

## 4 Bison Management in Greater Yellowstone

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"For the benefit and enjoyment of the people" are the words engraved on the grand arch welcoming visitors to the northern entrance of Yellowstone National Park. This phrase expresses an ideal established with the Park in 1872 that Yellowstone and its unique natural resources should be managed in the common interest, the interest of all the people. One of those resources, the bison, is depicted on the seal of the U.S. Interior Department and on the badge worn by its employees in the National Park Service. Under the policies of recent decades, however, the management of Yellowstone bison has become controversial because bison continue to do what made them a legend in American folk songs and a symbol of the Wild West—they roam. The persistence of management controversies suggests a failure to realize the common interest more than a century after the Park's creation. The bison now symbolize a discrepancy between the ideal and the political reality.

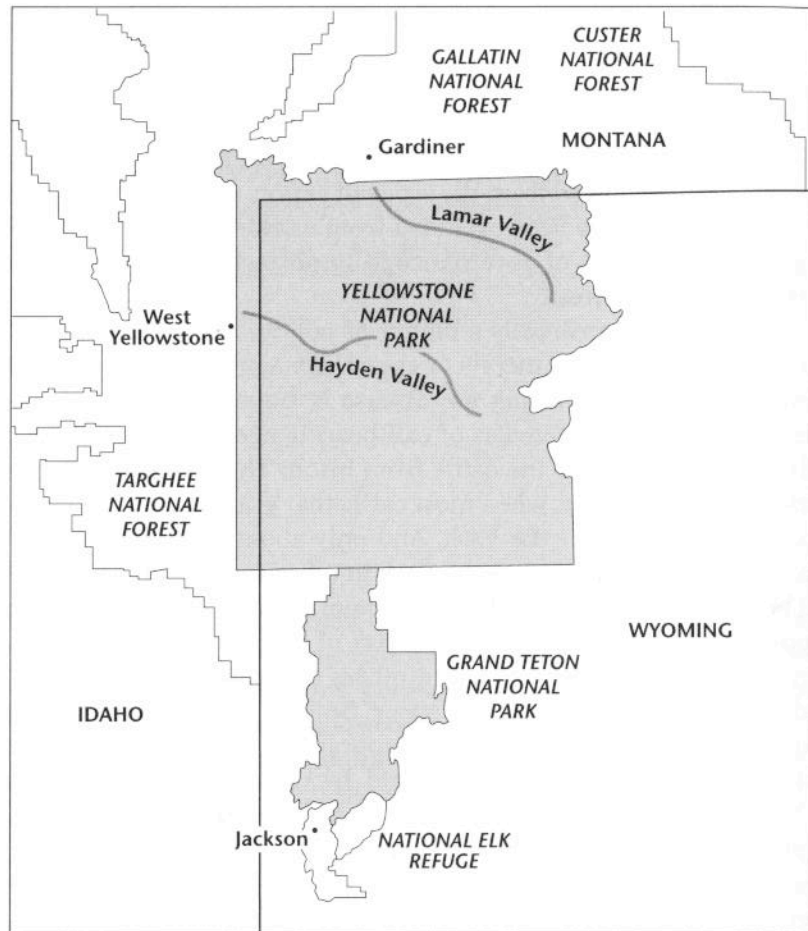
When they roam out of the Park, bison enter into jurisdictions of the U.S. Forest Service, state livestock departments, state wildlife and game agencies, and private landowners. The presence of brucellosis in bison led the U.S. Animal and Plant Health Inspection Service (APHIS) to claim authority in bison management as an extension of its mandate to eradicate this disease from cattle herds. Through a 1995 court decision, APHIS gained authority to participate with other agencies in developing a long-term bison management plan. Each agency involved has specialized mandates, policies, and jurisdictions that tend to bring it into conflict with other agencies and interest groups. Some agencies have mandates to protect livestock, for example, and others to protect

wildlife. Such conflicts have led to extensive litigation involving brucellosis in wildlife and bison management around greater Yellowstone. Settlements of the lawsuits have granted power over wildlife to judges, established win-lose situations, excluded nonlitigating parties, and cost a great deal in dollars and time. Some decisions have been made by officials far removed from the scene of action, and sometimes those directly affected have been excluded from working with officials. This fragmented structure of governance is an obstacle to managing bison in the common interest.

The problem is primarily a matter of politics and governance. It is *not*, for several reasons, merely or essentially a problem of brucellosis. First, the organism causing the disease is transmitted only through birthing materials, so females of calf-bearing age are theoretically the only potential threat to the cattle from bison. They migrate out of the Park only in the winter, when most cattle that graze in the Yellowstone area are nowhere near the Park. And only about 2,000 head of cattle graze on public land around the Park in other seasons, generally after the brucellosis organism in birthing materials has been killed through exposure to the elements. Thus the risk of brucellosis transmission is very slight because of the small numbers of bison and cattle involved and their separation in time and space. Second, measures for the management of this risk, apart from separation, have been unofficially tested in practice by ranchers around Jackson, Wyoming, just south of Yellowstone. There cattle graze next to bison on allotments inside Grand Teton National Park.<sup>1</sup> The experience of Jackson-area ranchers over several decades demonstrates that vaccination of cattle effectively prevents brucellosis. There is, however, no safe and effective vaccine to prevent brucellosis in bison. Third, in spite of the small risk combined with effective risk management measures, Montana state officials insist that in the spring, just before cattle return to grazing allotments outside the Park, the only acceptable policy is to haze, remove, or capture and test for brucellosis *all* bison that leave the Park, and to slaughter those that test positive—including bulls and calves—even though a test-positive result may indicate either resistance to the disease or infection by it. The problem, then, is largely political and represents an inability to resolve policy differences among participants involved in the fragmented structure.

Advancing the common interest in this context means finding a consensus on management alternatives that integrate the two major interests in conflict: protecting livestock producers by minimizing and containing the risk of brucellosis transmission from bison to cattle, *and* protecting wild, free-roaming bison herds in Yellowstone from inten-





Map 4.1. Greater Yellowstone Area

sive management measures that would reduce them to livestock. These interests are broadly supported and officially accepted as goals in the draft Environmental Impact Statement (EIS) released by federal and state agencies in June 1998 and in the final record of decision released by federal and state agencies in December 2000.<sup>2</sup> The management alternatives, however, in the draft EIS and in the final record of decision fall short of securing these goals, as detailed below—despite the risk management measures unofficially tested in the Jackson area that would meet both goals if applied across greater Yellowstone.<sup>3</sup> The search for a consensus is complicated by the geographic and social context seen in Map 4.1. Greater Yellowstone covers 19.9 million acres, most of which are owned by the federal government (69 percent). The rest are owned by Indian reservations (4 percent), states (3 percent),

and private citizens (24 percent). It includes two national parks, Yellowstone and Grand Teton, six national forests, three federal wildlife refuges, five “gateway” communities, and thirteen counties in three states.<sup>4</sup>

Bison management in greater Yellowstone is a problem of politics and governance, and the common interest is the appropriate criterion for assessment. We begin with an overview of the historical context, turn to a description of and appraisals of the policy process that has failed to solve the problem, and then consider the fragmented structure of governance that accounts partly for the policy failures. We conclude with policy and structural alternatives to advance the common interest.

### Historical Context

The ideal of managing national parks in the common interest has not been directly challenged over the past century. But policies that attempt to advance the common interest have changed in response to the unintended consequences of past management policies and because of external factors, including success in the control of brucellosis in livestock, the rise of environmentalism, and advances in the science of ecology. This section outlines the historical evolution of Park management policies, and related policies, as they pertain to contemporary bison management.

Approximately 40 to 75 million bison once roamed the United States, but the population was reduced to a few hundred animals by the late 1880s.<sup>5</sup> Many factors contributed to the demise, but buffalo hunting and demand for buffalo products figured prominently.<sup>6</sup> Some historians also allege that U.S. Army officials tried to exterminate Indians by destroying their subsistence base, the bison.<sup>7</sup> Once it became apparent that buffalo might become extinct, some states passed legislation—usually too late—to prevent further hunting of buffalo. People nationwide owned domesticated bison, but one of the last wild herds lived in the area that became Yellowstone National Park. Although officials established the Park to protect the area’s unique geothermal features, they soon began to recognize the Park’s potential as a wildlife sanctuary. By 1883 they prohibited hunting in the Park but did little to enforce the prohibition. Poaching continued within Park borders.<sup>8</sup> Public pressure to protect Yellowstone’s bison increased in 1894 after national publicity about the arrest of a bison poacher. Congress passed H.R. 6442, or the Lacey Act “to protect the birds and animals in Yellowstone National Park, and to punish crimes.”<sup>9</sup> Penalty for violating the act was \$1,000 or two years in jail. Thus the nation decided to pro-



tect the remnant wild herd, which in 1895 numbered only two hundred.<sup>10</sup>

Protecting Yellowstone's bison remains an interest of great emotional significance for many Americans. Bison symbolize one of the country's first conservation success stories, in the country's first national park and in the gemstone of the national park system. Native Americans also identify their troubled history with the near extinction of bison, which provided subsistence and still remain a strong component of many tribal cultures. Some Native Americans feel their cultural survival depends on the survival of wild buffalo. A tribal elder from South Dakota, Rosalie Little Thunder, could compare the significance of bison only to money, the god of today.<sup>11</sup> Bison also remind conservationists and other Americans of the potential for special interest groups—including buffalo hunters, poachers, the railroad, possibly the army, and others who prevailed in the nineteenth century—to destroy a natural resource. This interest in protecting wild bison in Yellowstone, however, can be realized through practical alternatives that do not compromise other valid and appropriate interests, especially the interest in protecting livestock from brucellosis.

Early management of Yellowstone bison was part of a policy that sought to protect "desirable" animals—mainly herbivores such as bison and elk—from poachers, predators, and winter mortality through intensive management techniques.<sup>12</sup> Officials purchased domestic bison and established a captive herd in 1902 while continuing to protect the wild bison.<sup>13</sup> Managers fed bison, separated calves, castrated bulls, and sponsored roundups and stampedes for tourists.<sup>14</sup> The corralled herd increased from 21 to 44 by 1905, and to 147 by 1911.<sup>15</sup> Managers began to set target populations to maintain the maximum number of ungulates given range conditions. The techniques used to maintain a target bison population included shooting, live shipment to Indian reservations and zoos, and capture and slaughter.<sup>16</sup> These intensive techniques were adapted from ranch and range management techniques developed for cattle, and they kept bison inside the Park.

From the 1930s to the 1960s, however, the Park gradually shifted policy away from intensive management techniques. Ecologists came to understand that protecting Park wildlife required protecting the natural processes of which they are a part, rather than managing intensively for a single species such as bison. This reflected and reinforced a larger evolution of thought, in which managers and the public began to see scientific expertise as a necessary part of the search for any sound natural resources policy. Advocates of scientific management claimed it was an alternative to the politics of special interests. Since

then science has become more influential in the management of natural resources, including bison, but not all of the influence has been so constructive. On occasion science has been misused to delay decisions on the pretext that more scientific studies would resolve policy issues; to justify rather than inform prior political positions; and to devalue local knowledge based on trial-and-error experience as complementary to scientific knowledge in informing policy decisions.

Meanwhile, as policy gradually shifted within the Park, events outside would eventually complicate debates over managing the Park's resources. In 1916, a committee formed within the U.S. Livestock Sanitary Association to address the brucellosis issue and continues today as the Brucellosis Committee of the United States Animal Health Association (USAHA), a professional association of veterinarians. Federal and state governments became involved in 1934, forming the Cooperative State-Federal National Brucellosis Eradication Program to rid livestock of brucellosis. Working together, the U.S. Agriculture Department, state livestock departments, and livestock producers have made progress in eradicating brucellosis from domestic cows, where it can cause abortions, infertility, reduced milk production, and a retained placenta—and in doing so, devastate ranchers economically.<sup>17</sup> Protecting livestock producers from the problem of brucellosis is a valid and appropriate interest within the strong agrarian tradition, particularly in the West, that values ranching as part of the American cultural heritage.

By 1960, however, with brucellosis infecting fewer domestic herds, the Brucellosis Committee of the USAHA began to view the disease in bison and other wildlife as a threat to eradication efforts.<sup>18</sup> This brought into conflict the interest in protecting livestock from brucellosis and the interest in protecting wild Yellowstone bison from domestication. In an early response to the concerns of the veterinarians and allied interests, in 1962 Yellowstone Park officials began capturing bison, testing them for brucellosis, and sending positive reactors to slaughter. This program was terminated in 1964, however. Park researchers claimed it could never end because only 75 percent of bison could be captured. Capture also changes the wild behavior of bison. Furthermore, removing all positive reactors would reduce herds to dangerously low numbers and eliminate the genes of dominant females who teach historical habitat use patterns.<sup>19</sup> Budgetary constraints also influenced the program's termination.<sup>20</sup> In short, it was decided that an extensive and expensive capture and testing program in the Park would not eliminate brucellosis but would threaten the wild bison herd.



By 1966, public pressure and a changing ecological understanding of wildlife led to the Park's natural regulation policy. This policy mandates that managers depend more on natural conditions, such as winter starvation, than on human actions to control wildlife populations. By 1967, the new natural regulation policy, the increasing role of science in management, and strong public opposition to wildlife population control in the Park—in particular the slaughter of thousands of elk—led to the termination of all human reductions of wildlife populations in the Park.<sup>21</sup> The bison herd numbered 397 at that time and stayed within Park borders.<sup>22</sup> There was little initial increase in the bison population, but by 1968, bison began moving toward Park borders. A border control policy and other attempts to deter the migrations, including cattle guards and fences, failed to end the migrations in the 1970s and early 1980s. Debate continues over explanations for the migrations: increasing populations due to the natural regulation policy, herd memory, and easy-to-travel snowmobile trails are among the possibilities. Whatever the explanations, the migrations seemed inevitable without a return to intensive, ranchlike control of Park bison.

The gradual return to these more intensive management techniques began about 1985, when APHIS granted Montana and Wyoming a brucellosis-free status. This assures buyers that cattle from the states are disease-free, subjecting producers to fewer costly regulations and increasing the cattle's marketability in interstate and international commerce. The livestock industry began to demand that Yellowstone and Grand Teton National Parks eradicate brucellosis from bison to maintain the brucellosis-free status.<sup>23</sup> (Grand Teton, adjacent to Yellowstone National Park on its southern border, also contains a herd of brucellosis-infected bison.) Yellowstone officials initially did little to control migrations of or brucellosis in bison, arguing that the risk of transmission to cattle is too small to warrant handling the wild animals: there were (and are) no documented cases of the transmission of brucellosis from bison to cattle in the wild. Livestock interests, frustrated by Yellowstone's refusal to meet their demands, turned to the state veterinarian and to the Montana Department of Fish, Wildlife, and Parks (DFWP). At the request of the state veterinarian, state game wardens from DFWP shot eighty-eight bison that wandered into Montana in the winter of 1984–85.<sup>24</sup> These actions were the first direct and intensive control of Park bison by state agencies, and they set the stage for policies to manage border crossings in the future. Although methods have varied, all policies recommended or applied by agency officials since then have involved killing bison.

## The Decision Process

In 1985, the first attempt to develop a plan for bison management by the Park and DFWP failed because of interagency conflicts.<sup>25</sup> The Department of Fish, Wildlife, and Parks responded to bison migrations like a game agency, one that manages wildlife by killing game animals with public hunts and other methods. As a state agency, it is responsive to the interests of ranchers. The Park, in contrast, seeks to protect Park resources. As a federal agency, it is accountable in principle to national officials and ultimately to the national public. The different mandates of agencies with some jurisdiction over bison management make coordination among them difficult. Officials are often loyal to their own agencies, through personal preference or through inducement or threats from superiors, even amid interagency coordination efforts. Thus far, no agency-mandated policy has realized the potential to advance the common interest.

The difficulties of advancing the common interest through interagency coordination alone show up in a recurring pattern: bison exiting Yellowstone National Park are killed indiscriminately or after testing for brucellosis, under written or unwritten public policy. In response to the killing, members of the public protest in various ways—by appeals to legislators or others, by filing lawsuits, by developing citizens' alternatives to official policy, or even by acts of civil disobedience. In response to public protests, public officials make superficial changes in policy, setting the stage for repetition of the pattern. The result is heightened frustration all around, which leads to repetition of the pattern as long as participants are unable to make significant changes in public or private policies.

In 1985, after the killing of bison that winter, the Montana state legislature responded to public protests and to pressure from hunting groups by designating bison a game animal. Under this superficial change in public policy, hunters joined officials from DFWP and killed fifty-seven bison outside the Park in the winter of 1985–86.<sup>26</sup> The public protested once again. Few considered shootings by hunters an improvement over shootings by officials; in either case, the outcome for bison was the same. Some considered hunting bison no more sporting than shooting a couch; bison normally do not try to evade or attack the threat represented by the hunter. The Fund for Animals, an animal rights group, sued the Park for allowing bison to migrate into Montana just to be shot.<sup>27</sup>

After the bison killings in the winter of 1988–89, public protests



erupted again. Many readers will recall televised images of Yellowstone in flames the summer of 1988, and the resulting ghost forests.<sup>28</sup> The flames subsided when rain came in the fall, but only after burning about a million of the Park's 2.2 million acres.<sup>29</sup> The massive fires, a drought, and a harsh winter made it difficult for bison and other ungulates to find forage the following winter. Few animals died in the flames, but officials from the Montana DFWP and hunters killed 579 of 900 bison from the Park's northern herd that crossed the border in search of food.<sup>30</sup> This generated more complaints to the governor of Montana, Stan Stephens, than any other issue.<sup>31</sup> People compared the hunt to a firing squad and to the slaughter of buffalo in the nineteenth century. A National Wildlife Federation employee said the killing shows "the livestock industry flexing its muscle," suggesting that the balance of power was tipping in favor of livestock interests.<sup>32</sup>

By 1989, the principal state and federal agencies were all frustrated with a situation that served none of their primary interests. Moreover, the Montana DFWP and Department of Livestock (DOL), the National Park Service, the U.S. Forest Service, and APHIS could no longer avoid one another. So they sought to reach an enduring solution to bison management problems through development of a long-term plan.<sup>33</sup> Officials from the Park and DFWP developed the first Interim Plan and Environmental Assessment (EA) in 1990 and released it to the public for comment in 1991. The agencies received 319 public responses.<sup>34</sup> In spite of public concern over bison killings during the previous five winters, the plan called for public hunts, state sharpshooters, and the capture of calves. The plan allowed Park officials to help kill bison outside the Park, reflecting pressure from livestock groups and state officials on Park officials to accept responsibility for protecting livestock by controlling bison. Park officials believed that helping Montana outside the Park was better than killing bison inside the Park, and that such a strategy might reduce demands to control the herd inside the Park. They were less able—or less willing—to argue, as they had done in the 1970s and 1980s, that the risk of transmitting brucellosis from wildlife to cattle was minimal.

Frustrated by the performance of agencies on this issue, a Bison Management Citizen's Working Group was organized in Bozeman, Montana, in 1990 under the leadership of Leroy Ellig, a retired regional supervisor for DFWP. The group included landowners, ranchers, hunters, conservationists, and retired agency personnel, with agency officials and a tribal member serving as advisers and consultants.<sup>35</sup> They did more than critique the current Interim Plan of the agencies. They

developed an alternative to protect wild bison and livestock through risk management measures that included separation of bison and cattle in time and space and vaccination of cattle. After all group members approved the plan in 1991, it was submitted to the agencies, which treated it as just another response to the Interim Plan and not as a step toward a common-interest alternative.<sup>36</sup> Consequently, state and Park officials continued killing bison under a revised 1992 Interim Plan. However, because of bad publicity, the Montana state legislature outlawed the public hunt of bison. This was another superficial change in public policy that failed to address the underlying political or structural problems. Meanwhile, by 1994, the bison population peaked at 4,200 animals, the highest since the nineteenth century.<sup>37</sup>

At the same time, livestock and veterinary interests refocused on bison management and asserted their influence. The professional veterinary association, USAHA, that includes the Montana and many other state veterinarians as members, issued five brucellosis resolutions in 1995.<sup>38</sup> One resolution stated the expectation that brucellosis in and overpopulation of bison and elk threaten cattle. Together with the Western States Livestock Health Association, composed of seventeen Western state veterinarians, USAHA pressured APHIS to downgrade the status of states that allowed wild bison to roam after exposure to brucellosis.<sup>39</sup> Even though USAHA is not an official policy-making body, it is respected enough to be highly influential. Subsequently, APHIS threatened to revoke Montana's status without a scientific or legal basis. The Montana state legislature also changed the primary authority for managing bison from DFWP to DOL—an agency with a mandate to "protect the health and well-being of the livestock industry and economic well-being of ranchers" and without previous experience or responsibility in wildlife management.<sup>40</sup> Thus the perspectives of livestock management became more influential in the management of wild bison that roam outside the Park and into Montana.

In 1995, governor of Montana Marc Racicot sued APHIS and the National Park Service out of frustration over increased attention on brucellosis, pressure from state veterinarians outside the region, unresolved conflicts in federal policies, and threats from APHIS to revoke Montana's brucellosis-free status.<sup>41</sup> He alleged that the state was harmed because the Park failed to prevent bison migrations into Montana and because APHIS threatened to downgrade Montana's status based only on the presence of diseased wild bison in the state. This lawsuit resulted in a settlement agreement in November 1995, signed by Racicot, assistant secretaries of agriculture and interior, the Galla-



tin National Forest Supervisor, and the vice president of the Royal Teton Ranch, a private landowner adjacent to the Park and an intervenor for Montana.<sup>42</sup>

The agreement prevented APHIS from downgrading Montana's status as long as the state complied with the Interim Plan.<sup>43</sup> The agencies were directed to follow a revision of the 1992 Interim Plan, developed as an Environmental Assessment (EA).<sup>44</sup> The agencies had to revise the EA and the Interim Plan to protect livestock through additional bison management, limit bison mortality, and allow themselves more time to prepare an EIS for a long-term plan.<sup>45</sup> In effect, this formalized the policy, initiated in 1984–85, of controlling bison that leave the Park by lethal means. The agreement specified that the National Park Service, the U.S. Forest Service, and the state of Montana co-lead an EIS in cooperation with APHIS. It also gave DOL the power to decide which bison can enter Montana. This essentially consolidated control over the development and implementation of policy.

The agencies released a draft EA and Interim Plan in December 1995. It directed the agencies "to provide spatial and seasonal separation of bison and domestic cattle in order to maintain Montana's brucellosis class-free status, while permitting the bison herd within the park to fluctuate, to the maximum extent possible, in response to natural ecological processes."<sup>46</sup> The agencies received 260 comments from state and federal agencies, Native American tribes, organizations, and individuals. A member of the 1991 Bison Citizen's Group remarked that "a lot of politics and positioning has occurred . . . and are driving . . . interests apart."<sup>47</sup> Much of the controversy centered on the allowance of capture facilities inside Park boundaries for the first time, indicating the Park's acceptance of more responsibility for protecting livestock through control of bison and changes in the Park's conception of allowable (or perhaps necessary) actions under its own natural regulation policy. Respondents complained that the low risk of brucellosis transmission did not warrant capture facilities and test and slaughter for bison, and that approval of a capture facility within Park boundaries grants DOL authority within the Park. Furthermore, blood tests for brucellosis in live bison cannot distinguish between infection by and resistance to brucellosis. Tissue samples, which can be taken only from dead bison, are necessary to determine if an animal is infected. Respondents also complained that the plan omitted consideration of tribes, did not provide adequate compensation for agricultural interests, and used capture and slaughter of wildlife in all alternatives. In spite of public opposition, the National Park Service approved the plan in 1996.<sup>48</sup>

Like the Fund for Animals in 1991 and Governor Racicot in 1995, organizations that felt excluded from the decision-making process sought to change policy decisions through the courts. In particular, they sued to halt the application of the 1996 Interim Plan.<sup>49</sup> They argued that a slaughtering program *inside the Park* violates the National Park Service Organic Act, which requires protection of Park wildlife. They also argued that it could have negative environmental consequences, thereby violating NEPA. Judge Charles Lovell heard the case and ruled in favor of the defendants. This was not surprising, because he presided over the 1995 settlement agreement directing the agencies to follow the Interim Plan. The plaintiffs appealed the ruling. In May 1999, the Ninth Circuit Court of Appeals issued a one-sentence judgment upholding Lovell's "reasonable" ruling.<sup>50</sup>

Frustration over bison management peaked in the winter of 1996–97. That year, bison faced the most severe snow and ice conditions in the Park since 1943, forcing them to migrate to lower elevations outside the Park for forage.<sup>51</sup> State and park officials shot 1,084 bison between November 1996 and April 1997.<sup>52</sup> A capture facility was operated *within* the Park near the northern entrance. Another 300–400 bison died in the Park from the harsh winter conditions. Some management actions that winter deviated from the 1996 Interim Plan. Heavy snows prevented the use of a proposed trapping facility outside Yellowstone's western boundary, so DOL established a shoot-to-kill policy there. On the northern boundary, the 1996 Interim Plan proposed capturing and sending to slaughter all bison approaching the border. As increasing numbers of bison approached the border, the Park began testing bison and sending only test-positive bison to slaughter in order to minimize bison deaths.<sup>53</sup> Such deviations from written policy underscore DOL's interest in killing bison to protect ranchers, and the Park's interest in minimizing lethal control of bison.

These events provoked a national public outcry. Thousands of newspapers, magazines, and television and radio stations covered the shootings, reporting bloody scenes at the capture facilities and the sale of stacks of bison heads, hides, and meat.<sup>54</sup> People once again compared the killings to the nineteenth-century slaughter. Citizens, livestock interests, conservation groups, and others wrote letters to the Park. State veterinarians in Alabama and Oregon placed restrictions on cattle from states around Yellowstone. The national publicity also complicated the issue by involving members of more agencies and higher-level officials.

Top officials felt they needed to provide at least an appearance of making changes. Meetings occurred among officials in Washington,



D.C., including Interior Secretary Bruce Babbitt and Agriculture Secretary Dan Glickman.<sup>55</sup> Governor Racicot met with President Clinton. Senior administration officials, including Secretary Babbitt, discussed the issue with Montana's congressional delegation.<sup>56</sup> Proposals from these talks met with criticism from all sides. In addition, the White House Council on Environmental Quality (CEQ) initiated meetings, dubbed "the federal family" meetings, to coordinate officials from the Washington offices of the National Park Service, the U.S. Forest Service, and APHIS. All of this once again was restricted to interactions among agency officials.

Frustrated by the agencies' handling of the issue and believing their interests were not being addressed, a group of ranchers, conservationists, and hunters in Jackson Hole, Wyoming, wrote a letter to the Clinton administration in January 1997, in the midst of the crisis. They requested that APHIS stop threatening to downgrade the state's brucellosis-free status. Ranchers in Jackson Hole, they noted, had been running cattle next to bison for more than thirty years with no outbreaks of brucellosis. They concluded that the risk of transmission is low and that cattle vaccination combined with separation of cattle and bison make the risk almost zero. The real risks, they said, "are the proposals originating from and/or driven by APHIS and the unfounded premise that brucellosis poses a real threat to man and beast." The letter urged the officials to "recognize the common ground which exists" and to "concentrate your management efforts on non-lethal and non-invasive methods of minimizing that already insignificant risk of disease transmission rather than concentrating on the eradication of brucellosis via the lethal and costly methods now being proposed."<sup>57</sup> The most direct response by APHIS was to force Wyoming ranchers to submit to a station review of their brucellosis-control measures. The review involved thousands of dollars in brucellosis-testing costs for Wyoming ranchers. In February 1997, however, APHIS did respond positively to pressure from other federal agencies and the federal family meetings. It acknowledged that a state's brucellosis-free status cannot be revoked unless there is an uncontrolled outbreak of brucellosis. In other words, the mere presence of bison with brucellosis was no longer adequate grounds for APHIS to threaten or penalize a state's livestock producers. Nevertheless, Montana officials continued to haze, shoot, or capture and slaughter virtually all bison crossing into Montana.<sup>58</sup>

In February 1998, APHIS scientists developed a definition of low-risk bison in response to public pressure, the federal family meetings, and a request from DOL director Larry Peterson. The definition, ac-

cepted by all federal agencies, identifies as low-risk those bison that cannot emit birthing materials containing the organism that causes brucellosis.<sup>59</sup> The low-risk definition also endorses temporal separation of bison and cattle, because transmission can only occur if they come into contact.<sup>60</sup> The U.S. Forest Service altered cattle grazing allotments to give the Montana state veterinarian authority to prevent cattle from entering allotments until thirty to sixty days after bison return to the Park for the summer, minimizing the potential for contact. These alternatives, according to Patrick Collins, director of legislative and public affairs at APHIS, "protect Montana . . . and minimize the need for lethal control of bison."<sup>61</sup> Nevertheless, Montana state veterinarian Arnold Gertonson wrote to APHIS and to other state veterinarians rejecting the definition because other states could still place sanctions on Montana cattle, even with a brucellosis-free status for Montana.<sup>62</sup> In response to Gertonson, APHIS officials reported they had pressured veterinarians from other states to lift sanctions on Montana cattle—sanctions without a scientific or legal basis.

On June 5, 1998, Yellowstone National Park, the state of Montana, and the U.S. Forest Service finally released the draft EIS and Interagency Bison Management Plan for public comment.<sup>63</sup> Most of the strategies de-emphasize risk management in favor of handling and manipulating bison rather than cattle and moving toward zero tolerance for test-positive bison. All alternatives call for more research and the development of a vaccine for female bison to reach the objective of "the eventual elimination of brucellosis in bison." Vaccination for cattle, however, is only encouraged in each of the seven alternatives.<sup>64</sup> All alternatives include boundary control by agencies and capture and testing, with provisions to slaughter infected animals and to give uninfected animals to tribes or put them on public lands. All but one of the seven proposed alternatives would establish special management areas where the bison exit north and west of the Park, with varying degrees of tolerance for bison. The agencies proposed to keep the bison population between 1,700 and 2,500 animals, to increase killings as the number approaches 2,500, and to minimize lethal strategies as the number approaches 1,700. These numbers are not explicitly justified by scientific studies or by practical experience. The preferred alternative also provides for limited public hunting.

The interagency agreements on the draft EIS and on the long-term plan were only temporary, however. By December 1999, in a letter to Governor Racicot, the federal agencies sought to revise the plans to "allow for tolerance of bison outside the Park as opposed to unnecessary killing of bison." They also wanted to withdraw from the 1992



Memorandum of Understanding that formalized interagency negotiations on a long-term bison management plan, and to proceed without Montana in issuing a final EIS. In justification for this action, the federal agencies' letter cited Montana's "unreasonable objections" to the federal proposal.<sup>65</sup> Once again the agencies returned to Judge Lovell's court to settle the dispute. Although federal agencies retained legal authority to terminate the memorandum, they nevertheless agreed to meet a request by Judge Lovell and continued negotiations for seven more months. They finally produced a record of decision and Joint Management Plan one year later, signed by officials from the U.S. Forest Service, the Department of Interior, the U.S. Animal and Plant Health Inspection Service, and the state of Montana. In the record, the agencies state that the plan "is not intended to be a brucellosis eradication plan," but it "sets forth actions to address brucellosis within the bison herd."<sup>66</sup> The plan requires hazing, capture, testing, and lethal control of bison, sets herd limits for bison, and requires vaccination of cattle grazing next to Yellowstone's borders. It also sets a longer-term goal of vaccinating the Yellowstone bison herd against brucellosis using a remote delivery system.

### Policy Appraisals

Looking back over roughly a decade and a half of bison management in greater Yellowstone, it is difficult to argue that the common interest has been served. Few of those directly involved have been satisfied with the decisions of the courts or agency officials. There have been repeated public protests, acts of civil disobedience, and demonstrations, including a Native American spiritual journey to Yellowstone in honor of the buffalo. There have been at least twelve lawsuits.<sup>67</sup> About 70 percent of more than 67,000 public comments on the draft EIS supported a Citizens' Plan to Save Yellowstone Bison over the agencies' alternatives. Four other nonofficial plans were proposed, in addition to the Citizens' Plan: Plan B from the Alliance for the Wild Rockies; the Bison Alternative from the Fund for Animals; the U.S. Animal Health Association Alternative; and Alternative Eight from the Fort Belknap Indian Community Tribal Government.<sup>68</sup> And although a record of decision has been reached among agencies, public controversy over the Joint Management Plan outlined in the record continues. These are among the major indicators of widespread frustration with bison management in greater Yellowstone.

Conservationists and others argue that intensive management techniques prescribed in the 2000 Joint Management Plan—hazing, bait-

ing, capturing, testing, and slaughtering bison—are not suitable for managing a wild, free-roaming herd.<sup>69</sup> Moreover, the goal of maintaining a wild herd is incompatible with the goal of eradicating brucellosis from wildlife through these intensive techniques. Blood tests are unreliable because a test-positive result may indicate either resistance to brucellosis or infection by it. No safe, effective vaccine currently exists to protect test-negative bison from contracting brucellosis. And not all bison or the thousands of elk in the area can be rounded up for testing and vaccination. Intensive management techniques also fail to meet the goal of protecting livestock producers. Among other things, these techniques maintain the perception that brucellosis in bison is reason enough for other states and countries to impose sanctions on Montana cattle, and they shift attention away from the producers' success in eradicating the disease from cattle in the state. The intensive management techniques also divert resources from more serious threats to the livestock industry.

These methods are employed despite evidence that the risk of transmission remains minimal, even with increased bison migrations. Only one study shows brucellosis transmission from bison to cattle, but it was conducted in an artificial, highly controlled setting.<sup>70</sup> Many dispute the relevance of the study and argue that there have been no documented cases of brucellosis transmission from bison to cattle in the wild. Ranchers in Jackson Hole cite the thirty years they have grazed cattle near bison, with no outbreaks of brucellosis, as evidence of minimal risk. As further evidence of minimal risk, others cite no outbreaks of brucellosis after the intermingling of cattle and bison outside the Park following the fires of 1988.<sup>71</sup> The only known method of transmission is through birthing materials. Yet DOL plans to continue to capture, test, and kill bull bison and other bison that cannot possibly emit birthing materials. Additionally, bison migrate out of the Park in large numbers mostly in the winter, when snow covers forage in the Park. The majority of ranchers do not graze their cattle outside the Park in the winter.

The economic stakes involved in transmission are rather small, although this, too, is disputed. Only about fourteen ranchers graze around 2,000 head of cattle near Park borders. About 45 percent of those 2,000 cattle graze on public land, generating only \$5,000 per year in revenue for the U.S. Forest Service.<sup>72</sup> Hope Sieck, associate program director of the Greater Yellowstone Coalition, expressed concern about the millions of dollars expended for these few cattle and for little revenue.<sup>73</sup> In spite of such concerns, the high expenditures are likely to continue under the Joint Management Plan. The counterargument is



that brucellosis can decrease the marketability of all cattle in greater Yellowstone. Therefore, claimed former state veterinarian Clarence Siroky, "any discussion of brucellosis . . . must include the total inventory and economic value as well as the value of infrastructure of the cattle industry in Idaho, Montana, and Wyoming."<sup>74</sup> The total inventory was valued at \$773 million.<sup>75</sup> Although maintaining the economic health of the livestock industry is a valid interest of ranchers, it is not necessary to eradicate brucellosis from bison to do so. More important than the "correct" numbers, the dispute signals a lack of trust among participants, an inability to reconcile their differences, and the intense threat ranchers feel to their livelihood—all of which intensifies debate and complicates the search for the common interest.

Livestock and other interests argue that important underlying issues are left out of the draft EIS and record of decision. The Park's policy of natural regulation is one of them. A Montana rancher said, "I'm not a proponent of culling but they at least need to address it and work with the surrounding states if they don't want to cull in the Park."<sup>76</sup> Hagenbarth Livestock stated that "the 'natural regulation' management policy practiced by YNP does not exempt them from their responsibility of being a good neighbor."<sup>77</sup> Clarence Siroky said, "The impact upon Montana, Wyoming and Idaho was never figured as part of the 'natural' equation."<sup>78</sup> Wyoming governor Jim Geringer and agriculture director Rob Micheli see overpopulation of wildlife and failure to vaccinate them as problems.<sup>79</sup> Department of Livestock officials feel that the "laissez-faire [natural regulation] philosophy" results in populations of bison and elk that are too high.<sup>80</sup> Native American groups also argue that the idea of self-regulated wildlife populations diminishes the importance of hunting by the Bannock, Nez Percé, and other tribes for centuries in and around the Park.<sup>81</sup> "Natural" processes of regulation included humans.<sup>82</sup> Supporters of natural regulation point out that the policy does not prohibit culling outside the Park. Whether or not one believes the natural regulation policy to be ecologically sound, it is controversial.

These persistent controversies are costly in various ways. The Department of Livestock's involvement in bison management, including hazing, testing, and slaughtering, cost it about \$95,000 through mid-February 1999 of that fiscal year. This is a substantial fraction of DOL's annual expenditures. The U.S. Department of Agriculture also approved \$225,000 in federal funds to operate the capture facility.<sup>83</sup> The Park Service has paid for personnel to assist in killing bison, to operate a capture facility in Park borders, and for preparation of the draft EIS. Under the Joint Management Plan, the Park plans to continue paying

for such intensive management techniques as capture and testing. The station review by APHIS in Wyoming cost ranchers thousands of dollars for testing. Lawsuits filed by livestock groups, states, conservation groups, tribes, animal rights groups, landowners, and agencies were all expensive, and they continue to contribute to the polarized atmosphere. The controversies also drain another precious resource, human energy. Personnel burnout and turnover, high levels of frustration, and feelings of powerlessness and mistrust among nearly all participants are some of the results of the contentious atmosphere. Less obvious long-term costs should be considered as well. Mistrust, for example, will make it more difficult to find common-interest solutions to problems in bison management in the future.

Tensions among agency officials may have been ameliorated somewhat by such interagency efforts as the Greater Yellowstone Interagency Brucellosis Committee, the federal family meetings in Washington, and repeated interagency EAs and EISs.<sup>84</sup> These interagency efforts, however, give an appearance of coordination that is misleading. Agency officials often remain loyal to agency mandates that contribute more to gridlock than to finding common ground. In addition, different agencies pursue their own policies in bison management, with the Montana DOL and state veterinarian holding predominant power. The Department of Livestock continues to operate under its own definition of the risk of transmission and to haze, shoot, or capture and test all bison that roam into Montana. The Park made some concessions to intensive management within its borders but continues to prefer its natural regulation policy. And APHIS has made some concessions on the definition of risk and on sanctions. But on the whole, it is difficult to see enough movement toward common ground to justify the costs of the interagency efforts. Meanwhile, members of the public who expect to influence bison management through the interagency EIS process have been disappointed if not alienated. The EIS process in principle involves citizens, but in practice the agencies seldom incorporate citizen input from the official public comment period into official management alternatives. Lawsuits are expected to be an inherent part of the EIS process, no matter what the official decisions. This expectation, based on experience, reduces the incentive to incorporate citizen input.

Formal assessments have done little to improve the decision-making process in bison management because they have focused on technical or scientific issues and have given little attention to political issues. Interior Secretary Babbitt commissioned a study of brucellosis by the National Research Council (NRC) in 1997. In 1992, Senator Alan Cran-



ston commissioned a study by the U.S. General Accounting Office (GAO) of the transmission of brucellosis from bison and elk to cattle. In 1997, the Subcommittee on National Parks, Historic Preservation and Recreation of the Senate Committee on Energy and Natural Resources commissioned a similar study from GAO, which in turn called for more studies.<sup>85</sup> Although such studies add information, any side in the political controversy typically can and often does use them selectively to reinforce rather than reconsider its position. The NRC study in 1997, for example, concluded that "neither sufficient information nor technical capability is available to implement a brucellosis eradication program in the [greater Yellowstone Area]." Two pages later, it also concluded that "it is likely brucellosis can be eliminated from [Yellowstone National Park] without loss of large numbers of bison or loss of genetic diversity."<sup>86</sup> Calls for more scientific studies continue. But the state of Montana found existing knowledge adequate to pressure APHIS into withdrawing threats to downgrade the state's brucellosis-free status; and later APHIS found information adequate to urge other states to withdraw sanctions from Montana's cattle. These were political accomplishments, not scientific ones, demonstrating the subordination of science to politics.

Some small successes should not be overlooked. As noted above, Montana officials and later APHIS officials have helped protect Montana livestock producers by reducing the threat to downgrade the state's brucellosis-free status and reducing the threat of sanctions imposed by other states. Ranchers have succeeded in protecting their herds from brucellosis, amid various government actions and inaction. The lack of transmission of brucellosis in Jackson Hole, despite intermingling of bison and cattle, indicates the effectiveness of prudent ranching practices, including vaccination. It also indicates the limited potential for transmission, especially in winter. Moreover, citizens' groups have invested time and other resources in finding common ground, especially the 1991 Bison Management Citizen's Working Group in Bozeman and the coalition of ranchers, conservationists, and hunters in Jackson Hole in 1997. In addition, the 1998 Citizens' Plan to Save Yellowstone Bison was endorsed over the interagency alternatives in most public responses to the draft EIS.

### Structures of Governance

Fragmented structures of governance in large part account for the failure to clarify and secure the common interest through a long-term bison management policy. The structures encourage officials to serve

their own agency's specialized mandates, policies, and other interests as if these were the equivalent of the common interest. If the officials do not, they may be subject to penalties. Consequently, each agency with partial jurisdiction over bison management tends to come into conflict with other agencies and with interest groups in the private sector. Interactions among them are loosely organized through the EA and EIS processes established by the National Environmental Policy Act (NEPA). However, the political power necessary to force an integration of various factions into policy that advances the common interest either does not exist or has not been used to any significant extent in a decade and a half.<sup>87</sup> Thus, Montana does not accept APHIS's definition of low-risk bison; the federal government has not imposed it on Montana; and no government has banished critical interest groups from the arena.

In the state of Montana, DOL and allied veterinarians hold predominant power over bison management. The Montana Board of Livestock formulates policy for DOL, directs its operations, and hires both the executive director of DOL and the state veterinarian. The seven-member board is appointed by the governor, and includes producers of livestock, swine, dairy cattle, sheep, and game. Veterinarians act as advisers to the Board of Livestock, DOL, and ranchers, much as conservationists rely on natural scientists as advisers.<sup>88</sup> Veterinarians have experienced "a high degree of frustration," according to former Montana state veterinarian Clarence Siroky, because "the State Veterinarians and the livestock industries in all fifty states are committed to the eradication of brucellosis," but "their authority does not extend to within park boundaries, the [last] source of infection" in the intermountain region.<sup>89</sup> Veterinarians in other states have threatened sanctions against Montana cattle and have encouraged APHIS to revoke the state's brucellosis-free status. Montana rationalizes its zero-tolerance policy for infected bison as necessary to avoid such sanctions. The state also refuses to approve bison management proposals that are unacceptable to the state veterinarians and the USAHA.

Regardless of the intent of Montana officials, it should not be assumed that the policies of Montana veterinarians and DOL do in fact "protect the health and well-being of the livestock industry and economic well-being of ranchers" as mandated. Whatever else a policy to eradicate brucellosis from bison does, it harms the Montana livestock industry by focusing attention on the brucellosis issue and inflating the perception of risk among potential buyers outside the state. It also costs the Montana ranchers who fund DOL about \$100,000 annually. Moreover, it should not be assumed that progress of the policy to eradi-



cate brucellosis from cattle can be extrapolated to wildlife. The eradication of brucellosis from wildlife is a different matter biologically, given the lack of an effective vaccine for bison and the presence of brucellosis in thousands of elk as well as bison.<sup>90</sup> It is also a different matter politically so long as most citizens do not regard elk, bison, and other wildlife as livestock and protest when large numbers of wildlife are killed.

The Greater Yellowstone Interagency Brucellosis Committee (GYIBC) was created in 1990 after a task force of cattlemen, sportsmen, and representatives of state agencies "recognized that eradication of brucellosis in the GYA was desirable" and recommended it. Missing from task force discussions were conservationists, federal agencies, tribal representatives, and landowners. The goal was "to fulfill the needs of state agencies relative to brucellosis in wildlife."<sup>91</sup> Evidently, the needs of other groups, public and private, with respect to related issues were relatively insignificant to the task force, if considered at all. In 1995, the governors of Wyoming, Idaho, and Montana and U.S. interior and agriculture secretaries signed the Memorandum of Understanding that established the GYIBC.

All agencies that have some jurisdiction in bison management now have voting representatives on the GYIBC executive committee. Included are the directors of the state wildlife agencies of Montana, Wyoming, and Idaho; state veterinarians or directors of agriculture for the three states; the Wyoming state director of the Bureau of Land Management; one regional forester from the U.S. Forest Service; the Region 6 director of the U.S. Fish and Wildlife Service; the director of the Rocky Mountain Region of the National Park Service; and a designated representative of APHIS. Nonvoting members include representatives of the National Biological Service and Agricultural Research Service.<sup>92</sup> The GYIBC's official goal is the eradication of brucellosis from greater Yellowstone by the year 2010. This official goal presumes that the necessary technology, funds, and political support now lacking will become available. The GYIBC was originally conceived to coordinate the planning and implementation of policies relevant to the official goal. Instead, it has become a means of coordinating information on brucellosis and keeping member agencies informed of related issues.<sup>93</sup>

The GYIBC's policy is to leave its meetings open to the public but to exclude representatives of the public from the committee itself. The agencies have concluded that the Federal Advisory Committee Act (FACA) prohibits a public representative.<sup>94</sup> Most meetings include an opportunity for members of the public to make comments. The comment period, however, occurs at the end of meetings, when many GYIBC members are leaving and attention is dwindling. The effective

exclusion of citizens was evident during a GYIBC meeting in May 1999. The governors of Montana, Wyoming, and Idaho and Assistant Secretary of Interior Don Berry attended to discuss future strategies and the possibility of expanding the role of the GYIBC to include policy recommendations and implementation. Members of the public also attended but were prevented from asking questions or making comments before the officials left.<sup>95</sup>

The GYIBC has not moved the policy process much closer to finding common-interest solutions. This is not surprising in view of the rather exclusive membership, the official goal, the lack of resources, and the policy regarding public participation, as well as policy differences among its members. As its name implies, the GYIBC institutionalizes brucellosis as the main problem, if not the only one; its name also suggests that the agencies alone are authorized or otherwise competent to find a solution. Thus the GYIBC helps institutionalize conflict with those in the private sector who perceive problems besides brucellosis and aim for solutions that address underlying issues, and who have enough at stake to remain active participants. These groups include, ironically, the ranchers and others in Jackson Hole who considered the threat of overregulation the problem and advocated the vaccination of cattle and their separation from wildlife as proven low-intensity management solutions.

At the national level, the White House Council on Environmental Quality became involved to coordinate the federal family after the shooting of more than a thousand bison in 1997. Weekly meetings occurred for several years among federal officials and scientists in the Washington offices of APHIS and the U.S. Forest Service, both in the Agriculture Department and the National Park Service in the Interior Department. The meetings gave the agencies an "opportunity to talk about ways to get away from the thirty years of bad history" on this issue.<sup>96</sup> The federal family meetings have led to changes in APHIS. Agency veterinarians maintain a "disease control perspective" and were once viewed as villains in this issue.<sup>97</sup> Partly as a result of the federal family meetings, APHIS withdrew threats of sanctions in the absence of a brucellosis outbreak and developed the low-risk definition for bison. Also partly as a result of these meetings, the USFS altered grazing allotments to allow for temporal separation of cattle and bison. The USFS, however, maintains a low-profile role in the process because it is mandated to maintain habitat, not to manage wildlife.<sup>98</sup> As discussed above, the federal policy changes have resulted in little difference in practice because Montana rejects them and maintains control over bison management in greater Yellowstone.



Similarly, other efforts to coordinate have had little effect in practice. Washington officials involved in bison management circulate interoffice memos and meet informally.<sup>99</sup> Western governors and members of Congress pressured federal officials, typically on behalf of livestock interests in their states. Top officials such as Governor Racicot and President Clinton and secretaries of the interior and agriculture met sporadically. Insofar as such efforts take place behind closed doors, it is difficult for outsiders to determine who might be held accountable for the lack of coordination. Finally, as noted above, the EIS process has done more to polarize the issues between public agencies and private interest groups than to advance the common interest through policy. Frustrated by interagency bison management alternatives, and effectively excluded from the structures through which those alternatives are devised, private interest groups seek other means to make a difference in bison management policy. Lawsuits are an obvious choice, because there are plausible grounds in law for almost any interest group with enough funds to challenge official decisions. Whatever the courts may decide in a particular case, they exclude nonlitigants who nevertheless may have an important stake in the issue, and they provide little room for integrating or balancing the competing claims of litigants. In one case, as discussed, the court assumed authority and considerable control to oversee the revision and implementation of interim plans. Interest groups and officials have also appealed to legislators, state and federal, for legislation on the issue. In 1995, for example, the Montana state legislature transferred to DOL authority over bison that have been exposed to brucellosis and enter Montana.<sup>100</sup> Also in 1995, Senator Burns of Montana introduced a bill to require the National Park Service to eradicate brucellosis from Yellowstone bison. The bill proposed testing, culling, vaccination, and relocation of bison as well as keeping their numbers below the "optimum population."<sup>101</sup> The bill was not passed. Livestock groups in particular have been able to secure some of their interests through legislatures or the courts, but this is not equivalent to advancing the common interest.

The Bison Management Citizen's Working Group in Bozeman was an attempt to clarify and secure the common interest in 1991. It is worth recapping here the structure and outcome of this and other community groups' efforts to contrast it with the agency-led initiatives described above. The group included a local rancher, a member of the Montana Wildlife Federation, a member of the Greater Yellowstone Association of Conservation Districts (a now-defunct livestock group), members of The Wilderness Society and the Greater Yellowstone Coalition, retired employees from the Montana DFWP and the USFS, and

a local landowner. Agency officials from DFWP, APHIS, Yellowstone National Park, and the USFS served as technical advisers; a member of a tribal organization was also consulted.<sup>102</sup> The group attempted to be inclusive of the interests involved, which is consistent with a procedural test of the common interest. The group's ground rules, however, excluded any party that demanded zero tolerance for any bison outside the Park or zero tolerance for any lethal control of bison. Extreme positions were not tolerated. Animal rights organizations elected not to join the group under these ground rules. The group met once a week from March to May in 1991 to develop a plan for bison management, with the intent of "satisfying diverse interests and management perspectives."<sup>103</sup>

The members were able to work through their policy differences and agree on a plan for submission to agency officials. When all members accepted the plan, it passed a substantive test of the common interest. The objectives were "to maintain a self-sustaining population of wild bison within Yellowstone; to protect local livestock by reducing the potential for transmission of *Brucella abortus* [the organism causing brucellosis]; and to reduce the potential for bison-human conflict and property damage caused by bison outside the park."<sup>104</sup> The plan called for tolerance of bison on land outside the Park, but it allowed for trapping, testing, and transportation of migrating brucellosis-free bison to tribal lands, other public lands, and back into the Park. It left some flexibility for the agencies to work out the details. The intent was to address the demands of participants to protect ranchers, bison, and landowners but not the zero-tolerance demands of participants outside the group. The plan remains a good start toward a common-interest solution, one that minimizes the potential for transmission of brucellosis while protecting the wildness of the Yellowstone bison and allowing for control of any bison that cause property damage or endanger human safety. But the plan cannot pass a practical test of the common interest unless it is implemented by the agencies.

Citizens in Jackson Hole also attempted to clarify and secure the common interest in 1997. They included Jackson area ranchers, the executive directors of the Jackson Hole Conservation Alliance and the Greater Yellowstone Coalition, and the president of the Wyoming Wildlife Federation, a hunting organization. As noted, these citizens drafted a letter together and sent it to President Clinton, Secretary of Interior Bruce Babbitt, Secretary of Agriculture Dan Glickman, and Governor Geringer of Wyoming. They wrote, "While we share your concern for protecting the 'Brucellosis Free Status' of Wyoming, we think it is secure now because there is no recent history of brucellosis



transmission from wildlife to cattle in Teton, Park and Sublette counties and because the ranchers in this area protect their cattle through vaccinations." They also wrote that the Wyoming Game and Fish Department has policies to keep elk off private cattle feedgrounds and would do the same for bison if the need arose, eliminating the potential for the transmission of disease. The letter recommended "non-lethal and non-invasive" techniques of control but did not make detailed recommendations (beyond spatial separation and cattle vaccination), because the signatories believed the problem was adequately addressed through current management practices, at least in Wyoming. The techniques were less intensive than those recommended by the Citizen's Working Group in Bozeman, but the objectives and methods were otherwise similar. They acted partly to show that the Jackson community can resolve such issues without heavy-handed government intervention.<sup>105</sup>

In a separate effort, citizens in Jackson also worked with area agencies to devise a management plan for the bison herd in Jackson Hole, where circumstances are more challenging in some ways than in Montana.<sup>106</sup> The Totem Studies Group formed after citizens became frustrated with bison management in the area, around 1995. The group included unaffiliated citizens, conservationists, agency personnel, county commissioners, educators, Native Americans, members of the agricultural community, and scientists. Their goals included improving bison management in the common interest and building relationships among community members.<sup>107</sup> They engaged in deliberations to overcome political differences in the EIS process. And they gained the support of agencies with the authority to implement a plan: Wyoming Game and Fish, the U.S. Fish and Wildlife Service in the National Elk Refuge, and the National Park Service in Grand Teton National Park. Portions of the group's Jackson Hole Bison Management Plan were incorporated into the agency-led Environmental Assessment and Long-Term Plan. It called for risk management measures to prevent the transmission of brucellosis. Although participants in the Totem Studies Group recognized room for improvement in the plan, they believed the working relationships and trust they had developed would allow adaptation and change as new needs and insights arose. Thus the plan represented progress with respect to procedural and substantive tests of the common interest, but not the practical test: the Fund for Animals successfully blocked implementation. The group nevertheless helped change perceptions about citizen participation in the U.S. Fish and Wildlife Service and Wyoming Game and Fish. One official of Wyoming Game and Fish, for example, claimed his agency had a break-

through when it recognized that early involvement by citizens can help agencies envision the common interest.<sup>108</sup>

Private interest groups formed a coalition to develop the Citizens' Plan to Save Yellowstone Bison in Montana in 1998. The plan was submitted to the agencies during the NEPA process to provide an alternative to the interagency draft EIS, to meet the demands of the coalition's sixteen conservation and tribal organizations and three businesses, and to protect Montana's cattle.<sup>109</sup> The 1991 Citizen's Working Group and the 1998 coalition are not directly related, and the coalition was less inclusive. But the leadership abilities of Jeanne-Marie Souvigny, a member of the 1991 Citizen's Working Group, have been cited as instrumental in developing the plan.<sup>110</sup> Souvigny and others consulted with agency officials at all levels. The plan received 47,599 endorsements in public comments on the interagency draft EIS, partly because of promotion efforts by the National Wildlife Federation and the Intertribal Bison Cooperative.<sup>111</sup>

The Citizens' Plan recommends special management areas on public land where buffalo would roam with minimal intervention. It proposes a scientific determination of minimum and maximum herd size, using such strategies to manage the herd size as live removal to tribal lands and a public hunt. To ensure that only brucellosis-free animals would be relocated, the plan recommends building a "pasture-type bison health certification facility."<sup>112</sup> It also recommends an interagency/tribal/public cooperative team composed of wildlife professionals to advise managers. It advises changing the time or location of Forest Service grazing allotments to maintain separation of bison and cattle. The plan would prohibit hazing or capture of bison on public lands absent of cattle, unless the herd's population exceeds the maximum. It recommends that Montana and other states accept the federal low-risk definition, address brucellosis in elk, encourage ranchers near the Park to vaccinate their cattle, and make a land exchange outside of Yellowstone's northern border a priority.

The federal government is already implementing several of these alternatives. In August 1999, the government signed a land exchange deal with the Church Universal and Triumphant to secure 7,800 acres outside Yellowstone's northern boundary where bison migrate in search of winter forage. This land also provides habitat for elk, deer, antelope, bighorn sheep, wolves, and grizzly bears.<sup>113</sup> The exchange allows for nonlethal bison management options outside the Park. In addition, the Forest Service has already altered grazing allotments to allow the Montana state veterinarian to prohibit cattle from entering public land before bison return to the Park for the summer, thereby



minimizing the risk of brucellosis transmission. Finally, APHIS has encouraged Montana to accept the federal low-risk definition. Whether these changes make a difference, however, will depend on the state, which retains control over the implementation of bison management policy in Montana. Judging from the Joint Management Plan in the record of decision, not much will change in the short run.

Although the Citizens' Plan to Save Yellowstone Bison includes alternatives that may help achieve the goals of maintaining a free-roaming herd and protecting cattle, a number of important interest groups failed to support it. Why? Attempts in 1998 to bring ranchers into the discussions failed, perhaps because the issue was so contentious and because the major demands of livestock organizations, if not individual ranchers, were already being met.<sup>114</sup> Leaders of the livestock producers had little reason to come to the table. Since 1990–91, when agencies began formal efforts to coordinate and the inclusive Citizen's Working Group formed in Bozeman, interests have polarized further and Montana has gained more control. The less-inclusive 1998 Citizens' Plan was developed in a more divisive climate that tended to estrange groups that were once closer together. No agency or interest group is monolithic, however. Within the agencies, conservation groups, livestock associations, tribes, and hunting groups are members still willing to meet with members of opposing groups in search of common ground. With better leadership they might be able to overcome the fragmented structure of governance and succeed.

### Policy and Structural Alternatives

The goals of the draft EIS, as discussed, are to "maintain a wild, free-ranging population of bison and address the risk of brucellosis transmission to protect the economic interest and viability of the livestock industry in the state of Montana."<sup>115</sup> There are various alternatives to meet these goals—policy alternatives for minimizing the risk of brucellosis transmission to protect livestock producers, policy alternatives for protecting wild, free-ranging bison, and structural alternatives for governance, which have broader significance for natural resources policy in the American West.

Minimizing the risk of brucellosis transmission to protect livestock producers is a valid and appropriate goal. It includes preventing other states from placing sanctions on Montana's cattle and preventing brucellosis from re-infecting Montana's cattle. The reduction of Montana's class-free status could cost the state's livestock industry as much as \$27 million for testing, according to an industry estimate.<sup>116</sup> The attempt to

eradicate brucellosis from wildlife, however, will not assure Montana's class-free status or prevent sanctions. On one hand, "total eradication of brucellosis as a goal is more a statement of principle than a workable program at present."<sup>117</sup> On the other hand, the attempt reinforces the perception that brucellosis in wildlife is a valid justification to impose sanctions. Given Montana's position in the fragmented structure of governance, it will take better leadership in Montana's state agencies and among livestock producers to change the focus to risk management. The alternatives available include adoption of the federal definition of low-risk bison, changes in Forest Service allotments to ensure separation of bison and cattle, and vaccination of cattle against brucellosis. Wyoming's experience is instructive. It has maintained its brucellosis-free status despite four outbreaks.<sup>118</sup> And the experience shows that containment depends on how a producer handles an outbreak.<sup>119</sup> For a state to lose its class-free status, an outbreak with undetermined origin must occur, it must be uncontrolled, and a second outbreak must occur.<sup>120</sup> The Animal, Plant, and Health Inspection Service cannot legally pull Montana's status if an outbreak occurs from infected bison, as long as it is handled appropriately. Better leadership could portray eradication of brucellosis from the state's *cattle* herds and management of the negligible risk of transmission as successes for Montana and its ranchers.

Conflicts over the control of resources would remain, however, even if brucellosis were completely eradicated. Many ranchers view bison migrations as another sign of their loss of control to an "environmental agenda." Livestock officials claim that before the passage of NEPA in 1969, "resource industries dominated the use of federal lands." Now the costs of grazing leases, restriction of private property rights, and multiple uses of national forests indicate a change in priorities on federal lands. Bison outside the Park also compete with cattle for forage. There is a feeling that "the economic importance of agriculture to rural counties in the western states is often not recognized."<sup>121</sup> Few groups wish to see ranchers pushed off their land because of bison, but some believe that if Montana pushes for zero tolerance of bison, others will demand zero tolerance for ranchers on public land. A range war on public lands would likely result in loss of leasing rights for ranchers. Neither zero tolerance for bison nor zero tolerance for grazing cattle on public lands is consistent with the common interest, and grazing by both bison and cattle can be accommodated.

Moreover, there are greater threats to the livestock industry than roaming bison. As of 1995, only four firms controlled 81 percent of the meatpacking industry.<sup>122</sup> This concentration of buying power enables



the meatpacking industry to sustain artificially low prices paid to livestock producers. Large quantities of imported livestock, especially from Canada, are also of concern to producers.<sup>123</sup> Discrepancies between U.S. and Canadian animal health inspection procedures, including brucellosis testing requirements on U.S. exports to Canada, are one issue.<sup>124</sup> Finally, demand for beef products is declining. Ranchers' ability to absorb the costs of grazing leases, brucellosis vaccines and tests, and other costs of doing business in the West are related to the marketability of cattle and the prices paid for them.

To address more pressing threats to the industry, resources might be redirected away from the eradication of brucellosis in wildlife and toward risk management measures, and additional resources might be sought. Such programs as the U.S. Market Access Program and the Foreign Market Development Program could be used to market U.S. beef as brucellosis-free.<sup>125</sup> A portion of federal and state funds currently spent on an unworkable program to eradicate brucellosis from bison might be reserved to pay for additional testing, vaccination, and other costs associated with potential outbreaks. It would be cheaper to vaccinate the 2,000 head of cattle that might intermingle with bison than 100,000 head of wild bison and elk, especially because no safe, effective vaccine (or method of administering it) currently exists for wildlife. The National Wildlife Federation also has offered to pay to vaccinate cattle around Yellowstone. Many ranchers near Yellowstone already do vaccinate cattle.<sup>126</sup> Vaccination of cattle is effective not only in preventing outbreaks of brucellosis, but also in giving more control (and more responsibility) to those most directly affected by potential outbreaks—the livestock producers.

Alternatives also exist to address the perceived risk of transmission, which may be different from the actual risk. As discussed, APHIS convinced other state veterinarians to lift unjustified sanctions against Montana cattle and agreed to defend Montana against such sanctions in the future.<sup>127</sup> The agency has ensured the continuation of these efforts. Under the settlement agreement, APHIS agreed not to downgrade the state's brucellosis-free status "based on the presence of bison migrating from YNP into Montana," if the state complies with the Interim Plan.<sup>128</sup> The Joint Management Plan also includes a statement that "implementation of the Joint Management Plan will not cause APHIS to downgrade Montana's brucellosis class-free status."<sup>129</sup> To further protect the class-free status of Montana cattle, APHIS could also provide assurances that they will not pull Montana's status if a rancher handles an outbreak appropriately and that APHIS will pressure other states to lift unjust sanctions.

Another major goal of bison management is to maintain a wild, free-roaming herd. The Park's natural regulation policy made some progress toward achieving this goal: bison populations are up and bison are reestablishing their former ranges. Maintaining the wildness of the herd, however, will require attention to the unintended consequences of the policy, including expansion of the political arena and the dispersion of control over bison management decisions beyond the Park Service. Some changes in the natural regulation policy are already occurring. The Park's practice of capturing and testing bison inside the Park and the proposed population limits in the draft EIS, for example, challenge the natural regulation policy.<sup>130</sup> It is time to ask how these changes will affect the wildness of bison and how that wildness can be maintained, while addressing the potential adverse consequences of natural regulation for other valid interests in the community. One zoologist suggests a need for an assessment of both ecological carrying capacity, based on available wildlife forage, and "social carrying capacity," based on complaints arising from wildlife-human interaction but not necessarily measured.<sup>131</sup>

A recommendation to reexamine the natural regulation policy is not a recommendation to return to ranching in Yellowstone National Park. The general public would not accept such a policy. Most of the public accepts natural fluctuations in wildlife populations and differences in the standards appropriate for national parks and cattle ranges. Scientists support the idea of the Park as a baseline against which more intensively managed resources outside the Park can be compared.<sup>132</sup> Evaluations of the natural regulation policy, however, have focused on its ecological effects inside the Park.<sup>133</sup> Few assessments consider its social and political effects outside the Park. So establishing a population range might be appropriate now that bison populations have increased. Such alternatives as hunting by Native Americans and shipping calves to tribes and other public lands are means to regulate bison populations that are consistent with current proposals. Some control of bison populations exercised within the Park might sustain wildness better than capture of all bison that exit the Park. It might also return more control over bison management to the Park.

A reassessment of natural regulation might also address the misplaced faith in, and burden on, science to resolve differences in management policy. Many identify value conflicts as the root cause of the problem of policy differences but then call for more science as the solution. But scientists, apart from policy scientists, are supposed to avoid policy differences in political arenas and not consider values beyond hard data. Thus, although science can inform policy decisions, "it is



not a substitute for decision making."<sup>134</sup> Management decisions, for example, must be made now, even in the absence of a safe and effective vaccine for bison. But if and when such a vaccine is developed, it would still take many years of effort and great expense to eradicate brucellosis in bison, and policy differences would not disappear because administration of the vaccine would compromise wildness in the herd. Misplaced faith in science also devalues trial-and-error experience in the field. When separation of bison and cattle and vaccinations of cattle have proven effective in practice, there is little to be gained by deferring decisions pending completion of more scientific studies. Often we know enough without further studies to make an informed policy decision, while recognizing that new insights or experience will warrant changes in the policy.

To the extent that policy differences persist because of the fragmented structure of governance, structural alternatives are also in order. Some conservation groups and ranchers already agree that the NEPA process in bison management has become more contentious and that discourse is needed to resolve differences among the multiple interests involved. One rancher leasing land outside the Park said, "It's politicized from the very beginning. . . . It's who's got the most pull." Consequently, he argues, "there's a need for informed public discourse."<sup>135</sup> Some agency officials also seem interested in discussing the issues with citizens.<sup>136</sup> Thus from various sides of the debate, there may be enough support for an initiative to institutionalize discourse on bison management among representatives of the multiple interest groups and agencies involved. The precedents to build on include the initiatives taken by several groups in the Jackson area in the latter half of the 1990s and by the Bison Management Citizen's Working Group in Bozeman in 1991. A new community-based initiative might monitor implementation of the Joint Management Plan and continue to work with agencies to suggest changes. Agencies would have to consult with lawyers to avoid violations of the Federal Advisory Committee Act (FACA), but FACA does not preclude citizens and agencies working together. Such collaboration could in the long run reduce the need or desire to litigate. For more than token improvements in bison management to occur, a civic science is needed that allows for citizens and scientists to work together to monitor, evaluate, and contribute knowledge to decisions. Adaptive management need not be restricted to scientific advances in biophysical knowledge alone, as suggested in the agencies' Joint Management Plan.

A new community-based initiative would have an opportunity to build on the 1998 Citizens' Plan to Save Yellowstone Bison. Recall that

it was endorsed over the interagency alternatives by a large majority of public comments and that it includes provisions consistent with those developed by earlier and more inclusive groups in Jackson and Bozeman. The discourse should include representatives of livestock, conservation, and tribal interests as well as landowner and agency perspectives. It might be facilitated by the Northern Lights Institute, which played an important role in the success of the Upper Clark Fork Steering Committee (see Chapter 2 of this volume) and other community-based initiatives.

Involving multiple interest groups in the development of policy alternatives through a community-based initiative could be an improvement in the long run—even from a narrow agency perspective—over soliciting and rejecting citizens' comments on exclusively interagency alternatives in the NEPA process. In a community-based initiative, officials could retain vital roles in planning, promoting, and authorizing policy alternatives and in implementing, evaluating, and eventually terminating them. Officials could also gain more access to the information and political support they need, both internal and external, and they could even take the lead in organizing the community. Most officials, however, lack the training and skills needed to coordinate across agency mandates and deal with increasing numbers of interest groups. They are more often prepared to proceed within the narrow mandates and jurisdictions of their respective agencies. For the short term in bison management, these limitations may be overcome by reassigning exceptional agency personnel. (This is typically easier during or immediately after a crisis, such as the severe winter of 1996–97, when demands to respond are high.) For the long term, and beyond bison management, it is time to rethink the traditional training and skills developed for the management of natural resources in the twentieth century. New skills can be taught in workshops and in schools for natural resources professionals to exploit the potential of community-based initiatives for finding common ground in the twenty-first century.

The bison case demonstrates the need for new structures in the governance of natural resources in the greater Yellowstone area. Since the Park's inception in 1872, the aspiration to manage Park resources in the common interest, "for all the people," has not changed. But changes in Park policy have affected ecological conditions, increasing wildlife populations and migrations. As bison cross over Park boundaries, they alter politics and governance, drawing more interest groups with more diverse interests into bison management. Current structures of governance, largely agency-led and controlled, have failed to find policies



that advance the common interest within these more complex conditions. The problem of bison management is not primarily one of brucellosis or science or economics, but rather one of politics and governance.

Alternative structures of governance such as community-based groups in Jackson and Montana led to the development of plans that could advance the common interest. These plans call for risk management over the eradication of brucellosis in wildlife. Agencies, however, have failed to capitalize on the plans and have continued largely on their own. The situation may seem intractable, but common-interest solutions are possible with better leadership willing to take some risks. Montana needs to back down from its demand for zero tolerance of brucellosis in bison if it wants to protect livestock producers rather than merely assert control over natural resources policy. Citizens need to continue working with others who have opposing values to find common-interest solutions. Agencies need to be more open to such alternatives. Only through changes in the rigid structures and political interests in place can livestock producers and a wild, free-roaming herd of bison be protected over the long run.

## 5 Forest Policy and the Quincy Library Group

Christine H. Colburn

Forestry policy has long been a contentious issue in the United States, pitting the culture and livelihoods of many Americans against the conservation values of others. Lives have been threatened, and indeed, bullets have been fired over the issue. It was not uncommon around 1990 to see stuffed spotted owls strung up by loggers, or environmentalists strapping themselves to trees in the Pacific Northwest—both potent symbols of protest and tension. A new alternative has gradually emerged in forest management, however: community-based forestry. Citizens in forestry-dependent towns have begun to come together to search for common ground.

One such town is Quincy, California. In 1992, environmentalists, loggers, community leaders, homemakers, and others in this small, timber-dependent community came together in the only neutral ground they could find—the town library. In 1993, the Quincy Library Group agreed on a Community Stability Proposal for the management of two national forests and part of a third in the surrounding area, and they submitted it to the Forest Service. When the service did not accept the proposal, however, the group took it to Congress. The bill directing the Forest Service to implement the proposal on a pilot basis sailed through the House in July 1997 with a vote of 429 to 1, and it passed as a rider on the omnibus appropriations bill. On October 21, 1998, President Clinton signed into law the Herger-Feinstein Quincy Library Group Forest Recovery Act. The Forest Service has only begun to carry out the pilot project prescribed in that act. With a few exceptions, envi-



# Finding Common Ground

## Governance and Natural Resources in the American West

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