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SALLY A. PAEZ*

Preventing the Extinction of Candidate Species: The Lesser Prairie-Chicken in New Mexico

ABSTRACT

The lesser prairie-chicken in New Mexico provides a vehicle for exploring the tangled web of biology, law, and policy that must be navigated to understand and address the conservation needs of imperiled species. Congress enacted the Endangered Species Act (ESA) to accomplish the ambitious purpose of preventing the extinction of species through a combination of a federal listing program and state and local conservation plans made possible through federal funding and incentives. Congress, however, may have underestimated the challenges presented by species conservation, including the complex ecological needs of unique species and the difficulties of conservation across land ownership boundaries. Furthermore, over time, the agencies tasked with the administration of the ESA have gradually stopped adding species to the list of threatened or endangered species, instead over-utilizing an exception allowing agencies to classify species as warranted for listing but precluded by other higher priorities. As implementation of the ESA has faltered, human pressures on species have increased, including climate change and economic, energy, and agricultural pressures. Although the ESA is not being funded or administered as originally intended, imperiled species in fact do reap some benefits from the ESA through the agency's promotion of stakeholder-based collaborative conservation initiatives. The story of the lesser prairie-chicken in New Mexico and the partial success of the Collaborative Conservation Strategy to benefit the species illustrate that proper implementation and funding of the ESA's listing program combined with state and local collaborative conservation efforts, may be an effective strategy for preventing the extinction of imperiled species.

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I. INTRODUCTION

The lesser prairie-chicken's story demonstrates that effective wildlife management and species conservation require an understanding and reconciliation of complex biological, legal, and political forces. The lesser prairie-chicken, a small grassland grouse, is a year-round resident in non-contiguous portions of New Mexico, Colorado, Kansas, Oklahoma, and Texas. Although present in five states, the lesser prairie-chicken's population size and occupied distribution have declined at an alarming rate.

This article begins with a preface intended to impart the beauty and uniqueness of the lesser prairie-chicken to readers unfamiliar with the species. Next, because successful wildlife management and conservation must incorporate the complexities inherent in each species' biology in order to address the threats to a species' survival, this article discusses lesser prairie-chicken ecology and the numerous anthropogenic factors threatening the species.

The discussion then turns to the successes and shortcomings of two basic models of species conservation: first, listing as threatened or endangered under the Endangered Species Act (ESA); and second, voluntary stakeholder-based collaborative conservation. The debate over species conservation often focuses on which of these two strategies is more desirable. The ESA was originally intended to strike a balance between the ecological needs of imperiled species and powerful economic forces, however a species must be listed under the ESA as threatened or endangered to receive the numerous protections afforded listed species. The lesser prairie-chicken, however, remains unprotected due to a substantial shortcoming in current ESA implementation—the heavy reliance by the U.S. Fish and Wildlife Service (USFWS) on the exception in the ESA that allows imperiled species to be added to a list of “candidate species,” effectively an antechamber to the proper list of threatened or endangered species. Because candidate species do not receive the legal protections afforded species listed as threatened or endangered under the ESA, if the lesser prairie-chicken remains merely a candidate species, it will likely continue to decline and may follow the example of other species that have gone extinct on the candidate list. In contrast to ESA listing, a Collaborative Conservation Strategy has been developed in New Mexico for the lesser prairie-chicken with the resulting conservation management initiatives implemented on both federal Bureau of Land Management (BLM) land and land managed by the New Mexico State Land Office (NMSLO). Instead of a large-scale concerted implementation effort throughout the species' range, the Collaborative Con-

ervation Strategy has resulted in a series of small beneficial management practices by individual agencies and parties.

This article next considers the role that state wildlife agencies can and should play in species conservation. State-based wildlife conservation initiatives have great potential to benefit imperiled species. State agency personnel have intimate knowledge of the status of wildlife within the state and have an understanding of the social, cultural, and economic contexts of the state, and may therefore be better able to build communication and trust with private landowners. The New Mexico Department of Game and Fish (NMDGF) manages multiple Lesser Prairie-Chicken Areas within the state and has been an active participant in local and multi-state collaborative conservation initiatives to benefit the species.

Finally, this article addresses what may be the biggest challenge to effective species conservation: the protection of imperiled species and their habitats on private land. Although the majority of occupied lesser prairie-chicken habitat is located on private land, the ESA has been minimally effective in reaching onto private lands, and very few private landowners participated in the Collaborative Conservation Strategy. Preventing the extinction of the lesser prairie-chicken will depend on implementing conservation initiatives on private land accomplished through a combination of federal incentives, conservation funding, and education and outreach initiatives.

Having examined the strengths and weaknesses of the implementation of the ESA and stakeholder-based collaborative conservation, this paper concludes that a combination of both will be necessary to adequately address the myriad of threats facing the lesser prairie-chicken. The magnitude of the threats faced by the lesser prairie-chicken and the diversity of land ownership across its range drive the conclusion that it is not a question of whether the ESA, collaborative conservation, or state-based wildlife management is the better approach but rather how these conservation measures can be integrated, especially on private land, to prevent the extinction of the species.

II. PREFACE: THE LESSER PRAIRIE-CHICKEN MATING RITUAL

At four o'clock in the morning, we met an aptly-named wildlife biologist, Steve Bird, at the BLM office in Roswell, New Mexico and headed toward the shinnery-oak grassland an hour east of town to find lesser prairie-chickens. Two hours before sunrise we arrived at an abandoned oil well pad, now used as a mating site, or lek, by lesser prairie-chickens. Lesser prairie-chickens are highly social and well known for their mating behavior: groups of males gather each spring morning to attract females to their lek by dancing and vocalizing for hours. As we

waited patiently for our chance to experience this ritual, Bird spoke easily about his work—surveying for wildlife, managing habitat, talking to oil and gas operators, and trying to reconcile the needs of oil and gas operators with those of imperiled wildlife. Periodically, he would stop talking, roll down his window, listen intently for several seconds, then roll the window back up. We began to wonder if our trip would be a failure.

Finally, Bird rolled down his window and proclaimed, “I heard one!” At first, the spring breeze seemed to be the only sound, but then we heard something in front of the truck . . . then to the left, and then the right! We were suddenly surrounded by lesser prairie-chickens! Although the mating vocalizations of lesser prairie-chickens are typically called “booming,” the noises we heard included bubbling, gurgling, cackling, clucking, whinnying, and squeaking. Then we saw our first bird—a bowling ball-sized silhouette shot between two shrubs, and disappeared. Eventually, at least 30 lesser prairie-chickens became visible in the dim light, some flying in at an altitude of about five feet, others sneaking in at ground level.

The mating ritual was soon in full swing. The males faced off, crouched low to the ground, charged at one another, and chased back and forth as they defined individual territories and vied for center stage. Staring contests evolved into “sparring,” where one male jumps into the air and kicks another male in the chest with both feet. Pairs of males performed duets, vocalizing together. Lesser prairie-chickens stomped their feet on the ground like rowdy basketball fans in stadium bleachers, making an audible pounding. They held their wings back and their tails high and spread, flicking them like whips in the cool morning air.

In addition to performing their strange singing and dancing routines, lesser prairie-chicken males don elaborate costumes for their mating ritual. Males puff and raise bright yellow combs above their eyes like golden crescent-shaped banners. They expand bright red air sacs on the sides of their necks into fleshy balloons to produce their startling array of vocalizations. Finally, males have long tufts of feathers attached to their heads that normally lie flush down the sides of their necks. On the lek, males exhibit an astonishing range of motion with these tufts, lifting them into the air like rabbit ears, shifting them forward, backward, and horizontal to the ground, as if trying to tune in to some remote television station.

We watched the lesser prairie-chickens for about an hour. The vocalizations and aggressive behavior escalated, and we were thrilled when a few females stirred up additional commotion by arriving at the lek. After a few seconds of copulation, however, the females darted back into the surrounding shrubbery, perhaps scoping out the perfect nesting

site. The males continued to attend to their courting business, barely moving when we finally started the truck to head back to Roswell.

III. LESSER PRAIRIE-CHICKEN BIOLOGY AND CONSERVATION STATUS

Species conservation is complicated by the complex biology and the social, cultural, and economic contexts of the region where a species lives, necessitating a unique conservation plan for every imperiled species. Both federal recovery plans for species listed under the ESA and stakeholder-based collaborative conservation plans must manage imperiled species to address the uniqueness of a given species and its habitat. Biologists have responded to recent lesser prairie-chicken conservation concerns with extensive research that has improved our understanding of population trends, habitat requirements, and management objectives.¹

A. Description of the Species

A round, chicken-sized grouse, the lesser prairie-chicken (*Tympanuchus pallidicinctus*) has brown and cream colored bars covering most of its body and a short, rounded, dark tail, allowing it to blend into its surroundings.² In appearance, the lesser prairie-chicken is similar to, but slightly smaller than the greater prairie-chicken, yet the two species are easily distinguished by their different geographic ranges.³ Lesser prairie-chickens spend most of their time on the ground but will make short low flights when disturbed or to reach leks, nests, food, water, or roosting sites.⁴

B. Current and Historical Range and Population Trends

Although lesser prairie-chickens once inhabited a large contiguous area in New Mexico, Texas, Kansas, Oklahoma, and Colorado,⁵ today the lesser prairie-chicken occupies less than 10 percent of its former range⁶ with small populations in restricted distributions in eastern New

1. Christian A. Hagen et al., *Guidelines for Managing Lesser Prairie-Chicken Populations and Their Habitats*, 32 WILDLIFE SOC'Y BULL. 69, 70 (2004).

2. Kenneth M. Giesen, *Lesser Prairie-Chicken*, in No. 364 THE BIRDS OF NORTH AMERICA 1 (Alan Poole & Frank Gill eds., 1998). The *Birds of North America* series provides a comprehensive summary of current knowledge about the lesser prairie-chicken and other breeding bird species of North America.

3. *Id.* at 2.

4. *Id.* at 5–6.

5. *Id.* at 1.

6. James A. Bailey & Sartor O. Williams, *Status of the Lesser Prairie-Chicken in New Mexico*, 1999, 32 PRAIRIE NATURALIST 157, 157 (2000).

Mexico, southeastern Colorado, western Kansas, western Oklahoma, and northwestern Texas.⁷ The lesser prairie-chicken inhabits shinnery-oak (*Quercus havardii*) and sand sagebrush (*Artemisia filifolia*) grassland habitats.⁸

Lesser prairie-chickens have declined significantly since the 1800s, both in terms of population size and occupied habitat.⁹ By the 1990s, the status of the lesser prairie-chicken was dire, having vanished from more than 90 percent of its former range, including a drastic disappearance from 78 percent of its range in 30 short years.¹⁰

In New Mexico the lesser prairie-chicken has disappeared from 56 percent of its historical range.¹¹ Although exact demographic information is difficult to obtain, crude estimates indicate that the historical lesser prairie-chicken population size in New Mexico was 125,000 birds,¹² while the population size in the early twenty-first century has been estimated at about 9,600 birds.¹³ Population trends indicate that the species is currently in a long-term decline.¹⁴ Although it is impossible to determine exactly what population is “viable” for the lesser prairie-chicken in New Mexico, studies have indicated that a population size between 5,000 and 50,000 may be the minimum necessary for the long-term survival of the lesser prairie-chicken.¹⁵

C. Life History and Habitat Requirements

Adult lesser prairie-chickens have a maximum lifespan of five years and an annual mortality rate of about 50 percent.¹⁶ Lesser prairie-chickens do not migrate, but instead spend their entire lives in habitat that meets their breeding, nesting, chick-rearing, and foraging needs.¹⁷ In New Mexico, lesser prairie-chickens primarily inhabit areas with shinnery-oak interspersed with mixed grasses and eat green leafy plants, insects, grass, seeds, shinnery-oak acorns, and wild buckwheat.¹⁸

7. Giesen, *supra* note 2, at 1–2.

8. *Id.* at 1.

9. Hagen et al., *supra* note 1, at 69.

10. Bailey & Williams, *supra* note 6, at 157.

11. *Id.*

12. *Id.* at 158.

13. DAWN M. DAVIS, N.M. DEP’T OF GAME & FISH, STATUS OF THE LESSER PRAIRIE-CHICKEN IN NEW MEXICO: RECOMMENDATION TO NOT LIST THE SPECIES AS THREATENED UNDER THE NEW MEXICO WILDLIFE CONSERVATION ACT 10 (2005) (final investigation report).

14. Bailey & Williams, *supra* note 6, at 163.

15. DAVIS, *supra* note 13, at 10.

16. Giesen, *supra* note 2, at 10.

17. Hagen et al., *supra* note 1, at 72–73.

18. *Id.* at 71–73.

1. Lekking

Lesser prairie-chickens are easily observed during the spring breeding season due to their conspicuous polygynous mating behavior.¹⁹ Lesser prairie-chickens usually choose to lek in open areas with short grasses surrounded by oak or sage grasslands.²⁰ In areas with human disturbance, males may place leks in human-created clearings including abandoned oil drilling sites, dirt roads with minimal traffic, areas where herbicide has been used to kill shrubs, recent burns, and areas that have been heavily grazed by livestock.²¹ Although more than 20 males may display together at one lek, dominant males with prime territory at the center of the lek have the distinct advantage of performing nearly all copulations.²² Mating behavior begins in February and continues through May, with peak breeding occurring in March and April.²³

2. Nesting

Stable populations of lesser prairie-chickens are often limited by the absence of high-quality nesting habitat.²⁴ Females usually choose nest sites with a mixture of oak or sage and grass located an average distance of 1.2 to 3.4 kilometers from the lek.²⁵ Lesser prairie-chickens seek out nesting areas with a higher shrubby-canopy cover combined with a lower vegetative cover made of residual grass.²⁶ Because ideal nesting sites protect females, eggs, and chicks from predators, nests are often located in areas with higher, denser vegetation than surrounding areas.²⁷

3. Brood Rearing

Like nesting habitat, quality brood rearing habitat is important for maintaining lesser prairie-chicken populations. Juvenile survival rates are low, with an average of only 39 percent of birds surviving from hatching until their first breeding season.²⁸ Young lesser prairie-chickens leave the nest within 24 hours of hatching and are led by females to suit-

19. Giesen, *supra* note 2, at 7.

20. Hagen et al., *supra* note 1, at 72.

21. *Id.*

22. Giesen, *supra* note 2, at 7.

23. MICHAEL MASSEY, N.M. DEP'T OF GAME & FISH, LONG-RANGE PLAN FOR THE MANAGEMENT OF LESSER PRAIRIE-CHICKENS IN NEW MEXICO 2002–2006 9 (July 2001), available at <http://www.wildlife.state.nm.us/conservation/documents/PCLongRange.pdf>.

24. James C. Pitman et al., *Location and Success of Lesser Prairie-Chicken Nests in Relation to Vegetation and Human Disturbance*, 69 J. WILDLIFE MGMT. 1259, 1259 (2005).

25. Giesen, *supra* note 2, at 9.

26. *Id.* at 8.

27. *Id.*

28. Hagen et al., *supra* note 1, at 71.

able foraging habitat.²⁹ Suitable habitat for foraging juveniles must include about 60 percent bare ground for insect foraging, a canopy of shrubs to provide cover from predators, and a mixture of grasses and forbs that support a high biomass of insects.³⁰

D. Natural Causes of Lesser Prairie-Chicken Population Fluctuation and Mortality

1. Low Nest Success and Chick Survival

Lesser prairie-chicken populations fluctuate widely every year.³¹ Decreased population size can be a result of low nest success and poor chick survival.³² Lesser prairie-chickens have a short life span, about two years on average. The effects of low nest success and poor chick survival on annual lesser prairie-chicken populations can be profound.³³

2. Drought

Fluctuation in lesser prairie-chicken population size is strongly correlated with precipitation and drought.³⁴ High rainfall increases nest success by increasing vegetative cover for nesting females and their eggs, and enhances chick survival by increasing both food supply and vegetative cover for chicks.³⁵ Lesser prairie-chickens have a high reproductive potential, allowing for rapid increases in population size under favorable wet conditions.³⁶ Conversely, populations quickly crash in dry periods due to a combination of low reproductive success and high mortality rates.³⁷ While rapid increases and decreases in lesser prairie-chicken abundance is part of a natural cycle of fluctuation, lesser prairie-chicken populations in New Mexico have not recovered from a precipitous decline in the late 1980s³⁸ that can probably be attributed to a host of

29. Giesen, *supra* note 2, at 9.

30. Hagen et al., *supra* note 1, at 77.

31. MASSEY, *supra* note 23, at 129.

32. Robert J. Robel et al., *Effect of Energy Development and Human Activity on the Use of Sand Sagebrush Habitat by Lesser Prairie Chickens in Southwestern Kansas*, in TRANSACTIONS OF THE SIXTY-NINTH NORTH AMERICAN WILDLIFE AND NATURAL RESOURCES CONFERENCE, 251, 263 (Jennifer Rahm ed., 2004).

33. MICHAEL A. PATTEN ET AL., N.M. DEP'T OF GAME & FISH, THE EFFECTS OF SHRUB CONTROL AND GRAZING ON HABITAT QUALITY AND REPRODUCTIVE SUCCESS OF LESSER PRAIRIE-CHICKENS 1312 (2006), available at http://www.suttoncenter.org/2006_LPCH_NM_Final_Report.pdf.

34. Bailey & Williams, *supra* note 6, at 166.

35. *Id.* at 163–64.

36. *Id.* at 166.

37. *Id.*

38. *Id.* at 163.

human activities that resulted in substantial habitat loss and fragmentation.³⁹

3. Predation

Predators, including mammals, raptors, and snakes, are the biggest cause of lesser prairie-chicken mortality.⁴⁰ A recent study in New Mexico determined that 43 percent of mortality was due to predation by raptors, including rough-legged hawks, red-tailed hawks, prairie falcons, Cooper's hawks, northern harriers, ferruginous hawks, golden eagles, and great horned owls.⁴¹ Thirty percent of mortality was attributed to predation by mammals including coyotes and badgers.⁴² Lesser prairie-chicken eggs are eaten by Chihuahuan ravens, striped skunks, ground squirrels, and bull snakes.⁴³

While predation is a natural cause of lesser prairie-chicken mortality, human development can exacerbate vulnerabilities and increase predation rates on females and chicks during the nesting and brood rearing period by decreasing safe expanses of vegetative cover.⁴⁴ Foraging predators can more easily access nesting females, eggs, and chicks by hunting from roads, power line right-of-ways, and agricultural field edges.⁴⁵ Raptors also take advantage of manmade perches, such as power lines, that facilitate predation on lesser prairie-chickens.⁴⁶

4. Disease

Although lesser prairie-chickens carry a wide array of diseases and parasites that could potentially threaten the long-term survival of the species,⁴⁷ more research is needed to fully understand the effects of diseases and parasites on lesser prairie-chicken population size.⁴⁸ For instance, while it is unknown whether West Nile Virus impacts lesser prairie-chickens, other species of grouse have exhibited an infection rate of

39. See *infra* Parts II.E.1–II.E.7.

40. Giesen, *supra* note 2, at 8.

41. DAVIS, *supra* note 13, at 18–19.

42. *Id.*

43. *Id.* at 19.

44. See Hagen et al., *supra* note 1, at 73–75.

45. Pitman et al., *supra* note 24, at 1267–68.

46. *Id.* at 1267.

47. See generally Markus J. Peterson, *Parasites and Infectious Diseases of Prairie Grouse: Should Managers be Concerned?*, 32 WILDLIFE SOC'Y BULL. 35 (2004).

48. *Id.* at 49–50.

about 21 percent positive.⁴⁹ Small, fragmented lesser prairie-chicken populations are especially vulnerable to the potentially devastating effects of disease because a disease or parasite could wipe out an entire isolated population.⁵⁰

E. Human Threats to Lesser Prairie-Chickens

In addition to the biological factors described above, any conservation effort for the lesser prairie-chicken must address a myriad of human-caused threats including structural avoidance behavior, habitat fragmentation, excessive livestock grazing, conversion of rangeland to agriculture, herbicide treatment of shrubs, oil and gas development, and wind energy development.

1. Structural Avoidance Behavior

Human disturbance can greatly decrease the quality and quantity of suitable nesting habitat for lesser prairie-chickens.⁵¹ Research has shown that lesser prairie-chickens place nests far from anthropogenic features such as oil and gas pump-jacks, power lines, buildings, and improved roads.⁵² While it is not certain why nesting lesser prairie-chickens avoid anthropogenic features, it is probable that this avoidance behavior is caused by the movement and/or the noise associated with such features.⁵³ Wildlife ecologist Robert J. Robel analyzed the distance between lesser prairie-chicken nests and anthropogenic features to establish “avoidance buffers” around oil and gas wellheads, electric transmission lines, buildings, and roads where otherwise suitable habitat is rendered unusable for nesting lesser prairie-chickens.⁵⁴ Avoidance behavior research has shown dramatic impacts—for example, Robel found that the presence of anthropogenic features reduced 214,183 acres of apparently suitable nesting habitat in Finney County, Kansas, to just 88,221 acres of actually suitable nesting habitat.⁵⁵ Thus, management to address lesser prairie-chicken avoidance behavior is a critical element of any conservation plan for the species.

49. U.S. FISH & WILDLIFE SERV., SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM: *Tympanuchus pallidicinctus* 2613 (Oct. 2005), available at http://ecos.fws.gov/docs/candforms_pdf/r2/B0AZ_V01.pdf [hereinafter LISTING PRIORITY ASSIGNMENT FORM].

50. Peterson, *supra* note 47, at 50.

51. Robel et al., *supra* note 32, at 252.

52. *Id.* at 258.

53. *Id.*

54. *Id.* at 263.

55. *Id.*

2. Habitat Fragmentation

Because lesser prairie-chickens require large contiguous areas of habitat, habitat fragmentation, or the breaking of large areas of continuous suitable habitat into smaller isolated patches of habitat,⁵⁶ is a serious threat to the lesser prairie-chicken's long-term survival.⁵⁷ Human activities that fragment habitat include oil and gas development, chemical shrub control, conversion of habitat to agriculture, excessive livestock grazing, urban development, roads, fences, and power lines. The impacts of development are increased by the avoidance behaviors exhibited by lesser prairie-chickens, noted above.⁵⁸ Fragmentation can increase predation and extinction rates,⁵⁹ and the habitat changes that cause fragmentation often increase mortality caused by collisions with fences and power lines.⁶⁰

Furthermore, fragmentation and habitat isolation can alter the ability of a species to respond to changing conditions such as climate change or further habitat loss.⁶¹ Small isolated populations may not be able to disperse to other areas of occupied habitat, leading to a loss of genetic diversity and inbreeding, which in turn can lead to decreased reproductive success and increased vulnerability to disease.⁶² Small isolated populations are also more vulnerable to drought because lesser prairie-chickens must utilize larger areas of habitat to find adequate food in dry periods.⁶³ Therefore, the more isolated a population is, the more habitat stability the population will require.⁶⁴

56. DAVIS, *supra* note 13, at 18.

57. Hagen et al., *supra* note 1, at 77.

58. See generally Robel et al., *supra* note 32, at 259.

59. Samuel D. Fuhlendorf et al., *Multi-Scale Effects of Habitat Loss and Fragmentation on Lesser Prairie-Chicken Populations of the U.S. Southern Great Plains*, 17 *LANDSCAPE ECOLOGY* 617, 626 (2002).

60. Michael A. Patten et al., *Habitat Fragmentation, Rapid Evolution and Population Persistence*, 7 *EVOLUTIONARY ECOLOGY RES.* 235, 242 (2005).

61. *Id.* at 236.

62. N.M. LPC/SDL WORKING GROUP, *COLLABORATIVE CONSERVATION STRATEGIES FOR THE LESSER PRAIRIE-CHICKEN AND SAND DUNE LIZARD IN NEW MEXICO* 33–34 (Aug. 2005), available at http://nwcoss.org/Resources/LPC_SDL_Conservation_Strategy_CD.pdf [hereinafter *COLLABORATIVE CONSERVATION STRATEGY*].

63. Bailey & Williams, *supra* note 6, at 165; *COLLABORATIVE CONSERVATION STRATEGY*, *supra* note 62, at 33.

64. Fuhlendorf et al., *supra* note 59, at 626.

3. Excessive Livestock Grazing

Although lesser prairie-chickens historically evolved alongside grazing populations of mammoth, bison, elk, and pronghorn,⁶⁵ excessive livestock grazing as manifested in modern agricultural practices can negatively impact lesser prairie-chicken populations.⁶⁶ Widespread uniform grazing reduces both the food supply and the nesting cover essential to the survival of females, eggs, and chicks.⁶⁷ Lesser prairie-chicken habitat in areas with low annual precipitation is easily overgrazed because cattle prefer the taller residual grasses needed for nesting.⁶⁸ Lesser prairie-chickens depend on ungrazed or lightly-grazed habitat in periods of drought because they nest in standing dead grass from the previous summer's rainy season.⁶⁹ Keeping livestock on the land in times of drought may lead to the long-term disappearance of lesser prairie-chickens from an area.⁷⁰

4. Conversion of Rangeland to Agriculture

Human development has drastically changed the landscape of the American prairie and is usually cited as the primary cause of lesser prairie-chicken population decline.⁷¹ Across the species' historical five-state range, population declines have coincided with the decline of the grassland prairie ecosystem that once covered a vast continuous expanse of the southern Great Plains.⁷² An estimated 92 percent of the lesser prairie-chicken's historical range has been converted to agricultural fields.⁷³

Habitat conversion to agriculture increases under certain economic conditions such as rising food costs or the increased need for farmland to raise corn for ethanol production.⁷⁴ Rising commodity prices

65. ROGER S. PETERSON & CHAD S. BOYD, U.S. DEP'T OF AGRIC., FOREST SERV., ROCKY MOUNTAIN RES. STATION, GEN. TECH. REP. NO. RMRS-GTR-16, ECOLOGY AND MANAGEMENT OF SAND SHINNERY COMMUNITIES: A LITERATURE REVIEW 16 (1998).

66. Bailey & Williams, *supra* note 6, at 164.

67. LISTING PRIORITY ASSIGNMENT FORM, *supra* note 49, at 11.

68. Endangered and Threatened Wildlife and Plants; 12-Month Finding for a Petition to List the Lesser Prairie-Chicken as Threatened and Designate Critical Habitat, 63 Fed. Reg. 31,400, 31,403 (June 9, 1998) (codified at 50 C.F.R. pt. 17), available at http://ecos.fws.gov/docs/federal_register/fr3634.pdf.

69. Bailey & Williams, *supra* note 6, at 164.

70. *Id.* at 165.

71. Pitman et al., *supra* note 24, at 1259.

72. Robert J. Robel, *Summary Remarks and Personal Observations of the Situation by an Old Hunter and Researcher*, 32 WILDLIFE SOC'Y BULL. 119, 119-20 (2004).

73. James A. Pittman et al., *Survival of Juvenile Lesser Prairie-Chickens in Kansas*, 43 WILDLIFE SOC'Y BULL. 675, 675 (2006).

74. State Biologist Marcus Miller has worked for the NRCS for 27 years. During that period, a bushel of wheat has consistently cost between \$2.50 and \$6.50. As of 2008, the

increase the pressure on private landowners to convert habitat to cropland, especially in more arid regions where agriculture has not previously been economically viable.⁷⁵ If changing economic conditions cause more native grassland to be broken out for farming, suitable lesser prairie-chicken habitat will continue to contract.

5. Herbicidal Treatment of Shrubs

Some land managers use herbicides to decrease shrub cover and increase grass available for livestock forage. Although some biologists believe limited use of chemical treatment to kill shrubs can also benefit lesser prairie-chickens by increasing tall-grass cover for nesting,⁷⁶ the majority of research has shown that lesser prairie-chickens almost never choose to nest in areas that have been treated with herbicide.⁷⁷ Herbicide decreases the availability of protective cover for brood rearing as well as the supply of acorns, an important winter food source.⁷⁸ Nonetheless, private landowners and the National Resource Conservation Service (NRCS) continue to use herbicide to increase forage for cattle grazing due to an assumption that a non-lethal dose of herbicide can be used to suppress shinnery-oak for a short period of time, allowing habitat to return to a mixture of shrubs and grassland that will benefit both lesser prairie-chickens and cattle.⁷⁹

Treating shinnery-oak with herbicide, however, can have long-term ill effects. For example, vast areas of BLM land in New Mexico that were treated with the herbicide Tebuthiuron more than 20 years ago today remain void of new shrub growth.⁸⁰ The lasting effects of shinnery-oak eradication can be attributed to shinnery-oak biology. Although shinnery-oak only grows to a height of two feet, it has vast root systems extending up to 30 feet underground.⁸¹ Although the shrubs produce acorns, shinnery-oak reproduction is primarily vegetative, meaning that

price of wheat had skyrocketed to \$18.00 a bushel. Telephone Interview with Marcus Miller, State Biologist, Natural Res. Conservation Serv. (May 13, 2008).

75. *Id.*

76. DAVIS, *supra* note 13, at 18.

77. Kristine Johnson et al., *Habitat Use and Nest Site Selection by Nesting Lesser Prairie-Chickens in Southeastern New Mexico*, 48 SW. NATURALIST 334, 341 (2004).

78. Bailey & Williams, *supra* note 6, at 165.

79. Telephone Interview with Marcus Miller, *supra* note 74.

80. Interview with Steve Bird, Wildlife Biologist, BLM, Roosevelt County, N.M. (Mar. 11, 2008).

81. Forest Guardians et al., Lesser Prairie-Chicken (*Tympanuchus pallidicinctus*) Area of Critical Environmental Concern (ACEC): A Petition to the New Mexico BLM (2002) 9, available at http://www.blm.gov/pgdata/etc/medialib/blm/nm/field_offices/roswell/rfo_planning/special_status_species.Par.95970.File.dat/pdf_rmpa_final_document_11_07_app_3.pdf [hereinafter Forest Guardians' Petition]. As of January 28, 2009, Forest Guardians

new plants above ground grow out of an existing underground root system rather than an acorn.⁸² Shinnery-oak lives for hundreds, and probably thousands of years.⁸³ These aspects of shinnery-oak biology make eradication of the shrubs essentially permanent.⁸⁴

6. Oil and Gas Development

Oil and gas development is a major threat to the lesser prairie-chicken. In New Mexico, oil and gas development occurs throughout most of the lesser prairie-chicken's range.⁸⁵ The NMDGF found that:

Oil and gas development may impact LPC [lesser prairie-chicken] in 4 ways: (1) habitat fragmentation by roads, well pads and pipelines, (2) disruption of daily activities and movements of LPC by traffic and machinery, (3) interference in communication during mating rituals because of industrial noise and (4) increased mortality from sludge pits, poisonous gases, and powerline collisions.⁸⁶

Lesser prairie-chicken habitat is destroyed through the development of drill pads, access roads, pipelines, power lines, and other structures.⁸⁷ Roads for oil and gas production often attract off-road vehicles to the area, which may in turn destroy additional vegetation and disturb lesser prairie-chickens.⁸⁸ Furthermore, the amount of habitat lost through oil and gas development is not adequately measured by the geographic area actually physically disturbed because the structural avoidance behavior of adult lesser prairie-chickens causes them to avoid habitat around oil and gas wellheads, buildings, roads, and transmission lines.⁸⁹ In one study, 90 percent of lesser prairie-chickens nested at least 500 meters from oil or gas wellheads.⁹⁰

Noise is one additional reason lesser prairie-chickens may avoid areas of oil and gas development. Noise hinders the breeding activities of lesser prairie-chickens because males depend on audible vocalizations to lure females to the lek site for mating. Studies have shown that the

joined forces with Sinapu and the Sagebrush Sea Campaign to become WildEarth Guardians.

82. *Id.* at 10.

83. *Id.*

84. Bailey & Williams, *supra* note 6, at 165.

85. MASSEY, *supra* note 23, at 16.

86. *Id.*

87. Bailey & Williams, *supra* note 6, at 165.

88. *Id.*

89. Robel et al., *supra* note 32, at 259.

90. Pitman et al., *supra* note 24, at 1264.

location of inactive lek sites is correlated to higher noise levels and numbers of operating wells,⁹¹ which is not surprising considering that gas compressor stations are audible over two miles away.⁹² A July 2004 BLM report tabulating noise sources in the Carlsbad field office area stated that “one is 19 times more likely to hear a pumpjack or gas compressor than to hear the wind.”⁹³ Oil and gas development may be the primary reason lesser prairie-chickens have virtually disappeared from the areas of southeastern New Mexico with the highest densities of oil and gas development, primarily in the Carlsbad field office area.⁹⁴

7. Wind Energy Projects

Recent commercial wind energy projects have been constructed “near and within occupied lesser prairie-chicken habitat in Oklahoma, Colorado, Texas and New Mexico.”⁹⁵ Due to a number of new wind farms currently being planned,⁹⁶ it is likely that wind energy development will soon expand through large portions of occupied lesser prairie-chicken habitat.⁹⁷

For example, a mapping analysis of proposed wind power sites in Oklahoma shows almost complete overlap with lesser prairie-chicken leks.⁹⁸ Because the ridgelines in these areas are not suitable for agriculture, the ridgelines have thus far retained the native vegetation required for suitable lesser prairie-chicken habitat.⁹⁹ Unfortunately for lesser prairie-chickens, however, ridgelines also offer the best wind resources for wind energy development.¹⁰⁰

Research has shown that wind energy facilities, including turbines, power lines, and poles, have a negative impact on lesser prairie-chicken populations; this is likely due to a combination of avoidance behavior, noise, and fragmentation of quality nesting habitat.¹⁰¹ Robel estimated that a single wind-turbine may create a one-mile habitat

91. COLLABORATIVE CONSERVATION STRATEGY, *supra* note 62, at 33.

92. Robel et al., *supra* note 32, at 259.

93. Press Release, WildEarth Guardians, Settlement Reached in Prairie-Chicken Lawsuit (Apr. 19, 2006) (on file with author).

94. Bailey & Williams, *supra* note 6, at 165.

95. LISTING PRIORITY ASSIGNMENT FORM, *supra* note 49, at 15.

96. New wind farms are being planned across southeastern New Mexico. E-mail from Grant Beauprez, Lesser Prairie-Chicken Biologist, N.M. Dep’t of Game & Fish, to author (May 9, 2008, 12:08 MST) (on file with author).

97. LISTING PRIORITY ASSIGNMENT FORM, *supra* note 49, at 15.

98. *Id.* at 12.

99. *Id.* at 15.

100. *Id.* at 12.

101. Robel et al., *supra* note 32, at 262–63.

avoidance zone in all directions.¹⁰² Research compiled by the USFWS indicates even greater impacts from commercial wind turbines.¹⁰³ Because of concerns over the negative impact of wind energy development on wildlife, the USFWS has issued a guidance document recommending that wind turbines not be constructed within five miles of leks.¹⁰⁴ Yet government oversight of the effects of wind energy on lesser prairie-chickens is extremely limited because developments are mostly constructed on private land with private funds.¹⁰⁵ Large-scale wind energy development currently poses a serious threat to the lesser prairie-chicken.

F. Conservation Plans Must Address Complex Biology and a Myriad of Threats

The complex biology of the lesser prairie-chicken and the vast array of threats to its survival demonstrate the challenges inherent in designing and implementing a conservation plan for the species. Habitat must be managed to assure that lesser prairie-chickens are able accomplish lekking, nesting, and brood rearing. Although it is not certain exactly which human-caused threats are most directly linked to the species' dramatic decline in both range and population size, it is clear that a number of factors are affecting the species' survival. Additional threats are looming that may prove even more damaging to the species, especially climate change¹⁰⁶ and increased demands for energy and agricultural production. It is in the context of these challenges that two different approaches to species conservation must be evaluated: first, listing

102. *Id.*

103. LISTING PRIORITY ASSIGNMENT FORM, *supra* note 49, at 8.

104. U.S. DEP'T OF THE INTERIOR, FISH & WILDLIFE SERV., INTERIM GUIDELINES TO AVOID AND MINIMIZE WILDLIFE IMPACTS FROM WIND TURBINES 4 (May 13, 2003), available at <http://www.fws.gov/habitatconservation/wind.pdf>.

105. LISTING PRIORITY ASSIGNMENT FORM, *supra* note 49, at 15.

106. While an in-depth discussion of the potential effects of climate change on the lesser prairie-chicken could fill an article by itself, I would be remiss to fail to address the potential of climate change to drive the extinction of species, including the lesser prairie-chicken. Many scientists believe that climate change is a global threat that will contribute to the decline of ecosystems and extinction of species worldwide. See, e.g., Philip E. Hulme, *Adapting to Climate Change: Is There Scope for Ecological Management in the Face of a Global Threat?*, 42 J. APPLIED ECOLOGY 784, 784 (2005). For a summary of the science and effects of climate change and the argument that catastrophic events may be imminent, see DAVID SPRATT & PHILLIP SUTTON, CLIMATE CODE RED: THE CASE FOR A SUSTAINABILITY EMERGENCY (2008); JAMES GUSTAVE SPETH, THE BRIDGE AT THE END OF THE WORLD: CAPITALISM, THE ENVIRONMENT, AND CROSSING FROM CRISIS TO SUSTAINABILITY (2008). For a discussion of the effects of climate change on the Endangered Species Act, see J.B. Ruhl, *Climate Change and the Endangered Species Act: Building Bridges to the No-Analog Future*, 88 B.U. L. REV. 1 (2008).

under the ESA, and second, stakeholder-based collaborative conservation.

IV. OVERVIEW OF THE ENDANGERED SPECIES ACT AND CANDIDATE LISTING

The lesser prairie-chicken is in a precarious position and could greatly benefit from a federal listing as threatened or endangered under the ESA, but as the ESA is not being adequately funded or implemented, the lesser prairie-chicken is left without this invaluable source of federal protection. From the lesser prairie-chicken advocate's point of view, the biggest shortcoming of the ESA is the simple fact that imperiled species are not currently being listed as threatened or endangered due to the USFWS's heavy reliance on an exception to the ESA allowing species to be added to a candidate list.

A. The Purpose of the ESA to Protect Species in the Face of Strong Economic Pressures

The survival of the lesser prairie-chicken depends upon striking a balance between the needs of the species and the strong economic forces in the region where it lives, including oil and gas development, wind energy development, agriculture, and livestock grazing. Congress enacted the ESA¹⁰⁷ with an understanding of the difficulties inherent in preventing species extinction in the face of powerful economic forces and development. Finding that "various species of fish, wildlife, and plants in the United States have been rendered extinct as a consequence of economic growth and development untempered by adequate concern and conservation,"¹⁰⁸ Congress enacted the ESA to provide "a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, [and] to provide a program for the conservation of such endangered and threatened species."¹⁰⁹

The U.S. Supreme Court reinforced congressional intent to protect imperiled species regardless of competing economic pressures five years later in *Tennessee Valley Authority v. Hill*.¹¹⁰ In *Tennessee Valley Authority*, the Supreme Court reiterated that the purpose of the ESA was "to halt and reverse the trend towards species extinction, whatever the cost"¹¹¹ and found there was no exception to the language commanding federal

107. Endangered Species Act of 1973, 16 U.S.C. §§ 1531–44 (2006).

108. *Id.* § 1531(a)(1).

109. *Id.* § 1531(b).

110. *Tenn. Valley Auth. v. Hill*, 437 U.S. 153 (1978).

111. *Id.* at 184.

agencies “to insure that actions authorized, funded, or carried out by them do not jeopardize the continued existence” of an endangered species or “result in the destruction or modification of habitat of such species.”¹¹² The Court went on to hold that Congress did not intend for courts to balance the economic impacts of species conservation with the protection of imperiled species, but instead that Congress “has spoken in the plainest of words, making it abundantly clear that the balance has been struck in favor of affording endangered species the highest of priorities, thereby adopting a policy which it described as institutionalized caution.”¹¹³ Since that time, however, the implementation of the ESA by the U.S. Departments of Commerce and the Interior has “accommodated the overwhelming majority of human activity without impediment”¹¹⁴ and the courts have failed to enforce a balance favoring endangered species at the expense of development.¹¹⁵

B. Federal Listing as Threatened or Endangered

The ESA prevents extinction by providing numerous protections to species listed as threatened or endangered. First, the USFWS develops recovery plans for listed species.¹¹⁶ Second, the ESA authorizes the USFWS to acquire land through purchase or donation for the purpose of conserving fish, wildlife, or plants.¹¹⁷ Third, section 7 of the ESA prevents federal agencies or persons seeking permits or leases on federal land from taking actions that would jeopardize listed species by requiring federal agencies to consult with the USFWS before taking agency actions.¹¹⁸ Finally, all “persons” are prohibited from “taking” endangered species under section 9 of the ESA.¹¹⁹ “Persons” is broadly defined to include corporations, partnerships, trusts, associations, officers or agents of federal, state, or local government, or states themselves.¹²⁰ The ESA also broadly defines “take” to include “harass, harm, pursue, hunt, shoot,

112. *Id.* at 173 (internal quotations omitted) (emphasis in original).

113. *Id.* at 194 (internal quotations omitted).

114. Oliver A. Houck, *The Endangered Species Act and Its Implementation by the U.S. Departments of Interior and Commerce*, 64 U. COLO. L. REV. 277, 279 (1993).

115. See, e.g., *Nat'l Ass'n of Home Builders v. Defenders of Wildlife*, 551 U.S. 664 (2007) (holding that agency regulations requiring consultation only for discretionary federal actions were not arbitrary and capricious).

116. Endangered Species Act of 1973, 16 U.S.C. § 1533(f)(1) (2006).

117. *Id.* § 1534(1). Read broadly, this provision may actually provide for land acquisition for the conservation of any fish, wildlife, or plant species, not just those listed as threatened or endangered.

118. *Id.* §§ 1536(a)(2)–(3).

119. *Id.* § 1538 (a)(1)(B).

120. *Id.* § 1532 (13).

wound, kill, trap, capture, or collect, or engage in any such conduct.”¹²¹ The prohibition on taking is expanded further by a regulation promulgated by the USFWS that defines “harm” to include “significant habitat modification or degradation [that] actually kills or injures wildlife by significantly impairing essential . . . breeding, feeding or sheltering.”¹²² The broad protection afforded endangered and threatened species under the ESA is backed by strong civil and criminal penalties for violations of the Act as well as a citizen suit provision allowing any person to enforce the Act by commencing a civil suit.¹²³

To obtain these protections for an imperiled species, any interested person can petition the USFWS to add a species to the endangered species list.¹²⁴ Upon receiving a petition, the USFWS has 90 days to make and publish a finding in the Federal Register determining whether the petition has adequate information indicating that a listing may be warranted.¹²⁵ If USFWS finds that a listing may be warranted, the USFWS has 12 months to review the status of the species and determine whether listing the species is warranted, not warranted, or warranted but precluded by other pending proposals to list species.¹²⁶ Due to the drastic decline in lesser prairie-chicken numbers and occupied range, on October 6, 1995, the Biodiversity Legal Foundation petitioned the USFWS to list the lesser prairie-chicken as threatened under the ESA throughout its known historical range and designate critical habitat for the species.¹²⁷ On July 8, 1997, the USFWS published a finding that there was “substantial biological, distributional, historical, and other information indicating that listing the species as threatened may be warranted”¹²⁸ and proceeded to gather “additional information on the population abundance, population trends, distribution . . . and habitat use by lesser prairie-chickens.”¹²⁹ On June 9, 1998, the USFWS published its determination that listing the lesser prairie-chicken was “warranted but precluded by other higher priority actions to amend the Lists of Endangered and

121. *Id.* § 1532(19).

122. 50 C.F.R. § 17.3 (2008). The constitutionality of this regulation was upheld by the Supreme Court in *Babbitt v. Sweet Home Chapter of Communities for a Greater Or.*, 515 U.S. 687 (1995).

123. 16 U.S.C. § 1540 (a), (b), (g).

124. *Id.* § 1533(b)(3)(A).

125. *Id.*

126. *Id.* § 1533(b)(3)(B).

127. Endangered and Threatened Wildlife and Plants; 90-Day Finding for a Petition to List the Lesser Prairie-Chicken as Threatened, 62 Fed. Reg. 36,482 (July 8, 1997) (to be codified at 50 C.F.R. pt. 17).

128. *Id.* at 36,482–83.

129. *Id.* at 36,484.

Threatened Wildlife and Plants.”¹³⁰ Thus, although the lesser prairie-chicken is technically threatened, it has not been federally listed as such.

C. Listing as a Candidate Species

Over the past decade, the USFWS has essentially stopped listing imperiled species as threatened or endangered but has instead maintained a list of species that are “candidates” for listing under the ESA.¹³¹ The USFWS is permitted to designate candidate species as long as “expeditious progress is being made to add qualified species” to the list of endangered or threatened species.¹³² A “candidate species” is defined as a “species for which the Service has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list” as threatened or endangered, “but for which issuance of the proposed rule is precluded.”¹³³ This means that although the USFWS has information on file showing that the lesser prairie-chicken is biologically vulnerable and threatened, the lesser prairie-chicken does not receive any of the protections afforded to species that are listed under the ESA.¹³⁴

D. Purposes of Candidate List

The USFWS states several purposes for maintaining a candidate list. First, by listing a species as a candidate, the USFWS is able to inform the general public that a species is facing threats to its survival.¹³⁵ Second, listing as a candidate allows the USFWS to obtain information from interested parties, including information needed to determine the listing priority for each species.¹³⁶ Additionally, candidate listing is meant to “assist environmental planning efforts by providing advance notice of potential listing, allowing landowners and resource managers to alleviate threats and thereby possibly remove the need to list species as endan-

130. Endangered and Threatened Wildlife and Plants; 12-Month Finding for a Petition to List the Lesser Prairie-Chicken as Threatened and Designate Critical Habitat, 63 Fed. Reg. 31,400 (June 9, 1998) (codified at 50 C.F.R. pt. 17).

131. 16 U.S.C. § 1535(d)(1).

132. *Id.* § 1533(b)(3)(B)(iii).

133. Endangered and Threatened Wildlife and Plants; Review of Native Species That Are Candidates For Listing as Endangered or Threatened; Annual Notice of Findings on Resubmitted Petitions; Annual Description of Progress on Listing Actions, 72 Fed. Reg. 69,034, 69,048 (Dec. 6, 2007) (codified at 50 C.F.R. pt. 17) [hereinafter 2007 Candidate Notice of Review].

134. U.S. FISH & WILDLIFE SERV., THE ENDANGERED SPECIES ACT AND CANDIDATE SPECIES (Sept. 2001), available at http://library.fws.gov/Pubs9/esa_cand01.pdf.

135. 2007 Candidate Notice of Review, 72 Fed. Reg. at 69,034.

136. *Id.*

gered or threatened.”¹³⁷ Current USFWS policy is to “strongly encourage collaborative conservation efforts for candidate species and offer technical and financial assistance to facilitate such efforts.”¹³⁸

V. ADMINISTRATION OF THE CANDIDATE LIST

The current administration of the ESA and the extensive resources expended on maintaining a candidate list reflect a policy choice to avoid adding species to the list of threatened or endangered species or affording species the formal protections of a listing under the ESA. The USFWS spends considerable time and money to maintain the candidate list, including assigning each candidate a listing priority number, publishing a listing priority form for each species, and publishing an annual candidate notice of review in the Federal Register. Arguably the time and money spent on administering the candidate list would be better spent listing imperiled species as threatened or endangered and subsequently implementing conservative management practices for those species.

A. Species Assessment and Listing Priority Assignment Forms

When a species is added to the candidate list, the USFWS assigns the species a listing priority number (LPN).¹³⁹ Candidates are given an LPN of 1 through 12, with 1 being assigned to species most in need of listing as threatened or endangered.¹⁴⁰ Three criteria are used to assign candidate species LPNs: the “magnitude of threats, imminence of threats, and taxonomic status.”¹⁴¹ In determining the relative magnitude of the threats facing a species, the USFWS considers the number and size of known populations, distribution and range size, and the biology of the species.¹⁴² To determine the immediacy of the threats to a species, the USFWS looks at whether the threat to the species’ survival is “currently occurring or likely to occur in the very near future.”¹⁴³ Finally, in considering taxonomic status the USFWS takes the uniqueness of a species into consideration, giving higher priority to species than subspecies or distinct population segments of a species.¹⁴⁴

137. *Id.*

138. *Id.*

139. *Id.*

140. *Id.*

141. 2007 Candidate Notice of Review, 72 Fed. Reg. at 69,035. For more information on priority guidelines, see Endangered and Threatened Species Listing and Recovery Priority Guidelines, 48 Fed. Reg. 43,098 (Sept. 21, 1983).

142. 2007 Candidate Notice of Review, 72 Fed. Reg. at 69,035.

143. *Id.*

144. *Id.*

The USFWS publishes LPNs for candidate species along with the supporting data in “Species Assessment and Listing Priority Assignment Forms.”¹⁴⁵ The species assessment form for the lesser prairie-chicken, current as of October 2005, gives the species an LPN of 8, based on a determination that threats to the lesser prairie-chicken are “moderate” but “imminent.”¹⁴⁶ The species assessment form explains that listing the lesser prairie-chicken is precluded due to “court orders and court-approved settlement agreements, emergency listings, and essential litigation related, administrative, and program management functions.”¹⁴⁷

B. Candidate Notice of Review: Documenting “Expeditious Progress”

Once the USFWS determines that a species is a “candidate” for listing under the ESA, that species is reviewed, theoretically annually, in a Candidate Notice of Review (CNOR) published in the Federal Register.¹⁴⁸ In the CNOR, the USFWS re-evaluates each candidate designation,¹⁴⁹ monitors candidate species, and implements emergency listing when necessary.¹⁵⁰

In addition to the other functions of the CNOR, the CNOR is utilized by the USFWS to justify the use of the “warranted but precluded” exception by documenting “expeditious progress.”¹⁵¹ Although the ESA allows agencies to use the “warranted but precluded” exception, an agency must make “expeditious progress” to “add qualified species” to the endangered and threatened species lists and “remove from such lists species for which the protections of this chapter are no longer necessary.”¹⁵² The ESA also mandates that the USFWS publish “warranted but precluded” findings in the Federal Register, “together with a description and evaluation of the reasons and data on which the finding is based.”¹⁵³ Congress intended this requirement to ensure that USFWS fulfills the duty to list and protect imperiled species and avoid “foot dragging ef-

145. *Id.* at 69,034.

146. LISTING PRIORITY ASSIGNMENT FORM, *supra* note 49, at 20.

147. *Id.*

148. Although USFWS is supposed to publish CNORs annually, in practice these reviews have often come out every two years.

149. 2007 Candidate Notice of Review, 72 Fed. Reg. at 69,048.

150. The duty to monitor is codified at 16 U.S.C. § 1533(b)(3)(C)(iii). The duty to make use of the emergency listing provisions is codified at 16 U.S.C. § 1533(b)(7). *See also* 2007 Candidate Notice of Review, 72 Fed. Reg. at 69,034.

151. Endangered Species Act of 1973, 16 U.S.C. § 1533(b)(3)(B)(iii)(II) (2006).

152. *Id.* § 1533(b)(3)(B)(iii)(II).

153. *Id.* § 1533(b)(3)(B)(iii).

forts of a delinquent agency,” while still leaving the agency discretion to prioritize actions under the ESA.¹⁵⁴

The lesser prairie-chicken has been reviewed in multiple CNORs but remains a candidate species. The CNORs, however, illustrate that little “expeditious progress” toward the listing of candidate species is being accomplished. In fact, the seventh CNOR including the lesser prairie-chicken, published on December 6, 2007, included 280 candidate species yet did not document a single species being added to the list of endangered or threatened plants or animals.¹⁵⁵ Instead, the expeditious progress, presented in table form, listed mostly 90-day and 12-month petition findings along with a few notices of withdrawn species.¹⁵⁶ In fact, between May 2006 and November 2008, only the polar bear was listed.¹⁵⁷ Although the CNORs are purportedly USFWS’s method of demonstrating expeditious progress toward listing threatened and endangered species, what they truly document is the agency’s failure to fulfill the statutory mandate to list species.

C. Candidate Conservation Program

Under the current administration of the ESA, candidates are not being added to the list of threatened or endangered species, and therefore do not receive the legal protections afforded to threatened and endangered species. The USFWS does, however, operate a separately budgeted Candidate Conservation Program (CCP) that provides some conservation benefits to candidate species.¹⁵⁸ The USFWS’s primary objective for the CCP is to provide technical and financial support to landowners who wish to develop voluntary conservation strategies for candidate species in order to address threats to the species while also avoiding the need to list the species as threatened or endangered.¹⁵⁹ The USFWS offers two types of voluntary conservation agreements to landowners within the CCP: Candidate Conservation Agreements (CCA) and

154. Endangered Species Act Amendments of 1982, H.R. REP. NO. 97-835, at 22 (1982) (Conf. Rep.).

155. 2007 Candidate Notice of Review, 72 Fed. Reg. at 69,050–54.

156. *Id.*

157. NOAH GREENWALD, CTR. FOR BIOLOGICAL DIVERSITY, POLITICIZING EXTINCTION: THE BUSH ADMINISTRATION’S DANGEROUS APPROACH TO ENDANGERED WILDLIFE 3 (2007), available at <http://www.biologicaldiversity.org/publications/papers/PoliticizingExtinction.pdf>. The Center for Biological Diversity website is a good source of current ESA news and events. See Center for Biological Diversity, <http://www.biologicaldiversity.org/> (last visited Apr. 26, 2009).

158. 2007 Candidate Notice of Review, 72 Fed. Reg. at 69,054.

159. *Id.*

Candidate Conservation Agreements with Assurances (CCAAs).¹⁶⁰ CCAs are partnerships between the USFWS and other federal agencies designed to develop and implement strategies to conserve candidate species.¹⁶¹ CCAAs are partnerships through which the USFWS offers incentives to non-federal landowners, including states, tribes, citizens, and local governments, to enter voluntary conservation agreements.¹⁶² Partnerships like CCAs and CCAAs were originally contemplated by section 2 of the ESA, which encourages cooperative conservation efforts between the USFWS and public, private, and government entities for the purpose of removing or reducing the threats to imperiled species.¹⁶³

D. Successes and Shortcomings of ESA Administration

Although Congress enacted the ESA to prevent the extinction of species such as the lesser prairie-chicken, the ESA is not being implemented or funded as Congress intended. The ESA says that endangered and threatened species “shall” be listed and critical habitat for such species “shall” be designated, yet the USFWS has virtually stopped listing species as threatened or endangered and has instead relied heavily on the ESA exception allowing species to be listed as “warranted but precluded.”¹⁶⁴ This trend continues despite the requirement that USFWS make “expeditious progress” in listing species.¹⁶⁵

One reason the ESA has not been implemented as intended is that the ESA is not being adequately funded to carry out the statute’s purpose. As reiterated in the annual CNORs and species assessment forms, the USFWS blames budget shortfalls for the inability to list species as threatened or endangered, explaining that the entire listing budget is expended on litigation costs, compliance with court ordered actions and approved settlements, and administrative functions.¹⁶⁶ Commentators believe the reason the ESA is critically under-funded is the low priority placed on listing species by the Department of the Interior.¹⁶⁷ Although

160. *Id.*

161. Announcement of Final Policy for Candidate Conservation Agreements with Assurances, 64 Fed. Reg. 32,726, 32,727 (June 17, 1999).

162. *Id.*

163. Endangered Species Act of 1973, 16 U.S.C. § 1531(a)(5) (2006).

164. GREENWALD, *supra* note 157, at 1. See also Press Release, U.S. Dep’t. of the Interior, Secretary Kempthorne Announces Decision to Protect Polar Bears under Endangered Species Act (May 14, 2008), available at http://www.fws.gov/home/feature/2008/polarbear012308/pdf/DOI_polar_bears_news_release.pdf.

165. 16 U.S.C. § 1533(b)(3)(B)(iii)(2) (2006).

166. 2007 Candidate Notice of Review, 72 Fed. Reg. at 69,050.

167. D. Noah Greenwald, *The Listing Record*, in 1 THE ENDANGERED SPECIES ACT AT THIRTY 51, 64 (Dale D. Goble et al. eds., 2006).

the need for more funds is clear, the Department of the Interior consistently asks for less money than would be required to fully fund and implement the ESA, and has requested spending caps on both listing activities and critical habitat designations.¹⁶⁸ The dire status of lesser prairie-chickens is in part due to the lack of funding for ESA implementation.

The lesser prairie-chicken would greatly benefit from the legal protections afforded federally listed species. The ESA has been remarkably successful at preventing extinction, as evidenced by a study that found the ESA has prevented the extinction of 227 listed species.¹⁶⁹ Conversely, the population size of candidate species often declines during delays in the listing process, and at least 42 species have gone extinct while waiting to be listed.¹⁷⁰ As a candidate species, the lesser prairie-chicken does not reap the benefits of an ESA listing, including a recovery plan funded by the USFWS, a prohibition on governmental agency activities that jeopardize listed species or modify their critical habitat, the prohibition on “taking,” or enforcement through civil and criminal penalties and citizen suits.

Federal listing would be especially beneficial to lesser prairie-chickens on federal public land—critically important considering that 5 percent of the species’ total occupied range is located on BLM land in New Mexico.¹⁷¹ On BLM land, a listing as threatened or endangered could lead to more federal restrictions on oil and gas operations, herbicide use, and harmful grazing practices. Although under the Federal Land Policy and Management Act of 1976 (FLPMA)¹⁷² the BLM must manage federal public lands for multiple uses, a listing under the ESA would increase the priority of lesser prairie-chicken conservation within the spectrum of uses, potentially leading to more restrictive management of activities that jeopardize the species.¹⁷³ Additionally, federal listing would help lesser prairie-chickens by requiring USFWS oversight of federally funded or permitted activities on private and state lands.¹⁷⁴

Despite the drawbacks of candidate status, however, the lesser prairie-chicken has benefited from the ESA and candidate listing in

168. *Id.* at 61.

169. J. Michael Scott et al., *By the Numbers*, in 1 *THE ENDANGERED SPECIES ACT AT THIRTY* 16, 31 (Dale D. Goble et al. eds., 2006).

170. Greenwald, *supra* note 167, at 51.

171. LISTING PRIORITY ASSIGNMENT FORM, *supra* note 49, at 2.

172. Federal Land Policy and Management Act of 1976, 43 U.S.C. §§ 1701–82 (2006).

173. See *infra* Part VI.A.3 (discussing the BLM management plan developed through the Collaborative Conservation Strategy).

174. This is true due to the federal agencies’ duty to consult under section 7 of the ESA. 16 U.S.C. § 1536(a)(2).

many substantial ways. First, the ESA has provided the impetus to develop local and multi-state collaborative conservation initiatives with the objective of raising lesser prairie-chicken populations to avoid a listing as threatened or endangered.¹⁷⁵ Further, the threat of listing and accompanying litigation gives federal and state land managers a “strong arm” to implement conservation plans that regulated industries, including oil and gas operators, would otherwise oppose.¹⁷⁶ Additionally, candidate status makes landowners eligible for a variety of funding sources for lesser prairie-chicken management and habitat restoration.¹⁷⁷ Finally, under the Candidate Conservation Program, CCAs and CCAAs encourage participation in conservation efforts by offering incentives to landowners. In New Mexico, a CCA, addressing federal lands, and a CCAA, addressing private lands, have been established for the lesser prairie-chicken. Under the CCA and CCAA, landowners can voluntarily agree to fund and implement conservation measures to benefit the species, in exchange for assurances from the USFWS and NMDGF that their land operations will be able to continue unaffected if the species is listed under the ESA in the future.¹⁷⁸ Despite these benefits of candidate listing, candidate species including the lesser prairie-chicken simply do not have the level of federal protection listed species have, and they may not have time to wait for the Department of the Interior policy shift that will be necessary for adequate protection under the ESA.

Although a federal listing as threatened or endangered would benefit the lesser prairie-chicken, it alone may not be enough to prevent extinction of the species, in part due to shortcomings in ESA implementation. For instance, although critical habitat designation would help lesser prairie-chickens tremendously by maintaining healthy shinnery-oak grassland while simultaneously benefiting the entire prairie ecosystem, critical habitat has not been designated for the majority of threatened and endangered species.¹⁷⁹ Furthermore, as discussed above, the ESA is not being adequately funded to carry out its purpose. Additionally, even if the lesser prairie-chicken was federally listed, wildlife managers believe there is a good possibility that the listing would only

175. See *infra* Part V (discussing the Collaborative Conservation Strategy).

176. Interview with Steve Bird, *supra* note 80.

177. See *infra* Part VIII.B (providing an overview of funding sources available to private landowners).

178. See U.S. FISH & WILDLIFE SERV. ET AL., CANDIDATE CONSERVATION AGREEMENT FOR THE LESSER PRAIRIE-CHICKEN (*TYMPANUCHUS PALLIDICINCTUS*) AND SAND DUNE LIZARD (*SCELOPORUS ARENICOLUS*) IN NEW MEXICO (Dec. 8, 2008), available at http://www.fws.gov/southwest/es/NewMexico/documents/CCA_CCAA_LPC_SDL_2008_final_signed.pdf.

179. Kieran F. Suckling & Martin Taylor, *Critical Habitat and Recovery*, in 1 THE ENDANGERED SPECIES ACT AT THIRTY 75, 89 (Dale D. Goble et al. eds., 2006).

cover part of the lesser prairie-chicken's range, excluding New Mexico and Kansas where populations have shown modest increases in the past several years.¹⁸⁰

Another reason a listing under the ESA may not be sufficient insurance against the extinction of the lesser prairie-chicken is the challenge inherent in managing habitat that crosses landownership boundaries. Federal listing as threatened or endangered is likely not the most effective means to achieve conservation initiatives on privately owned land. The importance of conservation on private land cannot be understated—95 percent of the species' occupied range is privately owned.¹⁸¹ A listing under the ESA could arguably provide more protection for lesser prairie-chickens on private land due to the prohibitions on "take" in section 9 of the ESA,¹⁸² even if landowners violate the ESA by taking or harming listed species, however, neither the USFWS nor environmental organizations have the resources needed to monitor ranching and farming practices on private land to enforce violations of the ESA.¹⁸³ In fact, one survey of published cases involving section 9 of the ESA revealed no cases where the USFWS or a non-governmental organization brought suit against private individuals for regular ranching or farming practices that harmed a listed species.¹⁸⁴ Furthermore, although the ESA prohibits activities that harm or take endangered species, it does not include any provisions encouraging beneficial management to help a species recover or expand its population back into its historical range.¹⁸⁵

In addition to the challenges presented by ESA enforcement on private land, it is even uncertain whether a federal listing would lead to more stringent restrictions on federal BLM land due to the political and economical impacts of energy development in the state of New Mexico. Under section 7 of the ESA,¹⁸⁶ the consultation process has the potential to shut down oil and gas production on BLM land for a long period of time, at significant cost to both oil and gas operators and to the state of New Mexico. Oil and gas development significantly contributes to New Mexico's public purse in both good and bad economic times. Thus, although the ESA has the potential to level the playing field between the politically powerless lesser prairie-chicken and the powerful oil and gas

180. E-mail from Grant Beauprez, *supra* note 96.

181. LISTING PRIORITY ASSIGNMENT FORM, *supra* note 49, at 2.

182. Endangered Species Act of 1973, 16 U.S.C. § 1538 (a)(1)(B) (2006).

183. Barton H. Thompson, *Managing the Working Landscape*, in 1 THE ENDANGERED SPECIES ACT AT THIRTY 101, 106 (Dale D. Goble et al. eds., 2006).

184. *Id.* at 104.

185. *Id.* at 105.

186. 16 U.S.C. § 1536(a)(2).

industry, it is unlikely to be fully implemented in a way that fulfills this potential in today's political and economic climate.

While an ESA listing as threatened or endangered would provide substantial benefits to the lesser prairie-chicken that are unavailable to candidate species, the USFWS's track record of poor ESA implementation combined with the challenges presented by multiple types of landownership suggest that a federal listing alone is not enough to successfully prevent the extinction of the lesser prairie-chicken. The gaps left by federal protection must be filled with stakeholder-based collaborative conservation initiatives and local management by state agencies.

VI. COLLABORATIVE CONSERVATION STRATEGY FOR THE LESSER PRAIRIE-CHICKEN IN NEW MEXICO

The ESA is not a sufficient mechanism to protect all biodiversity—instead, it is critical to “enlist the resources and power of people and legal structures . . . outside the ESA process.”¹⁸⁷ Voluntary stakeholder-based collaborative conservation is one method of addressing the difficulty inherent in species conservation, and especially in extending species conservation initiatives across landownership boundaries. Although the USFWS is not actively adding candidate species to the list of threatened or endangered species, the current policy of the USFWS is to “strongly encourage collaborative conservation efforts” for species listed as candidates under the ESA, with the possible outcome of alleviating threats to the species so that the need to list them as threatened or endangered is eliminated.¹⁸⁸

In 2003, a group of stakeholders in New Mexico began developing a collaborative conservation agreement to benefit two candidate species, the lesser prairie-chicken and the sand dune lizard.¹⁸⁹ The New Mexico Lesser Prairie-Chicken and Sand Dune Lizard Working Group (Working Group) developed the Collaborative Conservation Strategy¹⁹⁰ with the goal of creating:

[A] conservation strategy for the management of shinnery oak and sand sage grassland communities in southeastern and east-central New Mexico, recommending a range of specific

187. Steven L. Yaffee, *Collaborative Decision Making*, in 1 THE ENDANGERED SPECIES ACT AT THIRTY 212 (Dale D. Goble et al. eds., 2006).

188. 2007 Candidate Notice of Review, 72 Fed. Reg. at 69,034.

189. Although the biology and conservation status of the sand dune lizard is outside the scope of this article, it is important to note that collaborative conservation initiatives differ from listing actions under the ESA in that collaborative conservation can address the needs of more than one imperiled species within an ecosystem.

190. COLLABORATIVE CONSERVATION STRATEGY, *supra* note 62.

actions to enhance and secure populations of Lesser Prairie-Chickens . . . so that federal or state listing of these species is not needed, while protecting other uses of the land.¹⁹¹

The founding members of the Working Group, three BLM biologists and a USFWS biologist,¹⁹² hired two professional negotiators to act as neutral facilitators of the planning and negotiation process.¹⁹³ More than 80 stakeholders representing a vast array of interests attended the first meeting, including agency representatives from the USFWS, BLM, U.S. Department of Energy, U.S. Department of Agriculture, NRCS, NMDGF, NMSLO, and New Mexico Department of Agriculture, in addition to ranchers and livestock growers, members of the oil and gas industry, and representatives of conservation and environmental organizations.¹⁹⁴

Although the initial timeframe for completion of the conservation agreement was nine months, the planning and negotiation process actually lasted from January 2003 through May 2005.¹⁹⁵ Extra time was needed at the beginning of the process to ensure that stakeholders understood one another's perspectives and agreed on ground rules, accepted lesser prairie-chicken science, and agreed on beneficial management techniques.¹⁹⁶ Additionally, it took time and geographical information system (GIS) expertise to produce maps to help stakeholders understand where lesser prairie-chicken habitat was located.¹⁹⁷

The Working Group explicitly acknowledged the barriers to success of stakeholder-based collaborative conservation agreements, stating that success of the strategy, measured by promised stakeholder support and implementation, would be dependent on several prerequisites.¹⁹⁸ First, public and private landowners must be educated to ensure aware-

191. *Id.* at iii.

192. E-mail from Steven R. Belinda, Energy Policy Initiative Manager, Theodore Roosevelt Conservation Partnership, to author (Apr. 25, 2008, 11:38 MST) (on file with author).

193. Ric Richardson, Professor, University of New Mexico Community and Regional Planning Program, Presentation to the Foundations of Natural Resources Planning class at the University of New Mexico (Mar. 4, 2008) [hereinafter Richardson Presentation]. Professor Richardson specializes in dispute resolution and negotiation in water and environmental issues, and acted as negotiator for the New Mexico LPC/SDL Working Group.

194. *Id.*, see also COLLABORATIVE CONSERVATION STRATEGY, *supra* note 62, app. C, at 177.

195. Richardson Presentation, *supra* note 193; see also COLLABORATIVE CONSERVATION STRATEGY, *supra* note 62, at 3.

196. Ric Richardson & Jennifer Peyser, Collaborative Approaches to Science in Resource Management Planning for the Lesser Prairie-Chicken: Implications for Practice 13–14 (Nov. 2006) (unpublished manuscript on file with the author).

197. *Id.* at 3.

198. COLLABORATIVE CONSERVATION STRATEGY, *supra* note 62, at 51.

ness of the legal assurances available through the USFWS, including CCAAs.¹⁹⁹ Second, financial incentives must be continually provided to offset economic costs and ensure voluntary landowner participation.²⁰⁰ Third, both state and federal agencies must fully support and participate in the implementation of the conservation strategy and remain flexible in pursuing policy objectives.²⁰¹ Fourth, stakeholders must have “clearly stated goals and agreed upon standards for monitoring outcomes” of conservation efforts.²⁰² Finally, all Working Group members must take leadership in implementation, and advocate for the full support of their constituency.²⁰³ These prerequisites illustrate the significant challenges collaborative conservation processes must overcome to benefit imperiled species.

A. The Planning Area

The planning area for the Collaborative Conservation Strategy is a large region of east central and southeastern New Mexico, including portions of Quay, De Baca, Curry, Chavez, Roosevelt, Eddy, and Lea Counties.²⁰⁴ The planning area consists primarily of shinnery-oak grassland where ranching and livestock grazing have been a tradition and way of life for many generations.²⁰⁵ The land surface ownership within the planning area “includes approximately 1,182,930 acres of BLM land, 1,008,200 acres of state trust lands, 3,787,460 acres of private lands, and 39,330 acres in other ownership categories.”²⁰⁶

The planning area is a major oil and gas producing region, situated above the Permian Basin, Delaware Basin, and Pecos Slope.²⁰⁷ Much of the planning area is split-estate land, meaning “land surface and sub-surface mineral rights are owned by two different parties.”²⁰⁸ The oil and gas industry is a substantial component of New Mexico’s economy, generating employment opportunities, taxes, and income from royalties, rent, and lease fees.²⁰⁹ Every year, oil and gas revenues constitute between 20 and 25 percent of New Mexico’s General Fund. New Mexico’s

199. *Id.*

200. *Id.* at 52.

201. *Id.*

202. *Id.*

203. *Id.* at 53.

204. COLLABORATIVE CONSERVATION STRATEGY, *supra* note 62, at iii.

205. *Id.* at 10–12.

206. *Id.* at 16.

207. *Id.* at 13.

208. *Id.* at 17.

209. *Id.* at 14.

public schools are funded primarily with investment returns from royalties from oil and gas production on state trust land.²¹⁰

The planning area is divided into three regions defined by the current population of lesser prairie-chickens: a primary population area (PPA), where well-distributed lesser prairie-chicken populations occur; a sparse and scattered population area (SSPA); and an isolated population area (IPA).²¹¹ Over 90 percent of New Mexico's remaining lesser prairie-chicken population lives in the PPA.²¹²

B. Pathways for Lesser Prairie-Chicken Conservation

The Collaborative Conservation Strategy for the lesser prairie-chicken is organized into nine "pathways," each focusing on a different conservation or management action.²¹³ These pathways include recommendations for habitat improvement, energy development, the expansion and consolidation of reserves, the expansion of lesser prairie-chickens back into their historical range in southeast New Mexico, strategies to reduce lesser prairie-chicken mortality, further research on the species, education and outreach, the coordination of conservation actions, and conservation funding.

1. *Habitat Improvement: Grazing and Conservation Reserve Program Lands*

The first pathway addresses enhancement of lesser prairie-chicken habitat through attainment of target vegetation composition and grass height on grazed rangelands and Conservation Reserve Program (CRP) lands.²¹⁴ Although grazing management techniques can be used to benefit lesser prairie-chickens, "[s]upport of the ranching community for this strategy is contingent upon the availability of adequate compensation and funding."²¹⁵ Habitat enhancement can also be accomplished through management of CRP lands to increase lesser prairie-chicken habitat and through the eradication of mesquite trees encroaching on shinnery-oak and sand sage ecosystems using mechanical and/or chemical means.²¹⁶

2. *Energy Development*

The second pathway involves minimizing lesser prairie-chicken habitat loss due to energy development to achieve a productive long-

210. COLLABORATIVE CONSERVATION STRATEGY, *supra* note 62, at 14.

211. *Id.* at 47.

212. *Id.* at 71.

213. *Id.* at v.

214. *Id.* at 54–56.

215. *Id.* at 57–58.

216. COLLABORATIVE CONSERVATION STRATEGY, *supra* note 62, at 64–65.

term coexistence between the oil and gas industry and the lesser prairie-chicken.²¹⁷ To accomplish this goal, the Collaborative Conservation Strategy adopted Robert Robel's avoidance distances for nesting lesser prairie-chickens.²¹⁸ The strategy recommends that areas be designated as open or closed to new leasing for oil and gas development depending on whether the area falls within occupied, suitable, potentially suitable, or unsuitable habitat.²¹⁹ The strategy also considers ways to minimize impacts of new and ongoing energy development, such as encouraging the BLM to use its discretion to impose conditions of approval (COD) and plans of development (POD) on existing federal mineral leases to minimize the impacts of energy development.²²⁰ Through CODs and otherwise, the strategy recommends broad-scale restoration and reclamation of unused and abandoned roads, power lines, well pads, and other structures to benefit lesser prairie-chickens by reducing the habitat lost due to lesser prairie-chicken avoidance behaviors.²²¹

3. Consolidate and Expand Lesser Prairie-Chicken Reserves

The third pathway addresses the lesser prairie-chicken's need for large expanses of interconnected habitat. In order to expand the network of land managed for lesser prairie-chicken conservation, the strategy recommends land and mineral exchanges between the BLM and NMSLO to consolidate federal holdings in core BLM management areas, development and implementation of a comprehensive management plan for the existing Prairie Chicken Areas (PCA) managed by NMDGF, the development of CCAAs in New Mexico to promote conservation efforts, and the acquisition of additional lands for lesser prairie-chicken reserves.²²²

4. Work to Re-establish Lesser Prairie-Chickens in Southeastern New Mexico

The fourth pathway applies to the southern part of the lesser prairie-chicken's historical range, the IPA, from which lesser prairie-chickens have virtually disappeared since the 1980s.²²³ The strategy recommends analyzing the suitability of habitat on 17 parcels of land managed by the Carlsbad BLM for future inclusion in new lesser prairie-chicken reserves.²²⁴ Additionally, the fourth pathway recommends captive breed-

217. *Id.* at 70.

218. *Id.* at 73.

219. *Id.* at 74–85.

220. *Id.* at 85–86.

221. *Id.* at 87–89.

222. COLLABORATIVE CONSERVATION STRATEGY, *supra* note 62, at 90.

223. *Id.* at 102.

224. *Id.* at 104–05.

ing programs located at sites where reintroduction of lesser prairie-chickens directly into the wild would occur.²²⁵

5. Reduce Other Causes of Disturbance and Mortality

The fifth pathway suggests several ways to reduce causes of lesser prairie-chicken mortality and poor nesting success.²²⁶ Although the strategy suggests experimental predator control, the usefulness of this option is limited because some predators are protected by law, and because reducing one type of predator may result in increased predation by other species.²²⁷ Although avian predators are protected by law, avian predation can be decreased by removing vertical structures including trees and power poles, thereby discouraging raptor nesting and perching near lesser prairie-chicken leks.²²⁸ Predation can also be decreased by managing habitat to increase vegetative cover to protect nesting females, eggs, and chicks.²²⁹ In addition to predation control, reduced lesser prairie-chicken mortality may be accomplished by restricting off-road vehicle use,²³⁰ preventing unlawful hunting and accidental shooting through hunter education and increased patrols,²³¹ and planting winter grain crops.²³²

6. Research, Monitoring, and Evaluation

Every strategy for lesser prairie-chicken conservation, including those mentioned above, must be based upon an understanding of lesser prairie-chicken biology, distribution, and population trends. Biology and ecology are not fully understood or predictable, forcing wildlife managers to proceed with the best available, but often incomplete, science.²³³ To address the uncertainties of lesser prairie-chicken biology, the sixth pathway includes a list of priorities for ongoing lesser prairie-chicken surveys and habitat monitoring efforts as well as specific research priorities that will further effective management of the species.²³⁴

Some scientific uncertainties can be addressed using adaptive management, which allows conservation managers to adjust techniques as more information is learned about a species. Adaptive management

225. *Id.* at 109.

226. *Id.* at 112.

227. *Id.* at 112–13.

228. COLLABORATIVE CONSERVATION STRATEGY, *supra* note 62, at 114.

229. *Id.* at 115.

230. *Id.* at 116.

231. *Id.* at 118–19.

232. *Id.* at 120.

233. *Id.* at 123.

234. COLLABORATIVE CONSERVATION STRATEGY, *supra* note 62, at 122–23.

uses baseline data to establish protocols for conservation and continuously adjusts those protocols based on ongoing monitoring and evaluation of the results of implemented conservation strategies.²³⁵ Unfortunately, although adaptive management is often attempted, it is seldom properly implemented due to the expense and time commitment needed to objectively measure the results of a scientific hypothesis.²³⁶ Furthermore, adaptive management has been criticized as an improper mechanism to address the conservation needs of imperiled species because the flexibility adaptive management requires may compromise the long-term certainty of a species' survival.²³⁷

7. Education and Outreach

Just as education and communication were essential prerequisites to getting the collaborative process started, implementation of the Collaborative Conservation Strategy will require extending information to the broader interest groups represented by individual Working Group participants.²³⁸ Targeted educational outreach to ranch operators is needed to raise awareness of lesser prairie-chicken habitat requirements, legal protections available through CCAAs, and financial assistance available for conservative grazing and habitat improvement on private lands.²³⁹ It is imperative that agencies responsible for oil and gas leasing on BLM and NMSLO land educate oil and gas operators regarding the effect of energy development on imperiled species and the ways operators may be affected by regulations pertaining to leasing and development.²⁴⁰

Educating both the local community and general public is also essential. One established and effective means of educating people about the conservation needs of the lesser prairie-chicken is the annual High Plains Prairie-Chicken Festival in Milnesand, New Mexico,²⁴¹ where Festival participants have the opportunity to view lesser prairie-chicken leks and learn about lesser prairie-chicken biology, habitat requirements,

235. *Id.* at 122.

236. See generally, Holly Doremus, *Adaptive Management, the ESA, and the Institutional Challenges of "New Age" Environmental Protection*, 41 WASHBURN L.J. 50 (2001); John Volkman, *How Do You Learn from a River? Managing Uncertainty in Species Conservation Policy*, 74 WASH. L. REV. 719, 760-61 (1999).

237. See Doremus, *supra* note 236, at 55; *Natural Res. Def. Council v. Kempthorne*, 506 F. Supp. 2d 322, 353 (E.D. Cal. 2007).

238. COLLABORATIVE CONSERVATION STRATEGY, *supra* note 62, at 126.

239. *Id.* at 127.

240. *Id.* at 128.

241. *Id.* at 126.

population distribution, and conservation initiatives from lesser prairie-chicken experts.²⁴²

8. *Coordinating and Facilitating Participation in Conservation Efforts*

The Working Group recommended that the position of “Eastern Plains Conservation Coordinator” be established and funded to carry out the implementation of the Collaborative Conservation Strategy.²⁴³ This position could be housed in a new nonprofit organization, called the New Mexico Prairie Conservation Initiative, dedicated to preserving the Great Plains ecosystem in New Mexico while maintaining important cultural and economic aspects of the region.²⁴⁴ Having a designated paid individual with responsibility for implementation of the lesser prairie-chicken conservation strategy and related fundraising could play an essential role in furthering the goals of the Working Group.²⁴⁵

9. *Funding*

The success of the Collaborative Conservation Strategy is inextricably intertwined with securing adequate funding to carry out its objectives.²⁴⁶ The need for immediate funding is especially pressing because the expense of species recovery and protection increases for agencies, stakeholders, and taxpayers as the conservation status of a species worsens, particularly if the species is later listed as threatened or endangered under the ESA.²⁴⁷ Available funding sources identified by the Working Group include existing governmental incentive programs through agencies including NRCS, NMGFD, and USFWS, grants and cost-share programs available through nonprofit organizations, agency budgetary allocations, and contributions for specific projects from affected parties.²⁴⁸ Because funding is the primary limiting factor on the success of the Collaborative Conservation Strategy, the Working Group recommended requesting additional funding from Congress and the New Mexico Legislature.²⁴⁹

242. *Id.*

243. *Id.* at 129.

244. COLLABORATIVE CONSERVATION STRATEGY, *supra* note 62, at 129.

245. *Id.* at 130.

246. *Id.* at 131.

247. *Id.*

248. *Id.* at 131–33.

249. *Id.* at 134–35.

VII. IMPLEMENTATION OF THE COLLABORATIVE CONSERVATION STRATEGY

After two and one-half years of discussion and negotiation, the Working Group finished the Collaborative Conservation Strategy and published a report of its recommendations. The strategy is considered to have utility and applicability for a five-year period.²⁵⁰ Although the report documents the threats facing the lesser prairie-chicken and makes recommendations for reducing those threats while maintaining other uses of the land, the strategy does not spell out the details of implementation,²⁵¹ even though success of the strategy is wholly dependent upon implementation.²⁵² Successful implementation of any conservation strategy is dependent on the coordination of various landowners and managers. Although many aspects of the Collaborative Conservation Strategy are being implemented by some land managers, especially the BLM and the NMSLO, the strategy has arguably failed to effectively reach others, notably private landowners in the state.

A. The Bureau of Land Management (BLM)

1. *The Federal Land Policy Management Act of 1976 (FLPMA)*

The primary reason the BLM initiated the Collaborative Conservation Strategy was to facilitate the promulgation of a new resource management plan that would fulfill the agency's statutory mandate in the FLPMA to manage public lands for multiple uses.²⁵³ Under the FLPMA, the BLM must manage land to protect interests that are often in severe conflict with one another. The FLPMA mandates that the BLM manage public land "to protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resources, and archeological values" and "provide food and habitat for fish and wildlife and domestic animals" while providing "for outdoor recreation and human occupancy and use," and at the same time, to manage those lands "in a manner which recognizes the Nation's need for domestic sources of minerals, food, timber, and fiber."²⁵⁴ In order to achieve these management objectives, the FLPMA requires the BLM to inventory public land periodically and plan for future use in conjunction "with other Federal and State planning efforts."²⁵⁵

250. COLLABORATIVE CONSERVATION STRATEGY, *supra* note 62, at 152.

251. *Id.*

252. *Id.* at 153–54.

253. Federal Land Policy and Management Act of 1976, 43 U.S.C. §§ 1701–82 (2006).

254. *Id.* § 1701.

255. *Id.*

Under the FLPMA's statutory mandate to manage for multiple uses, the BLM's Pecos District in New Mexico (including the land managed by the Roswell and Carlsbad field offices) had to consider and balance multiple competing uses in the promulgation of the final resource management plan for the region. First, the public land in southeastern New Mexico within the Pecos District has been producing both natural gas and liquid oil for over 80 years.²⁵⁶ Second, cattle ranching and public land grazing have historically played a significant role in the cultural and economic development of the region.²⁵⁷ Finally, the planning area encompasses all of the lesser prairie-chicken habitat managed by the BLM.²⁵⁸

2. *Proposed Rule: Special Status Species Record of Decision and Approved Resource Management Plan Amendment*

Upon completion of the Collaborative Conservation Strategy, the Working Group submitted recommendations to the BLM for consideration in the development of new regulations governing the public land managed by the Roswell and Carlsbad field offices.²⁵⁹ In November 2007 the BLM published the Special Status Species Proposed Resource Management Plan Amendment and Final Environmental Impact Statement.²⁶⁰ This proposed rule discussed several possible management alternatives to be considered for promulgation as the final rule. The BLM's preferred alternative, Alternative B, was largely based upon the Collaborative Conservation Strategy.²⁶¹ Other alternatives under consideration included Alternative D, which would focus on protecting only currently occupied lesser prairie-chicken habitat, and Alternative E, which would establish an Area of Critical Environmental Concern (ACEC) for the lesser prairie-chicken and place a five-year moratorium on all grazing and new oil and gas activities in that area.²⁶²

256. U.S. DEP'T OF THE INTERIOR, BUREAU OF LAND MGMT., SPECIAL STATUS SPECIES PROPOSED RESOURCE MANAGEMENT PLAN AMENDMENT/ FINAL ENVIRONMENTAL IMPACT STATEMENT 4-13 (2007), available at http://www.blm.gov/pgdata/etc/medialib/blm/nm/field_offices/roswell/rfo_planning/special_status_species.Par.24130.File.dat/pdf_rmpa_final_document_11_07_pecos_volume_1.pdf [hereinafter PROPOSED RULE].

257. *Id.* at 3-26.

258. *Id.* at 4-13.

259. COLLABORATIVE CONSERVATION STRATEGY, *supra* note 62, at 153.

260. See PROPOSED RULE, *supra* note 256.

261. *Id.* at 2-22.

262. *Id.* at 2-23.

3. Final Rule: Special Status Species Record of Decision and Approved Resource Management Plan Amendment

On May 2, 2008, the BLM published the final rule (RMPA) for the planning area, encompassing portions of Chavez, Eddy, Lea, and Roosevelt Counties, including approximately 850,000 acres of public land surface and 1,150,000 acres of federal mineral estate.²⁶³ The final regulation adopted Alternative B, which incorporated most of the Collaborative Conservation Strategy and took account of the structural avoidance behavior research published by Robert Robel.²⁶⁴ Additionally, the final rule established a Lesser Prairie-Chicken Habitat Preservation ACEC, although only at about one-fourth the size of that described by Alternative E of the proposed rule.²⁶⁵ In accord with the FLPMA, the RMPA was created to establish management prescriptions for habitat protection for the lesser prairie-chicken while allowing continued resource extraction and recreation within the Planning Area.²⁶⁶

a. Oil and Gas Development

An enormous amount of oil and gas development occurs on the public land and federal mineral estate within the Pecos District of the BLM. Within the past 30 years, an average of 337 oil and gas wells have been drilled annually within the land managed by the Pecos District, while an average of 27 wells have been abandoned and plugged annually. Under the rate of oil and gas development at the time the final rule was published, it was expected that about 61 new wells would be drilled annually, while only five wells would be plugged and abandoned.²⁶⁷ For each new well, the BLM has estimated that 14 acres of surface area are disturbed to build well pads, roads, and pipelines, five acres of which can be reclaimed within two years.²⁶⁸

Although in promulgating the RMPA the BLM decreased the number of new oil and gas wells that can be approved annually, the number of new wells allowed is still substantial, meaning that lesser prairie-chicken habitat loss and degradation will likely continue. Under the RMPA, about 19 percent of the federal mineral estate within the planning area is closed to new leases, reducing the number of anticipated

263. Notice of Availability of Record of Decision for the Special Status Species Approved Resource Management Plan Amendment, 73 Fed. Reg. 24,306, 24,306 (May 2, 2008).

264. *Id.* at 24,307.

265. *Id.*

266. PROPOSED RULE, *supra* note 256, at 1-1.

267. *Id.* at 4-37.

268. *Id.* at 4-13. More acreage is necessary in the initial drilling phase of well development. Interview with Steve Bird, *supra* note 80.

new wells drilled annually to 49, and increasing the expected number of plugged and abandoned wells to 11 wells annually.²⁶⁹ Although it is unfortunate for lesser prairie-chickens that new oil and gas leases will be granted and wells will continue to be drilled within their habitat, the RMPA includes other features designed to decrease the negative impacts of energy development on lesser prairie-chickens.²⁷⁰

First, the Core Management Area (CMA) of the Planning Area is designated as closed to new leasing, and any exceptions that are granted will include a no-surface-occupancy stipulation, meaning that drilling must be located outside suitable habitat and must be done directionally (diagonally). For existing leases within the CMA, oil and gas operators may be required to have approved Plans of Development (POD) and Conditions of Approval (COA) which specify ways to minimize impacts of new development and include mandatory reclamation requirements.²⁷¹ Through PODs, BLM personnel can establish a number of requirements to protect and/or avoid high-quality habitat, including dictating the location and arrangement of wells, power lines and poles, roads, and pipelines.²⁷²

For the Primary Planning Area (PPA), oil and gas regulation depends on whether a parcel of land is designated as occupied, suitable, potentially suitable, or unsuitable for lesser prairie-chickens.²⁷³ Occupied and suitable habitat is closed to new leasing, with limited exceptions granted with no-surface-occupancy stipulations. Potentially suitable habitat and unsuitable habitat are open to new leases, but only if the leasing will not impact suitable habitat by extending impact/avoidance zones into suitable habitat.²⁷⁴ Existing leases within the PPA will be subject to the requirements of PODs and COAs.²⁷⁵

Land within the planning area designated as sparse and scattered population areas will be managed according to the presence or absence of lesser prairie-chickens.²⁷⁶ Occupied lesser prairie-chicken habitat (as defined by a one and one-half mile radius around a lek) will be closed to

269. PROPOSED RULE, *supra* note 256, at 4-37.

270. U.S. DEP'T OF THE INTERIOR, BUREAU OF LAND MGMT., SPECIAL STATUS SPECIES RECORD OF DECISION AND APPROVED RESOURCE MANAGEMENT PLAN AMENDMENT 12-13 (2008), available at http://www.blm.gov/pgdata/etc/medialib/blm/nm/field_offices/roswell/rfo_planning/special_status_species.Par.34868.File.dat/pdf_sss_rod_rmpa_May_2008.pdf [hereinafter FINAL RULE].

271. *Id.* at 10.

272. *Id.*, see also Interview with Steve Bird, *supra* note 80.

273. FINAL RULE, *supra* note 270, at 10.

274. *Id.* at 11.

275. *Id.*

276. *Id.*

new leasing. For existing leases, PODs, COAs, and timing stipulations prohibiting drilling between the hours of three o'clock and nine o'clock in the morning from March 1st through June 30th may be required.

Within the Isolated Population Area (IPA), occupied habitat is closed to new leasing, however, leasing with a no-surface-occupancy requirement may be allowed, in which case COAs and PODs may be required.²⁷⁷ The RMPA also creates a system of Habitat Evaluation Areas (HEA) within the IPA, which may reduce habitat fragmentation by providing an expanded network of connectivity between parcels of suitable lesser prairie-chicken habitat. Seventeen HEAs have already been identified as potentially suitable habitat, and are being prioritized for reclamation efforts in order to connect adjacent isolated habitat blocks to provide more uninterrupted habitat for lesser prairie-chickens. New oil and gas leasing in these areas is being deferred while evaluation of the HEAs is underway.²⁷⁸ Some or all of these HEAs may be closed to new oil and gas development on the following conditions: first, the HEA has been occupied by lesser prairie-chickens within the last three years or historical sightings have been documented there; second, the vegetation composition required by the lesser prairie-chicken is present; and third, there are at least 320 acres of habitat that is not fragmented or impacted by avoidance radii.²⁷⁹

Finally, if new lesser prairie-chicken leks are found outside the planning area governed by the RMPA, protections will apply based on the guidance of the previous resource management plans used by the Pecos District field offices.²⁸⁰

b. Grazing

Under the RMPA, approximately 850,000 acres of public land within the planning area is available for livestock grazing.²⁸¹ The BLM, however, acknowledges that lesser prairie-chicken populations and habitat can be negatively affected by grazing, and plans to implement monitoring and management strategies including changing the time of year certain pastures are grazed, reducing or increasing the amount of grazing, and using pasture rotation techniques. Seasonal restrictions will be implemented if habitat requirements are not being met in a particular

277. *Id.* at 12.

278. *Id.*

279. FINAL RULE, *supra* note 270, at AP3-1. Avoidance or impact radii are based on the structural avoidance research of Robert Robel. *See infra* Part II.E.1.

280. FINAL RULE, *supra* note 270, at 24.

281. *Id.* at 21.

pasture, such as closing a pasture to grazing during the lesser prairie-chicken mating and nesting season.²⁸²

c. Desired Plant Community and Herbicide Treatment of Shinnery-Oak

While the management techniques established in the RMPA are generally sound and based upon the biological consensus of the scientific community, the management prescriptions in the RMPA defining reclamation and contemplating the poisoning of shinnery-oak to achieve the desired plant community should be subjected to particular scrutiny. An important goal of the RMPA is to “reclaim two previously disturbed areas for every one acre of new disturbance.”²⁸³ The RMPA defines reclamation of previously disturbed land as “successful when healthy, mature native perennials are established with a composition and density that closely approximate the surrounding vegetation as prescribed by the BLM.”²⁸⁴ This definition is problematic. Because shinnery-oak communities are made up of ancient plants, many of them hundreds or thousands of years old,²⁸⁵ establishing a new shinnery-oak community that “closely approximates the surrounding vegetation” is not possible in the lifetime of a BLM management plan.

In addition to this unrealistically ambitious reclamation standard, the RMPA includes the management goal of working toward a “Desired Plant Community”²⁸⁶ by using herbicide to kill shinnery-oak where it exceeds 40 percent of the vegetative cover. While it may be debatable whether herbicide treatment of shinnery-oak ever benefits lesser prairie-chickens, it is widely accepted in the scientific community that herbicide is detrimental to sand dune lizards.²⁸⁷ Considering that shinnery-oak is seasonally poisonous to cows and decreases the grass available for forage,²⁸⁸ the BLM may have taken advantage of the conflicting scientific conclusions on the effect of herbicide to lesser prairie-chickens by implementing a management technique that primarily promotes grazing, one of the competing interests the BLM must consider under the FLPMA, at the expense of protecting two imperiled species.

282. *Id.*

283. *Id.* at 1.

284. *Id.* at 83.

285. PETERSON & BOYD, *supra* note 65, at 1.

286. FINAL RULE, *supra* note 270, at 15, 25, 27.

287. CHARLES W. PAINTER, CONSERVATION OF THE SAND DUNE LIZARD IN NEW MEXICO: RECOMMENDATIONS BASED ON THE MANAGEMENT PLAN FOR THE SAND DUNE LIZARD 3 (2004), available at http://www.wildlife.state.nm.us/conservation/habitat_handbook/documents/SandDuneLizardRecommendations.htm.

288. PETERSON & BOYD, *supra* note 65, at 30.

d. Other Management Techniques to Benefit the Lesser Prairie-Chicken

The RMPA adopts multiple other management techniques designed to protect lesser prairie-chickens and their habitat. First, the RMPA attempts to reduce the negative effects of habitat disturbance caused by rights-of-way needed for oil and gas development. The CMA and PPA are designated as new right-of-way (ROW) exclusion areas, meaning that no new ROWs may be established unless required by law.²⁸⁹ The BLM may, however, grant new ROWs in the exclusion areas on a case-by-case basis.²⁹⁰ The effect of ROWs on lesser prairie-chickens can also be mitigated by locating all infrastructure associated with an oil or gas well in one corridor, including roads, power lines, and pipelines.²⁹¹

Second, because much of New Mexico has a checkerboard pattern of land ownership where state trust land is interspersed with BLM land, the BLM is trying to acquire larger blocks of contiguous lesser prairie-chicken habitat by prioritizing land exchanges with the NMSLO to consolidate larger blocks of land under BLM ownership.²⁹²

Third, the RMPA contemplates ways to decrease the negative effects of raptor predation and structural avoidance behavior caused by power lines. A power line-removal credit program has been established to expand lesser prairie-chicken habitat by allowing applicants to remove idle power lines from high-quality lesser prairie-chicken habitat in exchange for permission to build new power lines in less suitable lesser prairie-chicken habitat.²⁹³ This program will benefit lesser prairie-chickens by decreasing potential perches for raptors as well as avoidance areas within otherwise-prime lesser prairie-chicken habitat. Other methods of mitigating the effects of power lines contemplated by the RMPA include burying power lines located near occupied lesser prairie-chicken habitat, using muffled internal combustion engines to decrease noise associated with power lines, and avoiding occupied and suitable habitat when constructing new power lines.²⁹⁴

Fourth, the BLM's RMPA contemplates the use of fencing to protect lesser prairie-chickens from threats in occupied or suitable lesser prairie-chicken habitat.²⁹⁵ Whether this management technique would benefit lesser prairie-chickens is questionable considering the well-docu-

289. FINAL RULE, *supra* note 270, at 6, GL-5.

290. *Id.* at 6.

291. *Id.* at 7.

292. *Id.* at 6.

293. *Id.* at 7.

294. *Id.*

295. FINAL RULE, *supra* note 270, at AP1-11.

mented structural avoidance behaviors exhibited by the species. By incorporating the avoidance distances published by Robert Robel, the RMPA itself reflects the general scientific consensus that lesser prairie-chickens avoid such structures. Although it is uncertain whether the benefits of fencing would outweigh the habitat fragmentation caused by fences, the suggested use of fences does incorporate protections for lesser prairie-chickens, including the use of spikes to prevent perching raptors and flags to avoid the danger of collisions.²⁹⁶

Finally, included in the RMPA are two additional management techniques: supporting lesser prairie-chicken captive propagation and transplanting programs to increase populations, and limiting off-highway vehicle use to established roads to prevent habitat destruction and disturbance.²⁹⁷

e. Habitat Preservation Area of Critical Environmental Concern

In addition to implementing most of the Collaborative Conservation Strategy proposed by the Working Group, the RMPA established a new Lesser Prairie-Chicken Habitat Preservation ACEC.²⁹⁸ In response to a petition submitted by the Forest Guardians in 2002,²⁹⁹ the BLM considered the establishment of an ACEC³⁰⁰ as one possible alternative for the final RMPA. The ACEC adopted in the RMPA, however, is much smaller and less protective than the ACEC proposed by the Forest Guardians. The Forest Guardians' ACEC would have totaled 362 square miles (231,680 acres)³⁰¹ and would have placed a five-year moratorium on all new drilling, including drilling pursuant to existing leases, on a portion of the ACEC.³⁰² The ACEC actually established by the RMPA is less than one-fourth the size and less restrictive than the proposed option, at approximately 90 square miles (57,522 acres).³⁰³

Although the established ACEC is smaller and less restrictive than the proposed ACEC, it will provide many benefits to lesser prairie-chickens and their habitat that would not have been established had the BLM adopted only the recommendations proposed by the Collaborative Conservation Strategy. First, the ACEC proposes the acquisition of non-federal lands within the ACEC through exchanges with the NMSLO and

296. *Id.*

297. *Id.* at 15, 25, 27.

298. *Id.* at 30–31.

299. See Forest Guardians' Petition, *supra* note 81.

300. PROPOSED RULE, *supra* note 256, at S-4.

301. *Id.* at 2-61.

302. *Id.* at 2-59.

303. FINAL RULE, *supra* note 270, at 30.

purchases from willing private landowners,³⁰⁴ benefiting the lesser prairie-chicken by increasing the area of contiguous protected habitat. Second, the ACEC has been designated as a ROW exclusion area, meaning that ROWs for roads, power lines, pipelines, wells, and communication sites will only be granted where mandated by law.³⁰⁵ Third, although the ACEC is not closed to drilling pursuant to pre-existing leases, the ACEC will be closed to future oil and gas leasing and other mineral entry.³⁰⁶ Finally, when lessees drill pursuant to pre-existing oil and gas leases, they must follow the protective proscriptions used in the Core Management Area.³⁰⁷ The addition of the ACEC to the RMPA is a positive step toward the long-term survival of the lesser prairie-chicken and shows the Pecos District BLM's commitment to manage federal public land to protect natural resources while fulfilling their multiple-use mandate.

B. New Mexico State Land Office (NMSLO)

In addition to contributing substantially to the promulgation of the BLM's RMPA, the Collaborative Conservation Strategy has led to multiple lesser prairie-chicken conservation initiatives on New Mexico state trust land. In 1910, Congress granted public land to the state of New Mexico to be managed by the NMSLO to fund state schools and other public institutions by executing leases and contracts for the development and production of minerals.³⁰⁸ Thus, unlike the BLM's multiple-use mandate, the NMSLO's single priority is to make a profit through resource extraction on state trust land to fund New Mexico's public schools and institutions.

New Mexico's Commissioner of Public Lands (Commissioner) is authorized to "execute and issue . . . leases for the exploration, development and production of oil and natural gas, from any lands belonging to the state of New Mexico, or held in trust by the state under grants from the United States of America."³⁰⁹ The Commissioner has discretion to choose not to offer any tract of land for oil and gas leasing if not leasing the land will serve the best interests of the state.³¹⁰ Once land is offered for oil and gas leasing, however, the Commissioner must follow the terms and conditions of leasing set forth by New Mexico law, which include statutory lease forms and procedures for oil and gas exploration,

304. *See id.*

305. *Id.* at 30, GL-5, GL-11 (stating that future ROWs will be restricted).

306. *Id.* at 30.

307. *Id.*; *see also infra* Part VI.A.3.a (discussing management in the CMA).

308. *See* N.M. CONST. art. XXIV, § 1.

309. N.M. STAT. § 19-10-1 (1978).

310. *Id.* § 19-10-19.

discovery, and development.³¹¹ Due to this statutory framework, the NMSLO does not have the BLM's latitude to impose constraints and stipulations on oil and gas production such as PODs or COAs. Therefore, the Commissioner's discretion to close tracts of land to leasing is the primary tool available to the NMSLO to mitigate the effects of oil and gas development on lesser prairie-chickens.³¹²

The NMSLO, an active participant in the Working Group, owns 1,008,250 acres of land surface within the planning area, about 16.7 percent of the total.³¹³ Through the negotiation process, Patrick Lyons, the current Commissioner, issued an order that withdrew approximately 109,222 acres of state trust land from oil and gas leasing for the purpose of protecting habitat for the survival of the lesser prairie-chicken.³¹⁴ Based on the recommendations in the Collaborative Conservation Strategy, the withdrawn land is comprised of round parcels of land with a one-and-one-half mile radius surrounding known lesser prairie-chicken leks.³¹⁵ The land was initially withdrawn for a period of three years, but was reauthorized for withdrawal for an additional two years in August 2007.³¹⁶

In addition to protecting lesser prairie-chickens by temporarily withdrawing state trust land from oil and gas development, the NMSLO is taking other steps to protect lesser prairie-chickens. The NMSLO has developed a Candidate Conservation Program administered by its Field Operations Division³¹⁷ to fund research and habitat improvements for at-risk species including the lesser prairie-chicken on state trust land.³¹⁸ The NMSLO has been focusing on improving habitat on state trust land through the reclamation of abandoned drilling pads and associated roads and through the removal of power lines and other infrastructure.³¹⁹ As of 2008, the NMSLO anticipated expending \$100,000 on reclamation for both the year 2008 and the year 2009, affecting thousands of acres.³²⁰ The NMSLO has worked with Lea County Electric Cooperative and

311. *Id.* § 19-10-4.

312. Interview with Shawn Knox, Wildlife Biologist, New Mexico State Land Office, member of the New Mexico LPC/SDL Working Group (Mar. 25, 2008).

313. COLLABORATIVE CONSERVATION STRATEGY, *supra* note 62, at 16.

314. PATRICK LYONS, N.M. STATE LAND COMM'R, N.M. STATE LAND OFFICE, LAND USE RESTRICTION OR CONDITION No. 1-04, at 1 (Sept. 27, 2004).

315. *Id.*

316. Interview with Shawn Knox, *supra* note 312.

317. E-mail from Shawn Knox, Wildlife Biologist, New Mexico State Land Office, to author (Mar. 26, 2008, 11:31 MST) (on file with author).

318. N.M. State Land Office, <http://www.nmstatelands.org/default.aspx?PageID=11> (last visited May 11, 2008).

319. E-mail from Shawn Knox, *supra* note 317.

320. *Id.*

other electrical cooperatives to remove old power lines and poles that no longer service oil wells.³²¹ Furthermore, the NMSLO has been working with other agencies and nonprofit groups to facilitate habitat enhancement work on state trust land, especially the BLM and NMDGF.³²² Given the NMSLO's traditional single focus on raising money, the steps taken by the NMSLO to protect candidate species on state trust land is one of the biggest successes of the Collaborative Conservation Strategy.

C. Successes and Shortcomings of Collaborative Conservation

The Collaborative Conservation Strategy for the lesser prairie-chicken has resulted in a number of conservation benefits. The lengthy negotiation process led to the compilation of accepted lesser prairie-chicken biology, creation of comprehensive maps of the species' occupied range, and incorporation of sound management principles into state and federal agency policy. Collaborative conservation has raised awareness and communication between stakeholders who have traditionally had an adversarial relationship. The negotiation process resolved many disagreements among stakeholders, allowing the BLM to promulgate a fairly protective management plan while minimizing the opposition that usually accompanies new regulations. The NMSLO, traditionally solely concerned with making a profit off the land, has taken unprecedented steps toward wildlife conservation on state trust lands. Stakeholder-based collaborative conservation can help avoid the anger and distrust that many private landowners feel toward federal listing and regulation, as well as actual or perceived impingement of private property rights. These aspects of the Collaborative Conservation Strategy demonstrate the benefits of bringing together stakeholders with diverse interests to achieve a common goal.

Although stakeholder-based collaborative conservation can provide a number of benefits to species, there are many drawbacks to voluntary, stakeholder-based negotiated conservation agreements, especially when a species is critically threatened. Collaborative conservation is expensive and time consuming. Well-funded stakeholders, such as the oil and gas industry, are able to continue with negotiations as long as necessary to make sure their interests are considered, while non-governmental organizations may not have the resources to stay at the table through a lengthy negotiation process.³²³ Collaborative conservation is strictly vol-

321. *Id.*

322. *Id.*

323. E-mail from Jim Bailey, Wildlife Biologist, to author (May 7, 2008, 16:08 MST) (on file with author). See also Steven L. Yaffee, *Collaborative Decision Making*, in 1 THE ENDANGERED SPECIES ACT AT THIRTY 217 (Dale D. Goble et al. eds., 2006).

untary, and requires the coordination of multiple governmental agencies throughout the lifespan of a conservation plan, even as many agency personnel are replaced. Collaborative conservation is legally unenforceable, and often ends when funding ceases.³²⁴ Although compromise is admirable in many contexts, according to one Working Group member, compromise for the Working Group meant, "I'll do it if you pay me."³²⁵ Furthermore, a species whose population has already decreased by 97 percent, such as the lesser prairie-chicken, cannot afford further declines resulting from negotiated compromise, and critically endangered populations might be further damaged during the years that collaborative conservation can take to negotiate.

Despite the fact that the Collaborative Conservation Strategy is intended to benefit the lesser prairie-chicken, activities that threaten the species continue across the lesser prairie-chicken's range. The BLM's resource management plan anticipates the drilling of 49 new oil and gas wells annually, while only 11 will be abandoned and reclaimed.³²⁶ Unlike a listing under the ESA that would require other federal agencies to consult with the USFWS, under the voluntary Collaborative Conservation Strategy the NRCS has discretion to use herbicides to control shinnery-oak across vast acres of private lands without consulting with the USFWS concerning the effects on lesser prairie-chickens.³²⁷ In fact, at the time of this writing, the USFWS had not learned whether a July 2000 NRCS proposal to remove 250,000 acres of shinnery-oak in New Mexico proceeded or not, despite the potential impacts on the lesser prairie-chicken.³²⁸ Private landowners are free to plan and develop new wind farms without the guidance of the USFWS, never realizing or mitigating the fact that vast areas of lesser prairie-chicken habitat are indirectly lost due to the avoidance behavior of lesser prairie-chickens.³²⁹ Unlike stakeholder-based collaborative conservation, a listing under the ESA could prevent the considerable harm caused by the activities of these various land managers.

324. Interview with Nicole Rosmarino, Wildlife Program Director, WildEarth Guardians, in Santa Fe, N.M. (Apr. 2, 2008).

325. E-mail from Roger Peterson, Ecologist and Technical Advisor to the New Mexico Lesser Prairie-Chicken and Sand Dune Lizard Working Group, to author (Apr. 19, 2008, 14:10 MST) (on file with author).

326. PROPOSED RULE, *supra* note 256, at 4-37.

327. E-mail from Nicole Rosmarino, Wildlife Program Director, WildEarth Guardians, to author (Apr. 21, 2008, 09:02 MST) (on file with author).

328. See WildEarth Guardians, Request for Emergency Listing of the Sand Dune Lizard (*Sceloporus arenicolus*) Under the Endangered Species Act 26-27 (submitted to the U.S. Secretary of Interior and the USFWS on Apr. 9, 2008) (on file with author).

329. E-mail from Nicole Rosmarino, *supra* note 327.

Finally, the biggest challenge of using collaborative conservation to benefit imperiled species is ensuring implementation of the resulting strategy. Although there have been many successes in implementation of the Collaborative Conservation Strategy for the lesser prairie-chicken in New Mexico, there has not been a concerted effort to continue meeting as a team to implement the strategy. Instead, single agencies have undertaken what one stakeholder called “random acts of environmental kindness.”³³⁰ Without implementation of beneficial management techniques across landownership boundaries throughout the species’ range, lesser prairie-chicken numbers are likely to continue declining.

VIII. STATE INITIATIVES: NEW MEXICO DEPARTMENT OF GAME AND FISH (NMDGF)

Although states have considerable authority to regulate and manage wildlife, the potential for states to act as liaisons between the wildlife and citizens within their borders has been under-realized. Over a century ago, the U.S. Supreme Court recognized that a state owns the wildlife within its borders in trust for the benefit of its citizens.³³¹ That obligation is enshrined in New Mexico law, which declares that it is the “policy of the state of New Mexico to provide an adequate and flexible system for the protection of the game and fish of New Mexico . . . and to provide for their propagation, planting, protection, regulation and conservation.”³³² Both state and federal governments have authority to pass wildlife legislation and manage wildlife for the common good, creating tension between federal and state wildlife management.³³³ In enacting the ESA, however, Congress envisioned the federal government taking a dual approach to accomplishing species conservation, by operating a federal listing and conservation program, and by “encouraging States and other interested parties, through Federal financial assistance and a system of incentives, to develop and maintain conservation programs.”³³⁴ Well-funded state wildlife management initiatives have advantages over federal wildlife management due to the ability of state wildlife personnel to tailor initiatives to the social, cultural, and economic context where imperiled species are located, thereby increasing

330. Telephone Interview with Marcus Miller, *supra* note 74.

331. *Geer v. Connecticut*, 161 U.S. 519, 529 (1896), *overruled on other grounds by* *Hughes v. Oklahoma*, 441 U.S. 322 (1979).

332. N.M. STAT. § 17-1-1 (1978).

333. *See generally* R.S. MUSGRAVE & MARY ANNE STEIN, *STATE WILDLIFE LAWS HANDBOOK* 13 (1993).

334. Endangered Species Act of 1973, 16 U.S.C. § 1531(a)(5) (2006).

the potential for conservation successes on private and state land.³³⁵ Effective local conservation initiatives, however, require trust and communication between wildlife managers and private landowners, which take a long time to build and are easily broken.³³⁶ Furthermore, sometimes the political objectives of a state are contradictory to species conservation.³³⁷

A. Listing Under the Wildlife Conservation Act

Like many states, New Mexico has a specific statute for the protection of endangered and threatened species, the Wildlife Conservation Act (WCA).³³⁸ In 1997, soon after the petition to list the lesser prairie-chicken as threatened or endangered under the ESA was initiated, the NMDGF was petitioned to investigate listing the lesser prairie-chicken as threatened under the WCA.³³⁹ The NMDGF accepted the petition in 1999, but then withdrew it for a period of six years while a species status review was conducted to gather more information on the status of the species' population.³⁴⁰ In 2005, the NMDGF published a final report detailing the status of the lesser prairie-chicken in New Mexico; the report included the decision not to list the species under the WCA.³⁴¹ While the WCA has the same definition of "threatened" as the ESA and contains other provisions paralleling the federal act,³⁴² it has been criticized for lacking "teeth" (the WCA does not contain the strong penalties and protections of the ESA), and for not being adequately implemented or enforced.³⁴³ Although a listing under the WCA would signal the NMDGF's dedication to lesser prairie-chicken conservation, it is unlikely

335. See Lawrence Niles & Kimberly Korth, *State Wildlife Diversity Programs*, in 1 THE ENDANGERED SPECIES ACT AT THIRTY 141, 153 (Dale D. Goble et al. eds., 2006).

336. Telephone Interview with Marcus Miller, *supra* note 74.

337. The recent delisting of the gray wolf provides a good example. In 2008, the USFWS delisted the rocky mountain population of the gray wolf as recovered. Final Rule Designating the Northern Rocky Mountain Population of Gray Wolf as a Distinct Population Segment and Removing This Distinct Population Segment from the Federal List of Endangered and Threatened Wildlife, 73 Fed. Reg. 10,514 (Feb. 27, 2008). Unfortunately, however, the state of Wyoming declared the wolf a predator that could be killed by anyone without even obtaining a hunting license, resulting in the death of 130 animals before a federal court issued an injunction several months later. See Julie Cart, *Delisting Endangers Wolves*, L.A. TIMES, Sept. 28, 2008, available at <http://articles.latimes.com/2008/sep/28/nation/nawolf28>.

338. Wildlife Conservation Act, N.M. STAT. §§ 17-2-37 to -46 (1978).

339. DAVIS, *supra* note 13, at 1.

340. *Id.*

341. *Id.*

342. N.M. STAT. §§ 17-2-37 to -46.

343. E-mail from Jim Bailey, *supra* note 323. See also E-mail from Roger Peterson, *supra* note 325.

that such a listing would provide the protection the species needs to avoid extinction.

B. Collaborative Conservation Activities

Although the NMDGF did not list the lesser prairie-chicken under the WCA, the NMDGF has participated in local and multi-state collaborative conservation activities to benefit the lesser prairie-chicken. The NMDGF was an active participant in the Working Group and in the Lesser Prairie-Chicken Interstate Working Group. The Interstate Group, organized through the Western Association of Fish and Wildlife Agencies and made up of constituents from the five states with lesser prairie-chicken populations,³⁴⁴ has been meeting to develop a multi-state Lesser Prairie-Chicken Conservation Initiative.³⁴⁵

The NMDGF has multiple conservation actions in progress to benefit the lesser prairie-chicken. The NMDGF works with federal agencies to secure conservation funding for private landowners through multiple federal programs,³⁴⁶ conducts ongoing population surveys to determine the distribution and abundance of lesser prairie-chickens in New Mexico, conducts research to determine the impacts of inbreeding, conducts research on the conservation impacts of oil and gas development, and develops public information and conservation education initiatives.³⁴⁷ The NMDGF is also working toward the goal of establishing a captive breeding program for translocations of lesser prairie-chickens to both north-eastern and southeastern New Mexico.³⁴⁸

Partnerships between local private landowners and state wildlife agencies may be a more effective means of accomplishing conservation initiatives on private land than federal involvement or regulation. The goodwill of landowners in a community, however, may be contingent upon the efforts of individual wildlife managers and agency personnel. For example, during her term as NMDGF biologist, Dawn Davis worked continually to contact individual landowners and was able to develop good working relationships with community members, allowing her to conduct research and surveys on private land and share wildlife management techniques with local landowners.³⁴⁹ Unfortunately, maintaining long-term relationships with landowners is complicated by the turnover of NMDGF personnel that occurs within a shorter timeframe

344. DAVIS, *supra* note 13, at 24, 31.

345. E-mail from Grant Beauprez, *supra* note 96.

346. DAVIS, *supra* note 13, at 24–26.

347. *Id.* at 48–79.

348. E-mail from Grant Beauprez, *supra* note 96.

349. Telephone Interview with Marcus Miller, *supra* note 74.

than a species' gradual decline toward extinction. Enhanced communication and mutual understandings developed between private landowners and wildlife managers will not last long enough to prevent the extinction of imperiled species unless there is a concentrated effort to maintain continuity.³⁵⁰

IX. THE CHALLENGE OF CONSERVATION ON PRIVATE LAND IN NEW MEXICO

Private land ownership presents a special challenge to species conservation that must be addressed, especially considering that approximately 70 percent of land in the United States is in private hands.³⁵¹ According to the USFWS, 95 percent of all lesser prairie-chicken habitat is located on private land.³⁵² Although private land ownership accounts for 3,787,460 acres (about 63 percent) of the planning area addressed by the Collaborative Conservation Strategy, only six ranchers and livestock growers were Working Group members.³⁵³ Additionally, only one representative from the U.S. Department of Agriculture's NRCS was a Working Group member,³⁵⁴ even though the NRCS is the primary federal agency available to help private landowners manage natural resources on their property.³⁵⁵ Lesser prairie-chicken conservation efforts need to reach more of New Mexico's private landowners because widespread habitat management is required to address the many causes of lesser prairie-chicken decline. Any successful strategy to conserve species on private lands must include incentives, funding, and education.

A. Federal Incentives: Candidate Conservation Agreements with Assurances

Under a Candidate Conservation Agreement with Assurances (CCAA), when a landowner commits to implementing conservation measures on behalf of a candidate species, proposed candidate species, or species likely to become a candidate species in the future, the USFWS offers the landowner an assurance that additional restrictions will not be

350. E-mail from Jim Bailey, *supra* note 323.

351. Barton H. Thompson, Jr., *Managing the Working Landscape*, in 1 THE ENDANGERED SPECIES ACT AT THIRTY 101 (Dale D. Goble et al. eds., 2006).

352. LISTING PRIORITY ASSIGNMENT FORM, *supra* note 49, at 2.

353. COLLABORATIVE CONSERVATION STRATEGY, *supra* note 62, at 16, 17.

354. *Id.* at 16–17.

355. U.S. DEP'T OF AGRIC., NATURAL RES. CONSERVATION SERV., IN PARTNERSHIP WITH PEOPLE AND A HEALTHY LAND 3 (2000); *see also* Natural Res. Conservation Serv., Helping People Help the Land, www.nrcs.usda.gov (last visited May 11, 2009).

imposed on their land, water, or resources if the species is later listed under the ESA as a threatened or endangered species.³⁵⁶

The two CCAAs for the lesser prairie-chicken in place at the time of this writing offer examples of the different types of landowner agreements available. First, private landowner Ted Alexander from Sun City, Kansas, has a permit covering 2,232 acres that allows for incidental future take of lesser prairie-chickens in conjunction with conservation activities undertaken on his property to benefit the birds.³⁵⁷ Alexander purchased the Alexander Ranch in 1984 with the declared purpose of managing “all integrated resources in order to maximize the production of protein, shape a harmonious existence with nature, and maintain economic viability.”³⁵⁸

Second, in addition to CCAAs entered into by individual private landowners, state and local governments can facilitate larger CCAAs that include multiple landowners. The Texas Parks and Wildlife Department (TPWD) has entered into a 20-year CCAA with the USFWS for the lesser prairie-chicken that covers 50 counties.³⁵⁹ Landowners who wish to receive “Certificates of Inclusion” in the CCAA work with the TPWD to develop written wildlife management plans and recommendations for habitat management that address conservation goals and objectives.³⁶⁰ Although facilitated by TPWD, the USFWS oversees the inclusion of individual landowners in the CCAA and can revoke CCAA inclusion if wildlife management plans are not followed.³⁶¹ In exchange for present land management to benefit lesser prairie-chickens, participating Texas landowners are given assurance that no additional land use restrictions will be imposed in the future (beyond those required by the CCAA) if the lesser prairie-chicken is listed as threatened or endangered.³⁶²

It could be argued that CCAAs cause imperiled species more harm than good by removing critical future ESA protection. Nonetheless, CCAAs do provide important conservation benefits: first, they serve to

356. Announcement of Final Policy for Candidate Conservation Agreements with Assurances, 64 Fed. Reg. 32,726 (June 17, 1999).

357. Fish and Wildlife Service Endangered Species Permit Application, 66 Fed. Reg. 58,513, 58,513 (Nov. 21, 2001).

358. Ted Alexander has this statement of purpose hanging prominently in his home. For more information about Ted Alexander’s land management practices, see Mary D. Schaffer, *Ranching with a Passion* (Nov. 2007), http://www.nrcs.usda.gov/feature/our_purpose/success_stories/State_Success_Stories/Kansas/KS_successtory_alexander.asp.

359. Draft Candidate Conservation Agreement with Assurances and Application for an Enhancement for Survival Permit for the Lesser Prairie-Chicken in Texas, 71 Fed. Reg. 49,469, 49,469 (Aug. 23, 2006).

360. *Id.* at 49,469–70.

361. *Id.* at 49,470.

362. *Id.*

educate landowners about beneficial management practices; second, they may lead to earlier implementation of conservation on private land; and third, even if a species is later listed, the ESA is only minimally effective at reaching onto private land. The conservation benefits of implementing CCAs on private land probably outweigh concerns about diminished future protection in the case of an ESA listing.

B. Funding Lesser Prairie-Chicken Conservation on Private Lands

Although the lesser prairie-chicken still has not received formal legal protection under the ESA, its status as a candidate species has made funding available to private landowners who wish to manage their property for lesser prairie-chicken conservation. Previous funding sources have included the Farm Service Agency, NRCS, USFWS, NMDGF, and private non-governmental organizations.³⁶³ Continued availability of conservation funding sources will be critical to retaining the large areas of suitable lesser prairie-chicken habitat currently located on privately-owned land.

The Conservation Reserve Program (CRP), administered by the Farm Service Agency within the U.S. Department of Agriculture,³⁶⁴ has historically been the largest federal conservation program used to benefit lesser prairie-chickens and their habitat.³⁶⁵ The CRP was authorized by Congress in the Food Security Act of 1985 and has been reauthorized by subsequent Farm Bills³⁶⁶ with the purpose of reducing soil erosion and increasing water quality by removing land from crop production.³⁶⁷ Non-federal landowners can voluntarily enroll land in the program and retire erosion-prone or environmentally sensitive land from crop production for a period of 10 to 15 years in exchange for an annual per-acre rental payment from the government and 50 percent reimbursement for the costs of establishing a vegetative cover of trees and/or grasses.³⁶⁸

363. COLLABORATIVE CONSERVATION STRATEGY, *supra* note 62, at 136–39. A comprehensive database of all federal funding and grant programs is available both electronically and in print. See Catalog of Federal Domestic Assistance, <https://www.cfda.gov> (last visited Aug. 26, 2009).

364. U.S. Dep't of Agric., Natural Res. Conservation Serv., Conservation Reserve Program, <http://www.nrcs.usda.gov/programs/CRP/> (last visited Sept. 20, 2009).

365. Terry Z. Riley, *Private-Land Habitat Opportunities for Prairie Grouse through Federal Conservation Programs*, 32 WILDLIFE SOC'Y BULL. 83, 90 (2004).

366. The most recent Farm Bill as of this writing is the Food, Conservation, and Energy Act of 2008, Pub. L. No. 107-171, 122 Stat. 923.

367. Riley, *supra* note 365, at 84.

368. U.S. Dep't of Agric., Farm Serv. Agency, Program Facts Sheets, Conservation Reserve Program (CRP) Benefits: Water Quality, Soil Productivity and Wildlife Estimates, <http://www.fsa.usda.gov/FSA/newsReleases?area=newsroom&subject=landing&topic=>

The CRP has great potential for the lesser prairie-chicken, but only if the program is conducted in a manner that benefits the species. For example, if large fields are taken out of agricultural production and planted with monocultures of non-native grass species, there is no benefit to lesser prairie-chickens, but if large areas of field crops are restored with a variety of tall native prairie grasses, lesser prairie-chickens are likely to respond by expanding into CRP fields.³⁶⁹ Unfortunately, the benefits of the CRP program to the lesser prairie-chicken depend on the fluctuating economy—the benefits of this habitat are lost if land previously enrolled in the CRP program is converted back to agricultural production in response to rising food prices or increased use of corn for ethanol production.³⁷⁰

Other NRCS administered programs that offer potential benefits to lesser prairie-chickens and their habitat include the Environmental Quality Incentives Program, the Grassland Reserve Program, and the Wildlife Habitat Incentive Program.³⁷¹ Official NRCS policy is to fund candidate species at the same level as threatened and endangered species. In fact, the current chief of the NRCS believes funds are better spent on candidate species or species of concern than threatened and endangered species because preventing a listing and an expensive recovery process provides a better return on NRCS investments.³⁷²

Multiple funding programs are also offered through the U.S. Department of the Interior, including the Partners for Fish and Wildlife Program, the Landowner Incentive Program, and the State and Tribal Wildlife Grants Program.³⁷³ The Partners for Fish and Wildlife Program provides financial and technical support through cost-share agreements for voluntary habitat restoration on private lands for Federal Trust Species, which include threatened and endangered species and species of special concern like the lesser prairie-chicken.³⁷⁴ Having acknowledged that 60 percent of fish and wildlife occupy private land, Congress passed the Partners for Fish and Wildlife Act in 2006, authorizing appropriations through 2011 for the purpose of funding habitat restoration, en-

pf&newstyp=prfactsheet&type=detail&item=pf_20080325_consv_en_crpben.html (last visited Sept. 20, 2008).

369. Hagen et al., *supra* note 1, at 74; Riley, *supra* note 365, at 85.

370. Telephone Interview with Marcus Miller, *supra* note 74.

371. Riley, *supra* note 365, at 83–88.

372. E-mail from Marcus Miller, Wildlife Biologist, Natural Res. Conservation Serv., to author (May 2, 2008, 19:51 MST) (on file with author).

373. Riley, *supra* note 365, at 88–90.

374. Partners for Fish and Wildlife Act, 16 U.S.C. §§ 3771–73 (2006); *see also* U.S. Fish & Wildlife Serv., Partners for Fish and Wildlife Program, <http://ecos.fws.gov/partners/viewContent.do?viewPage=home> (last visited May 13, 2009).

hancement, and management on private land.³⁷⁵ Although Partners for Fish and Wildlife Program funds are available for the benefit of the lesser prairie-chicken, the number of interested applicants greatly exceeds the available funding.³⁷⁶ The Landowner Incentive Program provides funding to states and tribes to establish or supplement state or tribal programs for conservation and habitat restoration, enhancement, and improvement projects for the benefit of federally listed, candidate, and at-risk species.³⁷⁷ The State and Tribal Wildlife Grants Program provides states and tribes with funding to develop and implement programs to benefit wildlife, including non-game species, and their habitat.³⁷⁸

Private non-governmental organizations and foundations also serve as potential funding sources for private landowners who wish to undertake wildlife and habitat conservation initiatives on their property. One such organization, the National Fish and Wildlife Foundation, offers competitive funding for conservation projects benefiting fish and wildlife.³⁷⁹ The Playa Lakes Joint Venture “is a partnership of federal and state wildlife agencies, conservation groups, private industry and landowners dedicated to conserving bird habitats in the Southern Great Plains” and provides “science-based guidance and decision-support tools for all-bird conservation throughout the region, as well as outreach, coordination and financial support.”³⁸⁰ The administrative boundaries of the Playa Lakes Joint Venture include most of the lesser prairie-chicken’s range, including eastern New Mexico, southeastern Colorado, western Texas, western Kansas, and western Oklahoma.³⁸¹ Playa Lakes Joint Venture offers cost-share grants for habitat management, research, and outreach projects, with a maximum of \$25,000 in annual funding per project.³⁸² Similarly, the Conservation Fund offers grants and assistance

375. Endangered Species Act of 1973, 16 U.S.C. §§ 3771–74 (2006).

376. U.S. Fish & Wildlife Serv., Partners for Fish and Wildlife Program, Application for the Partners for Fish and Wildlife Program in New Mexico, http://www.fws.gov/southwest/es/NewMexico/documents/NMESFO_partners_application_2007.pdf (last visited May 13, 2008).

377. U.S. Fish & Wildlife Serv., Wildlife & Sport Fish Restoration Program, Landowner Incentive Program (Non-Tribal Portion)—Overview, <http://wsfrprograms.fws.gov/Subpages/GrantPrograms/LIP/LIP.htm> (last visited May 13, 2009).

378. *Id.*

379. See Nat’l Fish & Wildlife Found., Grants, <http://www.nfwf.org/AM/Template.cfm?Section=grants> (last visited May 13, 2009); see also COLLABORATIVE CONSERVATION STRATEGY, *supra* note 62, at 139.

380. Playa Lakes Joint Venture, <http://www.pljv.org/> (last visited Aug. 20, 2009).

381. *Id.*

382. *Id.*; see also COLLABORATIVE CONSERVATION STRATEGY, *supra* note 62, at 139.

programs to private individuals, nonprofit organizations, foundations, corporations, and government agencies.³⁸³

Last but not least, the Nature Conservancy protects biodiversity by identifying high priority locales for conservation initiatives.³⁸⁴ One example of the Nature Conservancy's work is the organization's partnership with ranchers Roy and Shirley Creamer to manage the 18,500-acre Creamer Ranch (now called the Milnesand Prairie Reserve). The ranch is located at the heart of the lesser prairie-chicken's occupied range in New Mexico, but the partnership allows the Creamers to continue operating a reduced livestock operation.³⁸⁵ The Milnesand Prairie Reserve is home to over 40 lesser prairie-chicken leks as well as many other prairie species.

C. Education Initiatives

Effective education and outreach initiatives targeting private landowners are imperative components of any successful species conservation plan. One model outreach initiative for the lesser prairie-chicken, the Ranch Conversations program, was developed by the High Plains Partnership for Species at Risk and the Lesser Prairie-Chicken Interstate Working Group. Concerned that over 90 percent of the lesser prairie-chicken's range is owned by private individuals,³⁸⁶ wildlife managers developed the Ranch Conversations program to reach private landowners in order to raise lesser prairie-chicken awareness, improve communication between landowners and wildlife managers, and build trust through a series of "Ranch Conversations."³⁸⁷ The Ranch Conversations program offers educational benefits not only to landowners, but also to biologists and wildlife managers by facilitating a conversation designed to share and gather information about lesser prairie-chickens on private land.³⁸⁸

Landowner surveys taken after Ranch Conversations programs illustrate the difficulties inherent in species conservation on private land. Although the surveys indicated that the majority of attending landowners may be willing to work with agencies on conservation efforts, many

383. See The Conservation Fund, <http://www.conservationfund.org/> (last visited May 12, 2009); see also COLLABORATIVE CONSERVATION STRATEGY, *supra* note 62, at 139.

384. The Nature Conservancy, How We Work, <http://www.nature.org/aboutus/howwework/?src=t2> (last visited May 12, 2009).

385. The Nature Conservancy, Milnesand Prairie Reserve, <http://www.nature.org/wherewework/northamerica/states/newmexico/preserves/art14597.html> (last visited May 12, 2009).

386. WESTERN GOVERNORS' ASS'N ET AL., RANCH CONVERSATIONS: A BLUEPRINT FOR CONSERVING SPECIES AND RURAL LIFESTYLES 3 (2001), available at http://www.westgov.org/wga_reports.htm (scroll down to bottom of page to access report).

387. *Id.* at 1.

388. *Id.* at 5.

remained skeptical of whether agency personnel could be trusted.³⁸⁹ Surveys also indicated that the two biggest obstacles to private landowners making habitat improvements on private lands are the costs to farmers and ranchers already struggling to be economically viable, and the threat of regulatory measures should the lesser prairie-chicken later become federally listed after first being identified on a landowner's property.³⁹⁰ Although these obstacles present major challenges to species conservation on private land, the Ranch Conversations program demonstrates the potential benefits outreach initiatives offer to imperiled species.

Despite the drawbacks of collaborative conservation, state-based conservation initiatives and collaborative conservation may be a more effective means of reaching private landowners than a federal listing under the ESA. Realizing the full conservation potential of private land is critical, but will require outreach, education, funding, and incentives for private landowners. If beneficial management techniques are implemented on private lands, lesser prairie-chickens may be able to live and thrive on private working ranches, including some agricultural areas, because working ranches using responsible grazing management can continue traditional land use while maintaining lesser prairie-chicken habitat.

X. CONCLUSION

The best strategy for conserving the lesser prairie-chicken would entail a combination of federal listing under a well-funded, properly implemented ESA combined with state wildlife management initiatives and collaborative conservation efforts providing extensive funding, education, outreach, and incentives to private landowners. Having already suffered a 97 percent decrease in total population size, the lesser prairie-chicken is in grave danger of extinction. The situation is compounded by: new and increasing pressure on the species caused by climate change; increased demand for oil, gas, and wind energy; and increased agricultural pressure caused by rising food costs and increased corn farming for ethanol production. Unfortunately, as some threats to the lesser prairie-chicken have increased, the rate of listing imperiled species as threatened or endangered under the ESA has decreased. Ultimately, the question is not whether federal listing or collaborative conservation would be more beneficial to the lesser prairie-chicken, but instead how these two approaches to conservation can be combined to prevent the extinction of

389. *Id.* at 7.

390. *Id.* at 8.

the species. Without a long-term, aggressively implemented conservation initiative that combines federal listing with partnerships between state and local wildlife management personnel, we are likely to lose these amazing creatures.

The challenge of preventing the lesser prairie-chicken's extinction is a paradigm of the larger challenge of preventing biodiversity loss from occurring on a global scale. The lesser prairie-chicken is just one member species in the choir of proverbial canaries in the coal mine demonstrating the uncertain future of life on earth as we know it. The tragedy of extinction occurs at two levels: first, each species is unique, fascinating, and beautiful; and second, each species is one thread in the fabric of life on earth, the loss of any of which disrupts the integrity of the natural community. While people may be able to live without lesser prairie-chickens, this species is but one small example of what we stand to lose if our attitude toward the natural world does not shift soon. Preventing extinction will require an ethical decision by policymakers to prioritize intact ecosystems and the biodiversity currently found on our planet. As one biologist has simply put it, "future generations may blame us."³⁹¹

391. E-mail from Jim Bailey, *supra* note 323.