



2012

Trophic Cascades and Private Property: The Challenges of a Regulatory Balancing Act and Lessons the UK can Learn from the Reintroduction of the American Gray Wolf

Whitney G. Stohr

Friends of Alexandria Archaeology

Follow this and additional works at: <http://scholarworks.law.ubalt.edu/ubjld>



Part of the [Land Use Law Commons](#)

Recommended Citation

Stohr, Whitney G. (2012) "Trophic Cascades and Private Property: The Challenges of a Regulatory Balancing Act and Lessons the UK can Learn from the Reintroduction of the American Gray Wolf," *University of Baltimore Journal of Land and Development*: Vol. 2: Iss. 1, Article 3.

Available at: <http://scholarworks.law.ubalt.edu/ubjld/vol2/iss1/3>

This Article is brought to you for free and open access by ScholarWorks@University of Baltimore School of Law. It has been accepted for inclusion in University of Baltimore Journal of Land and Development by an authorized administrator of ScholarWorks@University of Baltimore School of Law. For more information, please contact snolan@ubalt.edu.

TROPHIC CASCADES AND PRIVATE PROPERTY: THE CHALLENGES OF A REGULATORY BALANCING ACT AND LESSONS THE UK CAN LEARN FROM THE REINTRODUCTION OF THE AMERICAN GRAY WOLF

Whitney G. Stohr

The gray wolf has been depicted as the antagonist of countless folklore and fairytales, vilified by rural landowners and livestock producers and long ago eradicated from its historic range as a result of indiscriminate extirpation campaigns. In the wolf's absence, ecosystems became unbalanced; elk populations grew without restraint, over-browsing the vegetative habitat and impeding the natural functioning of the ecosystem. When the gray wolf was reintroduced into the Greater Yellowstone Ecosystem in January 1995, the region reawakened and the ecosystem recovered. From an ecological perspective, the reintroduction was an unprecedented success. However, many communities and rural landowners vocally opposed the reintroduction, arguing that wolves would kill their livestock and decrease wild game populations at the expense of hunting interests. To strike a compromise between recovery efforts and economic and recreational interests, the U.S. Fish and Wildlife Service utilized flexible management mechanisms and compliance incentives to authorize interventionist control of reintroduced wolf populations otherwise prohibited by the U.S. Endangered Species Act. Although relatively successful in balancing competing interests, the wolf reintroduction plan nevertheless proved to be a political dilemma spanning nearly three decades.

In recent years, the UK has also considered the possibility of reintroducing wolves and other large carnivores. However, as in the United States, rural communities and livestock producers have voiced their concern that the economic vitality of the region would be seriously impacted by the return of wolves to the wild. There is room for compromise; wolf populations and private landowners can coexist so long as private property rights and economic interests are considered in the reintroduction program. In this respect, the UK can learn valuable lessons from both the triumphs and tribulations of the U.S. experience with large carnivore reintroduction.

I. Introduction.

One afternoon in the 1920s, while eating lunch with colleagues on a rimrock above a river in the Southwestern United States, the famous conservationist Aldo Leopold, then a fieldworker for the U.S. Forest Service, watched a wolf swim against the river current to greet her

pups.¹ Years later, Leopold begrudgingly recalled the events of that day:

In those days we had never heard of passing up a chance to kill a wolf. In a second we were pumping lead into the pack, but with more excitement than accuracy; how to aim a steep downhill shot is always confusing. When our rifles were empty, the old wolf was down, and a pup was dragging a leg into impassable side-rocks. We reached the old wolf in time to watch a fierce green fire dying in her eyes. I realized then, and have known ever since, that there was something new to me in those eyes - something known only to her and to the mountain. I was young then, and full of trigger-itch; I thought that because fewer wolves meant more deer, that no wolves would mean hunters' paradise. But after seeing the green fire die, I sensed that neither the wolf nor the mountain agreed with such a view.²

Leopold's vivid account, revealing his own misconceptions about the role of the wolf within the ecosystem, provides a lucid anecdote of a common experience shared by many of his contemporaries. The fading green fire in the eyes of Leopold's wolf provides but one example of the larger, nationwide efforts, supported by the federal government as well as local authorities, to eradicate large carnivores and apex predators from the North American continent—a government subsidized effort beginning during the colonial era, and through which continental eradication was largely achieved.³ Failing to understand the interdependency of the natural world, the unfortunate success of the eradication programs unwittingly ground to a halt the evolutionary processes set in motion millions of years before humans first tilled the fields of the American plains or harvested the first trees from the virgin forests of the Northwest.⁴ Without apex predators, ungulate populations exploded, overharvesting native vegetation and stunting tree growth.⁵ Coyote populations, no longer constrained by the pres-

1. See ALDO LEOPOLD, *A SAND COUNTY ALMANAC, AND SKETCHES HERE AND THERE* 129-30 (1948).

2. *Id.* at 130.

3. See generally Joel M. Carson, *Reintroducing the Mexican Wolf: Will the Public Share the Costs, or Will the Burden Be Borne by A Few?*, 38 NAT. RESOURCES J. 297, 298 (1998) ("However, in the early 1900s, a new wave of settlers moved to the Southwest. The settlers did not come alone; they brought herds of livestock that became a staple of the wolf's diet. The financial losses caused by wolf depredations culminated in a government-backed initiative to eradicate the wolves. Within 15 years, Mexican wolf numbers spiraled downward. This government initiative lasted until approximately 1960.").

4. See *Wolves 101*, DEFENDERS OF WILDLIFE, <http://www.defenders.org/wolf/wolves-101> (last visited Nov. 3, 2012).

5. See *id.*

ence of large predators, increased to rampantly unmanageable levels.⁶ Every link in the local ecosystem devoid of predators experienced disruption of its natural processes—a lapse in the provision of environmental services impossible to duplicate by man-made engineering feats.⁷ Leopold, in his characteristically eloquent voice, ominously described this period of biotic transition:

I have lived to see state after state extirpate its wolves. I have watched the face of many a newly wolfless mountain, and seen the south-facing slopes wrinkle with a maze of new deer trails. I have seen every edible bush and seedling browsed, first to anaemic desuetude, and then to death. I have seen every edible tree defoliated to the height of a saddlehorn. Such a mountain looks as if someone had given God a new pruning shears, and forbidden Him all other exercise. In the end the starved bones of the hoped-for deer herd, dead of its own too-much, bleach with the bones of the dead sage, or molder under the high-lined junipers.⁸

However, many Americans, as well as their elected representatives, remained unaware that their own misunderstanding and fear of nature's top predators was to blame for the resulting ecological crisis. Although the scientific community well understood the connection between carnivores and the overall health of their historic range habitat by the 1960s and 1970s, the legacy of fear, and in some instances outright refusal to accept scientific evidence, persists to this day as an obstacle to species conservation and ecosystem recovery.

When a pack of gray wolves from Canada was reintroduced into Yellowstone National Park and central Idaho in 1995 in an attempt to restore balance to the Greater Yellowstone Ecosystem (GYE), a firestorm of protest arose from surrounding landowners, ranchers, hunters, and rural communities. To a certain extent, this battle rages on, fueled by lasting resentment and failure to reach common ground. However, despite vocal opposition from certain demographic segments, the reintroduction was an ecological success. The wolf population rebounded far beyond the realistic expectations of most advocates, and the overall health of the surrounding environment likewise recovered. As a case study to guide future reintroduction efforts, many lessons can be learned from the regulatory gaps and political challenges that weakened the GYE plan. Too little effort was dedicated to public education and capacity building prior to reintroduction; inconsistent and unpredictable rules guided wolf management authorities; and statutory mechanisms intended to incentivize landowner conser-

6. See *Coyotes*, NATIONAL PARK SERVICE, <http://www.nps.gov/yell/naturescience/coyotes.htm> (last visited Nov. 3, 2012).

7. See *Wolves 101*, *supra* note 4.

8. See LEOPOLD, *supra* note 1, at 130-32.

vation failed to provide sufficient assurances to deter depredating self-help.

However, despite opposition, the GYE reintroduction continues to influence species recovery efforts. As apex predators return to their historic range in continental Europe, the European Community is undertaking active conservation efforts to assist in natural recovery.⁹ Government officials in the UK have also discussed the idea of reintroducing wolves and other large carnivores to their native habitat in the British Isles.¹⁰ Because the United States and the UK share both historic and cultural similarities, the UK can benefit from the GYE reintroduction by viewing it as a learning opportunity informing future reintroduction and recovery efforts. Part II of this Article establishes the context for this analysis, outlining the legal framework for reintroductions pursuant to the U.S. Endangered Species Act and how this framework applied in the GYE reintroduction. Part III discusses the prospective reintroduction of apex predators in the UK. Part IV compares the various provisions of U.S. and UK law, and analyzes the lessons learned from the GYE reintroduction that may aid UK officials in developing similar policies. A short conclusion is offered in Part V.

II. U.S. Law and Context: The Endangered Species Act and Reintroduction of the American Gray Wolf.

Reintroducing apex predators into an environment having experienced substantial population growth and land use change since eradication inevitably gives rise to numerous challenges and contentious debate. The interests of various stakeholders, however contradictory, must be weighed and balanced to achieve an outcome that protects both private property rights as well as promotes the recovery of the reintroduced population. Part A of this Section describes the social context in which the GYE reintroduction plan emerged, setting forth for analysis the divergent values of competing stakeholders. Part B outlines the legal framework authorizing reintroduction under U.S. law. And Part C depicts the GYE reintroduction as a case study for future recovery plans.

A. *Balancing Environmental Interests and Private Property Rights—Competing Perspectives*

While there are perhaps many reasons one may either support or oppose plans to reintroduce regionally extinct populations of

9. See *Large Carnivores*, EUROPEAN COMMISSION, Sept. 14, 2012, http://ec.europa.eu/environment/nature/conservation/species/carnivores/index_en.htm.

10. See Richard Grey, *Bears, Lynx, Wolves and Elk Considered for Reintroduction into British Countryside*, THE TELEGRAPH, Feb. 27, 2010, <http://www.telegraph.co.uk/earth/wildlife/7330504/Bears-lynx-wolves-and-elk-considered-for-reintroduction-into-British-countryside.html>.

threatened or endangered species into their historic habitat, the strongest arguments clearly rest on ecological and economic grounds.¹¹

Ecological Perspective. Apex predators provide natural top-down regulation within their respective range habitat.¹² The impact of the predator-prey relationship resonates throughout the food chain in a *trophic cascade*, from the apex predator at the top to the soil microbial level at the bottom.¹³ From this perspective, species reintroduction seeks to restore ecosystem balance and stabilize the predator-prey relationship, guaranteeing long-term provision of the valuable services provided by the ecosystem.¹⁴

Although not widely recognized before the environmental movement of the 1960s and 1970s, evidence in the early decades of the twentieth century revealed the immediate impact of carnivore eradication programs. Before 1906, for example, the Kaibab Plateau along the North Rim of the Grand Canyon supported one of the nation's prized mule deer herds.¹⁵ However, that year, the federal government designated the Plateau as a game reserve, charging the U.S. Biological Survey to control predators.¹⁶ Between 1906 and 1931, eradication efforts killed 30 wolves, 781 mountain lions, 554 bobcats and 4,849 coyotes.¹⁷ Without natural curtailment, the deer population rapidly exceeded the region's environmental carrying capacity.¹⁸ Sport hunters vocally opposed culling efforts, and, by 1930, an estimated 70,000 deer starved to death.¹⁹ Nearly forty years later, in 1966, University of Washington ecologist Robert Paine published critical academic research to support the theory of carnivore-dependent, top-

11. See Douglas H. Chadwick, *Wolf Wars*, NATIONAL GEOGRAPHIC (March 2010), <http://ngm.nationalgeographic.com/2010/03/wolf-wars/chadwick-text>.

12. See, e.g., CAROLINE FRASER, *REWILDING THE WORLD: DISPATCHES FROM THE CONSERVATION REVOLUTION* 4 (2009); David S. Maehr, *Large Mammal Restoration: Too Real to Be Possible?*, in *LARGE MAMMAL RESTORATION: ECOLOGICAL AND SOCIOLOGICAL CHALLENGES IN THE 21ST CENTURY* 345, 349 (David S. Maehr et. al. eds., 2001) ("The loss of such predatory work is the sound of evolution coming to a screeching halt. The return of large mammals, by contrast, is the sound of life returning to artificially simplified landscapes."); see also Julie S. Thrower, *Ranching with Wolves: Reducing Conflicts Between Livestock and Wolves through Integrated Grazing and Wolf Management Plans*, 29 J. LAND RESOURCES & ENVTL. L. 319, 326-27 (2009) (overview of what the author refers to as the "trickle-down effect" (top-down regulation) in the GYE).

13. Chadwick, *supra* note 11.

14. Important ecosystem services include air purification, water quality, flood control, carbon storage, etc. Provision of ecosystem services decrease when the ecosystem is degraded, interfering with its natural functioning. See FRASER, *supra* note 12, at 7.

15. See BRUCE HAMPTON, *THE GREAT AMERICAN WOLF* 152-53 (1997).

16. See *id.*

17. *Id.* at 152-53.

18. See *id.* at 153.

19. *Id.*

down regulation: his study of the relationship between predatory starfish and mussel populations in the Pacific Northwest revealed the rapid growth of mussel populations, at the expense of all other intertidal biodiversity, in the absence of carnivorous starfish.²⁰ According to this theory, so-called “keystone species” influence the ambient environment to a far greater extent than their numerical population would suggest, “such that their elimination from an ecosystem often triggers cascades of direct and indirect changes that may eventually lead to losses of habitats and extirpation of other species in the food web.”²¹

The cascading effects of wolf extirpation from Yellowstone National Park and their subsequent return grant support to Paine’s theory. The last Yellowstone wolf was killed in 1926.²² Between 1926 and 1995, when reintroduced populations reasserted their role as top predator, elk herds grew without restraint.²³ Populations soon reached critical mass, forcing park officials to undertake culling programs.²⁴ Deterred from migrating outside park borders by fenced land and trigger-happy hunters, elk remained in Yellowstone, quite content to endlessly over-browse the willow, cottonwood and aspen trees essential to a healthy local ecosystem.²⁵ Without the threat of predators lurking near streams and areas of dense vegetation, herds lost the evolutionary “ecology of fear” that historically limited movement to large, open areas, thus minimizing overgrazing as well as insulating the herd from over-predation.²⁶

In the decade following the 1995 reintroduction of wolves, Yellowstone experienced an extraordinary reversal of the damage wrought by overgrown ungulate populations during the park’s wolfless era. The threat of predators drove elk back to their normal behavioral patterns, restoring the natural predator-prey relationship.²⁷ Without continuous overgrazing, trees experienced new growth, and the full canopy provided habitat for returning songbirds as well as shaded

20. See JONATHAN S. ADAMS, *THE FUTURE OF THE WILD: RADICAL CONSERVATION FOR A CROWDED WORLD* 27 (2006).

21. *Id.* at 28-29.

22. FRASER, *supra* note 12, at 47.

23. See, e.g., *id.* at 47; WILLIAM STOLZENBURG, *WHERE THE WILD THINGS WERE: LIFE, DEATH, AND ECOLOGICAL WRECKAGE IN A LAND OF VANISHING PREDATORS* 135-36 (2008).

24. Culling lasted until the late 1960s when angry hunters persuaded their congressional representatives to threaten to decrease park funding if culling continued. Without the ability to cull excess populations and no predators to provide natural regulation, the National Park Service had no choice but to allow elk herds to overpopulate the park, despite the negative environmental effects of a “nonmanagement” approach. STOLZENBURG, *supra* note 23, at 135.

25. See *id.* at 136.

26. See FRASER, *supra* note 12, at 47; Chadwick, *supra* note 11.

27. See FRASER, *supra* note 12, at 48.

streams for recovering trout runs.²⁸ Beavers returned to the protected streams, their dams increasing the resiliency of riparian and wetland ecosystems and improving habitat for aquatic plants, amphibians and birds.²⁹ The coyote population, having swelled in the absence of wolves, declined with their return; as a result, Yellowstone's pronghorn antelope recovered.³⁰ Countless species also directly benefitted from scavenging abandoned wolf kills, including, *inter alia*, coyotes, foxes, grizzly bears, predatory birds, and numerous insects.³¹ With the return of the wolf, the whole ecosystem reawakened.

Economic Perspective. Reintroductions of threatened or endangered species may potentially impact the regional economy and livelihoods of individuals living nearby.³² Where the economic impact of reintroduction *benefits* local communities—where it boosts tourism,³³ for example—support for the plan tends to increase in areas economically reliant on the benefited industry. However, as the famous French political theorist Alexis de Tocqueville once stated: “In no country in the world is the love of property more active and more anxious than in the United States; nowhere does the majority display less inclination for those principles which threaten to alter, in whatever manner, the laws of property.”³⁴ Bolstered by the constitutional protection afforded private property, landowners prefer to view property as their individual domain, immune from control and regulation by outside forces.³⁵ They worry about the implications of government regulation, suspecting that any policy intended to conserve land necessarily hinders their individual sovereignty.³⁶ Landowners do care about the environment; however, they claim that the burdens and costs of conservation unfairly discriminate against rural communities, forcing the already economically disadvantaged pastoral regions of the coun-

28. *Id.*

29. *Id.*

30. *E.g., id.*; Stolzenburg, *supra* note 23, at 143.

31. Stolzenburg, *supra* note 23, at 143.

32. Chadwick, *supra* note 11.

33. The GYE reintroduction increased the region's overall economy by an estimated \$35 million as tens of thousands of visitors flocked to Yellowstone National Park hoping to catch a glimpse of the Yellowstone wolves. *Id.*

34. John F. Turner & Jason C. Rylander, *The Private Lands Challenge: Integrating Biodiversity Conservation and Private Property*, in PRIVATE PROPERTY AND THE ENDANGERED SPECIES ACT: SAVING HABITATS, PROTECTING HOMES 93, 93-94 (Jason F. Shogren ed., 1998).

35. See Anna Remet, *The Return of the Noble Predator: Making the Case for Wolf Reintroduction in New York State*, 9 ALB. L. ENVTL. OUTLOOK J. 89, 136 (2004); see also ADAMS, *supra* note 20, at 200 (“Political opponents constantly [depict] environmental regulations as sneak attacks on private property, and those portrayals, absurd as many are, create a considerable public stir.”).

36. See Karrigan Bork, *Listed Species Reintroduction on Private Land - Limiting Landowner Liability*, 30 STAN. ENVTL. L.J. 177, 187 (2011). See generally PRIVATE PROPERTY AND THE ENDANGERED SPECIES ACT: SAVING HABITATS, PROTECTING HOMES (Jason F. Shogren ed., 1998).

try to bear the brunt of conservation desired by the majority.³⁷ Thus, where reintroduction plans interfere with private property rights, however minor, local communities and property owners may unite in opposition against the scheme, as if inspired by the reflections of de Tocqueville himself.³⁸

The GYE reintroduction provides perhaps the best example of landowner opposition to conservation measures. Yellowstone National Park spans an area of nearly 3,500 square miles, and borders three states—Idaho, Montana and Wyoming.³⁹ The GYE, however, covers approximately 25,000 square miles, much of it privately owned.⁴⁰ Many landowners, local communities and state officials opposed reintroduction, arguing that wolves, known for their vast territorial needs, would not remain within park boundaries.⁴¹ From the landowners' perspective, wolves would quickly become *their* problem to control, and the liability imposed by the U.S. Endangered Species Act (ESA) left them with few opportunities to act in response.

The region's large ranching population argued that wolves would surely run them out of business, snatching livestock during the night and attacking their children in the fields.⁴² Although fear of wolf depredation and child-snatching finds more substantiation in folklore and storybooks than reality, such concerns certainly resonated throughout the region.⁴³ Wolves do in fact prey on livestock, at times

37. See William D. Ruckelshaus, *Forward*, in PRIVATE PROPERTY AND THE ENDANGERED SPECIES ACT: SAVING HABITATS, PROTECTING HOMES xi, xi (Jason F. Shogren ed., 1998); see also DELWIN E. BENSON ET AL., WILDLIFE STEWARDSHIP AND RECREATION ON PRIVATE LANDS 9 (1999) ("The vast majority of landowners [have] no desire to remove all wildlife or all wildlife habitat from their lands. They, more than most of us in our highly urban society, value land and all the resources it contains. And most farmers and ranchers are adept at making their operations compatible with wildlife.").

38. See generally Bork, *supra* note 36, at 187-88 (explaining how property owners are wary to allow scientists to conduct "mere" research on their land).

39. HAMPTON, *supra* note 15, at 197.

40. *Id.*

41. See *id.* at 198.

42. See, e.g., WILLIAM R. LOWRY, REPAIRING PARADISE: THE RESTORATION OF NATURE IN AMERICA'S NATIONAL PARKS 21 (2009); Jennifer Li, *The Wolves May Have Won the Battle, But Not the War: How the West was Won Under the Northern Rocky Mountain Wolf Recovery Plan*, 30 ENVTL. L. 677, 681-82 (2000); Maehr, *supra* note 12, at 350.

43. See, e.g., Daniel R. Dinger, *Throwing Canis Lupus to the Wolves: United States v. McKittrick and the Existence of the Yellowstone and Central Idaho Experimental Wolf Populations under a Flawed Provision of the Endangered Species Act*, 2000 B.Y.U. L. REV. 377, 383-84 (2000) ("Many well-known children's stories and fairy tales such as The Three Little Pigs and Little Red Riding Hood portray wolves as cunning, vicious, and evil. Even the Bible casts wolves in a negative light when it warns, 'Beware of false prophets, which come to you in sheep's clothing, but inwardly they are ravaging wolves.'"); Li, *supra* note 42, at 681-82 ("Early European immigrants brought folklore and superstitions which were fashioned into a deep-seated prejudice against wolves. Medieval tales of wolves feeding on children, solitary travelers, and corpses

beyond their immediate need for sustenance.⁴⁴ Statistically, however, wolf depredations constitute significantly less than one percent of cattle depredations in a given year and only a slightly larger percentage of sheep losses.⁴⁵ Such statistics nevertheless provided little comfort to ranchers.

Not all landowners within the GYE adopted such a hard line stance.⁴⁶ Individuals of a more moderate persuasion understood the ecological importance of apex predators within the region, and adapted their ranching operations and land use activities to accommodate the presence of wolves.⁴⁷ Interviewed for the March 2010 edition of *National Geographic Magazine*, family rancher David Mannix explained an additional, profit-driven motive for his personal tolerance of wolf reintroduction:

We have to realize that the general U.S. population wants wolves. That population is also our customers for beef. It's not a good idea to tell your customers they don't know what they're doing. So instead of taking a hard line and fighting to get everything back to where it was fifty years ago, we're trying [preventative measures].⁴⁸

However, even now, despite growing support among certain segments of the ranching community, many landowners still hold strong feelings of resentment toward the GYE reintroduction.

Recreationist Perspective. Any environmental policy negatively impacting wild fish and game stocks will certainly encounter bitter protest from the recreational hunting and fishing demographic. In the

from wars and plagues were common throughout France, Spain, and Russia. This background led to an immense fear of and aversion to anything wolf-like.”).

44. “Surplus killing” is relatively uncommon under natural conditions, but may occur during denning season, or, at times, for no apparent reason, although this may just appear to be the case because livestock carcasses are discovered before wolves have the opportunity to return to feed. HAMPTON, *supra* note 15, at 8-9.
45. SIERRA CLUB, *WOLVES AND LIVESTOCK* (2009), <http://wyoming.sierraclub.org/WOLVES%20AND%20LIVESTOCK.pdf> (citing UNITED STATES DEPARTMENT OF AGRICULTURE, NATIONAL AGRICULTURAL STATISTICS SERVICE, AC-07-A-51, 2007 CENSUS OF AGRICULTURE, VOLUME 1, GEOGRAPHIC AREA SERIES, PART 51 (Updated Dec. 2009); *e.g.*, Chadwick, *supra* note 11; *Wolf Predation and Livestock Losses*, DEFENDERS OF WILDLIFE, http://www.defenders.org/program_and_policy/wildlife_conservation/solutions/wolf_compensation_trust/wolf_predation_and_livestock_losses.php (last visited Feb. 29, 2012) (depredation statistics based on 2005 reports).
46. Chadwick, *supra* note 11.
47. Landowners in the Blackfoot River region of Montana formed a cooperative range-riding program to patrol the area, monitoring the location of local wolf packs and providing daily reports to ranchers so herds can be moved to safer grazing areas. Landowners also use electric fencing to enclose risky grazing pastures, and vigilantly remove livestock carcasses from fields to prevent attracting wolves. *See id.* at 40-41.
48. *Id.* at 42.

case of the GYE reintroduction, elk and deer hunters raised nearly as much opposition to the program as did neighboring ranchers.⁴⁹ Reassurances by environmentalists and government officials that wolves would provide natural regulation of herbivores, improving the overall gene pool of the population by culling weak, feeble and genetically inferior animals,⁵⁰ offered little relief to hunters concerned only with maintaining a large and robust ungulate yield. Even an occasional hiker admitted that, after wolf reintroduction, he or she no longer felt safe in the woods.⁵¹

Moralistic Perspective. The nationwide, systematic eradication of large carnivores is primarily attributable to the failure of humankind to recognize the intrinsic value of all living species. More than any other predator, wolf populations bore the brunt of human abhorrence and malice. For centuries, humans targeted wolves through indiscriminate killing, trapping, poisoning and torture.⁵² Longstanding predator control programs severely reduced the number of wolves within the contiguous forty-eight states and diminished the wolf's range to only one percent of its historic reach.⁵³ From an ethical viewpoint, reestablishing populations of eradicated species to their historic range serves as a lesson in human humility and penance for past persecution.

B. Reintroduction of Threatened or Endangered Species Pursuant to the Endangered Species Act—Prevailing Legal Regime.

The U.S. Endangered Species Act (ESA) of 1973⁵⁴ supplies the legal framework for species reintroduction. The ESA charges the U.S. Fish and Wildlife Service (FWS) (for terrestrial species) and the National Marine Fisheries Service (NMFS) (for marine species) with listing species as "endangered"⁵⁵ or "threatened"⁵⁶ and designating the critical

49. See Chadwick, *supra* note 11.

50. See, e.g., Remet, *supra* note 35, at 141; Thrower, *supra* note 12, at 326.

51. See Chadwick, *supra* note 11.

52. "Killing bad animals was a moral obligation and a national duty, a contribution to America's westward expansion, and settlers throughout the West gladly took up the cause." ADAMS, *supra* note 20, at 185. "The United States government eventually made it federal policy to eradicate wolves. . . . With leghold traps and rifles to start, the U.S. added poison to its arsenal. . . . and when aircraft became available, hundreds of thousands of little balls of fat laced with poison started raining from the skies." STOLZENBURG, *supra* note 23, at 42. "Hundreds of thousands of wolves were trapped, poisoned, shot, or dynamited in their dens, while some suffered deaths that had every visage of revenge." HAMPTON, *supra* note 15, 6-7.

53. Li, *supra* note 42, at 681.

54. Endangered Species Act of 1973 § 2, 16 U.S.C. § 1531 (Supp. 2011).

55. An "endangered species" is defined as "any species which is in danger of extinction throughout all or a significant portion of its range. . . ." § 1532(6).

56. A "threatened species" is defined as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." § 1532(20).

habitat of the listed species for protection.⁵⁷ Once listed, the ESA protects the species against further loss by prohibiting intentional harm and substantially restricting potentially harmful land use activities.⁵⁸ Section 7 authorizes federal agencies to carry out conservation activities to benefit protected species, and requires consultation of FWS or NMFS prior to commencing any agency action that may “jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species.”⁵⁹ Furthermore, section 9 provides additional protection to endangered species, making it “unlawful for all persons, whether private individuals or government agencies, to take any endangered species.”⁶⁰ The ESA defines “take” as meaning “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.”⁶¹ Private individuals may, however, apply for an Incidental Take Permit under section 10, authorizing the take of a listed species incidental to a proposed action.⁶² Although section 9 prohibitions against take do not extend protection to threatened species, the agency may provide such protection by special rules authorized under section 4(d).⁶³

The overarching statutory purpose of the ESA is 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 species and threatened species.”⁶⁴ The ESA thus functions to promote recovery and the eventual delisting of protected species. To achieve this goal, section 4(f) directs the agency to develop and implement “recovery plans” furthering species conservation and survival.⁶⁵ Recovery plans must, “to the maximum extent practicable,” include: (1) site-specific management objectives to promote conservation and survival; (2) criteria, the satis-

57. § 1533(a).

58. § 1538(a).

59. § 1536(a).

60. M. Yvonne Morris, “Takings” Under the Endangered Species Act: *Habitat Modifications Not Included! Sweet Home Chapter of Communities for a Great Oregon v. Babbitt*, 17 F.3d 1463 (D.C. Cir. 1994), 20 S. ILL. U. L.J. 367, 370 (1996); see § 1538(a).

61. § 1532(19). A “take” may be intentional or unintentional. *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 705 (1995) (citing H.R. Rep. No. 93-412, at 15 (1973)). The term “harm”—as defined by FWS regulation and upheld by the courts as reasonable—includes “significant habitat modification or degradation that actually kills or injures wildlife.” *Id.* at 691. “Harm” also includes the threat of future harm, including habitat modification significantly impairing the breeding and sheltering of protected species. *Marbled Murrelet v. Babbitt*, 83 F.3d 1060 (9th Cir. 1996).

62. § 1539(a)(1)(b).

63. § 1533(d).

64. § 1531(b).

65. § 1533(f)(1).

faction of which, results in recovery to the point of removal of the protected status of the species; and (3) the approximate time and cost of carrying out the specified measures.⁶⁶

The 1982 amendment of the ESA provides another method by which to promote recovery of threatened and endangered species.⁶⁷ Section 10(j) authorizes the agency to transport and release "an endangered species or a threatened species outside the current range of such species" if the release furthers recovery and conservation.⁶⁸ To provide for lawful release in accordance with the terms of the ESA, Congress further authorizes the agency to issue a permit for "any act . . . to enhance the propagation or survival of the affected species, including, but not limited to, acts necessary for the establishment and maintenance of experimental populations pursuant to [ESA section 10(j)]."⁶⁹ An experimental population consists of released species "wholly separate geographically" from naturally occurring individuals of the same species.⁷⁰

By distinguishing between naturally occurring and experimental populations, section 10(j) represents a statutory compromise between species recovery and private property interests, and provides the agency with flexibility to promulgate special rules and regulations tailored to the specific circumstances of the experimental release.⁷¹ For example, experimental populations are presumptively listed as threatened species under section 10(j), even if the naturally occurring population is otherwise considered endangered.⁷² This gives the

66. § 1533(f)(1)(b)(i)-(iii).

67. Endangered Species Act Amendments of 1982, Pub. L. 97-304, 96 Stat. 1411.

68. 16 U.S.C. § 1539(j)(2)(A). Prior to authorizing the release of an experimental population, FWS regulations require that the agency, utilizing the "best scientific and commercial data available," find that such release will further conservation, and consider: "(1) Any possible adverse effects on extant populations of a species as a result of removal. . . for introduction elsewhere; (2) The likelihood that any such experimental population will become established and survive in the foreseeable future; (3) The relative effects that establishment of an experimental population will have on the recovery of the species; and (4) The extent to which the introduced population may be affected by existing or anticipated Federal or State actions or private activities within or adjacent to the experimental population area." 50 C.F.R. § 17.81(b) (2012).

69. 16 U.S.C. § 1539(a)(1)(A).

70. § 1539(j)(1); 50 C.F.R. § 17.80(a); see also Elizabeth Cowan Brown, *The "Wholly Separate" Truth: Did the Yellowstone Wolf Reintroduction Violate Section 10(j) of the Endangered Species Act?*, 27 B.C. ENVTL. AFF. L. REV. 425, 434 (2000).

71. Li, *supra* note 42, at 688.

72. 16 U.S.C. § 1539(j)(2)(C); 50 C.F.R. § 17.82. Because experimental populations are treated as threatened species, section 9 prohibitions against the taking of endangered species do not apply unless special rules are promulgated pursuant to the agency's authority under section 4(d), authoring issuance of "such regulations as [the agency] deems necessary and advisable to

agency flexibility to authorize the non-incidental take of problem individuals responsible for property destruction or livestock depredation to nearby landowners.⁷³ Furthermore, section 10(j) mandates that the agency classify experimental populations as either “essential” or “nonessential” to the continued existence of the listed species.⁷⁴ While essential populations retain protection as threatened species, nonessential populations only receive such protection within the boundaries of the National Wildlife Refuge System and the National Park System; outside of these areas, nonessential populations are treated as “species proposed to be listed” and receive protection only to the extent provided by special agency rules.⁷⁵ This sub-designation further promotes management flexibility, allowing the non-incidental take of “nonessential” individuals on private property, as well as by federal officials on both public and private lands.⁷⁶ Finally, nonessential classifications do not allow designation of critical habitat for the experimental population,⁷⁷ further reducing the rigid protection of the species typically afforded by the ESA.

The GYE wolf reintroduction occurred within this convoluted statutory scheme of heightened management flexibility.

C. *Reintroduction of the Gray Wolf into the GYE—A Case Study for Future Reintroductions*

Reintroduction. Wolves disappeared from Yellowstone National Park in 1926, largely due to longstanding federal and state predator control measures and the impulsive trigger-itch of westward faring settlers.⁷⁸ Extinction of local populations occurred in the surrounding states in the decades to follow,⁷⁹ with the last known wolf in the GYE killed in 1944.⁸⁰ The Northern Rocky Mountain subspecies of gray wolf was

provide for the conservation of [threatened] species.” Li, *supra* note 42, at 688.

73. See Thrower, *supra* note 12, at 344.

74. 16 U.S.C. § 1539(j)(2)(B); see also 50 C.F.R. § 17.80(b) (defining “essential experimental population” as “an experimental population whose loss would be likely to appreciably reduce the likelihood of the survival of the species in the wild.” All experimental populations not designated as essential populations are classified as “nonessential.”).

75. Brown, *supra* note 70, at 435. Section 7 requirements prohibiting government actions that may jeopardize protected species applies only to species listed as threatened or endangered. Thus, section 7 protections do not apply to experimental populations classified as “nonessential” because such populations are treated only as “species proposed to be listed.” Li, *supra* note 42, at 689-90.

76. Thrower, *supra* note 12, at 344-45.

77. 16 U.S.C. § 1539(j)(2)(C)(ii); 50 C.F.R. § 17.81(f).

78. See, e.g., Brown, *supra* note 70, at 436; Li, *supra* note 42, at 683-84.

79. Wolf eradication was completed in Washington State by 1940, and Colorado and Wyoming by 1943. Dinger, *supra* note 43, at 385.

80. Li, *supra* note 42, at 684 (citing D. Baldes et al., *The Last Wolf, 1943*, interview with L. Cottenoir, 1 YELLOWSTONE SCI., no. 1, 1993 at 10).

listed as an endangered species upon enactment of the ESA in 1973.⁸¹ FWS expanded the endangered listing in 1978 to include the entire gray wolf (*Canis lupus*) species in the lower forty-eight states, with the exception of the gray wolf population of Minnesota listed as threatened.⁸² Once granted protected status, FWS undertook the development of a recovery plan in accordance with ESA section 4(f).⁸³ The plan, published in 1980 and later revised in 1987, called for the recovery of endangered wolf populations in three areas: northwestern Montana, central Idaho, and Yellowstone Park.⁸⁴ By this time, occasional sightings of wolves in northern Montana revealed the potential for natural recovery of viable populations, which was recommended for most of Idaho and Montana.⁸⁵ However, reintroduction of nonessential experimental populations remained the preferred solution for recovery in Yellowstone and central Idaho.⁸⁶ FWS published a draft environmental impact statement for reintroduction in June 1993, and released the final statement in May 1994.⁸⁷ While open for public review, FWS received over 160,000 public comments and held more than 150 public hearings,⁸⁸ approximately seventy percent of public comments favored reintroduction.⁸⁹

In early January 1995, fourteen wolves purchased from Canadian trappers were released in Yellowstone National Park.⁹⁰ The federal government exercised management authority and regulatory oversight of the released populations, and the environmental nonprofit Defenders of Wildlife established a privately managed fund to compensate ranchers for livestock depredations.⁹¹ Indifferent to the political battle raging around them, the sixty-six wolves eventually released into Yellowstone and central Idaho thrived in their new habitat; by 2009, the population exceeded 1,700.⁹²

As a nonessential experimental population, the reintroduced wolves received ESA protection as threatened species within the boundaries of Yellowstone National Park, but remained subject to special regula-

81. See Brown, *supra* note 70, at 436.

82. See *id.* at 436-37.

83. See *id.* at 437.

84. See *id.*

85. See LOWRY, *supra* note 42, at 25.

86. See Brown, *supra* note 70, at 437-38.

87. See LOWRY, *supra* note 42, at 31.

88. *Id.*

89. See Brown, *supra* note 70, at 439.

90. LOWRY, *supra* note 42, at 45.

91. See *Defenders in Action: Helping Ranchers Coexist with Wolves*, DEFENDERS OF WILDLIFE, <http://www.defenders.org/gray-wolf-northern-rockies/defenders-action-helping-ranchers-coexist-wolves> (last visited Nov. 3, 2012).

92. KRISTINA ALEXANDER, CONG. RESEARCH SERV., R41730, *The Gray Wolf and the Endangered Species Act (ESA): A Brief Legal History* 2-3 (July 27, 2011), available at <http://www.nationalaglawcenter.org/assets/crs/R41730.pdf> [hereinafter CRS: *Gray Wolf Legal History*].

tion outside park boundaries.⁹³ Special rules adopted by the agency provided for flexible management and authorized landowners to *harass*, in an “opportunistic and noninjurious manner” any wolf on private lands or while lawfully using public lands, so long as the landowner reported the incident to FWS within seven days.⁹⁴ The rules further permitted the *take* (injure or kill) of wolves witnessed “killing, wounding, or biting livestock” where the rancher provided evidence of freshly wounded or killed livestock and reported the incident within twenty-four hours.⁹⁵ FWS authorities also agreed to remove problem animals with a proven record of livestock depredation, or capture and relocate wolves to prevent excessive predation of ungulate populations.⁹⁶

Legal Challenges. Even after initial release, the future of the GYE reintroduced wolf population remained uncertain; divisive public opinions, unresolved by the provisional mechanisms of the recovery plan, threatened to undermine the long-term success of the program.⁹⁷ Soon the political drama of reintroduction found its way into the courtroom. First, in *Wyoming Farm Bureau Federation v. Babbitt* (1997), Plaintiffs claimed that reintroduction violated section 10(j) because the Canadian gray wolf released into the GYE constituted a different subspecies than the Northern Rocky Mountain gray wolf historically found in the region.⁹⁸ The court, however, deferred to the agency’s determination that the impact of release would not significantly affect recovery.⁹⁹ Additionally, based on reports of naturally recovering wolves in the GYE, Plaintiffs argued that reintroduction of the experimental population violated the “wholly separate geographically” requirement of section 10(j).¹⁰⁰ FWS, however, argued that naturally recovering lone wolves within the experimental population areas did not constitute a “population” as defined by agency regulation, and

93. See Brown, *supra* note 70, at 440.

94. In the context of this rule, the term “opportunistic” means that the wolf cannot be “purposely attracted, tracked, waited for, or searched out, then harassed.” 50 C.F.R. § 17.84(i)(3)(i). The term “noninjurious” means that the harassing action result in “no temporary or permanent physical damage” to the wolf. *Id.*

95. § 17.84(i)(3)(ii).

96. See §§ 17.84(i)(3)(vii), (ix).

97. See generally Brown, *supra* note 70, 439-41 (describing in short term the events that led up to the first reintroduced wolf and setting the stage for the future litigation that threatened the program).

98. *Wyoming Farm Bureau Fed’n v. Babbitt*, 987 F. Supp. 1349 (D. WY. 1997), *rev’d*, 199 F.3d 1224 (10th Cir. 2000); see also Brown, *supra* note 70, at 442-43.

99. Brown, *supra* note 70, at 443.

100. *Babbitt*, 987 F. Supp. at 1370 (Plaintiffs alleged that the designated “experimental population areas” were located within current range of naturally occurring, non-experimental gray wolves in violation of ESA); see also 16 U.S.C. § 1539(j).

thus did not bar reintroduction.¹⁰¹ While deferring to the agency's definition of "population," the Wyoming District Court ultimately agreed that reintroduction violated the ESA.¹⁰² The Court ordered removal of the reintroduced wolves and their offspring from the experimental population areas, pending appeal to the Tenth Circuit Court of Appeals.¹⁰³

While pending, the Ninth Circuit Court confronted similar challenges in *U.S. v. McKittrick* (1998)—a suit involving criminal charges brought against a hunter for the fatal killing of a reintroduced wolf near Red Lodge, Montana.¹⁰⁴ Explicitly disagreeing with the holding of the Wyoming District Court, the Ninth Circuit upheld reintroduction under section 10(j), explaining that the agency's definition of "population" did not violate the geographic isolation principle.¹⁰⁵ On appeal, the Tenth Circuit, in *Wyoming Farm Bureau Federation v. Babbitt* (2000), ultimately agreed, overturning the previous decision of the District Court and reversing the order calling for removal of the reintroduced population.¹⁰⁶

Congressional Delisting. When legal challenges to reintroduction failed, anti-wolf interests commenced a new campaign to eliminate federal protection of wolf populations, this time from within the executive branch.¹⁰⁷ An April 2003 rule, established under the Bush Administration, divided the gray wolf into three Distinct Population Segments (DPSs)—Western, Eastern and Southwestern—based solely on geographic location.¹⁰⁸ The rule proposed to downlist the Western and Eastern DPSs from endangered to threatened status and retain three experimental populations within the GYE while transferring significant management and conservation responsibility to state agencies.¹⁰⁹ In 2005, two different courts overturned the rule as a violation of the ESA based on the method used to delineate the range of wolf

101. *Babbitt*, 987 F. Supp. at 1370; *see also* Brown, *supra* note 87, at 443-3 (According to FWS, a naturally occurring "population"—as defined in the context of the gray wolf recovery plan—required evidence of "at least two breeding pairs of wild wolves successfully raising at least two young each. . . for two consecutive years.").

102. *Babbitt*, 987 F. Supp. at 1370.

103. *Id.* at 1376.

104. *See* *U.S. v. McKittrick*, 142 F.3d 1170 (9th Cir. 1998).

105. *Id.* at 1174.

106. *See* *Wyoming Farm Bureau Fed'n v. Babbitt*, 199 F.3d 1224, 1228 (10th Cir. 2000).

107. *Gray Wolves of the Western Great Lakes Back in Court*, ENVIRONMENT NEWS SERVICE (June 15, 2009), <http://ens-newswire.com/2010/01/12/gray-wolves-of-the-western-great-lakes-back-in-court/>.

108. *CRS: Gray Wolf Legal History*, *supra* note 92, at 4 (Policy Regarding the Recognition of Distinct Vertebrate Population Segments Under the Endangered Species Act 61 Fed. Reg. 4722-01).

109. *Id.* at 4; *see* LOWRY, *supra* note 42, at 56.

populations and the resulting boundaries of the proposed DPSs.¹¹⁰ In January 2005, the Administration issued another rule authorizing the lawful take of wolves by landowners in Idaho and Montana, even absent physical evidence of livestock depredation.¹¹¹ This rule was also overturned.¹¹²

A 2007 FWS regulation again proposed delisting the designated Northern Rocky Mountain DPS despite the fact that authorities in western states promised to significantly reduce protection of gray wolves once the states assumed management responsibility.¹¹³ The final rule, published in February 2008, classified wolf populations in Montana, Idaho, Wyoming, eastern Washington and Oregon, and north-central Utah as one DPS and the experimental population in the Northern Rocky Mountain region as a wholly separate DPS.¹¹⁴ Courts rejected both reclassifications.¹¹⁵ Upon taking office in January 2009, however, the Obama Administration officially endorsed delisting.¹¹⁶ In April 2009, FWS again designated a Northern Rocky Mountain DPS, which the agency subsequently withdrew following litigation.¹¹⁷

The Omnibus Public Lands Management Act of 2009¹¹⁸ represents the first successful attempt by Congress to legislatively transfer management responsibility to state authorities. Section 6202 of the Omnibus Act authorizes funding for states to initiate state-run compensation programs for livestock depredations.¹¹⁹ With the passage of the Omnibus Act, Defenders of Wildlife announced the phasing out of the organization's privately funded, and largely successful, compensation program.¹²⁰

110. *CRS: Gray Wolf Legal History*, *supra* note 92, at 5; *Defenders of Wildlife v. U.S. Dept. of the Interior*, 354 F. Supp. 2d 1156, 1172 (D. Or. 2005) ("FWS downlisted the entire Eastern and Western DPSs without analyzing the threats to the gray wolf [sic] outside of the core areas, as required"); *National Wildlife Federation v. Norton*, 386 F. Supp. 2d 553, 564 (D. Vt. 2005) ("FWS appears to be classifying the gray wolf [sic] based upon geography, not biology").

111. *Lowry*, *supra* note 42, at 56.

112. *Id.* at 56-57.

113. *CRS: Gray Wolf Legal History*, *supra* note 92, at 5-6.

114. *Id.* at 6-7.

115. *Id.* at 7-8.

116. *Lowry*, *supra* note 42, at 60.

117. *CRS: Gray Wolf Legal History*, *supra* note 92, at 7-8.

118. *See Omnibus Public Land Management Act of 2009*, note following 7 U.S.C. § 426 (Supp. 2011) (Wolf Compensation and Prevention Program).

119. *Id.*; *see also* Press Release, USFWS, U.S. Fish and Wildlife Service Announces \$1 Million to States for Wolf Livestock Compensation Project, Michigan, Minnesota and Wisconsin will Receive Grants (Apr. 1, 2010), *available at* <http://www.fws.gov/Midwest/News/release.cfm?rid=201>.

120. DEFENDERS OF WILDLIFE, FREQUENTLY ASKED QUESTIONS: TRANSITIONING WOLF COMPENSATION (2010), http://www.defenders.org/resources/publications/programs_and_policy/wildlife_conservation/solutions/faq_transitioning_wolf_compensation.pdf.

In April 2011, Congress passed section 1713 of the Full-Year Appropriations Act of 2011, P.L. 112-10, directing FWS to reissue the agency's April 2009 rule designating and delisting the Northern Rocky Mountain DPS.¹²¹ The agency published the final rule on May 4, 2011.¹²² In October 2011, FWS announced its intent to delist wolves in Wyoming as well upon the enactment of specified wolf management measures.¹²³

III. UK Law: Proposed Reintroduction of the Gray Wolf and Other Previously Eradicated Top Carnivores

In 1992, the European Union enacted Council (EEC) Directive 92/43 ("Habitats Directive"), codifying the mandates set forth by the 1979 Bern Convention on the Conservation of European Wildlife and Natural Habitats,¹²⁴ and directing State Parties to restore "species of Community interest" to a "favorable conservation status."¹²⁵ Many Western European countries, similar to the United States in history and culture, extirpated wolves and other large carnivores from their territory centuries ago.¹²⁶ However, owing to the geographic nexus of the continent, large carnivores, long banished to Eastern Europe by rapid land use change and indiscriminate persecution in the West, have gradually returned to their historic habitat, reclaiming their role as keystone species.¹²⁷ Species-specific action plans for the wolf, brown bear, Eurasian and Iberian Lynx, and the wolverine, drafted in 2000 under the auspices of the Bern Convention's Large Carnivore Initiative for Europe, address conservation challenges confronting EU

121. Department of Defense and Full-Year Appropriations Act of 2011 § 1713, Pub. L. No. 112-10, 125 Stat. 38, 150; *CRS: Gray Wolf Legal History*, *supra* note 92, at 9; Kristina Alexander & M. Lynne Corn, CONG. RESEARCH SERV., *Gray Wolves Under the Endangered Species Act (ESA): Distinct Population Segments and Experimental Populations*, RL34238, at 19 (Aug. 17, 2011), <http://www.nationalaglawcenter.org/assets/crs/RL34238.pdf> [hereinafter *CRS: Gray Wolves Under the ESA*].

122. Press Release, U.S. Department of Interior, Interior Announces Next Steps in Protection, Recovery, and Scientific Management of Wolves (May 4, 2011), <http://www.doi.gov/news/pressreleases/Interior-Announces-Next-Steps-in-Protection-Recovery-and-Scientific-Management-of-Wolves.cfm>.

123. M. Lynn Corn, CONG. RESEARCH SERV., *Fish and Wildlife Service: FY2013 Appropriations and Policy*, R42466, at 10 (2012), <http://www.fas.org/sgp/crs/misc/R42466.pdf>. [hereinafter *CRS: Fish and Wildlife*].

124. Convention on the Conservation of European Wildlife and Natural Habitats, Sept. 19, 1979, E.T.S. 104, (entered into force Jan. 6, 1982) [hereinafter *Bern Convention*].

125. Council Directive 1992/43/EEC, of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora, 1992 OJ (L 206) 7 [hereinafter *Habitats Directive*].

126. Arie Trouwborst, *Managing the Carnivore Comeback: International and EU Species Protection Law and the Return of the Lynx, Wolf and Bear to Western Europe*, 22 J. ENVTL. L. 347, 348 (2010).

127. *See id.*

countries with regard to naturally recovering populations.¹²⁸ Yet, due to the geographical isolation of the British Isles from continental Europe, the UK has thus far been shielded from unplanned, natural repopulation.¹²⁹ Nevertheless, international law and EU directives, binding within the UK, require that the government consider affirmative reintroduction where natural recovery cannot achieve favorable conservation status.¹³⁰ Part A of this Section describes the legal framework supporting reintroduction of large carnivores within the UK for the purpose of enhancing regional biodiversity. Part B then discusses the ongoing debate regarding proposed reintroduction.

A. *Legal Framework Supporting Reintroduction of the Wolf and other Large Carnivores—Overview of the Combined EU-UK Model.*

The body of law applicable within the United Kingdom includes those national and subnational laws and regulations enacted by UK government officials, as well as rules and directives implemented by the European Union (EU) and domestically ratified international treaties and conventions. With regard to species conservation, the 1979 Bern Convention, which came into force in 1982, establishes the underlying legal obligation of Member States to promote the conservation of European habitats, flora and fauna.¹³¹ Appendix II of the Convention lists the wolf as a “strictly” protected species.¹³² In 1989, the Convention’s Standing Committee on the Protection of the Wolf in Europe published Recommendation 17, endorsing studies by Member States regarding the possibility of wolf reintroduction as a measure to support active conservation.¹³³ Additionally, Article 22 of the 1992 EU Habitats Directive, implementing the Bern Convention, explicitly directs EU States to consider reintroduction programs:

In implementing the provisions of this Directive, Member States shall: (a) study the desirability of reintroducing species in Annex IV that are native to their territory where this might contribute to their conservation, provided that an investigation, also taking into account experience in other Member States or elsewhere, has established that such rein-

128. *See id.* at 353; Luigi Boitani, *Action Plan for the Conservation of the Wolves (Canis lupus) in Europe*, in CONVENTION ON THE CONSERVATION OF EUROPEAN WILDLIFE AND NATURAL HABITATS (BERN CONVENTION) 2000, at 7 (Council of Eur., Nature and Environment No. 113, 2000).

129. *See* Boitani, *supra* note 128, at 70, 80.

130. *See infra* Part III.A.

131. Trouwborst, *supra* note 126, at 352.

132. *Id.* (listing the brown bear also as a protected species in Appendix II; the Eurasian lynx, listed in Appendix III, receives less protection).

133. *Recommendation No. 17 (1989) of the Standing Committee on the Protection of the Wolf (Canis lupus) in Europe*, COUNCIL OF EUROPE, § H, <https://wcd.coe.int/ViewDoc.jsp?id=1485737&Site=&BackColorInternet=B9BDEE&BackColorIntranet=FFCD4F&BackColorLogged=FFC679> [hereinafter *Recommendation 17*].

roduction contributes effectively to reestablishing these species at a favorable conservation status and that it takes place only after proper consultation of the public concerned.¹³⁴

The Habitats Directive likewise lists the wolf in Annex II as “Animal and Plant Species of Community Interest whose Conservation Requires the Designation of Special Areas of Conservation.”¹³⁵

The UK ratified the Bern Convention in 1982, and implemented its provisions by amendment of the 1981 Wildlife and Countryside Act¹³⁶ and subsequent regulations within each of the sub-national States.¹³⁷ UK laws must conform to the provisions set forth in both the Bern Convention as well as the EU Habitats Directive. Accordingly, national law, codifying international and EU priorities, reaffirms the possibility of reintroduction of wolves and other large carnivores in the UK. The 2010 Conservation of Habitats and Species Regulations, applicable in England and Wales, for example, authorize regulatory bodies to grant a license for the purpose of “conserving wild animals or wild plants, or *introducing* them to particular areas.”¹³⁸ While this provision authorizes reintroduction programs, it preconditions the issuance of a license on a finding of (1) no satisfactory alternative for recovery, and (2) no detriment to the continued conservation of the concerned species at a “favorable conservation status” in their natural range.¹³⁹

Species reintroductions are not entirely novel to the UK. Between 1990 and 2010, six populations previously driven to extinction in England—including four bird species, the large blue butterfly and the pool frog—were reintroduced under the regulatory oversight of Natu-

134. Habitats Directive, *supra* note 125, at art. 22. Annex IV includes *Canis lupus* populations (outside of certain populations in Spain and Greece) as “Animal and Plant Species of Community Interest in Need of Strict Protection.” *Id.* at Annex IV.

135. *Id.* at Annex II.

136. Wildlife and Countryside Act, 1981, c. 69, http://www.legislation.gov.uk/ukpga/1981/69/pdfs/ukpga_19810069_en.pdf.

137. The 2010 Conservation of Habitats and Species regulations is the most recent compilation of regulations implementing the Habitats Directive in England and Wales. The Conservation of Habitats and Species Regulations, 2010, No. 490, http://www.legislation.gov.uk/uksi/2010/490/pdfs/uksi_20100490_en.pdf. In Scotland, the Habitats Directive is applied pursuant to Habitats Regulations enacted in 1994 and 2010. *See The Conservation of Habitats and Species Regulations 2010*, JOINT NATURE CONSERVATION COMMITTEE, <http://www.jncc.defra.gov.uk/page-1379> (last updated Jun 2010). Northern Ireland codified the Habitats Directive in the Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended). *See id.*

138. The Conservation of Habitats and Species Regulations § 53(2)(c) (emphasis added).

139. *See* § 53(9) (the second conditional provision ensuring the continued protection of the naturally occurring population from which the reintroduced individuals were captured).

ral England, the country's national wildlife authority.¹⁴⁰ In Scotland, as well, the national governing body, Scottish Natural Heritage, has completed reintroduction programs for the European beaver, white-tailed eagle, and the rare vendace fish.¹⁴¹ While these prior experiments in reintroduction have not included large carnivores, past experience does create a precedent for more challenging reintroduction programs in the future.

B. Future Plans to Reintroduce Wolves and Other Large Carnivores in the UK—A Proposal?

Reintroduction of the gray wolf to the UK, specifically the Scottish Highlands, has long been suggested as a means to restore the historic biodiversity of the region.¹⁴² As in the United States, the natural evolutionary processes of the wolf's historic range show signs of distress.¹⁴³ Expanding red deer populations strain the region's environmental carrying capacity, and continuous overgrazing seriously harms the resiliency of the ecosystem, stunting tree growth and decreasing populations of birds and other tree dependent species.¹⁴⁴

First proposed in the late 1960s, the reintroduction plan grew in popularity in the late 1980s when news of possible wolf reintroduction by the U.S. reached Europe.¹⁴⁵ The most recent proposal suggests reintroducing wolves (as well as brown bears and Eurasian lynx) to the 23,000 acre Scottish estate of multimillionaire Paul Lister.¹⁴⁶ Lister believes that reintroduction onto his estate could prove successful; wolves, he argues, could be satellite tracked, providing wolf locations to farmers and expediting compensation with proof of depredation based on geospatial tracking data.¹⁴⁷ However, despite the perceived ecological benefits of reintroduction, the plan remains highly conten-

140. See *Reintroduction of Animals in England - An Overview*, SCOTTISH NATURAL HERITAGE (Jan. 7, 2010), <http://www.naturalengland.org.uk/ourwork/regulation/wildlife/speciesreintroduction.aspx>.

141. *Reintroducing Native Species*, SCOTTISH NATURAL HERITAGE, <http://www.snh.gov.uk/protecting-scotlands-nature/safeguarding-biodiversity/reintroducing-native-species> (last visited Oct. 23, 2012).

142. *Reintroducing the Wolf to Scotland*, THE WOLVES & HUMANS FOUNDATION, http://www.wolvesandhumans.org/wolves/wolf_reintroduction_to_scotland.htm (last visited Oct. 23, 2012).

143. See *CRS: Gray Wolves Under the ESA*, *supra* note 121, at 1.

144. Erlend B. Nilssen et al., *Wolf Reintroduction to Scotland: Public Attitudes and Consequences for Red Deer Management*, 274 *PROC. R. SOC. B.* 995 (2007), available at <http://rspb.royalsocietypublishing.org/content/274/1612/995.full.pdfml>.

145. *Reintroducing the Wolf to Scotland*, *supra* note 142.

146. See VICTORIA FORDER, WILDWOOD TRUST, *REINTRODUCING LARGE CARNIVORES TO BRITAIN: GRAY WOLF, EURASIAN LYNX, AND EUROPEAN BROWN BEAR* 21 (Aug. 2006), <http://www.wildwoodtrust.org/files/reintroduction-large-carnivores.pdf>.

147. See *id.*

tious in rural communities.¹⁴⁸ Further, plans for reintroduction of large carnivores in the Scottish highlands must receive approval from Scottish Natural Heritage, which, as of this time, has not been forthcoming.¹⁴⁹

IV. Looking Abroad: Fundamental Considerations and Lessons Learned from the GYE Reintroduction of Gray Wolves.

With regard to species reintroduction and conservation, the United States and the UK share a common history as well as similar public perceptions toward government efforts to restore lost biodiversity. Because of historical and cultural similarities, the UK can directly benefit from lessons learned from the trial and errors of the GYE reintroduction. Part A of this Section discusses various factors demonstrating the potential for transplantation of U.S. legal reasoning in the UK legislative paradigm. Part B then sets forth a number of lessons learned from the GYE reintroduction, and analyzes how the U.S. experience can inform future reintroductions of large carnivores in the UK.

A. *Factors Facilitating Successful Transplantation of U.S. Law in the UK.*

Law reflects the unique legal and cultural environment of its country of origin. Pinpointing individual legal notions or distinct aspects of law with the potential for successful transplantation from one country to another is challenging.¹⁵⁰ However, where two countries share certain similarities affecting their respective legal regimes, transplantation of a particular law may achieve greater success.¹⁵¹ The shared historical, ecological and cultural characteristics of the United States and the UK, for example, provide the necessary background for transplantation of species reintroduction laws and policies.

Historical Similarities. The gray wolf was historically one of the most prolific and widespread land mammals on earth, existing as apex

148. See generally *id.* at 12; Juliette Jowit, *Britain Looks to US for Wolf Breeding Plan*, THE OBSERVER (Sept. 29, 2007), <http://www.guardian.co.uk/environment/2007/sep/30/conservation.wildlife>; *Bid to Reintroduce Lynx and Wolf to Countryside*, LONDON EVENING STANDARD (Sept. 11, 2006), <http://www.thisislondon.co.uk/news/bid-to-reintroduce-lynx-and-wolf-to-countryside-7202713.html>.

149. *Reintroducing the Wolf to Scotland*, *supra* note 165.

150. See generally Ida L. Bostian, *Cultural Relativism in International War Crimes Prosecutions: The International Criminal Tribunal for Rwanda*, 12 ILSA J. INT'L & COMP. L. 1, 9-10 (2005) (discussing the challenges of transplanting laws given the cultural relativism from which law originally developed, "[l]aw is a form of cultural expression and is not readily transplantable from one culture to another"); John Gillespie, *Towards a Discursive Analysis of Legal Transfers into Developing East Asia*, 40 J. OF INT'L L. & POL. 657, 662-63 (2008) (describing "legal transfers" as "communicative acts across geopolitical and cultural boundaries").

151. See Gillespie, *supra* note 150, at 715.

predator and keystone species in both Europe and North America.¹⁵² Fueled by fear, legend and self-interest, humans waged war against the wolf for centuries. Regional populations disappeared from England around 1680, and the last British wolf was killed in Scotland in 1743.¹⁵³ When Europeans settled North America, they brought their misconceptions about large carnivores with them.¹⁵⁴ For over three centuries, Americans systematically eradicated wolf populations from the continent.¹⁵⁵

In both the U.S. and the UK, past actions eradicating wolf populations inform prevailing public perceptions and legal policies regarding the efficacy of reintroduction. Many members of the general public favor wolf reintroduction; some believe that reintroduction is a moral responsibility given that eradication of large carnivores resulted from human activity.¹⁵⁶ Additionally, laws in both countries, enacted in response to rapidly decreasing biodiversity from land use practices and eradication programs, promote species conservation and reintroduction efforts.¹⁵⁷

Ecological Similarities. Because of the natural characteristics of wolves and their role within the environment in which they inhabit, U.S. and UK authorities (if the UK in fact approves a reintroduction plan) will face similar challenges in managing the reintroduced populations. Wolves adapt to their environment, and, once introduced, rapidly disperse across vast habitat.¹⁵⁸ Such wide distribution unavoidably increases livestock depredations and ignites human/wolf conflict. Thus, both governments must similarly address these challenges.

Cultural Similarities. Lastly, and perhaps of greatest significance to the success of reintroduction, is the common public perception of wolves. In both countries, the ideological dividing lines separating individuals that support reintroduction from those that oppose it are essentially identical. Scientists and environmentalists in the UK, for example, suggest that reintroduction offers numerous ecological benefits, naturally culling the deer population in the Scottish highlands

152. HAMPTON, *supra* note 15, at 6-7.

153. *See id.*; FORDER, *supra* note 146, at 3.

154. *See* HAMPTON, *supra* note 15, at 65.

155. *See id.* at 6-7.

156. *See* FORDER, *supra* note 146, at 1; Boitani, *supra* note 128, at 5. *But see* CRS: *Gray Wolf Legal History*, *supra* note 92, at 2 ("Reintroduction has been controversial from the time Congress authorized it.").

157. *See* Charles C. Schwarz et al., *Large Carnivores, Moose, and Humans: A Changing Paradigm of Predator Management in the 21st Century*, 39 *ALCES* 41, 52-56 (2003), http://bolt.lakeheadu.ca/~alceswww/Vol39/Alces39_41.pdf.

158. *See* Nicholas J. Podsiadly, *Howl of the Wolf or Bark of the Bureaucrat? The Endangered Species Act, the Future of North American Wolf Reintroduction Efforts and the Dilemma of Delisting*, 9 *DRAKE J. AGRIC. L.* 123, 127 (2004); Remet, *supra* note 35, at 92.

and thus restoring the natural order of the ecosystem.¹⁵⁹ On the other hand, individuals residing in the countryside disfavor reintroduction, arguing that they will bear the economic brunt of livestock depredations and endangerment.¹⁶⁰ Such arguments also played out on the forefront of the GYE reintroduction in the United States.¹⁶¹

B. Lessons Learned from the GYE Reintroduction—Transplantation of U.S. Law

As cited in Part III above, Article 22 of the EU Habitats Directive explicitly mandates States to study the desirability of species reintroduction.¹⁶² The provision provides that, in making this determination, Member States look to the experience gained through reintroduction efforts by “other Member States or *elsewhere*.”¹⁶³ UK law thus recognizes the value of looking abroad for guidance, both to other EU Member States as well as non-EU States, including the United States. In this context, the U.S. experience with the GYE reintroduction serves as a laboratory-like experiment from which the UK (as well as other States considering reintroduction) can learn valuable lessons in species recovery of apex predators.

Public Education and Outreach. As the analysis in the preceding subpart suggests, Americans and Britons generally hold similar views of wolf reintroduction: while the majority of the general public supports reintroduction efforts, rural communities and landowners typically do not.¹⁶⁴ Long-held misconceptions about the wolf prevail, and popular folklore and politically charged news reports perpetuate such views.¹⁶⁵ As evident from the U.S. experience, negative attitudes toward the wolf, although largely overstated, undermine conservation and recovery efforts.¹⁶⁶ Although successful from an ecological viewpoint, the GYE reintroduction revealed the challenges associated with attempting to implement science-based policy when confronted with cultural views largely detached from empirical evidence.¹⁶⁷ What began as an ESA recovery action with only direct regional impacts soon gained a

159. Overpopulation of red deer and roe deer damage woodland and agricultural land by over browsing and trampling vegetation. In many areas of Scotland, old growth trees no longer exist partly because of over browsing by deer. FORDER, *supra* note 146, at 12. The reintroduction of wolves would provide natural regulation of deer populations, aiding in the recovery of native flora and birds. *Wild Wolves 'Good for Ecosystems'*, BBC News (Jan. 31, 2007), <http://news.bbc.co.uk/2/hi/science/nature/6310211.stm>.

160. FORDER, *supra* note 146, at 12; Boitani, *supra* note 128, at 20.

161. *See supra* Part II.A.

162. Habitats Directive, *supra* note 125, at art. 22(a).

163. *Id.* (emphasis added).

164. *See supra* Part IV.A.

165. *See, e.g.*, Boitani, *supra* note 128, at 18.

166. *See, e.g., id.* at 30-31.

167. *See supra* Part II.

national following on both sides of the political spectrum.¹⁶⁸ An ideological war raged in rural communities and federal courtrooms, state capitols and the halls of Congress.¹⁶⁹ And now, nearly two decades after releasing the first wolf back into the GYE, many still view the reintroduction plan with resentment, likely reducing public support for future reintroductions.¹⁷⁰

For a recovery plan to succeed, individuals and communities directly affected by reintroduction must support, or at least understand and accept the purpose of, species recovery.¹⁷¹ Absent public understanding, politics—rather than science—will dictate the protection granted to, and ultimately the fate of, the reintroduced species. Public education can go a long way in promoting community understanding.¹⁷² More concerted efforts to educate rural communities about wolves prior to the GYE reintroduction may have quieted some of the debate, and in turn facilitated greater cooperation among the political players involved. Therefore, the first lesson to take from the U.S. experience is the importance of dedicating significant resources to public education prior to commencing reintroduction.

Ideally, public education should prioritize three broad topics of concern. First, the public must understand the importance of apex predators within the ecosystem and the trophic cascade impacts potentially triggered by reintroduction. Reintroduction must be viewed as more than an ethical obligation owed to a species driven to near extinction by mankind; the public must also understand the ecological and socioeconomic benefits that result from species recovery.¹⁷³ Second, the value of widespread dissemination of statistics and other information illustrating the realistic probability of harm from wolf reintroduction cannot be overemphasized.¹⁷⁴ Folklore and fairytales exaggerate the danger of wolves, and much of the lingering fear and public concern over reintroduction exists due to a lack of information refuting these assumptions. To sway public support in favor of reintroduction, government officials must actively address concerns about wolf attacks,¹⁷⁵ livestock depredation,¹⁷⁶ and over-predation of wild

168. *See id.*

169. *See id.*

170. *See id.*

171. Nilsen et al., *supra* note 144, at 1001.

172. Without sufficient public support in rural communities, reintroduced populations may be targeted by individuals opposing the reintroduction plan, unaware of the environmental and economic benefits of the policy. In this context, “[t]he impact of education cannot be underestimated.” Support for wolf reintroduction has generally grown within those demographics in which public awareness of the benefits of reintroduction has increased. Remet, *supra* note 35, at 139.

173. *See infra* Part II.A.

174. *See* Remet, *supra* note 35, at 139.

175. Folklore and exaggerated news reports are largely to blame for the public’s view of wolves as a danger to humans. Wolf attacks are extraordinarily rare,

game.¹⁷⁷ Lastly, government authorities and public-private partnerships should provide training for landowners to implement preventive measures that avoid livestock depredation.¹⁷⁸ Financial assistance may help incentivize adoption of costly preventative measures.

Public Participation and Transparency of Process. For effective application of law, the regulated community must accept it as a legitimate exercise of power by the governing authority.¹⁷⁹ Individuals more frequently abide by laws they perceive as legitimate—as authoritatively based on institutional norms and justice given the stated purpose of the law.¹⁸⁰ In democratic States, “legitimacy requires democracy because it is the central principle in contemporary politics that justifies

and generally occur only where the wolf is rabid. Wolves frequently live in close proximity to human populations, and generally tolerate such proximity so long as they remain undisturbed. FORDER, *supra* note 146, at 13; Boitani, *supra* note 128, at 17.

176. Although some livestock depredation is inevitable with reintroduction of the wolf, depredations are not nearly as common as news reports and politically motivated actors assume. On average, wolf depredations account for less than 1% of annual livestock deaths in the GYE; death from wolf predation is much less likely than other causes of livestock mortality. Further, while wolves may also cause other livestock related problems—wounding, dispersing, weight loss, hormonal changes resulting in aborted fetuses—preventative measures implemented by the landowner significantly decrease the likelihood of such events. Boitani, *supra* note 128, at 18; Chadwick, *supra* note 11.
177. Wolves provide natural regulation of ungulates, ensuring that deer populations do not exceed the natural carrying capacity of the ecosystem. However, rather than depleting game populations below a level which allows for sustainable hunting, evidence suggests that wolf reintroduction actually promotes greater overall health of ungulate herds. Unlike human hunters seeking to take the healthiest deer, wolves prey on old, sick and genetically inferior individuals. Remet, *supra* note 35, at 141-43.
178. In many cases, depredation occurs due to lack of effective guarding; increased human observation and guard dogs offer a reasonably simple and cost-effective initial step for heightened protection. Where landowners continue the practice of free-range ranching, it may also be helpful to enclose grazing pastures wherever possible. *See, e.g.*, Boitani, *supra* note 128, at 18. Installing electric fencing or adopting the European practice of fladry (stringing brightly colored flags along the length of the fence) provides additional protection, as does simply removing the carcasses of dead livestock and composting them in remote areas far from grazing pastures. Cooperative range rider programs that monitor the location of wolves and inform nearby ranchers are also an innovative strategy that may decrease the occurrence of depredations. *See, e.g.*, Chadwick, *supra* note 11. Further, in the U.S., environmental nonprofit Defenders of Wildlife initiated a program through which the organization worked with landowners to fund projects that limit human/wolf conflicts. DEFENDERS OF WILDLIFE, THE BAILEY WILDLIFE FOUNDATION PROACTIVE CARNIVORE CONSERVATION FUND (2005), http://www.defenders.org/sites/default/files/publications/protecting_people_property_and_predators.pdf.
179. *See* Steven Bernstein, *Legitimacy in Global Environmental Governance*, 1 J. INT’L L. & INT’L REL. 139, 142 (2004-2005).
180. *See id.* at 144.

authority.”¹⁸¹ Elements of democratic legitimacy include “accountability, transparency, access to participation, deliberation and [fairness].”¹⁸²

Given the contentious nature of wolf reintroduction and the strong likelihood of at least some economic loss to landowners as a result, specific attention must be paid to legitimacy concerns. Successful reintroduction requires acceptance of the policy plan by impacted communities and individuals; if widespread opposition exists and the regulated public perceives the policy as contrary to majority opinion, individuals will not abide by legal measures intended to protect reintroduced populations.¹⁸³ Therefore, policy mechanisms incorporated into the regulatory decision making process must include principles of democratic participation because “ ‘no conservation project involving large tracts of land can be successful in the long term unless the economic needs, practices, and concerns of the local citizenry are taken explicitly into account and incorporated into the plan.’ ”¹⁸⁴ Stakeholder participation in the regulatory process thus increases its overall effectiveness by improving public perception of the policy as legitimate and informed by the needs and interests of those individuals most affected.¹⁸⁵

The GYE reintroduction provides a useful illustration of how a governing regulatory or licensing body may incorporate democratic principles into the decision making process to enhance the legitimacy of the resulting policy outcome. In the context of wolf reintroduction, where the reintroduced populations disperse over a vast area, large portions of which are privately owned,¹⁸⁶ governing bodies should

181. *Id.* at 145.

182. *Id.* at 147.

183. *Cf.* Boitani, *supra* note 128, at 38 (“Wolf compensation is most successful when it is accepted by the local community.”).

184. Remet, *supra* note 35, at 135 (quoting Nile Eldredge, *A Hard Sell: The Cultural-Ecological Context of Reintroducing Wolves*, in *WOLVES AND HUMAN COMMUNITIES: BIOLOGY, POLITICS, AND ETHICS* 275, 276 (Virginia A. Sharpe et al. eds., 2001)).

185. *See, e.g.*, Policy Bd. of the Inst. for Env't & Natural Res., *Principles to Measure the Endangered Species Act Reauthorization Debate*, in *PRIVATE PROPERTY AND THE ENDANGERED SPECIES ACT: SAVING HABITATS, PROTECTING HOMES* 138, 139 (Jason F. Shogren ed., 1998); Bork, *supra* note 36, at 191; John C. Porter, *Finding Teeth for Russian Federation Tiger Protection Laws: Using United States Gray Wolf Populations as an Inspiration, and the United States Endangered Species Legislation as a Model, for Russian Federal Endangered Species Legal Reform*, 10 *PENN ST. ENVTL. L. REV.* 365, 379-380 (2002).

186. Although U.S. law normally mandates democratic participation in the regulatory rulemaking process, ongoing public participation was also critical to the GYE wolf reintroduction plan because of the vast area of impacted property held by private landowners. In the U.S., sixty to seventy percent of land is privately owned, including many unique land types and geophysical characteristics that are otherwise not found on public property. Additionally, a large majority of threatened and endangered species protected under the ESA are found on private property, and approximately seventy-

seek broad public participation through hearings or public notice and commenting periods. This provides an opportunity for governing authorities to consider the various stakeholder perspectives at issue and the private interests potentially affected by the reintroduction.

In the United States, principles of democratic participation are integrated into the decision making process in accordance with statutory mandate.¹⁸⁷ The UK similarly provides avenues by which private stakeholders may voice their support for, or opposition to, a proposed policy. For example, in the context of species reintroductions in particular, Article 22 of the EU Habitats Directive mandates that States provide for “proper consultation” of the public prior to commencing the reintroduction program.¹⁸⁸ Scottish Natural Heritage established the National Species Reintroduction Forum in May 2009 for this purpose.¹⁸⁹ The Forum is chaired by the regulatory body, but includes a diverse membership with representatives from conservation, land use and scientific organizations.¹⁹⁰ However, the UK could nevertheless prescribe heightened conditions for public participation for reintroduction policy planning in particular.

Management Authority. Perhaps the most contentious issue surrounding the GYE reintroduction involved the decision to retain management authority of the reintroduced populations with the federal government. Since the initial release of wolves nearly two decades ago, the reintroduction plan has become the subject of an ideological tug-a-war between the proponents of continued federal oversight and devolved state management. The ESA provides the statutory basis for reintroduction in the United States and, thus, presumes federal management authority over experimental populations.¹⁹¹ The provisions of the ESA provide no guidance regarding when the protected status of experimental populations may change or whether the statute permits shared management between federal and state authorities when an experimental population reaches a certain stage of recovery.¹⁹² Accordingly, some Western politicians, rural communities, and individual landowners claimed that states could more effectively manage reintroduced populations and provide the degree of management

five percent of listed species depend on private property for food, habitat and breeding grounds. Bork, *supra* note 36, at 182-84. Thus, private property is essential for preservation of the critical habitat of protected species as well as providing migration corridors between protected public lands.

187. See generally Administrative Procedure Act, 5 U.S.C. § 551 (Supp. 2011); Endangered Species Act of 1973 § 2, 16 U.S.C. § 1531 (Supp. 2011).

188. Habitats Directive, *supra* note 125, at art. 22.

189. See *Policies, Guidelines and Working with Others*, SCOTTISH NATIONAL HERITAGE, <http://www.snh.gov.uk/protecting-scotlands-nature/safeguarding-biodiversity/reintroducing-native-species/policies-and-guidelines/> (last visited Nov. 1, 2012).

190. See *id.*

191. See 16 U.S.C. § 1539(j).

192. Cf. *id.*

flexibility envisioned by section 10(j).¹⁹³ In the 2011 federal appropriations bill, congressional legislators resolved conflicts over wolf management in favor of state authorities.¹⁹⁴ Thus, state wildlife agencies now oversee conservation, hunting, and livestock compensation programs at the state level.¹⁹⁵

To avoid similar conflicts in governance, UK authorities should clearly define the regulatory role of governing bodies prior to commencing reintroduction and enact an unambiguous management plan providing for both short- and long-term oversight of reintroduced populations. In the past, wildlife agencies at the sub-national State level, including Natural England and Scottish Natural Heritage, licensed and assumed regulatory responsibility for reintroduced populations.¹⁹⁶ Presumably, these bodies would continue in this role, although some form of cooperative management between sub-national and local wildlife officials may prove more practical, and publically desirable, once a stable population is established. Additionally, the Joint Nature Conservation Committee (JNCC) currently operates as a joint policy, research and advisory committee, bringing together representatives of the conservation agencies of England, Scotland, Wales and Northern Ireland.¹⁹⁷ The JNCC, as well as other inter-regional

193. See Brian N. Beisher, *Are Ranchers Legitimately Trying to Save their Hides or Are They Just Crying Wolf - What Issues Must be Resolved Before Wolf Reintroduction to Yellowstone National Park Proceeds?*, 29 LAND & WATER L. REV. 417, 437 (1994).

194. See Press Release, Defenders of Wildlife, Interior Announces Next Steps in Protection, Recovery, and Scientific Management of Wolves, *supra* note 102; Interior Department Announces Wolf Delisting Rule (May 4, 2011), http://www.defenders.org/newsroom/press_releases_folder/2011/05_04_2011_interior_department_announces_wolf_delisting_rule.php.

195. Additional issues have arisen with the return of management authority to the states. For example, some Western states have a history of lax wildlife conservation rules. When a 2007-08 rule temporarily delisted the gray wolf from ESA protected status, state authorities in Idaho and Wyoming immediately issued hunting licenses. Idaho hunters purchased permits for less than thirty dollars, and the Idaho governor at the time stated that he would support the hunting of all but one hundred wolves within the state. Prior to reversal of the rule in July 2008 and within one month of delisting, twenty wolves in the Rocky Mountain region and an additional sixteen in Wyoming alone had been killed; sixty-nine were dead at the end of two months. State management, without federal oversight, could thus jeopardize the continuing recovery of the species. LOWRY, *supra* note 42, at 57-58. State authorities also express concern over the funding implications of wolf management. When states were granted authority to oversee general wolf management activities, states also became responsible for conservation, livestock depredations, and the impacts of ungulate predation; increased management authority requires increased expenditure of state funds. Beisher, *supra* note 193, at 431-32.

196. See *Reintroduction of Animals into England - An Overview*, *supra* note 140; *Reintroducing Native Species*, *supra* note 141 (reintroductions in Scotland).

197. *Who We Are*, JNCC, <http://jncc.defra.gov.uk/default.aspx?page=5287> (last visited Nov. 1, 2012).

bodies, provides a valuable forum for cross-jurisdictional planning.¹⁹⁸ Although reintroduced populations will likely be managed at the sub-national State level, broader coordination of conservation activities is nevertheless beneficial given the regional applicability of UK wide policies and EU directives. However, regardless of the regulatory structure adopted, a critical first step in commencing reintroduction is to set forth a detailed management plan outlining the relevant regulatory procedures for the initial release as well as ongoing species monitoring and management responsibilities.

Compliance Incentives. Because the natural propensity and lifecycle of wolves requires expansive range habitat, reintroduction in one area results in the presence of wolves in much of the surrounding area, including both public and private property.¹⁹⁹ Failure of private landowners to comply with conservation provisions frustrates recovery efforts.²⁰⁰ U.S. statutory law therefore provides regulatory mechanisms to promote ESA compliance. First, the designation of reintroduced species as nonessential experimental populations reduces the level of protection otherwise afforded to threatened and endangered species.²⁰¹ Section 10(j) allows FWS to promulgate special rules for the conservation of experimental populations, including an expanded scope of permissible takes by government officials and private landowners.²⁰² By lowering the protected status of experimental populations, section 10(j) appeases landowners concerned with the possibility of ESA liability if he or she kills a wolf to defend livestock.²⁰³ Management flexibility also increases the likelihood of utilizing private lands for future reintroductions—an option that only exists if the landowner, as well as neighboring landowners, receives assurances against liability.²⁰⁴ Second, when considering the appropriate area for reintroduction, FWS favors locations based on the extent of human land use activities.²⁰⁵ This encourages the agency to reintroduce wolves into areas with little or no human presence, thus initially maintaining some degree of separation between human and wolf populations. Third, FWS established rules allowing for interventionist wolf management by government authorities to minimize the presence of wolves on private property and near livestock.²⁰⁶ Management that permits the take of problem individuals decreases the frequency of human/wolf conflicts, ultimately satisfying landowners suffering

198. See *How We Work*, JNCC, <http://jncc.defra.gov.uk/default.aspx?page=5292> (last visited Nov. 1, 2012).

199. See Bork, *supra* note 36, at 181-82.

200. See *id.* at 184-85.

201. See *id.* at 212-13.

202. *Id.* at 214, 216-17.

203. *Id.* at 218-19.

204. See *Id.*

205. Thrower, *supra* note 12, at 343.

206. *Id.* at 345.

from past wolf depredations and preventing landowner retribution against all area wolves that may or may not be the targeted individual.

Section 10(j) strikes a balance between environmental and landowner interests, and provided the necessary political impetus to carry forward the wolf reintroduction policy.²⁰⁷ However, the compromised interpretation of the ESA was not universally embraced. Despite the relaxed take provisions adopted by FWS, landowners argued that the flexibility mechanisms were too rigid and that section 10(j) envisioned a greater degree of management flexibility.²⁰⁸ Environmentalists, by contrast, objected to the flexible management approach for experimental wolf populations as too lenient. These interests argued that operation of section 10(j) and the geographic isolation provision jeopardized recovery by separating experimental and naturally recovering populations moving south from Canada, thus preventing integration and genetic exchange.²⁰⁹

The compliance incentives and management flexibility provided by the ESA can inform provisions established by the UK for reintroduction. Given the similar opposition toward reintroduction by rural communities and landowners in both countries, compliance incentives analogous to those implemented within the U.S. may prove beneficial for effective management in the UK as well. Whatever form incentives take, one lesson learned from the U.S. experience is the importance of statutorily unambiguous and legally binding provisions. Certainty of law provides predictability for landowners; knowing what laws apply and when and how they are enforced enables landowners to integrate conservation laws and policy incentives into their land use management and planning.²¹⁰

Policymakers should also strive for consistent application of law. For example, in the U.S., a nonessential experimental population designation provides less protection for wolves found within experimental population areas, subject to section 10(j), than naturally recovering

207. *See id.* at 344; *see Li, supra* note 42, at 695.

208. *See generally* Federico Cheever, *From Population Segregation to Species Zoning: The Evolution of Reintroduction Law Under Section 10(j) of the Endangered Species Act*, 1 Wyo. L. REV. 287 (2001) (discussing “local opposition” and the need for greater “flexibility” under section 10(j)).

209. FWS designated experimental population areas for the reintroduction plan that separated experimental populations from naturally recovering populations in order to comply with the geographic isolation principle of section 10(j). Wolf management control measures operated to retain experimental populations within the boundaries of the protected areas to reduce human/wolf conflicts. However, such measures also isolate populations, preventing cross-breeding and genetic exchange. Failure to promote integration of populations impedes full recovery. Federico Cheever, *supra* note 208, at 291; Li, *supra* note 42, at 696-97.

210. *See Bork, supra* note 36, at 191 (quoting Christian Langpap, *Conservation of Endangered Species: Can Incentives Work for Private Landowners?*, 57 Ecological Econ. 558, A5 (2006)).

wolves found outside designated areas, which retain their threatened or endangered status.²¹¹ Fluctuating legal protection amplifies statutory ambiguities within the ESA as well as reduces consistency in the application of law; different rules apply to different landowners depending on the location of their land or livestock in relation to the designated boundaries of the experimental population area.²¹² Although this specific problem of legal inconsistency will not arise in the UK because the region's geophysical character as an archipelago eliminates the possibility of natural wolf recovery from continental Europe, authorities should remain attentive to similar legal gaps in recovery plans.

Additional considerations, unique to the UK, will inevitably influence the nature of compliance incentives and flexible management mechanisms in a manner unparalleled in the United States. While the UK may look to the U.S. to inform its general framework of compliance incentives, the provisions of the final recovery plan must ultimately be developed in the specific context of UK law. Unlike the U.S., UK policy must conform both to domestic law as well as EU rules and directives.²¹³ The EU Habitats Directive, for example, affords strict protection to, *inter alia*, the gray wolf, and sets forth specific exceptions for permissible takes of protected species, including (a) conserving wild habitat, flora and fauna; (b) preventing serious property damage; and (c) promoting "imperative reasons of overriding public interest," including public health and safety and matters of social or economic concern.²¹⁴ This narrow concept of acceptable take provisions significantly reduces the degree of flexible management available for legal prescription under UK law. Thus, in addition to U.S. law, the Habitats Directive provides compulsory guidance shaping UK internal policies.

Strict enforcement of gun ownership in the UK represents a second unique legal restraint on the development of compliance incentives. Special rules adopted for wolf management in the U.S. permitted private landowners to take reintroduced wolves by lethal measure in order to protect threatened livestock.²¹⁵ This rule proved effective because of the relatively unrestricted requirements for gun ownership in the United States; the same will not necessarily hold true in the UK where gun laws limit private ownership by stringent regulatory control.²¹⁶

211. 16 U.S.C. § 1539(j)(2)(C); 50 C.F.R. § 17.82.

212. 16 U.S.C. § 1539; 50 C.F.R. § 17.82.

213. See *supra* Part III.A.

214. Habitats Directive, *supra* note 125, at art. 12; Trouwborst, *supra* note 126, at 359-60, 362-64.

215. 50 C.F.R. § 17.84(i)(3)(ii).

216. The UK has some of the strictest gun control laws in the world. The police administer the licensing system in each sub-national State, and the law provides for separate licenses for hunting weapons. Many rural landowners and

Livestock Depredation Compensation. Although the frequency of livestock depredation by wolves is significantly exaggerated by those opposed to reintroduction programs, limited depredations do occur.²¹⁷ Depredations result in real economic loss to livestock owners, which may cause landowners to seek retribution against nearby wolf populations or begin preemptively killing wolves to avoid future depredations.²¹⁸ Compensation programs minimize retaliatory actions against wolves by mitigating the economic hardship suffered by landowners as a result of livestock depredations.²¹⁹ Compensation programs thus represent yet another form of compliance incentive and a crucial element of a successful reintroduction program.²²⁰

FWS failed to establish a robust compensation program for the GYE reintroduction. Instead, Defenders of Wildlife undertook funding and operative responsibility for a private compensation program founded by the organization—the Defenders of Wildlife Foundation Wolf Compensation Trust.²²¹ Established in 1987 for the benefit of ranchers in the northern Rocky Mountains, the Trust provided full market value compensation for, *inter alia*, cattle, sheep, horses, and herding and livestock guarding dogs where a state or federal wildlife agent confirmed depredation by wolf.²²² The Trust paid fifty percent of the market value of the deceased animal where depredation was found “probable” but unconfirmed.²²³ By compensating landowners for their losses, Defenders of Wildlife sought to “shift economic responsibility for wolf recovery away from the individual rancher and toward

farmers in the UK own shotguns to protect their livestock from foxes; however, gun ownership remains significantly lower in the UK than in the United States. See generally David B. Kopel et al., *Joyce Lee Malcolm, Guns and Violence: The English Experience*, 2 J.L. ECON. & POL'Y 417 (2006); Joseph E. Olson & David B. Kopel, *All the Way Down the Slippery Slope: Gun Prohibition in England and some Lessons for Civil Liberties in America*, 22 HAMLINE L. REV. 399 (1999); Dominic Casciani, *Gun Control and Ownership Laws in the UK*, BBC NEWS (Nov. 2, 2010), <http://www.bbc.co.uk/news/10220974>.

217. Boitani, *supra* note 128.

218. See *Wolf Predation and Livestock Losses*, *supra* note 45.

219. See FREQUENTLY ASKED QUESTIONS: TRANSITIONING WOLF COMPENSATION, *supra* note 120, at 1.

220. See *id.*

221. *Id.*

222. *E.g.*, *id.* at 1.

223. Additional conditions for compensation require proof that livestock was legally present on the land where the depredation occurred, that the organization received the claim within six months of the depredation, and that there was no evidence of landowner negligence, including the long-term presence of dead or dying livestock in the area of the depredation. *E.g.*, DEFENDERS OF WILDLIFE, INSTRUCTIONS FOR WOLF COMPENSATION IN THE NORTHERN ROCKIES (2004), http://www.defenders.org/publications/instructions_for_wolf_compensation_in_northern_rockies.pdf.

the millions of people who want to see wolf populations restored.”²²⁴ According to the organization: “When ranchers alone are forced to bear the cost of wolf recovery, it creates animosity and ill will toward the wolf. Such negative attitudes can result in illegal killing.”²²⁵ Unfortunately, in 2010, after over twenty years of operation, Defenders of Wildlife suspended the Trust indefinitely following the passage of the Omnibus Public Lands Management Act of 2009, which allocated federal funding to commence state managed compensation programs as a precursor to complete transfer of management authority to the states.²²⁶

A federally-funded, state-operated compensation program in Idaho also provided supplemental compensation for losses not covered by the Defenders of Wildlife program.²²⁷ Rather than requiring proof of depredation, however, the Idaho Fund created a presumption of fault against wolves.²²⁸ Landowners received a predetermined amount of compensation, not based on market value, for covered losses.²²⁹

Although considered a success by many stakeholders, the Defenders of Wildlife and Idaho supplemental programs encountered criticism from rural landowners and environmentalists alike.²³⁰ A primary concern with both programs related to issues of over- and under-compensation, largely due to the programs’ respective proof of depredation standards. First, because the Defenders of Wildlife program only fully compensated for confirmed depredations, landowners did not receive compensation where livestock carcasses showed no definitive proof of wolf activity.²³¹ In fact, only about one of every eight wolf kills were compensated.²³² On the other hand, the Defenders of Wildlife program over-compensated landowners where livestock that died due to natural causes were subsequently scavenged by wolves, thus leaving behind misleading evidence of depredation.²³³ The Idaho Fund likewise over-compensated landowners by application of the program’s presumption of depredation standard. So long as the landowner was not willfully negligent in attracting wolves to livestock, the Fund paid for nearly all depredations by wolves or, as is true in most instances, pre-

224. DEFENDERS OF WILDLIFE, WOLF COMPENSATION TRUST (2009), http://www.defenders.org/publications/statistics_on_payments_from_the_defenders_wildlife_foundation_wolf_compensation_trust.pdf.

225. *Id.*

226. FREQUENTLY ASKED QUESTIONS: TRANSITIONING WOLF COMPENSATION, *supra* note 120, at 1; U.S. Fish and Wildlife Service Announces \$1 Million to States for Wolf Livestock Compensation Project, *supra* note 119.

227. Thrower, *supra* note 12, at 347-48.

228. *See id.* at 347.

229. *See id.* at 347-48.

230. *See id.* at 348-49.

231. *See id.* at 347.

232. *Id.*

233. *Id.* at 348.

dation by other animals or simply natural causes.²³⁴ Over-compensation in this respect suggests fiscal imprudence with the government purse, giving landowners an economic windfall, even where wolves were not responsible for the depredation. An anti-wolf presumption of fault also reinforced the “little red riding hood” syndrome, strengthening the irrational belief that wolves lurk behind trees waiting for the opportune moment to pillage grazing livestock and snatch away children.²³⁵ Additionally, the Idaho supplemental program only covered depredations in Idaho; losses not covered under the Defenders of Wildlife program by landowners in other states remained uncompensated.²³⁶ Second, the management of the program by a non-profit organization, rather than a government agency, raised concerns over the likelihood of continued funding.²³⁷ Although Defenders of Wildlife assured landowners that funding would continue, promises by the organization were not legally binding.²³⁸

A second major concern, expressed primarily by environmental groups, arose from the failure of program managers to precondition the receipt of compensation on the prior adoption of preventative measures.²³⁹ Without requiring the adoption of practices to avoid depredation, landowners grow accustomed to relying on continued compensation and never learn to cohabitate with wolves.²⁴⁰ However, landowners argue that, if compensation is preconditioned on the adoption of preventative measures, the compensation fund should provide financial assistance for the out-of-pocket costs of implementation.²⁴¹

The obvious deficiencies of the compensation scheme in the United States offer a valuable learning opportunity for UK wildlife authorities. The critical lesson to take from the GYE reintroduction is

234. *Id.*

235. *See generally* Remet, *supra* note 35, at 94.

236. Thrower, *supra* note 12, at 347-48.

237. Beisher, *supra* note 193, at 449.

238. *Id.* at 440.

239. *See* Thrower, *supra* note 12, at 348-49.

240. *Id.* at 349.

241. Beisher, *supra* note 193, at 454. Financial assistance for proactive, or preventative, measures was available under alternative programs. For example, the Defenders of Wildlife Proactive Carnivore Conservation Fund partnered organization representatives with landowners and rural communities to plan non-lethal deterrent measures and best management practices. THE BAILEY WILDLIFE FOUNDATION PROACTIVE CARNIVORE CONSERVATION FUND, *supra* note 178. Alternatively, the Defenders of Wildlife Wolf Coexistence Partnership worked with landowners to protect livestock by adopting preventative measures, including range rider programs, use of guard dogs, fencing and fladry, and other non-lethal nuisance techniques. *Wolf Coexistence Partnership*, DEFENDERS OF WILDLIFE, <http://www.defenders.org/mexican-gray-wolf/defenders-action-wolf-coexistence-partnerships> (last visited Nov. 3, 2012). The Idaho supplemental fund also provided partial compensation to landowners for out-of-pocket costs of proactive measures. Thrower, *supra* note 12, at 349.

the need for a government-funded program.²⁴² In the U.S., failure of the federal government to create a compensation program funded from public monies represents a lack of government leadership and the loss of an important opportunity to leverage public support for reintroduction. Compensation funds resolve the argument by rural landowners that reintroduction will cause economic hardship.²⁴³ Where non-governmental entities operate compensation programs, continued funding remains subject to the financial solvency and political leanings of the organization; land use planning requires greater legal certainty.

An effective compensation scheme must also minimize the occurrence of over- and under-compensation by establishing a proof of depredation standard that facilitates reimbursement in the absence of incontrovertible proof of wolf depredation without unjustifiably creating a presumption of wolf responsibility.²⁴⁴ For example, rather than require absolute proof of wolf depredation, the compensation program could adopt a standard allowing for full reimbursement where evidence of "probable" depredation exists. Or in the alternative, compensation fund managers could utilize GPS collar tracking data to establish the geographical location of reintroduced wolves at the time of the suspected depredation, as determined based on evidence collected during a required necropsy.

Lastly, program managers should precondition compensation on prior adoption of depredation prevention measures, and require proof of implementation at the time of depredation. Compensatory mechanisms should fairly reimburse landowners for real economic loss, but should not serve as a political safety net insulating landowners from learning to cohabitate with wolves and reinforcing deliberate ignorance of the ecological importance of reintroduction for the public wellbeing. Widespread adoption of preventative measures also decreases the likelihood of depredation in the first place, thus reducing the amount of public funds expended. Preventative measures will prove particularly important for reintroduction in Scotland where free-range ranching is widely practiced.²⁴⁵ Financial assistance offsetting the out-of-pocket cost of implementing preventative measures would further enhance the effectiveness of the compensation scheme.

242. The Standing Committee on the Protection of the Wolf (*Canis lupus*) in Europe recognized the need for compensation schemes in its 1989 Recommendation 17: "[The Committee] [r]ecommends that Contracting Parties: . . . (3) Establish, wherever absent, compensation schemes for damage caused by wolves to cattle and farm animals. . . ." *Recommendation 17, supra* note 133, at § A.3.

243. See Thrower, *supra* note 12, at 349.

244. See Thrower, *supra* note 12, at 348.

245. See FORDER, *supra* note 146, at 13.

V. Conclusion

Wolves and other large carnivores play a critical role as apex predators and keystone species in top-down regulation of the ecosystem. Healthy, functioning ecosystems depend on carnivores, having evolved within the environment, to provide balance to the food chain, extending from the apex predator at the top to insects and soil microbes at the bottom.²⁴⁶ Given the ecological importance of carnivores within their historic range and the far-reaching, trophic cascading impacts triggered by their return, countries should consider reintroducing native carnivores to their traditional range wherever possible. However, despite the ecological benefits of reintroduction, recovery programs cannot overlook the economic and social impacts of reintroduction on the impacted community; recovery programs must weigh environmental interests against economic and social concerns.

The reintroduction of the gray wolf into the GYE has been hailed by environmentalists as an ecological success.²⁴⁷ The wild ungulate population, having reached the outward limits of the ecosystem's carrying capacity prior to reintroduction, has been significantly reduced, prompting recovery of the entire ecosystem as a result of decreased overgrazing.²⁴⁸ Environmental success, however, does not cloud the political challenges still surrounding management and preservation of the reintroduced population. Thus, when all interests are considered, the reintroduction program achieved only partial success.

The UK, now considering a reintroduction of its own, can learn much from the U.S. experience. While the specific legal environment of the two countries may differ, the United States and the UK share a similar history and culture with respect to public perception of the wolf.²⁴⁹ Thus, the policies implemented in one country can be viewed as a laboratory experiment by the other; a similar legal culture and shared environmental conservation goals facilitate an open exchange of ideas, informing future recovery plans and improving future reintroduction policies.

246. See generally FORDER, *supra* note 146.

247. See, e.g., FORDER, *supra* note 146, at 13.

248. See *supra* Part II.A.

249. See *supra* Part IV.A.