

HERDS, HEIFERS, AND HAREMS: A STUDY OF TWO LIVESTOCK-

WILDLIFE DISEASES AND REGULATORY MECHANISMS

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I. INTRODUCTION:

The domestication of the first plants and animals 11,000 years ago proved to be one of the watershed events in human history.¹ Incorporating animals into the “fold of human activity” created conditions capable of supporting urban civilization, and the increase in animal docility allowed humans to pursue societal and intellectual endeavors.² As the millennia passed, domesticated animals coexisted with their wild brethren, yet competed against each other for forage, space, and market demand. With human population limits no longer dictated by the abundance of game, the overexploitation of wild species became a looming threat. In response, England enacted some of the earliest wildlife laws in 1389 which allowed only the wealthy to hunt and provided incentives to landowners to manage their wildlife in order to lease their hunting rights.³

Resenting this elitist doctrine and presented with a land of seemingly limitless wildlife, early America adopted very lax hunting restrictions which allowed members of all classes to pursue game.⁴ Yet over time, market hunting (i.e. selling wild game products on the open market) became frowned upon and eventually outlawed by the states (with the exception of furbearing species).⁵ The Lacey Act furthered this trend by

¹ See Kay Anderson, *A Walk on the Wild Side: A Critical Geography of Domestication*, in CRITICAL GEOGRAPHIES: A COLLECTION OF READINGS 476, 476 (Harald Bauder & Salvatore Engel Di-Mauro eds., 2008).

² *Id.* at 478.

³ See Thomas Lund, *Nineteenth Century Wildlife Law: A Case Study of Elite Influence*, 33 ARIZ. ST. L.J. 935, 940-41 (2001).

⁴ See *id.*

⁵ See *id.*

federally prohibiting the selling of such products in interstate commerce.⁶ It was eventually announced:

The day of wild game as an economic factor in the food supply of the country has gone by. In these four hundred years we have so reduced the game and so improved and developed the other resources of the country that we can now supply food with the plow and reaper and cattle ranges cheaper than it can be furnished with the rifle and the shotgun.⁷

Despite this paradigmatic shift in the way America viewed its wildlife resources, the lack of regulation in the preceding era had depleted the abundance of many species. Additionally, wild game's loss of market utility created more adverse conditions in its competition for land and forage with livestock.

After historically numbering around fifty million individuals,⁸ the last free roaming herd of bison (*Bison bison*) was reduced to twenty-five individuals within Yellowstone National Park.⁹ Likewise elk (*Cervus elaphus*), a species of cervid historically distributed from coast to coast, was virtually extirpated in states east of the Mississippi River by the mid 1800s.¹⁰ Although both wild species are no longer market

⁶ 16 U.S.C. §§ 3771-3778 (2006).

⁷ Lund, *supra* note 3, at 956 (quoting George B. Grinnell & Charles B. Reynolds, *A Plank*, 42 FOREST & STREAM 89, 89 (1894)).

⁸ See SMITHSONIAN INSTITUTE, ANIMAL 248 (David Burnie & Don E. Wilson eds., Dorling Kindersley 2005).

⁹ See Zachary L. Lancaster, *Restraining Yellowstone's Roaming Bison*, 20 J. LAND USE & ENVTL. L. 423, 423 (2005).

¹⁰ Kent A. Frick et al., *Historic and Recent Distributions of Elk in Nebraska*, 18 GREAT PLAINS RESEARCH 189, 190 (2008). "Elk reintroductions have been successful in Pennsylvania (1913), Michigan (1918), Arkansas (1981), Wisconsin (1995), Kentucky (1997), Tennessee (2000), Ontario and North Carolina (2001)."

commodities and have recovered to some extent, they face yet another set of threats today.

Using these iconic wild species of America as a vehicle, this paper identifies current American policies directed at disease control of wild and domesticated animal resources. Although historically wild bison, elk, and deer faced similar threats of overhunting and grazing competition from cattle, today the laws and policies for the individual species serve vastly different goals and objectives. In the case of wild bison, the current issues involve managing the species to reduce the transmission of brucellosis to cattle in an attempt to protect domesticated livestock from wild game. For wild elk and deer, the current controversy surrounds state bans and federal regulations on domestic cervid farming and importation in an effort to eradicate chronic wasting disease, which is an attempt to protect wild game from domesticated livestock. Though this paper will focus on the underlying mechanisms in each of the examples, the perplexing dichotomy between the respective species' management policies should be kept in mind and will be explored in conclusion.

II. PROTECTING LIVESTOCK FROM WILDLIFE: BISON, BRUCELLOSIS, AND CATTLE:

Despite being immortalized on the seal of the Department of the Interior, bison have had a contentious history with the federal government. In the nineteenth century, their slaughter was seen as an invaluable tool in depleting Native Americans' food supply and forcing them on to reservations.¹¹ Today, the surviving descendants from wild bison of that era inhabiting Yellowstone National Park once again face federally authorized hazing, harassment, capture and slaughter. However, the purpose of current bison

¹¹ See Lancaster, *supra* note 9, at 427.

management is “to maintain a wild, free-ranging population of bison and address the risk of brucellosis transmission to protect the economic interest and the viability of the livestock industry in Montana.”¹²

The following sections provide (A) a background on brucellosis, (B) historic and present brucellosis infection rates among cattle, bison, and elk, (C) the progression of bison management schemes within Yellowstone National Park, (D) the process of developing the current joint management plan, (E) a general overview of the provisions of the plan, and (F) recommendations that have been suggested to improve the plan.

A. WHAT IS BRUCELLOSIS?

Brucellosis is a non-indigenous, contagious disease caused by the bacteria *Brucella abortus*.¹³ Although not fully understood, it is believed the disease is transmitted among wild animals via “exposure and ingestion of contaminated material from the reproductive tract of females.”¹⁴ Further, the brucellosis organism can survive outside the host for extended periods of time which greatly increases the risk of transmission.¹⁵ Abortions, infertility, and lowered milk production are common

¹² U.S. DEPT. OF INTERIOR & U.S. DEPT. OF AGRIC., RECORD OF DECISION FOR FINAL ENVIRONMENTAL IMPACT STATEMENT AND BISON MANAGEMENT PLAN FOR THE STATE OF MONTANA AND YELLOWSTONE NATIONAL PARK 11 (Dec. 20, 2000), <http://ibmp.info/Library/1%20-%20IBMP%20EIS%20Record%20of%20Decision.pdf> [hereinafter 2000 BISON MANAGEMENT PLAN].

¹³ *See id.* at 3.

¹⁴ *Id.*

¹⁵ “The brucellosis organism can survive 10 - 57 days in tap water; 5 - 78 days in cloth or fabric; 100 days in untreated manure; 43 days in dry soil; and 66 days in damp soil. Moreover, the bacteria can indefinitely survive freezing. The disease is transmitted through raw milk, through fluids surrounding the animal fetus, and through the aborted fetus itself.” *Fund for Animals v. Lujan*, 794 F. Supp. 1015, 1017 (D. Mont.1991), *aff’d*, 962 F.2d 1391 (9th Cir.1992).

symptoms of brucellosis in livestock.¹⁶ In humans, contraction of brucellosis results in undulant fever which can cause untreatable, flu-like symptoms for years.¹⁷ Thus, the threat of brucellosis consists of two very serious components: (1) the economic loss to the cattle industry in reduced breeding and milk production, and (2) the transmission of a potentially untreatable illness to humans.

B. BRUCELLOSIS PREVALENCE AMONG CATTLE, BISON, AND ELK

In 1934, the U.S. Department of Agriculture instituted a federal-state cooperative program to eradicate brucellosis in livestock.¹⁸ At that time, approximately 11.5% of the nation's cattle were infected with the disease.¹⁹ This staggering rate prompted Congress to later adopt the more comprehensive Brucellosis Eradication Program in 1954.²⁰ Fifty-four years and billions of dollars later, all fifty states had been declared brucellosis free as of February 2008.²¹ However, the federal and state governments have perceived the

¹⁶ See USDA Animal and Plant Health Inspection Service, *Brucellosis and Yellowstone Bison*, http://www.aphis.usda.gov/animal_health/animal_dis_spec/cattle/downloads/cattle-bison.pdf (last visited April 18, 2010) [hereinafter APHIS, *Brucellosis and Yellowstone Bison*] (emphasizing the risk of brucellosis transmission to humans). *But see* U.S. GOVERNMENT ACCOUNTABILITY OFFICE, GAO-08-291, *YELLOWSTONE BISON: INTERAGENCY PLAN AND AGENCIES' MANAGEMENT NEED IMPROVEMENTS TO BETTER ADDRESS BISON-CATTLE BRUCELLOSIS CONTROVERSY* 12 (March 2008), <http://www.gao.gov/new.items/d08291.pdf> [hereinafter GAO-08-291] (noting that since the advent of pasteurization, there has been a significant reduction in human brucellosis cases, and those reported are largely from hunters and veterinarians).

¹⁷ *See id.*

¹⁸ 2000 BISON MANAGEMENT PLAN, *supra* note 12, at 3.

¹⁹ *Id.*

²⁰ *Id.*

²¹ *See* GAO-08-291, *supra* note 16, at 3.

presence of brucellosis in wild game as a threat to the current brucellosis free status of the country's livestock.²²

The last known brucellosis infected animals in the United States are the bison and elk of the Greater Yellowstone Area.²³ Brucellosis in Yellowstone's wildlife was first discovered in 1917,²⁴ and ironically it is posited that the disease was transmitted to bison via domestic cattle.²⁵ Currently, "[m]ore than fifty percent of the bison within Yellowstone National Park test positive for brucellosis."²⁶

Although wild bison have an astonishingly high infection rate, there has been no recorded case in the wild where bison have transmitted brucellosis to cattle,²⁷ and the conservation community has made a point to rally around this lack of evidence in criticizing current bison management. The Animal and Plant Health Inspection Service (hereinafter APHIS) has countered this argument by pointing to a 1990 study observing the transmission of brucellosis from captive bison to heifers,²⁸ the difficulty of proving

²² "The nation is now near the completion of the eradication of brucellosis from livestock, and thus further emphasis is being placed on the need to ensure that transmission of brucellosis from bison to cattle does not occur." 2000 BISON MANAGEMENT PLAN, *supra* note 12, at 4.

²³ APHIS, *Brucellosis and Yellowstone Bison*, *supra* note 16.

²⁴ See GAO-08-291, *supra* note 16, at 14.

²⁵ 2000 BISON MANAGEMENT PLAN, *supra* note 12, at 3.

²⁶ APHIS, *Brucellosis and Yellowstone Bison*, *supra* note 16.

²⁷ See Lancaster, *supra* note 9, at 429.

²⁸ See generally Donald S. Davis et al., *Brucella abortus in captive bison. I. Serology, bacteriology, pathogenesis, and transmission to cattle*, 26 J. WILDLIFE DISEASES 360 (1990).

transmission in the wild,²⁹ and epidemiological data pointing to domesticated bison as the source of infection for brucellosis outbreaks in Wyoming and North Dakota.³⁰

On the other hand, wild elk from the Greater Yellowstone Area have been conclusively proven to be the transmission vector of brucellosis to a herd of cattle in Idaho and are the most probable source of infection that occurred among a group of horses in Wyoming.³¹ Despite this seemingly more definitive evidence, wild elk have evaded the regulatory grasp of brucellosis control currently imposed upon bison. In light of this disparate anomaly, federal agencies have justified their inaction on the premises that “[u]nlike bison, elk tend to exhibit a ‘hiding’ strategy during the calving period, separating themselves from the herd to calve. Elk are also meticulous at cleaning up afterbirth and soil and vegetation from calving sites.”³² Additionally, elk tend to feed at higher elevations and their foraging grounds overlap less with cattle.³³ In a sense, the federal agencies have taken the stance that animal behavior is the determinate factor in deciding to regulate rather than empirical data based on proven transmissions.

C. EVOLUTION OF GREATER YELLOWSTONE BISON MANAGEMENT

Prior to 1967, the National Park Service engaged in active management of the bison within Yellowstone National Park.³⁴ This practice resembled livestock treatment in

²⁹ See APHIS, *Brucellosis and Yellowstone Bison*, *supra* note 16.

³⁰ *See id.*

³¹ *See id.*

³² 2000 BISON MANAGEMENT PLAN, *supra* note 12, at 3.

³³ *See* GAO-08-291, *supra* note 16, at 12.

³⁴ *See id.*; *Fund for Animals v. Lujan*, 794 F. Supp. 1015, 1017 (D. Mont.1991), *aff’d*, 962 F.2d 1391 (9th Cir.1992).

that the bison were branded, fed, and slaughtered according to desired population size.³⁵ For example, in 1954 the number of bison within the park was estimated to be around 1,500 individuals.³⁶ After an extensive culling effort, the number of bison within the park was reduced to 397 animals.³⁷ With the publication of the Leopold Report in 1963,³⁸ the National Park Service decided to stop actively managing the populations and instead adopted a hands-off approach in 1967 where the population would be determined through natural regulation.³⁹

During the first few decades using the natural regulation approach, the number of bison which left the park was limited.⁴⁰ “The few bison that did migrate were either hazed back into the park or shot at the border by Park Service, State of Montana personnel, or licensed hunters.”⁴¹ In 1988, the herd peaked at 2,800 animals.⁴² During that summer, massive fires burned over a third of Yellowstone’s land area.⁴³ The large

³⁵ See Lancaster, *supra* note 9, at 427.

³⁶ See GAO-08-291, *supra* note 16, at 12.

³⁷ See *Fund for Animals*, 794 F. Supp. at 1017.

³⁸ The Leopold Report urged a science-based wildlife management approach emphasizing ecosystem management through natural, not manmade, regulation. See A. Starker Leopold et al., *Wildlife Management in the National Parks*, in TRANSACTIONS OF THE TWENTY-EIGHTH NORTH AMERICAN WILDLIFE AND NATURAL RESOURCES CONFERENCE 28 (James B. Trefethen ed., 1963).

³⁹ See *id.*

⁴⁰ See APHIS, *Brucellosis and Yellowstone Bison*, *supra* note 16.

⁴¹ See *id.*; see also Peter Morrisette, *Is There Room for Free-Roaming Bison in Greater Yellowstone?*, 27 *ECOLOGY* L. Q. 467, 490 (2000) (noting that in 1991, Montana repealed their controversial controlled hunts which allowed private individuals to take bison outside park boundaries.)

⁴² See APHIS, *Brucellosis and Yellowstone Bison*, *supra* note 16.

⁴³ See generally William H. Romme & Don G. Despain, *Historical Perspective on the Yellowstone Fires of 1988*, 39 *BIOSCIENCE* 695 (1989) (1988 fire intensity return interval of about 250 years).

herd size and reduction in forage resulting from the fire resulted in a mass exodus of bison into Montana the following winter.⁴⁴

Montana had received brucellosis free status in 1985 after a \$30 million dollar and thirty year effort to eradicate the disease within its livestock.⁴⁵ Without class free status, cattle growers are required to extensively test livestock for brucellosis prior to shipping the animals in interstate commerce.⁴⁶ Violation of such regulations can result in hefty civil fines to individual cattle growers.⁴⁷ In 1988, Montana was shipping approximately 800,000 head of cattle interstate, and it was estimated that the increased brucellosis testing concomitant with the loss of class free status would cost the cattle industry up to \$2 million dollars.⁴⁸ Subsequently, Montana authorized the destruction of bison migrating into the state.⁴⁹ That winter, 569 bison were destroyed making it the largest human caused reduction in the herd since the Park Service departed from the active management system practiced prior to 1967.⁵⁰

In response, conservationists rallied and unsuccessfully sought to enjoin Montana from future takings of bison.⁵¹ In *Fund for Animals v. Lujan*, the Ninth Circuit held that

⁴⁴ In a hearing for a preliminary injunction, the U.S. District Court of Montana made significant findings of fact regarding brucellosis, bison population dynamics, and economic impacts on Montana. *See Fund for Animals v. Lujan*, 794 F. Supp. 1015, 1017 (D. Mont.1991), *aff'd*, 962 F.2d 1391 (9th Cir.1992).

⁴⁵ *See id.* at 1019.

⁴⁶ *See* 9 C.F.R. § 78.1 – 78.43.

⁴⁷ *See generally In re Suhr*, 47 Agric. Dec. 529 (1988) (\$2,000 in civil penalties for shipping six untested cows interstate).

⁴⁸ *See Fund for Animals*, 794 F. Supp. at 1019.

⁴⁹ *Id.* at 1017.

⁵⁰ *See id.*

⁵¹ *See id.* at 1020.

bison were not listed as either threatened or endangered under the Endangered Species Act,⁵² and therefore federal approval was not needed in order for Montana to manage them within state boundaries.⁵³ The conflict between conservationists seeking an unrestricted free-ranging herd of wild bison and the cattle industry trying to maintain the reduced costs of brucellosis free status came to a boil, and to this day it remains the heated point of contention.⁵⁴

In recognition of the high tensions, the interstate nature of brucellosis regulation, the interplay between private, state, and federally owned lands, and the somewhat conflicting interests of the agencies involved, Montana and the federal agencies adopted a “Memorandum of Understanding” regarding the management of bison in 1990.⁵⁵ The Memorandum of Understanding assigned Montana and the federal agencies (U.S. Forest Service, National Park Service, and APHIS) different regulatory roles but attempted to bind them to the common objectives of “protecting private property, providing for human safety, and maintaining Montana’s brucellosis class free status.”⁵⁶

Between 1990 and 1997, four interim interagency management plans were developed.⁵⁷ The first three interim plans called for Montana personnel to shoot bison moving from Yellowstone into Montana.⁵⁸ However in 1995, Montana sued the National

⁵² See generally 16 U.S.C. §§ 1531-1544 (2006).

⁵³ See 962 F.2d 1391, 1398 (9th Cir. 1992).

⁵⁴ See Lancaster, *supra* note 9, at 429.

⁵⁵ See *id.*

⁵⁶ See 2000 BISON MANAGEMENT PLAN, *supra* note 12, at 4.

⁵⁷ See *id.*

⁵⁸ See *id.*

Park Service alleging that the Service's failure to manage bison populations within Yellowstone boundaries, which was consistent with their natural regulation policy, threatened Montana's brucellosis class free status.⁵⁹ The suit was settled by the parties on the contingency that a long-term bison management plan be implemented.⁶⁰

While the long-term bison management plan was being developed, the fourth interim plan went into effect in 1996.⁶¹ Unlike the prior interim plans, this plan called for the Park Service to capture and slaughter bison inside the northern boundary of the park as well as to establish capture facilities within the park where testing and slaughter would occur.⁶² The following winter of 1996-1997 proved to be extremely harsh and many bison migrated out of the park.⁶³ In addition to weather-caused attrition, 1,084 bison were slaughtered, reducing the herd by forty percent to a total population of approximately 2,000 individuals.⁶⁴

The large reduction in the herd's size caused another public outcry, and conservationists once again sought to enjoin the interim plan in *Greater Yellowstone Coalition v. Babbitt* for being an abuse of federal agency discretion and beyond the Service's statutorily conferred powers.⁶⁵ However, the district court held that the broad purpose of the National Park Service's organic act "to conserve the scenery and the

⁵⁹ See Complaint at 3, *Montana v. United States*, No. CV-95-6-H-CCL (D. Mont. Jan. 17, 1995).

⁶⁰ See 2000 BISON MANAGEMENT PLAN, *supra* note 12, at 4.

⁶¹ See *id.*

⁶² See *id.*

⁶³ See Lancaster, *supra* note 9, at 434-35.

⁶⁴ *Id.*

⁶⁵ 952 F. Supp. 1435, 1438 (D. Mont. 1996), *aff'd*, 108 F.3d 1385 (9th Cir. 1997)

natural and historic objects and the wildlife therein and to provide for their enjoyment and leave them unimpaired for future generations"⁶⁶ was not violated by the Service's current management of the bison population.⁶⁷ The court additionally determined that the National Park Service had a statutorily assigned duty to cooperate with the State of Montana,⁶⁸ and that the Service has broad "discretion for the destruction of such animals and of such plant life as may be detrimental to the use of any of said parks, monuments, or reservations."⁶⁹ Thus in the two major challenges during the interim period of bison management, *Fund for Animals v. Lujan* and *Yellowstone Coalition v. Babbitt*, the courts recognized that the state of Montana and the National Park Service had wide range of power over the management of bison within their jurisdictions, and their actions had thus far been permissible.⁷⁰

D. NEGOTIATIONS, TURMOIL, AND RECONCILIATION OVER THE TERMS OF THE INTERAGENCY BISON PLAN

Despite both sharing favorable court decisions regarding their management of bison, Montana and the National Park Service had a difficult time coming to an agreement for the proposed long-term bison management plan.⁷¹ In June 1998, the "Draft Environmental Impact Statement for the Interagency Bison Management Plan for the

⁶⁶ 16 U.S.C. § 1 (2006).

⁶⁷ "But the statutory purpose language obviously gives park managers broad discretion in determining how best to conserve wildlife and to leave them unimpaired for future generations." *Greater Yellowstone Coalition*, 952 F. Supp., at 1441.

⁶⁸ "[T]he Secretary of the Interior is authorized to-- . . . (2) cooperate, within the National Park System, with any State or political subdivision thereof in the enforcement of supervision of the laws or ordinances of that State . . ." 16 U.S.C. § 1a-6(c)(2) (2006) (emphasis added).

⁶⁹ *Greater Yellowstone Coalition*, 952 F. Supp., at 1441 (quoting 16 U.S.C. § 3 (2006)).

⁷⁰ See generally *id.*; *Fund for Animals v. Lujan*, 962 F.2d 1391 (9th Cir.1992).

⁷¹ See 2000 BISON MANAGEMENT PLAN, *supra* note 12, at 5.

State of Montana and Yellowstone National Park” was released and negotiations between the federal and state agencies began.⁷²

The new strategy would allow greater tolerance for bison outside the park under stringent conditions that would continue to control the risk of transmission of brucellosis from bison to cattle. The strategy would also provide for a larger bison population than the preferred alternative in the [Draft Environmental Impact Statement.]⁷³

However, the parties could not agree on several critical issues of the interagency plan such as “the ages and classes of the bison to be vaccinated, the criteria used to decide when bison would be allowed outside the park, and how to use spatial and temporal separation in an adaptive management approach to managing the risk of brucellosis.”⁷⁴ The lack of agreement was likely due not only to the conflicting interests between the federal agencies and the state, but also those between the objectives of the three federal agencies involved: APHIS, United States Forest Service (USFS), and the National Park Service (NPS).⁷⁵

As previously mentioned, the National Park Service is charged with the responsibility “to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for their enjoyment and leave them unimpaired for future generations.”⁷⁶ With particular respect to Yellowstone National Park, NPS has the additional duty to “provide for the preservation, from injury or spoliation, of all timber,

⁷² *Id.*

⁷³ *Id.*

⁷⁴ *Id.*

⁷⁵ See Lancaster, *supra* note 9, at 432.

⁷⁶ 16 U.S.C. § 1 (2006).

mineral deposits, natural curiosities, or wonders, within the park, and their retention in their natural condition.”⁷⁷ Thus, the NPS has the primary objective of preserving the park in its natural condition.

The United States Forest Service was included in the joint plan due to bison frequenting the nearby Gallatin National Forest.⁷⁸ Under the Multiple-Use Sustained-Yield Act, the “national forests are established and shall be administered for outdoor recreation, range, timber, watershed, and wildlife and fish purposes.”⁷⁹ Unlike NPS, USFS’s objective goes beyond mere preservation and focuses on maximizing the utility of national forests for a variety of activities, including cattle grazing.

APHIS is charged with administering “a national program to eradicate brucellosis from the nation’s livestock.”⁸⁰ Although deemed a “bison management plan” and not a brucellosis eradication plan, APHIS was included in the interagency plan because it helps “further the efforts of APHIS in eradicating brucellosis.”⁸¹

The State of Montana made it known that its objectives in the interagency plan were purely economical and based on the interests on its rancher constituency.⁸² With all of the different objectives of the federal agencies and Montana, it is no wonder that “the agency discussions had reached an impasse.”⁸³ The federal agencies subsequently told

⁷⁷ *Id.* § 22.

⁷⁸ *See* 2000 BISON MANAGEMENT PLAN, *supra* note 12, at 14.

⁷⁹ 16 U.S.C. § 528 (2006).

⁸⁰ *See* 2000 BISON MANAGEMENT PLAN, *supra* note 12, at 14.

⁸¹ *Id.*

⁸² *See* Lancaster, *supra* note 9, at 433.

⁸³ *See* 2000 BISON MANAGEMENT PLAN, *supra* note 12, at 5.

the governor of Montana that they were withdrawing from the 1990 Memoranda of Understanding.⁸⁴ Negotiations between the federal agencies and Montana had essentially fallen through. Over the following months and despite their conflicting objectives, the federal agencies worked out the Joint Management Plan in court appointed mediation concluding in December 2000.⁸⁵

Despite no longer being a party to the Joint Management Plan, Montana was soon to adopt a final environmental impact statement (FEIS) which essentially mimics the Joint Management Plan adopted by the federal agencies.⁸⁶ A crucial distinction between the state FEIS and the Joint Plan was that Montana retained the ability to request the state legislature to authorize the Montana Fish, Wildlife, and Parks Commission to set bison hunting seasons.⁸⁷ “[I]f authorized, state employees, including staff of the Department of Fish, Wildlife, and Parks and Department of Livestock, as well as the state veterinarian, would develop the bison hunting strategies.”⁸⁸

Despite this discrepancy and Montana’s lack of formal acceptance through not signing the Joint Management Plan, Montana’s promulgation of their state FEIS is so similar to that of the Joint Management Plan they are essentially bound by the same terms. Further, the Joint Management Plan serves Montana’s prerogatives in retaining its brucellosis class free status and protecting the cattle industry in that (1) APHIS expressly

⁸⁴ *See id.*

⁸⁵ *See id.*

⁸⁶ *See id.*

⁸⁷ *See id.* at 15.

⁸⁸ *See* 2000 BISON MANAGEMENT PLAN, *supra* note 12, at 15; *see also* MONT. CODE ANN. § 87-2-730 (2009) (state legislature subsequently allowing the Montana Department of Fish, Wildlife, and Parks to issue bison hunting permits beginning in 2003).

will not revoke Montana's class free status if it tolerates bison migrating across its borders, and (2) APHIS will assist Montana if beef importing states attempt to impose sanctions against Montana cattle based on Montana's tolerance of migrating Bison originating from Yellowstone.⁸⁹

E. THE CURRENT BISON APPROACH: THE JOINT MANAGEMENT PLAN AND ITS SUCCESS (OR FAILURE) IN IMPLEMENTATION.

On December 20, 2000 the "Record of Decision for Final Environmental Impact Statement and Bison Management Plan for the State of Montana and Yellowstone National Park" (Joint Management Plan) was signed by the Director of the National Park Service, the Administrator of the Animal and Plant Inspection Service, the Chief of the U.S. Forest Service, the Secretary of the Interior, and the Secretary of Agriculture.⁹⁰ The Joint Management Plan remains the current approach to managing Yellowstone's bison.

The Joint Management plan recognizes that although bison are crucial components of Yellowstone's ecosystem, some are infected with brucellosis and pose a threat of transmission to livestock.⁹¹ The plan attempts to create a compromise between the parties involved and "will include actions to protect private property; actions to reduce the risk of transmission of brucellosis from bison to cattle; and, actions to maintain a viable, free-ranging population of Yellowstone bison."⁹² The Joint Management Plan does not purport "to be a brucellosis eradication plan, but rather is a

⁸⁹ 2000 BISON MANAGEMENT PLAN, *supra* note 12, at 6.

⁹⁰ *See id.* at 46.

⁹¹ *See id.* at 21.

⁹² *Id.* at 22.

plan for the management of bison, intended to prevent the transmission of brucellosis from bison to cattle.”⁹³

Although the Joint Management Plan is individually tailored to three different management zones, there are three general adaptive management steps of the plan applied in each area with “Step One” being achieved first and “Step Three” being achieved upon the completion of the prior steps.⁹⁴ At all three steps temporal and spatial separation is maintained between cattle and bison.⁹⁵ The following describes the general provisions of the Joint Plan in the future tense due to the fact that the vast majority of actions have yet to be taken.

The first step largely involves hazing bison exiting the park back into park boundaries.⁹⁶ When hazing becomes ineffective, the remaining bison will be captured and tested.⁹⁷ Those testing positive for brucellosis antibodies and those individuals who evaded capture will be lethally removed.⁹⁸ Those testing negative will be held and released back into the park up to certain specified levels.⁹⁹ In certain areas, every attempt will be made to capture and test animals leaving the park, and all eligible bison will be

⁹³ *Id.* at 22.

⁹⁴ *See* 2000 BISON MANAGEMENT PLAN, *supra* note 12, at 22-31.

⁹⁵ *See id.*

⁹⁶ *See id.* at 11-12.

⁹⁷ *See id.* at 12.

⁹⁸ *See id.*

⁹⁹ *See* 2000 BISON MANAGEMENT PLAN, *supra* note 12, at 12 (up to 125 animals eligible for re-release into the park from the northern boundary).

vaccinated.¹⁰⁰ Further, during Step One Montana mandates vaccination of cattle that graze near park boundaries with APHIS reimbursing the direct cost of the vaccination.¹⁰¹

At Step Two, specified levels of bison known to be brucellosis-negative and/or vaccinated are allowed outside the park.¹⁰² However, the bison will be driven back into the park prior to April 15 each year in an effort to avoid any contact with cattle.¹⁰³

During both Step One and Two, further research on the viability of *Brucella abortus* in the exposed environment will be conducted and analyzed to determine whether the time bison are allowed outside the park should be modified.¹⁰⁴

At Step Three, untested bison will be allowed to move outside the park up to specified tolerance levels depending on the area.¹⁰⁵ Again, bison will be hazed back into the park at some time in the Spring depending on the viability studies of *Brucella abortus*.¹⁰⁶ Once Step Three is achieved, the bison population will be managed to an ideal size of 3,000 individuals using capture facilities.¹⁰⁷ Overall, the three adaptive management steps of the Joint Management Plan set out a process that will become less and less administratively demanding as more bison are tested, more cattle and bison are vaccinated, and as more is discovered about the *Brucella* organism.

¹⁰⁰ *See id.*

¹⁰¹ *See id.*

¹⁰² *See id.*

¹⁰³ *See id.*

¹⁰⁴ *See* 2000 BISON MANAGEMENT PLAN, *supra* note 12, at 13.

¹⁰⁵ *See id.*

¹⁰⁶ *See id.*

¹⁰⁷ *See id.*

However, this seemingly rational plan may have proved to be too ambitious a feat for the agencies to achieve. As of late 2007, the agencies remained at Step One of the Joint Management Plan, the portion thought to be completed by the winter of 2002-2003.¹⁰⁸ In 2007, the U.S. Government Accountability Office (GAO) found that the agencies expected that certain areas outside the park would no longer be leased for cattle grazing and that there would be an effective way to vaccinate animals remotely within the park.¹⁰⁹ Also, the herd had grown to over 4,700 individuals despite the agencies removing more than 1,900 animals since implementation of the plan in 2000 and well beyond the desired size set forth in that plan.¹¹⁰ Despite these shortcomings, the GAO recognized that the agencies had made significant strides in keeping bison and cattle apart, researching brucellosis, verifying the safety of brucellosis vaccines, vaccinating bison calves, and had ensured the vaccination of all neighboring cattle.¹¹¹ Today the question becomes whether the plan should be merely modified or overhauled.

F. RECOMMENDATIONS AND ALTERNATIVES TO THE JOINT MANAGEMENT PLAN

Because the Joint Management Plan is the product of millions of dollars and decades of planning and negotiations, the GAO prescribed a number of recommendations that would improve the plan while keeping its overall structure of adaptive

¹⁰⁸ See GAO-08-291, *supra* note 16, at 6.

¹⁰⁹ See *id.* at 6-7 (addressing the lack of a remote vaccination delivery system); see also U.S. GOVERNMENT ACCOUNTABILITY OFFICE, GAO-07-638T, YELLOWSTONE BISON: INTERAGENCY PLAN AND AGENCIES' MANAGEMENT NEED IMPROVEMENTS TO BETTER ADDRESS BISON-CATTLE BRUCELLOSIS CONTROVERSY 2-3 (March 2007), <http://ibmp.info/Library/GAO%20Reports/GAO4%20-%20March%202007.pdf> (addressing the unexpected continuation of cattle grazing on the northern boundary of the park).

¹¹⁰ See GAO-08-291, *supra* note 16, at 10.

¹¹¹ The agencies have spent about \$2 million combined annually on the plan since 2000. See *id.* at 6-7.

management.¹¹² First, the GAO recognized the Joint Management Plan was lacking measurable objectives.¹¹³ Although the plan contains numeric specifications for the desired population of bison within the park and number of bison allowed to be outside the park in certain areas at certain times, the overall goal of the act is quite general: “to maintain a wild, free-ranging population of bison and address the risk of brucellosis transmission to protect the economic interest and the viability of the livestock industry in Montana.”¹¹⁴

The lack of measurable objectives reduced not only the cohesiveness between the cooperating agencies in the Joint Plan, but also does not provide the agencies with a tool to measure their success or failure.¹¹⁵ Further, without measurable objectives, the participating agencies shared no common view of the effectiveness of the plan.¹¹⁶ Thus, the GAO suggested that the agencies develop and share measurable objectives, goals, and a systematic monitoring system.¹¹⁷

Second, the GAO concluded that the agencies needed to fill missing linkages throughout the steps, improve agency collaboration, and communicate to stakeholders the objectives of the plan.¹¹⁸ In response to both of GAO’s recommendations, the agencies have adopted and published an updated adaptive management plan and yearly operating

¹¹² *See id.* at 7.

¹¹³ *See id.*

¹¹⁴ 2000 BISON MANAGEMENT PLAN, *supra* note 12, at 22.

¹¹⁵ *See* GAO-08-291, *supra* note 16, at 25.

¹¹⁶ *See id.* at 26

¹¹⁷ *See id.*

¹¹⁸ *See id.* at 33.

procedures which have improved transparency and communication among the agencies themselves and local stakeholders.¹¹⁹ Although the changes undertaken by the agencies have yet to have their success proven, others have suggested that “[t]he Joint Management Plan can be salvaged” but requires an extensive reworking in the management approaches used.¹²⁰

Zachary Lancaster has suggested that the agencies have strayed too far from the ecosystem approach prescribed by the Leopold Report,¹²¹ and are now reverting back to the active management.¹²² Instead of spending millions of dollars actively managing wild bison populations within Yellowstone, Lancaster proposes the resources should be devoted to the cattle industry in the form of buying out the rancher’s property interests and protecting the cattle through extensive vaccinations and monitoring.¹²³

To some extent, these proposed recommendations are incorporated into the Joint Management Plan. Montana has administered vaccinations to surrounding cattle and APHIS has reimbursed the costs.¹²⁴ While the most recently adopted brucellosis vaccine (RB51) appears relatively effective in cattle,¹²⁵ it is not completely effective against

¹¹⁹ See generally Memorandum from Partner Agencies, *Adaptive Adjustments to the Interagency Bison Plan* (Dec. 17, 2008), <http://ibmp.info/Library/2008%20IBMP%20Adaptive%20Management%20Plan.pdf>; INTERAGENCY BISON MANAGEMENT PLAN, OPERATING PROCEDURES (Feb. 5, 2009), <http://ibmp.info/Library/Operating%20Procedures/2009-10%20Operating%20Procedures.pdf> (example of updated annual operating procedures).

¹²⁰ See Lancaster, *supra* note 9, at 443.

¹²¹ See Leopold et al., *supra* note 38, at 28.

¹²² See Lancaster *supra* note 9, at 443.

¹²³ See *id.* at 444-48.

¹²⁴ See 2000 BISON MANAGEMENT PLAN, *supra* note 12, at 6.

¹²⁵ See Enrique Herrera-Lopez et al., *Epidemiological study of Brucellosis in cattle, immunized with Brucella abortus RB51 vaccine in endemic zones*, VACCINE [electronically published ahead of print] (Mar. 31, 2010), <http://www.ncbi.nlm.nih.gov/pubmed/20362623> (after removing infected animals and

preventing the transmission in bison.¹²⁶ As for the recommendation to acquire property rights, the federal government bought 5,800 acres on the north side of Yellowstone for \$13 million.¹²⁷ While purchases of property may serve important roles as buffers between cattle and bison, in a long-term ecosystem management model without population manipulation, bison will eventually begin to cause problems at the borders of those buffers as well. As seen from the remnant twenty-five individuals inhabiting the park to the forty-seven hundred there today, the bison population of Yellowstone has demonstrated resiliency and an exponential rate of growth.¹²⁸

The Joint Management Plan has some deficiencies, but it represents a strong interagency, cross-jurisdictional effort at managing the bison population. Although it may currently be administratively exhaustive, over time and with adjustments it should become less taxing on the agencies and easier to implement. Further, it provides a mix of tolerance for the natural migration of the bison and enough direct management that the wild species is afforded dignity while keeping Montana's cattle industry and the nation's food supply safe.

III. PROTECTING WILDLIFE FROM LIVESTOCK: STATE AND FEDERAL MEASURES TO REDUCE CHRONIC WASTING DISEASE IN WILD CERVIDS

In another example where revered wild species are involved in the transmission of a disease with livestock, wild and captive cervids (deer, elk, and moose) are facing a

administering RB51 vaccine to Mexican dairies with known brucellosis, the prevalence of brucellosis reduced to less than 1%).

¹²⁶ See Steven C. Olsen et al., *Efficacy of calftlood vaccination with Brucella abortus strain RB51 in protecting bison against brucellosis*, 74 RESEARCH VETERINARY SCI. 17, 17-18 (2003) (approximately 15-19 percent of bison nonresistant to brucellosis after RB51 vaccination).

¹²⁷ See Morrisette, *supra* note 41, at 501.

¹²⁸ See GAO-08-291, *supra* note 14, at 10.

threat from chronic wasting disease. However, what is notably different in this instance from the Yellowstone bison-brucellosis scenario is that here the regulations, policies, and management are largely geared toward protecting the wild game from their domesticated counterparts. This section explores (A) what chronic wasting disease is along with its regional prevalence, (B) background on alternative livestock operations, (C) current state management policies and legal issues arising thereof, and (D) the degree of federal involvement in the management of the disease.

A. CHRONIC WASTING DISEASE: WHAT IS IT AND WHERE DID IT COME FROM?

Chronic wasting disease is a transmissible spongiform encephalopathy (TSE) specific to North American deer and elk similar to bovine spongiform encephalopathy (BSE or Mad Cow disease) and the human variant Creutzfeldt-Jakob disease (CJD).¹²⁹ TSEs are caused by a pathogenic protein, known as a prion, which interfere with brain neurons and subsequently disrupt the host's neurological system.¹³⁰ Symptoms of TSEs “include weight loss over weeks or months, behavioral changes, excessive salivation, difficulty swallowing, polydipsia [excessive thirst], and polyuria [excessive urination].”¹³¹ No treatment exists for TSE infections, and the degradation of the neurological system eventually leads to death in all species.¹³² TSEs seem to be primarily

¹²⁹ Ermias D. Belay et al., *Chronic Wasting Disease and the Potential Transmission to Humans*, 10 EMERGING INFECTIOUS DISEASES 977, 977 (2004).

¹³⁰ *See id.*

¹³¹ *Id.* at 978.

¹³² *See* Ronald W. Opsahl, *Chronic Wasting Disease of Deer and Elk: A Call for National Management*, 33 ENVTL. L. 1059, 1067 (2003).

passed through contact or ingestion of prion containing tissues such as the brain, spinal cord, eyes, spleen, tonsils, and lymph nodes.¹³³

Major concern surrounds the transmissibility of chronic wasting disease to other species, particularly humans. In controlled studies, the disease has been successfully transmitted to laboratory mice, ferrets, mink, monkeys, goats, and cattle.¹³⁴ Although there is no direct epidemiological evidence linking chronic wasting disease to CJD in humans,¹³⁵ great attention is being paid to the disease in light of the Mad Cow epidemic that occurred in the United Kingdom during the 1990s which correlated BSE to possibly 147 CJD cases in humans, caused the destruction of over 4.7 million cattle, and cost the UK economy billions.¹³⁶

Chronic wasting disease was first discovered in mule deer at a confined game facility in Fort Collins, Colorado in 1967 where it likely originated.¹³⁷ The disease was detected in elk at the same facility in 1979.¹³⁸ Within the next decade, the disease was later found within free-ranging, wild deer and elk in the surrounding areas,¹³⁹ although

¹³³ See Belay et al., *supra* note 129, at 983.

¹³⁴ See *id.* at 979.

¹³⁵ A study of death certificates from 1979-2001 in Colorado counties where CWD is prevalent to showed no significant increase in CJD in the human population. See Samantha MaWhinney et al., *Human Prion Disease and Relative Risk Associated with Chronic Wasting Disease*, 12 EMERGING INFECTIOUS DISEASES 1527, 1527 (2006).

¹³⁶ See Frederick Falade, *Mad Cow Disease in UK*, infoSource: Occupational Health and Safety 3-10 (Jan. 4, 2005), http://www.obagh.com/images/research_docs/sanjo1.pdf.

¹³⁷ See Elizabeth S. Williams & Stuart Young, *Spongiform Encephalopathy in Rocky Mountain Elk*, 18 J. WILDLIFE DISEASES 465, 469 (1982).

¹³⁸ See *id.*

¹³⁹ See Terry R. Spraker et al., *Spongiform encephalopathy in Free-ranging mule deer (*Odocoileus hemionus*), White-Tailed Deer (*Odocoileus virginianus*) and Rocky Mountain Elk (*Cervus elephus nelson*) in Northcentral Colorado*, 33 J. WILDLIFE DISEASES 1, 1 (1997).

modeling has suggested that the disease was likely prevalent among free-ranging deer herds up to ten years earlier.¹⁴⁰ Most recently, chronic wasting disease was detected in a wild moose shot in northern Colorado in 2005 compounding fears about its transmissibility.¹⁴¹

CWD is considered endemic to a 15,000 square mile area of northeast Colorado, southeast Wyoming, and western Nebraska.¹⁴² However, within the past fifteen years, the disease has spread internationally to Canada and South Korea.¹⁴³ As of April 2010, CWD in wild cervids had been detected in thirteen states, and twelve states have had the disease present in captive populations.¹⁴⁴ Due to the geographic distances and barriers between infected populations, human transport of captive cervids is the most probable transmission vector of the disease among populations in different states and countries.¹⁴⁵ Due to CWD's origin in confined game pens,¹⁴⁶ the apparent density-dependence of the

¹⁴⁰ See generally Michael A. Miller et al., *Epizootiology of Chronic Wasting Disease in Free-Ranging Cervids in Colorado and Wyoming*, 36 J. WILDLIFE DISEASES 676 (2000) (transmission models suggesting that the disease likely became contracted by free-ranging deer years or decades before field detection).

¹⁴¹ See Laurie A. Baeten et al., *A Natural Case of Chronic Wasting Disease in a Free-ranging Moose (Alces alces shirasi)*, 43 J. WILDLIFE DISEASES 309, 309 (2007).

¹⁴² See Opsahl, *supra* note 132, at 1067.

¹⁴³ See Damien O. Joly et al., *Chronic Wasting Disease in Free-Ranging Wisconsin White-Tailed Deer*, 9 EMERGING INFECTIOUS DISEASES 599, 599 (2003).

¹⁴⁴ CWD has appeared in free-roaming wild cervids within Colorado, Illinois, Kansas, Nebraska, New Mexico, New York, North Dakota, South Dakota, Utah, Virginia, West Virginia, Wisconsin and Wyoming. The disease has been detected among captive populations in Colorado, Kansas, Oklahoma, Michigan, Minnesota, Missouri, Montana, Nebraska, New York, South Dakota, Wisconsin, and Wyoming. See U.S. Dept. of Agriculture, Animal and Plant Health Inspection Service, *Distribution of CWD Maps* (April 2010), http://www.aphis.usda.gov/animal_health/animal_diseases/cwd/downloads/distribution_cwd.pdf.

¹⁴⁵ See U.S. DEPT. OF AGRIC. & U.S. DEPT. OF THE INTERIOR, *PLAN FOR ASSISTING STATES, FEDERAL AGENCIES, AND TRIBES IN MANAGING CHRONIC WASTING DISEASE IN WILD AND CAPTIVE CERVIDS 1* (June 26, 2002), http://www.aphis.usda.gov/animal_health/animal_diseases/cwd/downloads/cwd62602.pdf [hereinafter *FEDERAL ASSISTANCE PLAN*].

¹⁴⁶ See Williams & Young, *supra* note 137, at 469.

disease and game farms' high concentration of animals,¹⁴⁷ and the interstate transportation of domesticated cervids,¹⁴⁸ regulations have largely targeted alternative livestock operations (or game farms) in their effort to control CWD. However, before delving into these regulations, it is useful to understand what alternative livestock operations are and the role they play in the national and international market.

B. ECONOMICS SURROUNDING DOMESTIC CERVID FARMING

As of Spring 2007, there was a total of 7,828 cervid farms in the United States.¹⁴⁹ Texas and Pennsylvania represent a large portion of the total with over a thousand facilities each.¹⁵⁰ There are three typical varieties of alternative livestock operations: (1) those that provide meat and by-products, (2) those that strictly provide trophy animals for enclosed commercial hunting or "canned hunts," and (3) those that provide both meat and animals for commercial hunting.¹⁵¹ Approximately 61% of cervid farms fall into the first category of meat and by-product production, 32% are considered both breeding and hunting operations, and the remaining 7% strictly rear trophy animals for hunting.¹⁵²

¹⁴⁷ See Opsahl, *supra* note 132, at 1082.

¹⁴⁸ See FEDERAL ASSISTANCE PLAN, *supra* note 145, at 1.

¹⁴⁹ See David P. Anderson et al., *Economic Impact of the United States Cervid Farming Industry*, Agricultural Food and Policy Center 7 (August 2007), <http://www.afpc.tamu.edu/pubs/2/480/tr-2007-04.pdf>.

¹⁵⁰ See *id.* at 7.

¹⁵¹ See Opsahl, *supra* note 132, at 1074.

¹⁵² See Anderson et al., *supra* note 149, at 9.

Market demand for venison and elk is strong, particularly from gourmet restaurants and specialty stores.¹⁵³ Further, elk and venison are recommended by the American Heart Association.¹⁵⁴ Lean cuts contain less cholesterol and calories than skinless chicken breast, while containing similar fat and protein content.¹⁵⁵ Unlike deer, elk are raised primarily for their velvet antlers which is sold on an average for seven dollars per pound.¹⁵⁶ In Eastern medicine, elk velvet has been used for thousands of years and over seventy-five percent of U.S. produced velvet is shipped internationally.¹⁵⁷

Raising trophy animals for commercial hunting is also lucrative. Prices for elk can range from a few hundred to over twenty thousand dollars per animal depending on the antler score.¹⁵⁸ Trophy white-tailed and mule deer, as well as exotic species, also fetch substantial prices in these types of confined, commercial hunting operations.¹⁵⁹ Many confined game operations provide landowners an opportunity to rear valuable animals on what would be considered marginal land in a traditional cattle ranching operation.¹⁶⁰

¹⁵³ See Lynne F. Kyrne et al., *Agricultural Alternatives: Elk Production*, Penn State Agriculture Research and Cooperative Extension 2 (2007), <http://agalternatives.aers.psu.edu/Publications/elk.pdf>.

¹⁵⁴ See *id.*

¹⁵⁵ Elk and Venison loin contain 139 calories, 62 mg cholesterol, 5 grams of fat, and 22 grams of protein per 3 ounce serving. See *id.*

¹⁵⁶ See *id.*

¹⁵⁷ See *id.* at 1.

¹⁵⁸ Ranches respectively located in Texas, Nebraska, and Colorado base pricing on animal sex, age, antler score, and season. See generally Cotton Mesa Trophy Elk Ranch, <http://www.cottonmesatrophyelek.com/> (last visited Apr. 25, 2010); Rocking Heart Elk Ranch, <http://www.elkplanet.com/> (last visited Apr. 25, 2010); Trophy Mountain Elk Ranch, <http://www.trophymtn.com/> (last visited Apr. 25, 2010).

¹⁵⁹ Depending on antler score, white-tailed bucks ranging between \$4,500 to \$10,000, red stag \$5,000 to \$12,500, and axis deer (exotic) \$1,500 to \$3,500 at a confined game farm in Texas. See White Stone Trophy Ranch, http://www.whitestonetrophyranch.com/hunt_packages.html (last visited Apr. 25, 2010).

¹⁶⁰ See Kyrne et al., *supra* note 153, at 1.

Although it pales in comparison to the cattle industry, alternative livestock operations contribute significantly to the U.S. economy. Annual direct expenditures attributable to cervid farms total \$839.5 million dollars.¹⁶¹ Cervid farms additionally fuel other industries such as “feed suppliers, farm and ranch supply stores, veterinary services, medical and sedation product suppliers, construction, utilities, advertising, [and] insurance” to the tune of \$2.3 billion annually.¹⁶² Overall, cervid farms generate more than \$3 billion dollars in annual economic activity within the U.S.¹⁶³ Additionally, cervid farming “supports 29,199 jobs in the economy, most of which are located in rural areas of the nation. If this industry were to disappear, these jobs would have to find support from some other sector of the economy.”¹⁶⁴ Despite cervid farming’s economic contribution, states have perceived the risk of CWD transmission as too great and have severely restricted, and in some instances banned, commercial game farming within their borders.

C. STATE LAWS AND LEGAL ISSUES SURROUNDING CERVID FARMING

State management and policy regulating CWD has propagated at a rate similar to the spread of the disease. In the 1980s only a few states had CWD monitoring programs in place as the disease was largely considered obscure and localized.¹⁶⁵ However, today the disease has gained a national character, and all fifty states have a monitoring system

¹⁶¹ See Anderson et al., *supra* note 149, at 14.

¹⁶² *Id.*

¹⁶³ See *id.*

¹⁶⁴ *Id.*

¹⁶⁵ See Opsahl, *supra* note 132, at 1074.

in place for CWD in wild cervid populations.¹⁶⁶ Forty-four states currently have a captive cervid monitoring program, and two are in the process of developing such programs.¹⁶⁷ Further, twenty-one states have banned all imports of cervids from other states.¹⁶⁸ Twenty-seven states have banned out of state imports from areas where CWD has been detected, and only two states have no restrictions on the import of cervids.¹⁶⁹ Additionally, some states have gone as far as banning all cervid farming within their borders.¹⁷⁰

Complete state bans on cervid farming and bans on importing animals may implicate issues with the dormant commerce clause. The U.S. Constitution authorizes the federal legislature “[t]o regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes.”¹⁷¹ This authorization has been interpreted as limiting the states’ power to regulate interstate commerce in order to prevent states from protecting in-state businesses at the expense of out of state industry.¹⁷²

The U.S. Supreme Court “has distinguished between state statutes that burden interstate transactions only incidentally, and those that affirmatively discriminate against

¹⁶⁶ See Mich. Dept. of Natural Resources, Chronic Wasting Disease and Cervidae Regulations in North America 1 (March 2010), <http://www.cwd-info.org/pdf/CWDRRegstableState.pdf> (providing a table describing CWD regulations by state).

¹⁶⁷ See *id.*

¹⁶⁸ See *id.*

¹⁶⁹ See *id.*

¹⁷⁰ See *id.* at 1-7; *e.g.*, MONT. CODE ANN. § 87-4-407-412 (2009) (Montana requiring permits for all alternative livestock operations and then placing a moratorium on their renewal); WYO. STAT. ANN. § 23-3-301 (2009) (ban on the sale and import of alternative livestock).

¹⁷¹ U.S. CONST. art. I, § 8 cl. 3.

¹⁷² See Ross H. Pifer, Public Informational Hearing on the Transparency of Dairy Pricing (Dec. 9, 2009), http://law.psu.edu/_file/aglaw/State_Regulation_of_Dairy_Pricing_and_the_Dormant_Commerce_Clause_December_9_2009.pdf.

such transactions.”¹⁷³ Those statutes which only incidentally burden interstate commerce “will be upheld unless the burden imposed on such commerce is clearly excessive in relation to the putative local benefits.”¹⁷⁴ The Ninth Circuit applied this standard and upheld a Washington statute completely banning the import and rearing of elk within state borders, because the incidental discriminatory effects were outweighed by the state’s interest “to protect its native wildlife from diseases and parasites.”¹⁷⁵

State statutes which only ban the import of cervids while permitting the in-state rearing and selling of such animals could be deemed an affirmatively discriminatory means of economic protectionism. “Once a state law is shown to discriminate against interstate commerce ‘either on its face or in practical effect,’ the burden falls on the State to demonstrate both that the statute ‘serves a legitimate local purpose,’ and that this purpose could not be served as well by available nondiscriminatory means.”¹⁷⁶ This is known as the “heightened scrutiny” standard, and “nearly all laws to which heightened scrutiny applies will be invalidated.”¹⁷⁷ However in *Maine v. Taylor*, a case involving the constitutionality of a state statute prohibiting the importation of baitfish, the Supreme Court, applying the “heightened scrutiny” standard, upheld the statute as furthering the legitimate state interest of protecting native fish species from disease and nonnative

¹⁷³ *Maine v. Taylor*, 477 U.S. 131, 138 (1986).

¹⁷⁴ *Pike v. Bruce Church, Inc.*, 397 U.S. 137, 142 (1970)

¹⁷⁵ *Pac. Nw. Venison Prods. v. Smith*, 20 F. 3d. 1008, 1013 (1994).

¹⁷⁶ *Maine*, 477 U.S., at 138.

¹⁷⁷ *See Pifer, supra* note 172.

competition.¹⁷⁸ Thus, the state interests of protecting fish are much like those protecting wild cervids, and a challenge to the constitutionality of such statutes would likely fail.

D. THE FEDERAL ROLE IN REGULATING CHRONIC WASTING DISEASE

The determinate factor of the extent of the federal regulatory role is based on whether the animals are considered wild or livestock. Regarding wild cervids, “[t]he primary Federal role will be to provide coordination and assistance with research, surveillance, disease management, diagnostic testing, technology, communications, information dissemination, education, and funding for State CWD programs.”¹⁷⁹ For farmed cervids, the U.S. Department of Agriculture has direct authority to issue orders and promulgate regulations under the Animal Health Protection Act.¹⁸⁰

Like the states, the federal government initially saw CWD as a local problem affecting only a few states with no need of federal intervention.¹⁸¹ However, once it became apparent that the disease was becoming a country-wide issue, the U.S. Department of Agriculture declared a national emergency in September 2001.¹⁸² The emergency declaration sought funds not only to pay for destruction and disposal of owners’ animals, but also to establish a national CWD monitoring program.¹⁸³ In 2002,

¹⁷⁸ See *Maine*, 477 U.S., at 152.

¹⁷⁹ See FEDERAL ASSISTANCE PLAN, *supra* note 145, at 1.

¹⁸⁰ See 7 U.S.C. §§ 8301- 8322 (2006).

¹⁸¹ See Opsahl, *supra* note 132, at 1085.

¹⁸² See Declaration of Emergency Because of Chronic Wasting Disease, 66 Fed. Reg. 49,342 (Sept. 27, 2001).

¹⁸³ See *id.*

APHIS established a permanent indemnity program,¹⁸⁴ and later enacted a rule governing the certification of farmed cervids and their interstate transportation.¹⁸⁵ Both these actions were taken to eliminate and eradicate, rather than control, CWD in farmed cervid populations.

Under the indemnity program, all CWD positive, exposed, and suspect farmed cervids are destroyed and paid for by APHIS.¹⁸⁶ The payment is for ninety-five percent of the animal's appraisal value with a maximum limit of \$3,000 per animal.¹⁸⁷ After the animals are destroyed, all premises where they were kept must be cleaned and disinfected by an APHIS or state employee.¹⁸⁸

In the herd certification and interstate movement program, APHIS established an animal identification system to facilitate tracking and potential exposures to infected animals.¹⁸⁹ The cervids are tracked throughout their lifetime with two forms of identification describing their origin and movement.¹⁹⁰ Certifications must be performed by an accredited veterinarian attesting that the animal shows no visible signs or symptoms indicative of CWD.¹⁹¹ In order to transport the livestock in interstate

¹⁸⁴ See Chronic Wasting Disease in Cervids; Payment of Indemnity, 67 Fed. Reg. 5,925 (Feb. 8, 2002) (codified at 9 C.F.R. pt. 55).

¹⁸⁵ See Chronic Wasting Disease Herd Certification Program and Interstate Movement of Farmed or Captive Deer, Elk, and Moose, 71 FR 41,682 (July 21, 2006) (codified at 9 C.F.R. pt. 81).

¹⁸⁶ See 9 C.F.R. § 55.2 (2010).

¹⁸⁷ See *id.*

¹⁸⁸ See *id.* § 55.4.

¹⁸⁹ See *id.* § 81.1-81.4.

¹⁹⁰ See *id.* § 81.2.

¹⁹¹ See *id.* § 81.4.

commerce, the herd must be certified as CWD-free for at least five years, with exceptions made for animals enrolled in approved state programs prior to the enactment of the rule.¹⁹² Overall, both the indemnity and certification program seem to be strong agency efforts at eliminating chronic wasting disease in farmed cervids while still attempting to keep the industry viable.

For wild cervids, the federal government plays a much more indirect role. With the exception of a few federal statutes,¹⁹³ the U.S. government has traditionally recognized that the States hold wildlife “in trust for their own people.”¹⁹⁴ Consistent with this view, the U.S. Department of Agriculture and Department of the Interior primarily work together with state wildlife agencies and universities to improve communication, monitoring, and research regarding CWD.¹⁹⁵ The increased coordination among states provides faster response rates and availability of informational resources to address problems.¹⁹⁶ Additionally, the agencies provide funding to states to improve surveillance, detection, and testing for CWD in wild cervids.¹⁹⁷

In sum, regulation of CWD is a complex, interwoven scheme of federal regulations and state statutes. Prevention and control of CWD has primarily focused on captive animals rather than wild cervids. This focus is likely driven by the feasibility of

¹⁹² *See id.* § 81.3 (Other exceptions for non-certified animals to be moved in interstate commerce are that non-certified animals can be moved interstate for (1) slaughter, (2) research, or (3) at the approval of the administrator).

¹⁹³ *See, e.g.*, Endangered Species Act, 16 U.S.C. §§ 1531-1544 (2006); Migratory Bird Treaty Act, 16 U.S.C. §§703-712 (2006).

¹⁹⁴ *Baldwin v. Fish & Game Comm’n*, 436 U.S. 371, 384 (1978).

¹⁹⁵ *See* FEDERAL ASSISTANCE PLAN, *supra* note 145, at 1.

¹⁹⁶ *See id.* at 10.

¹⁹⁷ *See id.* at 1.

implementing policy. Captive cervids are confined within discrete areas and can be more easily monitored and tested. Regulations whose core provisions targeted wild animals would require vast resources and would incorporate greater uncertainty.

IV. CONCLUSION

Brucellosis and CWD are both diseases that are transmissible from livestock to wildlife and vice versa. Although one management program focuses on wildlife and the other on livestock, this author does not believe the discrepancy is the product of “species favoritism” or industry lobbying. Rather, the cause for this difference is likely feasibility and potential effectiveness of management. Yellowstone’s wildlife is the last known source of brucellosis in the U.S.¹⁹⁸ It intuitively follows that a program trying to reduce brucellosis, although purporting not to,¹⁹⁹ would focus its resources on the animals known to carry the disease. Likewise with CWD, an effort to eliminate the disease should (and does) focus on the areas where it originated and the industry responsible for its national dispersal.²⁰⁰ The fact that one of these wildlife-livestock diseases regulates livestock and the other regulates wildlife is likely the product of mere coincidence.

¹⁹⁸ See APHIS, *Brucellosis and Yellowstone Bison*, *supra* note 14.

¹⁹⁹ 2000 BISON MANAGEMENT PLAN, *supra* note 12, at 14.

²⁰⁰ See Williams & Young, *supra* note 137, at 469 (CWD likely originates from a captive game farm in Colorado).