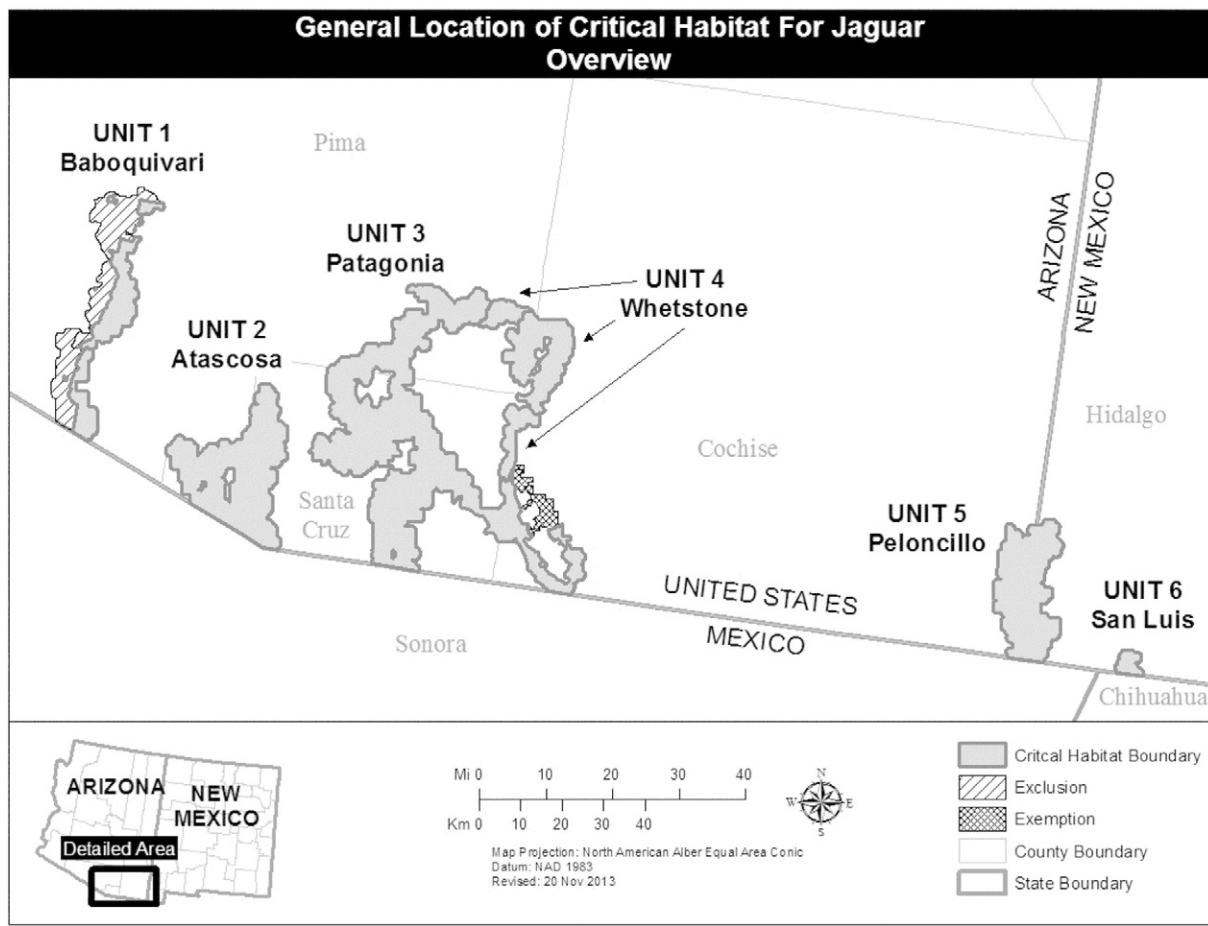


Figure 1. Map of U.S. jaguar critical habitat designation (courtesy of U.S. Fish and Wildlife Service).

habitats. We used a focused approach of key informant interviewing,⁷ in which we only queried about a specific area of interest: wildlife conservation broadly, including jaguar and other endangered species conservation, and government involvement in natural resource management. For our study, we defined “leaders in the ranching community” as being prominent ranchers in the region or members or directors of a collaborative ranching group with existing knowledge of the jaguar critical habitat designation. The ranchers we identified and interviewed were not told that they had been selected on the basis of their role as community leaders. Thus, we believe their responses reflect their own opinions and not the opinions of their constituents.

We conducted key informant interviews between December 2013 and February 2014. The interviews were semi-structured and used open-ended questions framed under three general topics: attitudes toward jaguars, concerns related to designation of jaguar critical habitat, and attitudes toward wildlife habitat conservation in general. The semistructuring of interviews allowed for conversations to arise beyond predefined topics and for a deeper understanding of the individuals we interviewed.¹¹

We developed an interview guide to ensure that the predetermined topics were covered in each interview but allowed the interviewee to expand on certain topics as they wished. We conducted the interviews—which lasted anywhere

from 40 minutes to 1 hour—in the participant’s home or place of business. We obtained the consent of the participants in accordance with procedures of the University of Arizona’s Human Subjects Protection Program; prior to each interview, we informed the respective interviewee about the purpose of the study and that their identity and responses would be anonymous. In addition to the interviewer, a note taker was present at all interviews to transcribe the conversation.

A University of Arizona rangeland extension specialist and a jaguar habitat researcher—based on their personal knowledge of the Southwestern ranching community—selected 11 key informants for interviews. The informants represented nine individual ranching operations and, to our understanding, communicated their own views and opinions. The persons selected for interview were involved and interested in collaborative management of rangelands; many had experiences partnering with agencies for management and conservation. Interviewees were between the ages 35 and 81 years, with all being third-generation to sixth-generation ranchers. We interviewed two women, five men, and two married couples (counting each couple as “one” key informant) that comanage their operations.

Interview Analysis

We analyzed written notes taken during interviews for common themes using qualitative data analysis software, QSR

NVivo 10.¹² The software allowed us to group the interview responses into the thematic categories that we had created. We grouped responses initially within one of the three broad topics covered in the interviews. Then we created more specific subcategories based on the range of interview responses.

For example, after we grouped all of the interviewees' concerns about designation of jaguar critical habitats, we then identified three distinct subcategories: (1) concerns about direct impacts on land management, (2) concerns that critical habitats were being designated for ulterior motives, and (3) concerns related to border security. Two research staff separately analyzed the interview responses and individually identified these emerging themes.

We report below the ranchers' personal attitudes about jaguars and the designation of jaguar critical habitats (within the three areas of concern), and about wildlife conservation and resource management in general.

Themes from the Interviews

Attitudes about Jaguars and Designated Critical Habitat

Many of the ranchers we interviewed regarded jaguars with respect, as they did other wildlife, despite concerns about livestock depredation. Even though four interviewees had depredation concerns, most of the ranchers we interviewed said they would be excited and in awe if they ever saw a wild jaguar. One rancher stated, "My initial reaction would be delight and amazement. ... [My] next reaction would be one of great concern."

However, despite positive intentions toward wildlife, all nine interviewees did not support designating critical habitats for jaguars in the United States. Five informants did not believe habitats in southern Arizona and southwestern New Mexico could support a population of jaguars. They questioned the necessity for critical habitats because they did not think enough water or prey exists for another large

predator. Many of the ranchers' conclusions were based on a previous analysis by a researcher on large felines, who had concluded that southwestern United States lacks typical elements of jaguar habitat.¹³

Interviewees also feared the regulations that come with an endangered species. One rancher said, "As soon as one more [animal] gets named [as endangered], it seems like there are many more restrictions and hoops we have to jump through." Another individual recognized that working with endangered species is just part of ranching, "but from a bureaucratic standpoint, it's a nightmare."

Concerns about Direct Impacts

The primary concern expressed by all nine key informants was maintaining their ranching operation in the face of critical habitat designations (Fig. 2). Many of the ranchers we interviewed had state leases or federal grazing allotments. These ranchers were concerned that designations of jaguar critical habitats would result in curtailment or elimination of public land grazing. Seven out of nine interviewees were concerned that the designations could mean restricted land use within the critical habitat boundary (see Fig. 2).

One rancher mentioned that critical habitat could limit other wealth-generating practices, such as mining and natural gas extraction, as well as ranching. Others believed that jaguar critical habitat designations could broadly limit activities within the area's boundary. Six out of nine interviewees were concerned that critical habitat designations would bring increased government regulation of their ranching operations (see Fig. 2).

The jaguar is the most wide-ranging animal, thus far, for which critical habitats have been designated in southern Arizona and southwestern New Mexico. This has sparked much concern about possible additional restrictions, such as prohibition of prescribed burns or limiting the number of livestock within the boundaries of critical habitats.

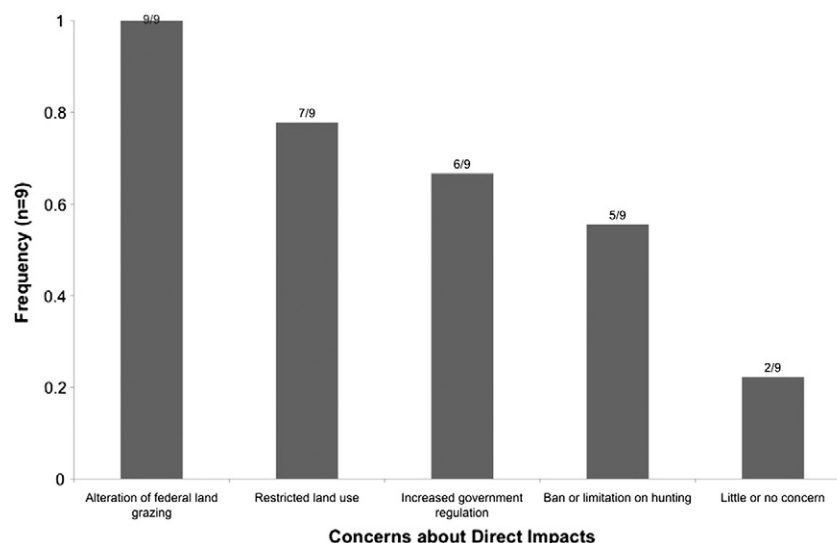


Figure 2. Frequency of interviewee responses in each category of concerns about direct impacts of jaguar critical habitat designation.

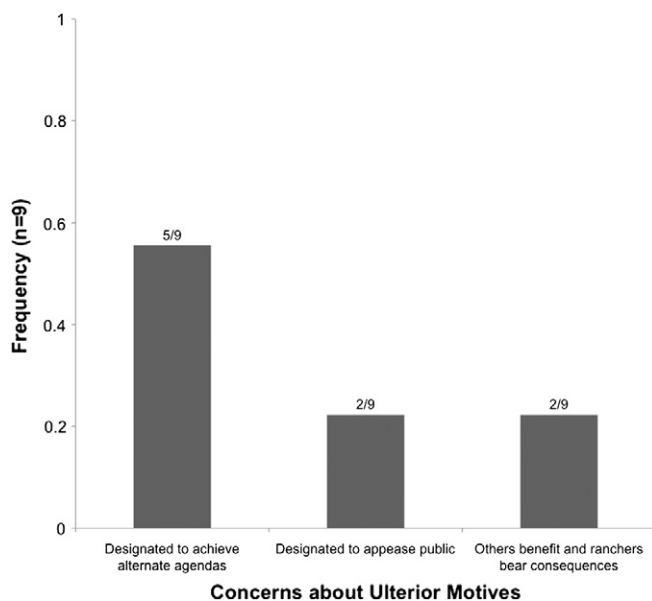


Figure 3. Frequency of interviewee responses in each category of concerns relating to ulterior motives driving the designation of jaguar critical habitat.

Five of the nine ranchers we interviewed were concerned that jaguar critical habitats and the ESA could be used to ban or alter hunting within the boundary (see Fig. 2). Most concerns were specific to hunting mountain lions (*Puma concolor*) because most ranchers pursue and kill lions that have depredated their livestock. Mountain lions are usually hunted with dogs and ultimately treed and killed. The ranchers we talked to thought lion hunting would become prohibited since hunting dogs might tree a jaguar, as they do with mountain lions, which could be considered harassment of an endangered species and prohibited by the ESA. Despite concerns about restrictions on hunting as a means to protect livestock, two interviewees believed more restrictions were needed on recreational hunting as a way to prevent overhunting. One rancher recommended resting and rotating the availability of geographic units designated for hunting deer, similar to the way farmers rotate their crops or fallow pastures.

Although most of the ranchers we interviewed perceived negative consequences from jaguar critical habitat designations, two of the ranchers showed little apprehension, believing that the designation would have no significant impacts on ranching (see Fig. 2). Those ranchers mentioned that the most drastic limitations to ranchers would have occurred already when the jaguar was newly listed under the ESA in 1997 and felt that the designation would not introduce many additional restrictions or regulations on livestock grazing.

Concerns About Ulterior Motives

A concern that resonated with five interviewees was that the proponents of jaguar critical habitats were not supporting the designation merely to conserve jaguars but, rather, as a means

to achieving possible alternative agendas (Fig. 3). Although the ESA itself does not directly limit livestock grazing or pipeline construction, some ranchers fear that environmental groups will pursue lawsuits to obtain such restrictions.

In addition to believing that the designations were driven by ulterior motives, two interviewees thought that designating critical habitats for jaguars was done to appease the public (see Fig. 3). In particular, they presumed that it resulted from urbanites and environmentalists pushing to protect jaguars. Most interviewees did not believe that critical habitats would actually support jaguar conservation, and two felt that ranchers would have to bear the consequences of the designations, while other persons and groups would benefit from the decision (see Fig. 3).

Concerns Related to the Border

Potential changes to U.S.–Mexico border security were mentioned as a concern by two of the interviewees. Because of the close proximity to the Mexican border, these ranchers were concerned that environmentalists could use critical habitat designations to restrict border patrol operations. Specifically, they worried that infrastructure, such as new lighting, roads, or walls, could be argued as “destruction or adverse modification of critical habitat”¹ by environmentalists.

Attitudes Toward Wildlife Conservation and Resource Management

All of the ranchers we interviewed said that ranching directly benefits wildlife through the fundamentals of the practice. Ranching maintains vast, contiguous swaths of land and provides habitat connectivity. Water developments (such as ponds and tanks) for livestock also benefit wildlife. In a drought-stricken environment, such as southwestern United States, the practice of ranching provides valuable water resources that might not otherwise be available to wildlife.

Besides general range management, four of the key informants used wildlife-specific structures on their ranches, such as wildlife-friendly fencing or escape ramps in water tanks, which directly benefit wildlife. In fact, two of the ranchers we interviewed felt that the presence of rare and unique species on a ranch indicates the success of ranching for wildlife conservation, something for which ranchers in the area should be commended.

All interviewees expressed some need for improved relations and communication when partnering with government agencies for resource management; some informants felt this need more strongly than others. Most interviewees had previous experience working with state or federal programs for range management. Five interviewees reported that working with the government was a slow, demanding process for ranchers. “The government nature of the beast is trying to get things done—one step forward, three steps back,” one rancher claimed. Furthermore, interviewees said the results of collaboration with government agencies often are more punitive for stewards than they are rewarding.

Although most of the ranchers we interviewed recognized that government must have a role in resource management, ranchers tend to be apprehensive about more possible regulations placed on grazing or land improvement projects, which increases their trepidation about working with government programs.

Discussion

As with similar studies using the key informant technique, our study was limited by the constraints of small sample size. However, even though we were only able to interview a small number of ranching leaders, we found strong similarities in opinion among the group. Below we discuss three points that synthesize and summarize the results of the interviews. Although we cannot generalize our results to describe the entire regional ranching community, our results provide a good starting point for dialogue between ranchers and federal officials who are responsible for habitat management of endangered species. Further dialogue can hopefully lead to informing all sides of the issue so that prudent land management decisions can be made to support healthy and viable ranching communities and healthy and viable endangered species populations.

Concerns About ESA Effects Trump Concerns About the Jaguar

Because ranching can preserve vast tracts of natural landscapes, ranchers, as owners and managers of these lands, are critical to supporting habitat conservation. This means that understanding ranchers' perspectives and concerns would help establish a common lexicon to bolster cooperation and communication with natural resource managers. The nine ranchers we interviewed saw themselves as stewards of the land—managing resources, maintaining natural landscapes, and supporting wildlife.

Interviewed ranchers were very concerned about the real and perceived restrictions that the ESA and critical habitat designation could have on grazing; but they were less concerned about the presence of jaguars on their ranches. The ranchers we interviewed had concerns that designated jaguar critical habitats would result in direct negative impacts on ranching operations. These concerns have a basis in reality because similar issues elsewhere have led to controversy and contention between resource users and the USFWS.

For example, during the 2001 drought in northwestern United States, farmers in the region suffered a \$200 million loss because the USFWS argued for the need to retain water in the Klamath River for endangered fishes rather than divert water for agricultural use.¹⁴ The following year, after the farmers' protests, water was diverted for irrigation, but against the USFWS's recommendations, which resulted in one of the worst fish kills in the region's history.¹⁴ This particular conflict over water allocation has fueled scientific research for the endangered species in the Klamath Basin, and farmers have formed alliances and coalitions to protect themselves.¹⁴ Recently, multiple users in the basin have been crafting

agreements based on better science and recently have signed a longstanding agreement to provide water for agriculture while meeting the needs of endangered species.¹⁵

For some ranchers in southwestern United States, stories of such conflicts confirmed their apprehension of the presence of endangered species on their land or validated their concerns about how jaguar critical habitats could interfere with their ranching operations. The ranchers we interviewed who had had previous experience operating ranches with an endangered species present on their land likely derived their concerns and assumptions from first-hand accounts. However, the ranchers whom we interviewed who had not directly dealt with the ESA could have been influenced by various publicized anecdotes that tend to be negative and controversial. Similarly, grazing permittees in the Coronado National Forest believe that the ESA is being used to eliminate grazing from public lands and that federal regulations mean a loss of freedom.³

Ranchers' Opinions About Endangered Species Conservation Are Complex

Our study shows that opinions about endangered species conservation policy are more complex and nuanced than they first appear to be and move beyond basic concerns about jaguar depredation. Most of our study's interviewees believed that proponents of jaguar critical habitats had ulterior motives in pushing for critical habitat designations, suggesting distrust of federal institutions or environmental groups. Distrust of government entities is one of the largest barriers to effective natural resource management.¹⁶

Davenport et al.¹⁷ demonstrate that federal agents who build interpersonal relations with the local community are the most trusted. Resource managers would be wise to focus on building trust with ranchers to obtain support for large landscape conservation efforts. We suggest fostering trust through frequent, informal, positive interactions with members of the borderlands ranching communities.¹⁷ Some of the concerns about jaguar critical habitats were reflections of other overriding issues unique to southern Arizona.

Border Security is a Pressing Issue for Many Who Reside on the U.S.–Mexican Border

Some of the interviewees strongly opposed designations of jaguar critical habitats because they felt that the government should be prioritizing border security instead of protecting the habitat of an occasional wandering jaguar. We heard ranchers' sincere concerns that critical habitat designation and the ESA could be used to detract from border security operations, even though in the REAL ID Act of 2005 (P.L. 109-13, Division B), the Department of Homeland Security has a provisioned waiver of the ESA and the National Environmental Policy Act (NEPA) of 1969.¹⁸ Section 102 empowers the Attorney General to bypass these laws, where necessary, to construct or strengthen barriers at United States' borders. The ranchers we interviewed did not discuss the REAL ID Act, leaving us uncertain about their understanding of how the REAL ID Act can be used to supersede the authority of the ESA.

Future Research and Management Implications

Our study demonstrates that while resource users might disagree with some aspects of how endangered species are managed, they agree, in general, with conserving wildlife and preserving resources. Most of the ranchers we interviewed did not object to the presence of occasional jaguars or to wildlife conservation. This indicates that there are opportunities to work with some ranchers more closely on endangered species management and to educate ranchers and other landowners about the ESA and USFWS's final rulings.

To apply the information generated from our study, we recommend that resource agents make it a priority to build transparency and trust with local communities and offer workshops that detail what the ESA or species listing could mean to landowners and land managers. Some agency personnel in Arizona have already done this by participating in or presenting to collaborative ranching groups, such as the Altar Valley Conservation Alliance and the Malpai Borderlands Group.

Future studies might incorporate larger numbers of ranchers with less intensive interviewing to complement the highly detailed information we obtained from our small number of ranching leaders. The larger sample size will help capture the demographics of the population that is less involved in collaborative management of rangelands. This study will assist in designing and analyzing future research, entailing a qualitative and quantitative census, and extension workshops for the ranching community regarding jaguar critical habitat designation and large landscape conservation.

We suggest continued and expanded integration of personnel with the ranching community, especially with regard to controversial topics. Government entities must also be cognizant of sensitive issues specific to the region that may challenge endangered species conservation goals.

Conclusion

In summary, ranching leaders in southern Arizona and southwestern New Mexico have concerns about the recent jaguar critical habitat designations by the USFWS. Many of the ranchers we interviewed said they were wary of the direct (and in their view, negative) effects designations could have on resource and range management and that they believed some advocates of jaguar critical habitat designation have additional, or alternative, goals, such as curtailing of grazing on public lands.

Most of the interviewees, however, support wildlife conservation, and some said that they have tried to show that ranching can coexist with the endangered species on the landscape. In general, ranchers in our study disliked the restrictions associated with jaguar conservation, rather than the species itself.

Based on our interviews, we found that ranchers' opinions of endangered species conservation are more complex and nuanced than simply having concerns about protecting an animal that threatens livestock. We believe, therefore, that

conservation agencies and organizations would be wise to focus their efforts on trust building and education as a way to alleviate some of the concerns of ranchers, other landowners, and the public in general about jaguar habitat protection in southwestern United States.

We recommend that future work include a comprehensive study of the population regarding this issue with a larger sample size to better delineate the opinions of the overall ranching community in southwestern United States.

Acknowledgments

We would like to thank all the anonymous ranchers for taking the time to participate in our study; the United States Fish and Wildlife Service, especially Erin Fernandez, Marit Alanen, Mary Anderson, and Jean Calhoun, for providing funding and advice to the University of Arizona for this project; Lisa Haynes from the University of Arizona for recommending interviewees and providing support; Robert Merideth, Ruscena Wiederholt, and Larry Howery from the University of Arizona for editing and analysis support; and the United States Geological Survey Arizona Cooperative Fish and Wildlife Research Unit for additional funding and in-kind services; the two anonymous reviewers and the *Rangelands* editor for providing valued comments. This work was conducted under Human Subjects Protection Program number 13-0761.

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Authors are Graduate Research Assistant, School of Natural Resources and the Environment, University of Arizona, Tucson, Arizona, 85721 (Svancara, svancarc@email.arizona.edu); Senior Researcher, Udall Center for Studies in Public Policy and PhD Student, Arid Lands Resource Sciences, University of Arizona, Tucson, Arizona, 85721 (Lien); Research Technician, School of Natural Resources and the Environment, University of Arizona, Tucson, Arizona, 85721 (Vanasco); Assistant Research Professor of Environmental Policy, School of Natural Resources and the Environment and Udall Center for Public Policy, University of Arizona, Tucson, Arizona, 85721 (López-Hoffman); Professor of Natural Resources and Leader for U.S. Geological Survey Arizona Cooperative Fish and Wildlife Research Unit, School of Natural Resources, University of Arizona, Tucson, Arizona, 85721 (Bonar); Extension Specialist, School of Natural Resources and the Environment, University of Arizona, Tucson, Arizona, 85721 (Ruyle). Research was funded by U.S. Fish and Wildlife Service.