



**SOUTHWESTERN  
COMMUNITIES COALITION**

**WORKING LANDOWNERS ARE THE KEY TO  
CONSERVING ENDANGERED SPECIES IN THE UNITED  
STATES AND IN FOREIGN COUNTRIES**

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## **INTRODUCTION**

My name is Brian Seasholes, and I am the Executive Director of the Southwestern Communities Coalition, a recently-formed organization based in Benson, Arizona. The mission of the Southwestern Communities Coalition is to promote thriving communities, a strong economy, sustainable growth, sound stewardship and use of natural resources and protection of property rights. All of these issues are mutually dependent and reinforcing. For example, if you want a healthy environment, you must have a healthy economy and protect property rights. It is a false choice that we can have a healthy environment or a healthy economy.

## **PURPOSE OF TESTIMONY**

Conservation of endangered species, especially when it involves the federal Endangered Species Act, is a very contentious issue. Conservation of endangered, threatened and at-risk species (referred hereafter as endangered species) is a very worthy goal, but it has become an increasingly controversial and political.

So the purpose of my testimony is to take a step back, away from the political fray, and to look at the more fundamental issue of how we, as a society, can more effectively conserve endangered species. After all, policies with the goal of conserving endangered species can be most effectively shaped, guided and implemented by an understanding of what approaches and methods are more effective at conserving endangered species, and, conversely, what approaches and methods are less effective. The purpose of taking a step back is to examine of a number of facts and real-world examples that I hope can help guide more effective approaches and policies to conserve endangered species.

## **I. PRIVATE WORKING LANDOWNERS ARE THE LINCHPIN**

While it may not be widely known to many Americans, private landowners are the linchpin to endangered species conservation in America.

### Most endangered species habitat is privately owned

There is one simple reason for this: private landowners own more habitat for endangered species than agencies that manage public lands. There are a variety of statistics that illustrate this, which include:

- In 1993, The Nature Conservancy estimated half of all endangered and threatened species had at least 80% of their habitat on private land.<sup>1</sup>
- A 1994 study by the General Accounting Office found 78% of endangered species depended on private land for all or some of their habitat, compared to 50% for

federal land. In addition, 91% of all endangered species had at least some habitat on nonfederal land.<sup>2</sup>

- In 1995, the Environmental Defense Fund estimated 95% of endangered species have some habitat on private land.<sup>3</sup>
- In 2000, a Princeton study found 67% of species listed under the Endangered Species Act have at least one population group on private lands.<sup>4</sup> However, this “is almost certainly an underestimate given the reluctance of many private landowners to cooperate with surveys for endangered species,” according to the study’s authors, biologists David Wilcove and Joon Lee.<sup>5</sup>
- A 2008 study estimated at least 60% of the at-risk species (defined as species listed under the Endangered Species Act or considered globally imperiled or vulnerable by NatureServe, a spinoff of The Nature Conservancy) in the lower 48 states rely on private forestlands for habitat.<sup>6</sup>

Many of these patterns hold true even in states with large amounts of federal land. The reason for this is that people tended to settle and create homesteads where there was water, especially in more arid states in the western U.S.

One species that illustrates this is the greater sage grouse, which lives across 165 million acres in eleven western states (California, Colorado, Idaho, Montana, Nevada, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming).

Public lands comprise 60% of the sage grouse’s range, almost all of which is federal land, while the remaining 40% is privately owned. Yet 68% of the sage grouse’s mesic habitat, which consists of areas with water, such as riparian areas and wet meadows, is privately owned.<sup>7</sup> In addition, 86%-90% of wet meadows are privately owned, and this habitat type is particularly important to sage grouse during periods of drought and when water elsewhere is scarce.<sup>8</sup>

The reason mesic, or wetland, habitat is so important has to do with how sage grouse populations are organized on the landscape. “Wetlands are keystone features that structure populations,” according to Patrick Donnelly of the U.S. Fish and Wildlife Service and lead investigator of a recent study.<sup>9</sup> Despite this, most of the focus on sage grouse conservation, especially by federal regulatory agencies and advocacy organizations, has been on the breeding sites known as leks where male sage grouse perform their showy breeding “dances” to attract females.

Yet it turns out that mesic, or moist, areas really the key to sage grouse conservation. As recent research on mesic habitat found:

*“Several patterns quickly became clear. Not only were leks clumped in the landscape, but the distribution of those clusters were strongly linked to the location of wet habitats: 85% of leks were within 6.2 miles of wet sites. The breeding areas with the highest densities of birds were even closer — within only 1.8 miles of wet habitats. In other words, the scarcity of wet habitats in sagebrush ecosystems drive the location of grouse breeding sites on uplands: hens choose to mate and nest within a reasonable walk of where they can find late summer foraging for their broods.”<sup>10</sup>*

As Patrick Donnelly, lead investigator on mesic habitat research observed:

*How do you conserve grouse that split their time between private and public lands? With 81% of sparse summer habitat in private ownership, sage grouse success is inextricably linked to ranching and farming in the West.”<sup>11</sup>*

Donnelly and co-authors also concluded: “Findings here support incentive-based conservation efforts on private lands ([NRCS] Natural Resources Conservation Service, 2015) that ensure a holistic approach that includes drought resilient wet meadows.”<sup>12</sup>

#### Patterns of land ownership and use in the U.S.

More broadly, the subset of private landowners that is most significant is working landowners; ranchers, farmers and woodland owners. These private working landowners are the most significant because they own almost 1.4 billion acres.<sup>13</sup> This constitutes 58% of the surface area of the United States. In addition, ranchers lease approximately 294 million acres of public land for grazing, 257 million of which are federal lands.<sup>14</sup> The private landowners who lease these lands are ideally positioned to implement conservation measures on these lands because they live in close proximity to the lands and also have a vested interest in maintaining and improving these lands’ health and productivity.

#### Reasons working landowners are ideally positioned to be endangered species conservationists

There are a number of reasons working landowners—ranchers, farmers and woodland owners—are ideally positioned to conserve endangered species, including that they:

- Live on the land 24 hours a day, 7 days a week, 365 days a year
- Have very detailed knowledge of the land, including the wildlife that inhabits their land and surrounding publicly owned land
- Typically possess a strong attachment to the land and are deeply committed to its conservation
- Have strong ties to the local community and a deep understanding of local social networks, which is a crucial, but often overlooked, factor for successful conservation.

- Are, by profession, land and resource managers. Sage grouse conservation ultimately occurs due to on-the-ground management, not in cities or the offices of federal agencies and groups that support penalty-based sage grouse conservation.
- Able to implement conservation measures over long periods of time, which is crucial because conservation often takes years, if not decades, to come to fruition.

#### Conclusion on private, working landowners

These patterns of land ownership and use, coupled with working landowners' ability to implement conservation measures on their private lands and public lands they lease, leads to one simple, inescapable conclusion: private landowners are the linchpin for endangered species conservation in the United States.

## **II. EVIDENCE FROM LANDOWNER SURVEYS OF FACTORS THAT ENCOURAGE AND DISCOURGE PRIVATE LANDOWNERS FROM CONSERVING ENDANGERED SPECIES**

Given that private working landowners are the linchpin to conserving endangered species, the question then is: what encourages and discourages these landowners from conserving endangered species? Fortunately, there is a significant body of evidence on this from surveys, carried out by academic researchers, of landowners' preferences.

The surveys' broad geographic reach over 19 states (Alabama, Arkansas, California, Colorado, Florida, Georgia, Idaho, Indiana, Kansas, Kentucky, Montana, North Carolina, Ohio, Oregon, South Carolina, Texas, Utah, Washington, Wyoming) makes them relevant and applicable to much if not all of the United States.

A number of findings from these surveys are:

- Most landowners think that they should be compensated if they harbor or conserve endangered species. In a related vein, the provision of monetary compensation increases landowners' willingness to conserve endangered species.<sup>15</sup>
- Technical assistance and cost sharing, which is another form of assistance, also increases landowners' willingness to conserve endangered species.<sup>16</sup>
- Landowners are very concerned that their property values could decrease and their livelihoods negatively impacted if they were to protect endangered species.<sup>17</sup>
- Assurances against future regulation can increase landowners' willingness to conserve endangered species.<sup>18</sup>
- Landowners do not like long-term (greater than approximately 15-20 years) contracts or permanent conservation easements to conserve endangered species.<sup>19</sup>

- Landowners prefer shorter (5–10 year) contracts to conserve endangered species.<sup>20</sup>
- Autonomy and freedom are very important to landowners, which exert a significant influence on landowners’ enthusiasm to become involved in conservation initiatives in general.<sup>21</sup> If landowners are to become involved in endangered species conservation efforts, they strongly prefer to have some management and decision-making authority. Conversely, landowners strongly object when they do not have such authority.<sup>22</sup>
- Landowners typically have a strong attachment to their land and a strong ethos of stewardship.<sup>23</sup>
- Landowners are much more likely to take part in incentive programs for endangered species if they, the landowner, is informed of the program by someone they trust.<sup>24</sup> Conversely, landowners are less likely to become involved in an incentive program if an official with a regulatory agency approaches them.<sup>25</sup>
- In two of these surveys, half of the people surveyed were not interested in filling out the surveys.<sup>26</sup> For one of the surveys, the reason given most often was distrust because of the “potential for government involvement.”<sup>27</sup> This is similar to other surveys, which found people refused to become involved in incentives programs for imperiled species because of social factors, including a lack of trust, rather than insufficient monetary incentives.<sup>28</sup>

### **III. ENORMOUS COSTS IMPOSED ON LANDOWNERS OF LITTLE IF ANY CONSERVATION VALUE**

Landowners have well-founded concerns about costs imposed by endangered species on their land. The impacts of designating of critical habitat for just 159 species listed under the Endangered Species Act include:

- As much as \$10.7 billion in total economic impacts, which is usually over a twenty-year period post-critical habitat designation<sup>29</sup>
- \$1.3 billion in annual economic impacts
- On average, the loss of hundreds of jobs for each species designated
- Designation and regulation of land totaling:
  - 60,169,546 acres (of which 11,261,054 is private property)
  - 83,372 miles of waterways (rivers, streams and creeks)
  - 68,846,720 acres of lakes, estuaries and ocean
  - Private lands, adjacent to 27,851 miles of rivers and streams, that are subject to increased regulations.

Despite the enormous costs imposed, there is little if any value to designating critical habitat under the Endangered Species Act, according to a number of scholarly studies that examined such designation on species' status.<sup>30</sup> One study claimed designating critical habitat improved species' status.<sup>31</sup> But the findings of this study were discredited by a couple of the aforementioned studies.<sup>32</sup>

Moreover, the U.S. Fish and Wildlife Service stated:

*In 30 years of implementing the Act, the Service has found that the designation of statutory critical habitat provides little additional protection to most listed species, while consuming significant amounts of available conservation resources. The Service's present system for designating critical habitat has evolved since its original statutory prescription into a process that provides little real conservation benefit, is driven by litigation and the courts rather than biology, limits our ability to fully evaluate the science involved, consumes enormous agency resources, and imposes huge social and economic costs.*<sup>33</sup>

#### **IV. PENALTY-BASED CONSERVATION UNSUCCESSFUL AND COUNTERPRODUCTIVE**

The Endangered Species Act's approach to conservation is costly, such as the questionable value of designating critical habitat, and highly punitive. Violating the act's prohibition on "take" carries with it fines of up to \$50,000 and/or 1 year in jail for each individual member of a listed species taken. "The term 'take' means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."<sup>34</sup> The most important portion of "take" is "harm", which is defined as "an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering."<sup>35</sup> Under the so-called harm-by-habitat-modification provision, habitat, including unoccupied habitat, can be subjected to the Endangered Species Act's penalties and prohibitions.

The Endangered Species Act's costly, penalty-based approach is precisely the wrong approach to take if the goal is species conservation. Indeed, as evidenced by landowner surveys of the factors that encourage and discourage endangered species conservation, effective endangered species conservation is incentive-based, not penalty-based. Or, as Australian legal scholar David Farrier put it, after observing how the U.S. went about conserving biodiversity, which included administering the Endangered Species Act, "disgruntled landowners make poor conservationists."<sup>36</sup>

The researchers who conducted one of the previously-cited landowner surveys concluded:

*The fear generated by ESA regulation is a poor motivator for species conservation on private lands. Rather, incentive based approaches that consider the needs of landowners are more likely to result in species conservation over the long term.*<sup>37</sup>

So it should not be surprising that the Endangered Species Act's penalty-based approach has achieved meager results over act's forty-six year history.

## **V. EVIDENCE OF ESA HARMING SPECIES**

### Expert Opinion

Throughout the 1980s and early 1990s, reports of landowners dealing with problems caused by the ESA's penalties, by destroying habitat, surfaced.<sup>38</sup> More significantly, in 1994, Michael Bean of the Environmental Defense Fund, and widely recognized as the foremost expert on U.S. Wildlife law, made this observation:

*There is, however, increasing evidence that at least some private landowners are actively managing their land so as to avoid potential endangered species problems...Now it's important to recognize that all of these actions that landowners are either taking or threatening to take are not the result of malice toward the red-cockaded woodpecker, not the result of malice toward the environment. Rather, they're fairly rational decisions motivated by a desire to avoid potentially significant economic constraints. In short, they're really nothing more than a predictable response to the familiar perverse incentives that sometimes accompany regulatory programs.*<sup>39</sup>

Michael Bean also identified private lands the Endangered Species Act's "Achilles' heel," and he further stated:

*[O]n privately owned lands ESA has had only modest beneficial impact and some unintended negative consequences, including antagonizing many of the landowners whose actions will ultimately determine the fate of many species. Improving the effectiveness of conservation efforts on private lands is ESA's most pressing need.*<sup>40</sup>

In 1999, a number of university professors who were strong supporters of the ESA stated:

*[T]he regulatory approach to conserving endangered species and diminishing habitats has created anti-conservation sentiment among many private landowners who view endangered species as economic liabilities...Landowners fear a decline in value of their properties because the ESA restricts future land-use options where threatened or endangered species are found but makes no provisions for compensation. Consequently, endangered species are perceived by many landowners as a financial liability, resulting in anti-conservation incentives*

*because maintaining high-quality habitats that harbor or attract endangered species would represent a gamble against loss of future economic opportunities.*<sup>41</sup>

### Empirical, Scholarly Studies of Listed Species

Starting in the 2000s, a number of scholarly studies based on empirical research provided more evidence of the effects of the Endangered Species Act's penalty-based approach.

#### Utah Prairie Dog

According to the U.S. Fish and Wildlife Service, damage caused by the Utah prairie dog to agriculture equipment and lost crops totaled an estimated \$1,500,000 annually.<sup>42</sup> Also, 33% of landowners took actions to discourage prairie dogs from inhabiting their property.<sup>43</sup>

#### Red-Cockaded Woodpecker

The red-cockaded woodpecker lives in the pine forests of the southern U.S., and a number of scholarly publications found the ESA's punitive regulations resulted in:

- Landowners prematurely cutting trees in order to deny habitat to the woodpecker habitat.<sup>44</sup>
- Landowners being 21% more likely to clear-cut timber, rather than selectively cut, in order to deny habitat to woodpeckers.<sup>45</sup>
- Landowners within a one-mile radius of a red-cockaded woodpecker colony were 25% more likely to harvest their timber than landowners who were outside of a one-mile radius.<sup>46</sup>
- Private landowners were 5% less likely to reforest the land once it had been cut if their land was near red-cockaded woodpeckers.<sup>47</sup> 5% is significant for an endangered species that needs every bit of habitat to survive.

#### Cactus Ferruginous Pygmy-Owl

This small owl lives in southern Arizona, although the vast majority of its population is in Mexico. In Tucson, Arizona land the U.S. Fish and Wildlife Service proposed to designate as critical habitat for the owl was developed by its owners one year earlier than habitat out of the critical habitat designation area. There is "the distinct possibility the Endangered Species Act is actually endangering, rather than protecting, species" surmised the authors of the study on the effects of critical habitat designation on development.<sup>48</sup>

#### Preble's Meadow Jumping Mouse

This mouse lives along the Rocky Mountain Front near Denver, Colorado. A survey of landowners in the mouse's range found that 26% of the land area surveyed was being managed by landowners to make it inhospitable to the mouse, and most landowners would not let their land be surveyed for the mouse.<sup>49</sup> "The efforts of landowners who acted to help the Preble's mouse were canceled by those who sought to harm it," according to the study. "As more landowners become aware that their land contains Preble's habitat, it is likely the impact on the species may be negative."<sup>50</sup>

### Harming Species Not Yet Listed

The Endangered Species Act's penalty-based approach is so anti-conservation that it detrimental to species not even listed under the act—and it appears this has been occurring for most the ESA's 43-year history.

#### San Diego Mesa Mint

In 1978 the San Diego mesa mint was proposed for listing under the ESA. Soon thereafter, a developer worried his planned construction of 1,429 homes on 279 acres would not be possible if the mint was listed. A few days before the U.S. Fish and Wildlife Service listed the mesa mint in 1979, the developer bulldozed the plants.<sup>51</sup>

#### Black-Tailed Prairie Dog

Several environmental pressure groups petitioned the U.S. Fish and Wildlife Service in 1998 to list the black-tailed prairie dog under the ESA in Arizona, New Mexico and Texas, Oklahoma, Colorado, Kansas, Nebraska, Wyoming, North Dakota, South Dakota and Montana. The response from landowners was not surprising. "The petition has created difficulties for us," stated Dennis Flath, a biologist with the Montana Department of Fish, Wildlife and Parks. "Now private landowners don't want us to find out if there are any prairie dogs. They want to get rid of prairie dogs quickly, while they have the opportunity," before listing occurs.<sup>52</sup>

## **VI. LANDOWNER HARMED**

The harm caused to working landowners, who are the linchpin for successful endangered species conservation, by the Endangered Species Act's penalty-based approach was brought home in the early-to-mid 2000s. The act's draconian penalties are attractive to ideological individuals and organizations that are interested in using the act's power to implement land and resource-use controls.

One such instance occurred in southern Arizona when the Center for Biological Diversity used the temporary presence of the Sonoran chub, an endangered fish, on Jim Chilton's federal grazing allotment as a pretext to attack Jim and his wife Sue by publishing defamatory claims. The center claimed the Chiltons were engaging in poor management of their cattle, which resulted in environmental degradation. According to the Chiltons:

*The News Advisory [published by the Center for Biological Diversity] contained outright falsehoods and the photos contained in the Appendices were false and misleading. At least four of the photos were not even taken on the Montana Allotment, while others showed a mining site, a deer camp, and, worse, the site of an annual May Day festival where hundreds of people, including the Center's photographer, had recently camped.<sup>53</sup>*

The Center refused to remove the defamatory material from its website so Jim Chilton sued the organization for defamation. Jim won his case, which has been commented on by attorney Lanny Davis:

*[T]he Center for Biological Diversity was found by a jury years ago to have maliciously and willfully defamed a local rancher regarding his environmental practices. The organization was required to pay \$600,000 in compensatory and punitive damages, which the Arizona Court of Appeals later affirmed in a harshly written opinion.<sup>54</sup>*

In addition, a number of prominent environmental pressure groups filed amicus briefs in support of the Center for Biological Diversity.

*In the appeals process, Amicus briefs were filed by environmental corporations that advocated for the Center for Biological Diversity's right to lie, defame, misrepresent and practice a reckless disregard for the truth as long as their intentions were to advance their "environmental" agenda. Big names that chimed in with Amicus briefs to OK the Center's defamatory actions were The Sierra Club, Forest Guardians, Arizona Wildlife Federation and the Maricopa Audubon Society.<sup>55</sup>*

Forest Guardians is now known as Wild Earth Guardians, and the Arizona Wildlife Federation is the state chapter of the National Wildlife Federation, while the Maricopa Audubon Society is a chapter of the National Audubon Society. It is remarkable that three of the largest and oldest environmental pressure groups—Sierra Club, National Wildlife Federation and National Audubon Society—took such a stance.

Even though Jim Chilton won his case, the power that can be wielded by a malicious group trying to wield the Endangered Species Act likely has a chilling effect on other landowners who learn of the case. Most landowners do not have the fortitude or wherewithal to fend off litigious organizations, such as the Center for Biological Diversity. Not only do landowners lose but so, too, do endangered species.

The Endangered Species Act's penalty-based approach intimidates and induces fear in landowners. As a result, the ESA fosters conflict, divisiveness and antagonism, and hard feelings on the part of landowners.

## **VII. A BETTER WAY TO CONSERVE ENDANGERED SPECIES**

The Endangered Species Act and its predecessors were passed in the late 1960s and early 1970s. Yet there is another approach to conservation that dates back a century or more that would be far more successful conserving endangered species.

One of the aforementioned landowner surveys was based largely off of the PhD research of Dwayne Elmore, who is currently a professor in the Department of Natural Resource Ecology and Management at Oklahoma State University. According to Elmore, state universities' cooperative extension services, which typically include education and natural resource management advice for landowners, are a good model for organizing endangered species conservation efforts:

*Cooperative Extension is an ideal facilitator for volatile wildlife issues such as endangered species management on private lands. Often, lack of trust in government agencies or fear of Endangered Species Act regulations hinders conservation efforts on these private lands. Extension personnel have close ties to local affected communities and thus can be instrumental in educating landowners regarding options that may be available to them in regards to sensitive, candidate, threatened, or endangered species.*<sup>56</sup>

Or, as one of the landowners interview in another landowner survey put it:

*"[T]here needs to be more of an incentive-based deal because 80 percent of endangered species occur on private property, and if they change it to an incentive they could have species running out their ears instead of landowners running in fear of restrictions that could be put on them trying to make a living."*<sup>57</sup>

Mollie Beattie, then-Director of the Fish and Wildlife Service, compared the Endangered Species Act to the U.S. Department of Agriculture's Conservation Reserve Program (CRP):

*I think this [the CRP] really, really opened people's eyes to what could be achieved in a basically non-regulatory, voluntary program. If there were an incentive to make the best habitat [for endangered species], we'd be miles ahead.*<sup>58</sup>

Such an extension-based approach is successful because it is landowner-friendly, voluntary, and incentive-based. This is why the U.S. Department of Agriculture's Sage Grouse Initiative uses an extension-based approach. "The Sage Grouse Initiative is a new paradigm for conserving at-risk wildlife and America's western rangelands that works through voluntary cooperation, incentives, and community support", according to USDA.<sup>59</sup> The Sage Grouse Initiative is organized around four principles:

- 1) Science Driven
- 2) Locally Led
- 3) Partnership Based
- 4) Trust & Credibility<sup>60</sup>

Note that three of these four principles are based on many of the same social issues and concerns expressed in the above-mentioned surveys of factors that encourage and

discourage landowners from conserving endangered species. As a result of the Sage Grouse Initiative's focus on gaining the trust and willing cooperation of landowners, the initiative has achieved remarkable results since its launch in 2010, including:

- Removal of 457,000 acres of conifers that degrade sage grouse habitat
- Helped ranchers implement grazing plans to improve rangeland health on 2.7 million acres
- Decreased threats from wildfire and invasive grass species, through improving the health on 1.8 million acres of rangelands
- Implemented conservation measures on 12,178 acres of moist meadow and riparian habitat, which is especially valuable for hens and chicks<sup>61</sup>

Utah's Community-Based Conservation Program, which has been heavily involved in greater sage grouse conservation, is guided by the motto "If it's not good for communities, it's not good for wildlife." In addition, the program's website asks, "Why Extension?", and answers with:

- *Extension is a non-regulatory entity.*
- *Extension has strong ties to the local community and economy.*
- *Extension has established solid working relationships with local landowners and agricultural producers.*<sup>62</sup>

Ultimately, endangered species conservation is a social endeavor, not a biological science. What this means is that if endangered species conservation is to be successful it must have the buy-in of the key decision-makers who own, manage and control species habitat. This is why, of the four principles around which the Sage Grouse Initiative is organized, only one addresses science. The other three revolve around issues of concern to people, especially the private working landowners who harbor sage grouse and sage grouse habitat.

According to Steven Edwards, a longtime manager of and advisor to the IUCN (World Conservation Union), and one of the world's foremost experts on wildlife conservation:

*[S]uccessful conservation depends on the commitment of the people living with the wild species—not us. Yes, we can give financial and technical support, but in the final analysis it will be those people who will make a difference. Not laws. Not government policies. And not our wishful thinking.*<sup>63</sup>

## VIII. INTERNATIONAL CONSERVATION AND CITES

The importance of working landowners to endangered species conservation in the United States is very applicable to issues of endangered species conservation in foreign countries. This is especially true for those countries that tend to have high amounts of biodiversity, because such countries tend to be in the less-developed world where there are high levels of human poverty. In other words, when people are poor, they are less likely to be tolerant of wildlife conservation efforts that do not materially benefit them.

But if wildlife conservation efforts can benefit them then people are more likely to be tolerant of or even supportive of wildlife conservation.

These imperatives are often hard for people from the developed world to understand, but all it takes is a bit of empathy. While people in the developed world think elephants and lions are magnificent, the people who live in close proximity to these animals often have a very different view. Elephants, lions, and other large animals are typically viewed by people who share their habitat, especially those who are poor, as threats to their lives and livelihoods. The calculation for these people, who are among the poorest in the world, is very simple: if wildlife is not a financial benefit to them, then they will displace, and in some instances kill, wildlife with forms of land use that are beneficial to them. This process, which I refer to “the cattle and crops solution”, is enormously damaging to wildlife because habitat loss is the leading threat to wildlife around the world. In the developing world, especially in large portions of Africa, these issues and pressures are especially pronounced because of the levels of human poverty and the threat posed to human well-being by wildlife.

As one study of this issue, including about the role played by CITES (Convention on International Trade in Endangered Species) concluded:

*(1) use of wildlife in developing countries is more likely to be an imperative rather than a choice; (2) the legal instruments of CITES have limited capacities to ensure that international trade is sustainable; (3) sustainable use of species is best achieved by gaining the support of affected local communities; (4) community support can be maximized by the devolution of ownership or user rights of species from the state to, e.g., the communal level, and the development of effective economic incentive structures to prevent alternative land-use strategies; (5) countries in southern Africa have pioneered devolution of ownership/user rights to the district/communal level; (6) in combination with effective CITES trade controls, trade opportunities, rather than trade restrictions, are most likely to assist in the development of incentive-driven conservation strategies; (7) to avoid negative incentives and to increase awareness of livelihoods, the international CITES community may need to consider whether CITES Appendices I and II listing decisions should be based not only on biological/trade criteria but also on socio-economic considerations, if it is in the conservation interest of the species concerned; (8) a strategic cooperation with the Convention for Biological Diversity (CBD) could improve strategies for sustainable trade; (9) while incentive-driven conservation can provide significant longer-term potential for the protection of animal and plant species, it may be most difficult to achieve for species whose high-value products have a long tradition in medicinal use and (10) the conditions under which incentive-driven conservation is most likely to promote sustainable use need to be clearly identified.<sup>64</sup>*

One of the ways in which wildlife can be an economic asset is photographic and viewing tourism. While this brings in a great deal of money, especially in Africa, it requires a great deal of infrastructure, such as hotels, vehicles, and roads, which have impacts on wildlife populations.

Another means to extract value from wildlife is trophy hunting. Trophy hunting, however, has become increasingly controversial because of objections on esthetic grounds. Some people in the rich, developed world find hunting distasteful, and non-profit organizations have successfully capitalized on this by raising lots of money to push for policies that make it difficult if not impossible for hunters to import from African countries trophies of animals shot on hunting safaris.

Safari hunting has a number of benefits:

- 1) It generally has less environmental impact than photographic tourism because it requires less infrastructure (e.g., hotels, vehicles, roads) and uses fewer resources, such as water.<sup>65</sup>
- 2) It occurs in areas separate from the parks and protected areas where photographic tourism occurs. It is estimated hunting occurs on 1,394,000 km<sup>2</sup> across sub-Saharan Africa, which is more land area than is in national parks.<sup>66</sup>
- 3) Parks where hunting cannot occur are not large enough to sustain wildlife populations in Africa. So additional areas that can generate income from wildlife are necessary. “Making wildlife directly profitable outside parks ‘is the only way to move beyond what I call the 5% solution,’ he [David Western, the then-Director of the Kenya Wildlife Service] says. ‘That’s the amount of land in protected areas around the world today, and unless we can make some inroads for wildlife on the 95% outside, those parks will never ever be ecologically self-sustaining.’<sup>67</sup>
- 4) Trophy hunting can provide much-needed income and even create incentives for poor, rural Africans to conserve wildlife.<sup>68</sup> Unless poor, rural Africans see wildlife as an income generating form of land use, they will replace wildlife and wildlife habitat with forms of land use that generate income.

Whether income from wildlife conservation is generated from photographic tourism, hunting, or both, the central objective for conservation in the developing world is to generate as much income as possible from the well-managed, sustainable use of wildlife. Unless the people who bear the true costs of living with wildlife and adjacent to state protected areas are able to benefit from this wildlife and from these areas, then these people, who are often among the poorest people on earth, will seek to replace wildlife and protected areas with forms of land and resources use from which they can benefit.

This calculus is simple and unsentimental. Unless the basic human needs are met for people who are among the poorest in the world are met, then these people will have no choice than to seek to meet their basic needs—such as food, shelter, healthcare, and education—by utilizing the natural resources, including wildlife, with which they live in close proximity. The ability of these people to earn much-needed income from wildlife

can be helped by Western governments facilitating the export of trophies hunted in these countries through well-managed, sustainable, commercial trophy hunting.

More broadly, the issues discussed in sections I-V of my testimony are very applicable to issues of wildlife conservation in the developing world, which is where most of the world's biodiversity is found.

## **IX. LEGISLATION UNDER CONSIDERATION**

The following discussion of various bills under consideration is guided by the extent and degree to which these bills help or hinder America's keystone endangered species conservationists, the country's working landowners. The only way endangered species conservation will ultimately be successful depends on the degree to which such conservation works with, not against, working landowners.

1) H.R. 2918 and H.R. 4348

H.R. 2918 addresses the conservation of species that are often overlooked in favor of so-called charismatic megafauna, such as wolves. Conserving butterflies, plants, freshwater mussels, and desert fish in the Southwestern U.S. is a worthy goal. The problem lies not with the goal but the means by which many if not all of these species will be conserved—the penalty-based Endangered Species Act. As discussed in my testimony above, the ESA's punitive nature alienated the very group of people most necessary to conserve these species; America's working landowners. Feeding more species into the Endangered Species Act will only exacerbate the anti-conservation incentives and actions caused by the act's punitive approach. This problem will most likely be felt most acutely by the very group of people who can best help conserve these species—ranchers, woodland owners, farmers and other working landowners.

H.R. 4348 has as its purpose the rollback of the Interior Department's recent administrative reforms of the Endangered Species Act. These reforms address the distinction between endangered and threatened species, designation of critical habitat, and listing and delisting species.

Perhaps the most significant reform was to restore the regulatory distinction between endangered and threatened species, which the U.S. Fish and Wildlife Service eliminated shortly after the ESA's passage in 1973. Jonathan Wood of the Pacific Legal Foundation pointed out, prior the final regulations, the benefits to species conservation of restoring the distinction between the categories of endangered and threatened:

*If the statute's distinction between the two categories was restored, states and landowners would be encouraged to recover threatened species before they reach endangered status. A threatened listing would serve as a signal that a species was at risk of becoming endangered, encouraging states, landowners, and other groups to recover the species.*

*Innovative and collaborative conservation programs would be easier to develop because landowners would have greater incentives to participate. Landowners who recover endangered species would be rewarded for their efforts by reduced regulatory burdens once a species' status was changed to threatened, creating a powerful incentive to recover endangered species.*<sup>69</sup>

The second area addressed by the Interior Department's recent reforms deals with how species are listed and delisted, as well as the designation of critical habitat. The reforms sensibly allow economic analysis of potentially listing a species to be referenced in the listing decision. Species conservation is one of many societal goals and federal funds for addressing these goals are finite. So it is perfectly reasonable for economic analysis to be considered when species are listed. Another reform is that the standards are the same by which species are added to and taken off the list of species protected under the ESA. Again, this is commonsense, because there should be consistent standards for adding and subtracting species under the ESA. Lastly in this portion of the reforms is how and what can be designated as critical habitat. Under the previous administration the definition of critical habitat was expanded so dramatically that even unoccupied and unsuitable habitat could be designated as critical. This created an enormous disincentive for landowners to take any actions that might render such habitat suitable and habitable by listed species. Clearly, such a situation was not in the best interests of species conservation or the best interests of landowners. So the rollback of the previous administration's expansion of critical habitat will benefit landowners and in so doing it will benefit species conservation.

The third area addressed has to do with reforms to Section 7 of the ESA. Under this section, any action that requires or involves a federal permit or funding can be subject to the ESA's draconian regulations. Many private landowners have to deal with Section 7 because so many actions involve federal permits or involved federal funding. Section 7 was intended to address large, significant projects, such as the building of a port or a major highway, not minor projects and actions. The expansion over the decades of activities subject to Section 7 reviews has created a regulatory morass that does not well serve species conservation. The prospect of becoming ensnared by Section 7 can create a perverse incentive for landowners to be less willing to engage in actions to conserve species. The recent reforms to Section 7 restore a measure of balance that will better serve the regulated community and species conservation.

2) H.R. 4340 and H.R. 4341

Both of these bills should be viewed against the foregoing discussion in this testimony, especially section VIII on international conservation and CITES. Conservation of species in foreign countries, especially the less-developed countries that will be impacted by these bills, is a delicate issue because many of the people impacted are very poor, disempowered and often disenfranchised from

the political and legal systems. Any such efforts to assist conservation of foreign species should take these issues into consideration, especially whether such efforts will exacerbate them. In addition, efforts through U.S. legislation to impact species conservation in foreign countries should be guided by one basic consideration: how does the legislation impact the people who live in close proximity to the species being addressed in the legislation. All too often U.S. legislation, such as efforts to protect elephants and rhinos, does far more harm than good by providing aid to what is known as “coercive conservation” or “fortress conservation.” Such approaches to conservation share many similarities with the Endangered Species Act’s punitive approach, but they also differ in that they are often implemented by repressive governments that have few if any qualms with using coercion to achieve conservation objectives. Coercion is an ineffective and counterproductive way to conserve species, and it raises a host of moral and philosophical issues.

## X. CONCLUSIONS

Conservation of endangered, threatened and at-risk species is often difficult, dependent on a wide range of actors, and takes years if not decades to show results. At the center of all of this are the most important people; working landowners. Aldo Leopold, the late professor of wildlife management and regarded by many as the father of wildlife conservation in America, had this to say about the imperative of wildlife conservation efforts to address the needs of landowners:

*This paper forecasts that conservation will ultimately boil down to rewarding the private landowner who conserves the public interest. It asserts the new premise that if he fails to do so, his neighbors must ultimately pay the bill. It pleads that our jurists and economists anticipate the need for workable vehicles to carry that reward. It challenges the efficacy of single-track laws, and the economy of buying wrecks instead of preventing them. It advances all these things, not with any illusion that they are truth, but out of a profound conviction that the public is at last ready to do something about the land problem, and that we are offering it twenty competing answers instead of one. Perhaps the cerebration induced by a blanket challenge may still enable us to grasp our opportunity.”<sup>70</sup>*

Wise words, indeed, and words that are as relevant today as they were when written 85 years ago. The success of endangered species conservation hinges on whether these words and the needs of landowners are heeded.

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- <sup>1</sup> The Nature Conservancy, *Perspectives on species imperilment: a report from the Natural Heritage data center network*, (Arlington, Virginia: The Nature Conservancy, 1993).
- <sup>2</sup> United States General Accounting Office, *Endangered Species Act: Information on Species Protection on Nonfederal Lands*, GAO/RCED-95-16, (Washington, D.C., 1994), pp. 4–5.
- <sup>3</sup> David Wilcove, Michael Bean, Robert Bonnie and Margaret McMillan, *Rebuilding the ark: toward a more effective Endangered Species Act for private land*, (Washington, D.C.: Environmental Defense Fund, 1996).
- <sup>4</sup> Craig R. Groves, Lynn S. Kutner, David M. Stoms, Michael P. Murray, J. Michael Scott, Michael Schafale, Alan S. Weakley and Robert L. Pressey. “Owning up to our responsibilities: Who owns lands important for biodiversity,” in *Precious Heritage: The Status of Biodiversity in the United States*, eds. Bruce A. Stein, Lynn S. Kutner and Jonathan S. Adams (New York: Oxford University Press), p. 283.
- <sup>5</sup> David Wilcove and Joon Lee, “Using Economic and Regulatory Incentives to Restore Endangered Species: Lessons Learned from Three New Programs,” *Conservation Biology*, vol.18, no.3 (2004), p. 640.
- <sup>6</sup> Marcos D. Robles, Curtis H. Flather, Susan M. Stein, Mark D. Nelson, and Andrew Cutko, “The geography of private forests that support at-risk species in the conterminous United States,” *Frontiers in Ecology and Environment*, vol. 6, no. 6 (2008), pp.301–307.
- <sup>7</sup> Donnelly, JP, Allred, BW, Perret, D, et al. Seasonal drought in North America’s sagebrush biome structures dynamic mesic resources for sage grouse. *Ecol Evol*. 2018; 8: 12492– 12505.
- <sup>8</sup> Ibid.
- <sup>9</sup> Sage Grouse Initiative. 2014. Private Lands Vital to Conserving Wet Areas for Sage Grouse Summer Habitat. Science to Solutions Series Number 4. Sage Grouse Initiative. 4pp. <http://www.sagegrouseinitiative.com/>.
- <sup>10</sup> Ibid.
- <sup>11</sup> Ibid.
- <sup>12</sup> Ibid.
- <sup>13</sup> U.S. Department of Agriculture, 2017 Census of Agriculture, United States Summary and State Data Volume 1, Geographic Area Series, Part 51; U.S. Forest Service, National Woodland Owner Survey, <https://www.fia.fs.fed.us/nwos/>.
- <sup>14</sup> <https://www.fs.fed.us/rangeland-management/documents/grazing-stats/2010s/GrazingStatisticalSummaryFY2016.pdf>; <https://www.blm.gov/programs/natural-resources/rangelands-and-grazing/livestock-grazing>; Jon Souder and Sally Fairfax, *The State Trust Lands*, The Thoreau Institute, <http://www.ti.org/statetrusts.html>.
- <sup>15</sup> Zhang and Mehmood, “Safe Harbor for the Red-Cockaded Woodpecker”; Brook et al. “Landowners’ Responses to and Endangered Species Act Listing and Implications for Encouraging Conservation”; Urs P. Kreuter, Malini V. Nair, Douglas Jackson-Smith, J. Richard Conner, and Janis E. Johnston, “Property Rights Orientations and Rangeland Management Objectives: Texas, Utah, and Colorado,” *Rangeland Ecology & Management* 59, no.6 (2006), pp. 632–639; Langpap, “Conservation of Endangered Species”; Leigh Raymond and Andrea Olive, “Landowner Beliefs Regarding Biodiversity Protection on Private Property: An Indiana Case Study,” *Society and Natural Resources*, vol.21, no.6 (2008) pp. 438–497; Sorice et al., “Incentive Structure of and Private Landowner Participation in an Endangered Species Conservation Program”; Michael G. Sorice, J. Richard Conner, Urs P. Kreuter and R. Neal Wilkins, “Centrality of the Ranching Lifestyle and Attitudes Toward a Voluntary Incentive Program to Protect Endangered Species,” *Rangeland Ecology & Management*, vol.65, no.2 (2012), pp. 144–152; Michael G. Sorice, Chi-Ok Oh, Todd Gartner, Mary Snieckus, Rhett Johnson and C. Josh Donlan, “Increasing participation in incentive programs for biodiversity conservation,” *Ecological Applications*, vol.23, no.5 (2013), pp. 1146–1155.
- <sup>16</sup> Zhang and Mehmood “Safe Harbor for the Red-Cockaded Woodpecker”; Sorice et al., “Incentive Structure of and Private Landowner Participation in an Endangered Species Conservation Program.”
- <sup>17</sup> Daowei Zhang and Sayeed R. Mehmood, “Safe Harbor for the Red-Cockaded Woodpecker: Private Forest Landowners Share Their Views,” *Journal of Forestry*, vol.100, no.5 (2002), pp. 24–29; Christian Langpap, “Conservation of Endangered Species: Can Incentives Work for Private Landowners?” *Ecological Economics*, vol.54, no.4 (2006), pp. 558–572; Michael G. Sorice, Wolfgang Haider, J. Richard

---

Conner and Robert B. Ditton, "Incentive Structure of and Private Landowner Participation in an Endangered Species Conservation Program," *Conservation Biology*, vol.25, no.3 (2011), pp. 587–596.

<sup>18</sup> Brook et al., "Landowners' Responses to and Endangered Species Act Listing and Implications for Encouraging Conservation"; Langpap, "Conservation of Endangered Species"; Sorice et al., "Incentive Structure of and Private Landowner Participation in an Endangered Species Conservation Program"; Sorice et al., "Increasing participation in incentive programs for biodiversity conservation."

<sup>19</sup> Zhang and Mehmood, "Safe Harbor for the Red-Cockaded Woodpecker"; Sorice et al., "Increasing participation in incentive programs for biodiversity conservation."

<sup>20</sup> Keith L. Olenick, Urs P. Kreuter and J. Richard Conner, "Texas landowner perceptions regarding ecosystem services and cost-share land management programs," *Ecological Economics* 53 (2005), pp. 247–260. Kendra Womack, *Factors Affecting Landowner Participation in the Candidate Conservation Agreements with Assurances Program*, Master's Thesis, (Logan, Utah: Utah State University, 2008); Sorice et al., "Incentive Structure of and Private Landowner Participation in an Endangered Species Conservation Program"; Sorice et al., "Increasing participation in incentive programs for biodiversity conservation"; Shari L. Rodriguez, M. Nils Peterson, Frederick W. Cabbage, Erin O. Sills and Howard D. Bondell, "Private landowner interest in market-based incentive programs for endangered species habitat conservation," *Wildlife Society Bulletin*, vol.36, no.3 (2012), pp. 469–476.

<sup>21</sup> Stefan A. Bergmann and John C. Bliss, "Foundations of Cross-Boundary Cooperation: Resource Management at the Public-Private Interface," *Society and Natural Resources*, vol.17, no.5 (2004), pp. 377–393. Freida Knobloch and R. McGregor Cawley, "Endangered species protection and ways of life: beyond economy and ecology," in *Species at risk: using economic incentives to shelter endangered species on private lands*, ed. J. F. Shogren (Austin, Texas: University of Texas Press, 2005); pp. 131–146; Kreuter, et al., "Property Rights Orientations and Rangeland Management Objectives: Texas, Utah, and Colorado"; Daniel DeCaro and Michael Stokes, "Social-psychological Principles of Community-Based Conservation and Conservancy Motivation: Attaining Goals within an Autonomy-Supportive Environment," *Conservation Biology*, vol.22, no.6 (2008), pp. 1443–1451; Tarla Rai Peterson, and Christi Choat Horton, "Rooted in the soil: how understanding the perspectives of landowners can enhance the management of environmental disputes," *Quarterly Journal of Speech*, vol.81, no.2 (2009), pp. 139–166; Sorice et al., "Increasing participation in incentive programs for biodiversity conservation."

<sup>22</sup> Sorice et al., "Increasing participation in incentive programs for biodiversity conservation."

<sup>23</sup> Zhang and Mehmood, "Safe Harbor for the Red-Cockaded Woodpecker"; Douglas Jackson-Smith, Urs Kreuter and Richard S. Krannich, "Understanding the Multidimensionality of Property Rights Orientations: Evidence from Utah and Texas Ranchers," *Society and Natural Resources*, vol.18, no.7 (2005), pp. 587–610. Andrea Olive and Leigh Raymond, "Reconciling Norm Conflict in Endangered Species Conservation on Private Land," *Natural Resources Journal*, vol.50 (2010), pp. 431–454.

<sup>24</sup> Brook et al., "Landowners' Responses to and Endangered Species Act Listing and Implications for Encouraging Conservation"; Kreuter et al., "Property Rights Orientations and Rangeland Management Objectives: Texas, Utah, and Colorado"; Sorice et al., "Incentive Structure of and Private Landowner Participation in an Endangered Species Conservation Program."

<sup>25</sup> Wilcove and Lee, "Using Economic and Regulatory Incentives to Restore Endangered Species: Lessons Learned from Three New Programs"; Sayeed R. Mehmood and Daowei Zhang, "Determinants of Forest Landowners Participation in the Endangered Species Act Safe Harbor Program," *Human Dimensions of Wildlife*, vol.10 (2005), pp. 249–257.

<sup>26</sup> Sorice et al., "Incentive Structure of and Private Landowner Participation in an Endangered Species Conservation Program"; Sorice et al., "Increasing participation in incentive programs for biodiversity conservation."

<sup>27</sup> Sorice et al., "Increasing participation in incentive programs for biodiversity conservation." p. 1150.

<sup>28</sup> Womack, *Factors Affecting Landowner Participation in the Candidate Conservation Agreements with Assurances Program*; Michael G. Sorice and J. Richard Conner, "Predicting Private Landowner Intentions to Enroll in an Incentive Program to Protect Endangered Species," *Human Dimensions of Wildlife*, vol.15, no.2 (2010), p. 77–89; Sorice et al., "Incentive Structure of and Private Landowner Participation in an Endangered Species Conservation Program."

- 
- <sup>29</sup> Brief for the Cato Institute, Reason Foundation, and National Federal of Independent Business Small Business Legal Center as amici curiae in support of the petition for certiorari, p.4, *Building Industry Association of the Bay Area v. United States Department of Commerce, On Petition for a Writ of Certiorari to the U.S. Court of Appeals for the Ninth Circuit*, No. 15-1350, [https://www.cato.org/sites/cato.org/files/wp-content/uploads/building\\_industry\\_cert-stage.pdf](https://www.cato.org/sites/cato.org/files/wp-content/uploads/building_industry_cert-stage.pdf).
- <sup>30</sup> Kerkvliet, Joe & Langpap, Christian. (2007). Learning from endangered and threatened species recovery programs: A case study using U.S. Endangered Species Act recovery scores. *Ecological Economics*. 63. 499-510; Male, T. D. and Bean, M. J. (2005), Measuring progress in US endangered species conservation. *Ecology Letters*, 8: 986-992; Clark, J. A., Hoekstra, J. M., Boersma, P. D. and Kareiva, P. (2002), Improving U.S. Endangered Species Act Recovery Plans: Key Findings and Recommendations of the SCB Recovery Plan Project. *Conservation Biology*, 16: 1510-1519.
- <sup>31</sup> Taylor, Martin. (2009). The Effectiveness of the Endangered Species Act: A Quantitative Analysis. *BioScience*. 360-367
- <sup>32</sup> Kerkvliet and Langpap (2007); Male and Bean (2005).
- <sup>33</sup> 70 Federal Register 46924 (Aug. 11, 2005).
- <sup>34</sup> U.S. Fish and Wildlife Service, ESA Basics, [https://www.fws.gov/endangered/esa-library/pdf/ESA\\_basics.pdf](https://www.fws.gov/endangered/esa-library/pdf/ESA_basics.pdf)
- <sup>35</sup> Ibid.
- <sup>36</sup> David Farrier, Conserving Biodiversity on Private Land Incentives for Management or Compensation for Lost Expectations?, 19 *Harvard Environmental Law Review*. 303 (1995).
- <sup>37</sup> Elmore et al., "Perceptions of wildlife damage and species conservation," p. 85.
- <sup>38</sup> Associated Press, "Stage is set for confrontation over endangered species law," *Wilmington Morning Star*, November 10, 1992, p. 6C; Charles Mann and Mark Plummer, "The Butterfly Problem," *The Atlantic*, vol. 269, no.1 (1992), pp. 47-70; David Wright, "Death to Tweety," *New Republic*, vol.207, Issue 2 (1992), pp. 9-10; Maura Dolan, "Nature at risk in a quiet war," *Los Angeles Times*, December 20, 1992, p.1A; Larry McKinney, "Reauthorizing the Endangered Species Act: Incentives for Rural Landowners," in *Building Economic Incentives into the Endangered Species Act*, ed. Wendy Hudson (Washington, D.C.: Defenders of Wildlife, 1993), p. 74; Albert Girardi, "The Endangered Species Act: Impact of Section 9 on Private Landowners," *Environmental Law*, vol.24 (1994), p.427; Charles Mann and Mark Plummer, *Noah's Choice: The Future of Endangered Species*, (New York: Alfred A. Knopf, 1995), p.187.
- <sup>39</sup> Michael Bean, "Ecosystem Approaches to Fish and Wildlife Conservation."
- <sup>40</sup> Bean, "Endangered Species, Endangered Act?"
- <sup>41</sup> Martin B. Main, Fritz M. Roka and Reed F. Noss, "Evaluating Costs of Conservation," *Conservation Biology*, vol.13, No.6 (1999), pp. 1263,1265.
- <sup>42</sup> 49 Federal Register, p. 22330, May 29, 1984.
- <sup>43</sup> R. Dwayne Elmore, Terry A. Messmer, and Mark W. Brunson, "Perceptions of wildlife damage and species conservation: lessons learned from the Utah prairie dog," *Human-Wildlife Conflicts*, vol.1, no.1 (2007), pp. 78-88.
- <sup>44</sup> Dean Leuck and Jeffrey A. Michael, "Preemptive Habitat Destruction Under the Endangered Species Act," *Journal of Law and Economics*, vol.46, no.1 (2003), pp. 27-60; Daowei Zhang, "Endangered Species and Timber Harvesting: the Case of Red-Cockaded Woodpeckers," *Economic Inquiry*, vol.42, no.1 (2004), pp. 150-165.
- <sup>45</sup> Zhang, "Endangered Species and Timber Harvesting: the Case of Red-Cockaded Woodpeckers."
- <sup>46</sup> Ibid.
- <sup>47</sup> Daowei Zhang and Warren A. Flick, "Sticks, Carrots, and Reforestation Investment," *Land Economics*, vol.77, no.3 (2001), pp. 443-456.
- <sup>48</sup> John A. List, Michael Margolis and Daniel E. Osgood, *Is the Endangered Species Act Endangering Species?*, Working Paper No. 12777 (Cambridge, Massachusetts: National Bureau of Economic Research, December 2006), p. 3.
- <sup>49</sup> Amara Brook, Michaela Zint and Raymond De Young, "Landowners' Responses to an Endangered Species Act Listing and Implications for Encouraging Conservation," *Conservation Biology*, vol.17, no.6 (2003), pp. 1638-1649.

- 
- <sup>50</sup> Ibid, p. 1644.
- <sup>51</sup> Charles Mann and Mark Plummer, *Noah's Choice: The Future of Endangered Species*, p. 187.
- <sup>52</sup> Quoted in: Mark Matthews, "Standing up for the underdog." *High Country News*, August 16, 1999, <https://www.hcn.org/issues/160/5167/>. Accessed May 11, 2014.
- <sup>53</sup> Chilton Ranch, "Chilton Ranch Lawsuit," [http://www.chiltonranch.com/chilton\\_ranch\\_lawsuit.html](http://www.chiltonranch.com/chilton_ranch_lawsuit.html)
- <sup>54</sup> Lanny Davis, Villages at Vigneto is no major threat to the San Pedro River. Let's stick to the facts, *Arizona Republic*, Sept. 14, 2019.
- <sup>55</sup> Chilton Ranch, "Chilton Ranch Lawsuit."
- <sup>56</sup> R. Dwayne Elmore, "Extension's Role in Endangered Species Management," Proceedings, 11<sup>th</sup> Triennial National Wildlife & Fisheries Extension Specialists Conference, October 14–18, Big Sky, Montana, p. 146.
- <sup>57</sup> Womack, p.71.
- <sup>58</sup> Quoted in: Patricia Peak Klintberg, interview with Mollie Beattie, *Beef Today*, April 1995, p. 15.
- <sup>59</sup> U.S. Department of Agriculture, Sage Grouse Initiative, "New Paradigm", <https://www.sagegrouseinitiative.com/about/new-paradigm/>.
- <sup>60</sup> Ibid.
- <sup>61</sup> Sage Grouse Initiative, "Conservation Outcomes", <https://www.sagegrouseinitiative.com/report/>
- <sup>62</sup> Utah State University, Utah's Community-Based Conservation Program, <https://utahcbcp.org/>
- <sup>63</sup> Stephen R. Edwards, "Sustainable Conservation By and For the People," in *Endangered and Other Protected Species: Federal Law and Regulation*, ed. Richard Littell, (Washington, D.C.: BNA Books, 1992), pp.vii–viii.
- <sup>64</sup> Max Abensperg-Traun, *CITES*, sustainable use of wild species and incentive-driven conservation in developing countries, with an emphasis on southern Africa, *Biological Conservation*, Vol. 142, Issue 5 (2009): 948-963.
- <sup>65</sup> Di Minin, Enrico & Leader-Williams, Nigel & Bradshaw, Corey. (2016). Banning Trophy Hunting Will Exacerbate Biodiversity Loss. *Trends in Ecology & Evolution*. 31.
- <sup>66</sup> Lindsey, P. & Roulet, PA & Romanach, Stephanie. (2007). Economic and conservation significance of the trophy hunting industry in Sub-Saharan Africa. *Biological Conservation*. 134. 455-469.
- <sup>67</sup> Yvonne Baskin, There's a New Wildlife Policy In Kenya: Use It or Lose It, *Science* (1994), Vol. 265, Issue 5173, pp. 733-734.
- <sup>68</sup> Lindsey, P. A., Alexander, R. , Frank, L. G., Mathieson, A. and Romañach, S. S. (2006), Potential of trophy hunting to create incentives for wildlife conservation in Africa where alternative wildlife-based land uses may not be viable. *Animal Conservation*, 9: 283-291.
- <sup>69</sup> Jonathan Wood, *The Road to Recovery: How Restoring the Endangered Species Act's Two-Step Process Can Prevent Extinction and Promote Recovery*, PERC Policy Report, April 2018, p.4.
- <sup>70</sup> Aldo Leopold, "Conservation Economics," in *The River of the Mother of God and Other Essays* by Aldo Leopold, eds. Susan L. Flader and J. Baird Calicott (Madison, Wisconsin: University of Wisconsin Press, 1991), p. 202.