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WILDLIFE MANAGEMENT

Issues Concerning the Management of Bison and Elk Herds in Yellowstone National Park

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Mr. Chairman and Members of the Subcommittee:

We are pleased to be here today to provide you with the results of the work that we performed at your request on wildlife management issues at Yellowstone National Park. As you know, Mr. Chairman, Yellowstone is the world's first national park. It is considered the "crown jewel" of our National Park System, with about 2.2 million acres of land, over 3 million visitors in 1996, and the largest concentration of free-roaming wildlife in the lower 48 states. The controversy over the impact of these free-roaming animals, especially the bison and elk herds, as well as their health, is the subject of our remarks today. Specifically, our testimony will focus on (1) the National Park Service's current policy for managing free-roaming bison and elk in Yellowstone, (2) the controversy surrounding the impact of these herds on the park's rangeland and riparian areas, and (3) the controversy surrounding the risks to domestic livestock posed by exposure to diseased bison and elk. As you know, Mr. Chairman, interested parties hold widely divergent views on these issues.

In summary, we found that current laws and regulations provide park managers with broad discretion on how to manage their park's resources. As a result, parks with similar wildlife resources, such as Yellowstone and the neighboring Grand Teton National Park, can apply different approaches to managing these resources. While Yellowstone uses "natural regulation"—a policy that allows natural forces, such as climate, food supply, and predation—to regulate the size of its bison and elk herds, Grand Teton has established specific goals and objectives to control the size of its bison herd.

Critics of Yellowstone's natural regulation management policy—including some scientists, state officials, and representatives of livestock interests—believe that the policy's implementation has produced bison and elk herds that are too large and damage the park. In their view, the park's rangelands are being overgrazed; the riparian areas are being damaged; and because these lands are being depleted, bison and elk are migrating from the park in search of forage on private lands and public grazing areas. According to the Park Service's recently published studies, however, researchers have found that Yellowstone's grasslands are not overgrazed, and several factors, such as climate, fire, and a lack of predators, have contributed to the decline of the range and of the riparian areas' woody vegetation. In addition, park officials believe that bison are leaving the park for a combination of reasons. Specifically, these animals are nomadic by nature; they do not have access to sufficient forage during

harsh winters, such as that of 1996-97; and, except in the northern range area, they can follow snowmobile trails out of the park. In addition, by allowing bison to avoid deep snow and thus conserve energy, snowmobile trails may also contribute to the growth in their numbers.

The health of Yellowstone's bison and elk herds is a major concern for livestock owners and public officials in the states bordering the park. Because many Yellowstone bison and elk are infected with brucellosis—a disease that can cause cattle to abort during pregnancy—these parties fear that the wild animals may transmit the disease to domestic cattle. A state with infected livestock may lose its federal brucellosis-free classification, jeopardizing its right to freely transport cattle across state lines. As a result, these parties believe that the risk of transmitting brucellosis from bison to domestic cattle must be eliminated by containing bison within the park, by using vaccines, or by shooting or capturing bison that leave the park. Because elk have a lower rate of infection than bison, the states currently differ in the methods they use to manage the disease in elk. However, according to the Park Service, the risk that brucellosis will be transmitted from either elk or bison to cattle is likely to be very low, and no such transmission in a wild, uncontrolled setting has been verified in the scientific literature. Furthermore, park officials maintain that existing vaccines have not been proven effective for bison and elk. Both the park and its critics have scientific evidence to support their positions. This past winter, the Yellowstone bison herd was reduced to about a half of its size the previous year. In the short term, this reduction may provide an opportunity for the Park Service and its critics to complete and assess the results of studies, potentially going a long way toward resolving this controversy.

Background

Yellowstone was created by an act of Congress in 1872 as a public park for the benefit and enjoyment of the people and for the preservation and retention of its resources in their natural condition. Yellowstone's mandate, creating a dual mission to preserve natural resources while providing for the public's enjoyment of them, has served as a model for the rest of the park system and for parks around the world.

Yellowstone is at the center of approximately 20 million acres of land, commonly called the Greater Yellowstone Area or ecosystem. These lands are managed by four different federal agencies—the National Park Service, the Forest Service, the Fish and Wildlife Service, and the Bureau of Land

Management (BLM); three different states—Idaho, Montana, and Wyoming; and numerous private land holders.

The Park Service manages bison and elk only within Yellowstone. Outside the park, the neighboring states of Idaho, Montana, and Wyoming manage wildlife not only on their own lands but also on BLM and Forest Service lands. Although the Forest Service manages wildlife habitat on its lands, the states manage the wildlife. For example, in Gallatin National Forest, the Forest Service manages wildlife habitat, while the Montana Department of Fish, Wildlife, and Parks manages wildlife within the forest's borders. The Fish and Wildlife Service manages wildlife refuges, such as the National Elk Refuge south of Yellowstone, and the Bureau of Land Management manages land used by both wildlife and cattle in the Greater Yellowstone Area.

This past winter, park officials estimated the size of the northern elk herd at about 17,000 in Yellowstone and the total number of elk in the Greater Yellowstone Area[1] at about 120,000. The population of Yellowstone's northern range elk herd has ranged between 16,000 and 20,000 since 1991. At the beginning of this past winter, about 3,500 bison lived within the park, 900 of which occupied the northern range. Subsequently, about 1,100 bison left the park and were shot or shipped to slaughter because of concerns about brucellosis. About 700 other bison were killed by the severe winter, leaving approximately 1,700 bison in the park this spring, including about 300 in the northern range.

For thousands of years, various animal species have routinely migrated in and out of what is now Yellowstone National Park. Bison and elk herds seasonally migrate out of the park to seek forage, especially in severe winters like that of 1996-97. While elk have traditionally migrated widely in the Greater Yellowstone Area, bison have more recently left the park, primarily through its northern and western borders, to seek available winter range. Appendix I illustrates the Greater Yellowstone Area elk herds' winter ranges and migration routes. Appendix II illustrates the Greater Yellowstone Area bison herds' winter ranges and migration routes .

Because bison that migrate outside Yellowstone may be infected with brucellosis and may interact or share rangeland with domestic cattle, the U.S. Department of Agriculture's Animal and Plant Health Inspection

[1]The area includes Yellowstone and Grand Teton national parks and six national forests: Beaverhead-Deerlodge, Bridger-Teton, Custer, Gallatin, Shoshone, and Targhee.

Service (APHIS) and its state counterparts also have a strong interest in the management of Yellowstone's wildlife. APHIS is responsible for eradicating brucellosis from cattle in the United States. According to APHIS, it also has statutory authority to eradicate brucellosis in all animals—including bison. Since a national brucellosis control program was first instituted in 1934, more than $3.5 billion in federal, state, and industry funds have been spent trying to eradicate the disease. According to APHIS, nationwide, only 22 herds of domestic cattle and bison are now known to be infected. The states also play a major role in the effort to eradicate brucellosis. Because federal statutes on controlling disease in livestock pre-empt the states' authority only when cattle and bison are moving in interstate commerce, most states have enacted their own statutes to supplement federal regulatory efforts.

The Brucella abortus organism, a bacterium, is transmitted among animals primarily through exposure to infected reproductive material, such as aborted fetuses. APHIS tests cattle and bison for antibodies to the Brucella abortus organism. Antibodies in blood samples may indicate either past exposure to the disease or current infection. Positive tissue cultures for Brucella abortus confirm the presence of live bacteria and the potential for animals to be infectious. However, according to APHIS, negative tissue cultures do not prove the absence of bacteria because the organism cannot always be isolated even when it is present. After surveillance tests and procedures are conducted to ensure that cattle and bison herds are free of the disease, APHIS may certify states as brucellosis-free. This certification allows the states to ship their cattle and bison in interstate commerce without having to perform expensive testing to assure importing states that the cattle or bison do not pose a threat of the disease to their livestock industry. As of June 1997, Idaho, Montana, Wyoming, and 34 other states were certified as brucellosis-free.

The economic consequences of infection with brucellosis could be significant. Under the requirements of APHIS' eradication program, if a single herd of cattle or bison in a state that is designated brucellosis-free becomes infected, the infected animals must be slaughtered, the herd quarantined, and the herds in the surrounding area tested to ensure that the disease has not spread. If the herd is slaughtered and no additional infection is found, the state can remain classified as brucellosis-free. If the herd is not slaughtered or additional infection is found, the state's classification will be lowered and additional interstate testing requirements implemented. Montana estimates that it saves between $1 million and $2 million annually because it does not have to test cattle

for brucellosis. A state with infected cattle or bison may also be subject to restrictions imposed by other states. For example, because of the increased movement of brucellosis-infected and -exposed bison out of the Greater Yellowstone Area, the state of Oregon decided in March 1997 to protect the interests of its cattle industry by immediately requiring the testing of any cattle entering Oregon from Montana or Wyoming. Other states have imposed, or threatened to impose, similar restrictions.

Yellowstone's Wildlife Management Policy

The management of Yellowstone's wildlife, especially of bison and elk, has gone through many phases as wildlife managers have gained experience and scientific knowledge has grown. When the park was founded in 1872, there were numerous elk, estimated at 25,000 in 1891, and, according to park officials, bison were also very common. However, no estimates of the bison population exist for that period. After almost two decades of slaughter by market hunters, the bison population in Yellowstone dwindled to about 44 in 1901-02. Yellowstone officials saved the bison from extinction by aggressively protecting the remnant population and supplementing it with bison imported from Montana and Texas. For several decades, Yellowstone also aggressively reduced the populations of wolves and other predators. As a result, the park's bison population gradually increased, growing to more than 1,000 in 1930. However, from about 1935 to 1968, park rangers controlled the elk and bison populations by shooting or by trapping and removing animals. This "culling program" reflected the then-prevailing view that wildlife populations had to be controlled to meet an area's carrying capacity—a determination of how many animals can live in an area without degrading the range. In the early 1960s, however, elk kills initiated by park officials to reduce the size of a herd that was considered too large, led to a public outcry, studies, and U. S. Senate hearings on Yellowstone's wildlife management policy. As a result, in the late 1960s, Yellowstone's wildlife management policy changed significantly. According to park staff, although little information was available on how functioning elk and bison populations might respond in a natural environment, park managers thought that Yellowstone might be a place to develop this knowledge and resolve the controversy over the size of the herds by letting natural forces regulate the populations. Therefore, in Yellowstone, natural regulation replaced the capture and culling of elk and bison herds.

The park's master plan, written in 1974, reflects the shift to natural regulation, stating that "Yellowstone should be a place where all the resources in a wild land environment are subject to minimal management".

For wildlife, the plan proposes to reduce or eliminate disruptive human influences, relying, whenever possible, upon natural controls to regulate animal numbers. For the past 30 years, the Park Service has been implementing natural regulation in Yellowstone, in essence, following the park's master plan. However, the Park Service recognizes that because of the pervasiveness of human influences in today's world, true natural process management is seldom feasible. In the lower 48 states, the Park Service believes that Yellowstone is the only park large enough to test the effects of natural regulation.

At Yellowstone today, the Park Service relies on natural forces within the park—mainly animal behavior, climate, food supply, and predation—to regulate bison and elk populations. In addition, elk have always been hunted in the surrounding states. More recently, bison have been killed when they have migrated out of the park, and some public hunting of bison has occurred in both Wyoming and Montana. However, in 1991, Montana discontinued public hunting. According to park officials, once humans stopped controlling the size of the herds and Yellowstone adopted the natural regulation policy, the bison and elk populations increased considerably. For example, from 1967 to 1988, the bison population rose from 397 to more than 2,500 and then peaked at about 4,200 in the summer of 1994. Yellowstone's elk population grew about sixfold, from 3,200 in 1968 to about 19,000 in 1994. Park officials point out that without human intervention, the low bison and elk populations of the 1960s would not have occurred. They stated that these low numbers were achieved only by large-scale reductions involving the slaughter of thousands of animals each year. In addition, park officials noted that a key predator, the wolf, was missing during this period. Wolves were reintroduced to Yellowstone in 1995, and park officials believe time is needed to determine their impact on the elk population.

Current laws and regulations give park managers broad discretion on how to manage wildlife in the park. While an overall mandate of the Park Service is to conserve wildlife, wildlife management policies can vary from park to park, depending on the history of the park, the enabling legislation, the neighboring land, and the local geography. For example, Grand Teton National Park (330,000 acres), just south of Yellowstone (2.2 million acres), has a different mandate, history, neighbors, and geography and has adopted a different policy for managing bison and elk. Grand Teton National Park's legislation provides for hunting elk within portions of the park and for grazing cattle—two uses that are not allowed in Yellowstone. Hunting gives the park some direct control of elk populations, and the

presence of cattle adds management challenges and increases working relationships with ranchers. The National Elk Refuge, which is adjacent to Grand Teton, provides winter range and feed for both bison and elk, as do 22 feedgrounds operated by the state of Wyoming. However, feeding these animals further complicates issues by concentrating their populations and increasing the risk of disease transmission.

In Grand Teton National Park the bison herd grew from 16 in 1969 to about 320 this past winter. Park officials said that at the conclusion of this year's calving season, the bison herd will number nearly 380. The growth of the herd has raised a number of management concerns, including questions about the need to set specific objectives for the herd's size. Grand Teton's draft management plan states that the park could maintain a free-roaming herd of about 200-250 bison without jeopardizing the genetic viability of the herd. However, park officials say they are considering public comments on the draft suggesting that the herd should be maintained at 400 animals. To sustain the herd at the levels suggested, the park has considered alternative management measures, which we discuss at the end of this statement.

The Controversy Over the Impact of Bison and Elk Herds on Yellowstone's Range and Riparian Areas

The condition of Yellowstone's northern range[2] has concerned the public, land managers, and scientists for more than 70 years. Critics of the Park Service's wildlife management policies—including some scientists, state officials, and representatives of livestock interests—believe large populations of elk and bison have overgrazed Yellowstone's available grasses and, in some cases, destroyed grasses that were once natural to the northern range. They contend that many of the natural grasses have been replaced by nonnative agricultural grasses that better withstand heavy use by wildlife. In addition, critics say that the large elk and bison herds have damaged riparian areas. For example, the critics often cite declines in woody vegetation, especially willows, aspens, and several species of sagebrush in the Lamar Valley of the northern range, as indications of the herds' negative impact on riparian areas. The critics contend that the destruction of the willows and aspens has reduced beaver populations and accelerated soil erosion in streambeds. Finally, the critics maintain that the bison herds have grown so large that they are naturally migrating out of Yellowstone in search of forage that is no longer available in the park because of overgrazing.

[2]The northern range includes the valleys of the Lamar and Yellowstone rivers.

According to the Park Service's recently published compilation of 28 reports on research studies of the northern range, Yellowstone's grasslands do not appear to be overgrazed by any definition of overgrazing.[3] The studies were conducted during a 6-year period that began in 1986 and concluded in 1991. The studies were researched and written by a variety of scientists from several universities and agencies. The researchers found that the production of grasses either was not reduced or was enhanced by the grazing of ungulates (hoofed animals) in all but drought years. The research shows that the decline in the range and riparian areas' vegetation was due to a number of factors, including changing climatic conditions as well as grazing by elk. According to park staff, the riparian plants are smaller in size but in no danger of disappearing. Furthermore, the park report states the supposed declines in beaver and white-tailed deer populations were based on inaccurate historical interpretations. Park officials point out that beaver populations persist in low levels on the northern range, while larger colonies live in suitable habitat elsewhere in the park.

Park officials do not attribute the migration of bison out of the park to overpopulation but to a combination of factors. First, bison migrate because they are nomadic. Second, severe winter conditions can make forage inaccessible beneath deep snow and ice, forcing bison to search for forage elsewhere. Finally, park officials point out that except in the northern range, Yellowstone has "groomed" or packed the snow on roads for snowmobiling in the park since the early 1970s. These trails facilitate the migration of bison out of the park and enable the animals to conserve a great deal of energy by avoiding travel through deep snow. Park officials said that access to more winter range for bison outside the park would enhance their chances of survival in severe winters, but opponents think that the herds should be reduced to numbers that can be supported within the park. The park is currently reevaluating its policies on the use of snowmobiles because of their effects on the environment and wildlife.

Both supporters and critics of the Park Service's policies have scientific evidence that supports their points of view. For example, the 6-year study of the northern range addressed the population dynamics and ecological effects of elk, bison, moose, deer, and other ungulates on the soil, vegetation, and watersheds of the northern range. The research found that the bunchgrass, swale, and sagebrush grasslands of the northern range did not appear to be overgrazed. In riparian areas, willows were much taller in

[3]Effects of Grazing by Wild Ungulates in Yellowstone National Park, Department of the Interior, National Park Service (Technical Report NPS/NRYELL/NRTR/96-01, 1996).

some parts of the northern range in the late 1800s than currently, and virtually no aspen have reached tree height since the 1930s. A study of historical aspen growth found that there was only one period, between about 1870 and 1895, when young aspen were not eaten by ungulates and grew as tall as trees on the northern range. According to the park's summary report,[4] the discovery that aspen reached full height during only one period in the park's history suggests that the failure of aspen to grow into trees should not be regarded as proof that elk are overabundant. Rather, the summary continued, several factors are involved in aspen growth, including the number of elk, changes in climate, dry or wet weather, fires, and the number of predators feeding on elk. Park officials have called for more research on woody vegetation.

Critics of Yellowstone's wildlife management policy disagree that factors other than wildlife grazing are to any significant degree responsible for the lack of robust woody vegetation on the northern range. They contend the research program undertaken by the Park Service did not look for evidence of overgrazing and was incomplete. They maintain, for example, that park scientists have not documented a cause-and-effect relationship between climate and the decline of willows. In addition, some critics assert that independent research on range and riparian areas in the park has been restricted by the park, which controls funding for research and access to the park. For example, in February 1997, a researcher with the Biological Resources Division of the U.S. Geological Survey testified before the House Subcommittee on National Parks and Public Lands that the park would not approve or fund his proposed research on woody vegetation in the northern range or grant him a permit to work in the park. Park officials said they denied the work assignment because of concerns over the research design and the relevancy of the proposal to the work priorities of both the park and the Biological Resources Division—then known as the National Biological Service.

To support their position, critics often cite a 1990 dissertation by a Utah State University researcher that linked the decline of riparian vegetation directly to growth in the elk population. Park officials, however, state that this study was based on a number of key assumptions about conditions in the park during pre-European times. Park officials say they disagree with the researcher on issues such as the number of Native Americans that lived in Yellowstone and the impact they had on wildlife. Park officials

[4]Yellowstone's Northern Range: Complexity and Change in a Wildland Ecosystem, National Park Service, Yellowstone National Park (1997).

added, however, that there is no scientific evidence available on either issue.

Critics familiar with the principles of commercial range management for the production of livestock believe that the number of grazing animals in Yellowstone should be reduced to balance the available forage. They cite a 1963 survey of Yellowstone's northern range conducted by what was then the U.S. Department of Agriculture's Soil Conservation Service. This survey concluded that the range could support no more than 5,000 elk and 350 bison. According to the survey, populations of bison and elk in excess of these numbers would cause severe damage to the range and riparian areas. However, park officials said that the 1963 survey used commercial standards for domestic livestock to assess the park's carrying capacity. According to park officials, they and other leading wildland ecologists believe these standards should not be applied to wildlife.

A Forest Service official at Gallatin National Forest, which borders Yellowstone on the north and west sides of the park, also believes that a commercial carrying capacity cannot be set for wildlife. According to this official, Gallatin National Forest does not develop carrying capacity limits for wildlife because the Forest Service cannot control when wildlife come or go on the land. Gallatin National Forest does develop carrying capacity limits for cattle because the Forest Service can control where and when cattle graze on its land. The official noted that cattle use only that portion of the forage that is not required to support wildlife.

To help resolve the rangeland controversy, the House Committee on Appropriations, in its July 1997 Committee Report on Interior's 1998 appropriation, directs the Park Service to initiate a review by the National Academy of Sciences of all available science related to the management of ungulates and their ecological effects on the rangeland of Yellowstone.

The Controversy Over the Risk of Transmitting Brucellosis From Bison and Elk to Cattle

The extent to which domestic cattle risk infection through exposure to diseased bison and elk—either from mingling directly with infected wild animals or from using rangeland where infected wild animals have previously grazed—is the subject of intense controversy between the Park Service, wildlife management agencies, wildlife conservation groups, livestock interests, Native Americans, and others. Yellowstone National Park, under its interpretation of natural regulation, allows natural processes to control wildlife populations and opposes efforts to manage wildlife in a way that conflicts with natural regulation or restricts wild

animals' free-roaming nature. APHIS, however, is committed to eradicating brucellosis in the United States and believes that wildlife should be tested and, if infected, slaughtered to prevent the disease from spreading further. APHIS maintains that the techniques developed through its 63-year-old eradication program for domestic livestock can be applied to eliminate brucellosis in wildlife.

In Yellowstone, blood tests indicate that 40 to 54 percent of the bison and about 1.5 percent of the elk from the northern range carry antibodies to Brucella abortus. Some of the elk from the northern range migrate to Montana for the winter. Other elk migrate to Wyoming for the winter and use the federal National Elk Refuge or the state's 22 feedgrounds to supplement their food base. On average, about 38 percent of the mature cow elk using the National Elk Refuge's feedground have had positive blood tests for brucellosis antibodies. Positive blood tests indicate that an animal is infected with or has been exposed to brucellosis. On the one hand, a positive test does not necessarily indicate that an animal is infectious; on the other hand, a negative test does not exclude the possibility of infection, because the blood of some animals that are infected does not react positively to the test.

In addition to blood tests, tissue cultures are performed to detect the presence of brucellosis. Although tissue cultures are a much more reliable method of identifying active infection, they also will not identify all infected animals. The rate of current infection as determined by tissue cultures is always lower than the rate of positive blood tests because Brucella abortus cannot always be cultured from infected animals. For example, an ongoing analysis of samples from 41 bison killed during the winter of 1996-97 showed that the blood tests for 30 females were positive. For 18 of these 30, tissue cultures have been completed and the results were positive for only 7. According to Wyoming officials, research with elk have suggested a higher correlation between positive blood tests and positive tissue cultures.

According to Park Service officials, in the scientific literature, there is no documentation of brucellosis transmission from elk or bison to cattle in a wild, uncontrolled setting. Furthermore, although the risk of such transmission has never been quantified, the Park Service maintains that it is likely to be very low. Hence, park officials believe that testing and slaughtering infected wildlife to eradicate a potential source of infection for cattle is not necessary in Yellowstone and could result in the unnecessary slaughter of bison and negatively affect the genetic viability

of the herd. Park officials also object to the use of vaccines that were developed and tested for cattle but have not been proven effective for bison. They contend that the untested vaccines may be ineffective and/or unsafe for the herds and other wildlife that may come into contact with them. Park officials also question whether the disease can be eliminated from wildlife. For example, they note that the disease may be impossible to eliminate from bison because elk and other mammals can carry brucellosis, which could then find its way back into bison. Unless brucellosis is eliminated from all of these mammals, park officials and others have stated, some chance remains that the disease will be transmitted back to the bison.

According to APHIS officials, in several cases of brucellosis, wild elk or bison have been identified as the source of transmission. These officials believe that any risk is unacceptable in an eradication program. In addition, they refer to several other parks where the disease has been eliminated from bison and elk. However, APHIS officials agree that vaccines need to be tested and proven to be safe and effective before being used on elk and bison.

During our review, we visited two of the three states that surround the park—Montana and Wyoming. Both states are concerned about the potential for the transmission of brucellosis between wildlife and cattle. However, each state approaches this problem differently. For example, the state veterinarian in Montana believes that no risk is acceptable because transmission would threaten the states' brucellosis-free certification from APHIS. In December 1994, APHIS wrote a letter to Montana setting forth its intention to downgrade the brucellosis-free classification of the state if the state failed to take action against bison within its borders that were known to be infected with or had been exposed to the disease. As a result, Montana officials believe that they have no alternative but to slaughter bison that move into the state. Montana officials stated that they are not addressing the disease in elk because the rate of infection in elk is low. In the long term, Montana officials said, they plan to take action to eradicate the disease in elk. Wyoming, which has fewer bison than Montana but a much higher incidence of brucellosis in elk, has tried to manage the risks of exposure to the disease while implementing a long-term program to eradicate it. For example, in the Jackson area, Wyoming has worked with federal agencies and private landowners to develop policies for separating cattle from bison and elk to minimize the risk of transmission. Also, many of the ranchers in the Jackson area voluntarily vaccinate their cattle.

Both Montana and Wyoming officials believe that the vaccines they have used successfully with domestic cattle could be applied to the park's bison and elk herds. They and APHIS noted that the vaccine, combined with efforts to test and slaughter infected animals, has been used successfully on bison herds on private and other public lands. Finally, some experts believe that even if brucellosis remains in "other mammals," the disease would naturally decline and be eliminated from other wildlife because the carriers would not be able to transmit it to other animals.

Scientific data on both sides of the brucellosis debate are limited. According to the Park Service, neither it nor APHIS has performed or sponsored many scientific studies on the transmission of brucellosis among elk and bison or on the development of vaccines against the disease. Recently, however, the park, APHIS, and others have initiated an ambitious series of studies on brucellosis in bison to obtain answers needed for making future management decisions.

Critics of the park's position on brucellosis derive support for their views from the biological similarities between bison and cattle and data developed through APHIS' program for eradicating the disease in domestic livestock, including bison. Some critics do not believe that they are responsible for conducting additional research on brucellosis in wild bison. However, since the late 1970s, Wyoming, with technical and financial assistance from APHIS, has sponsored a number of studies on the disease in elk. For example, the state sponsored research to determine the effectiveness of a reduced dosage of one type of cattle vaccine in elk and is testing the effectiveness of injecting the vaccine through the use of a "biobullet" shot from an air gun.

Current Efforts to Control Brucellosis

Various federal, state, and private groups are conducting many research studies and planning efforts to control or eradicate brucellosis in Yellowstone wildlife. In discussing the controversy surrounding this issue, one official described it as a war. Another official stated that the federal and state representatives are so entrenched in their positions that no one wants to be the first to compromise. He added that meetings on this issue have become so heated that a fight once broke out between participants.

Recognizing the need to coordinate the work on brucellosis in the region, in July 1995, the states and responsible federal agencies established the Greater Yellowstone Interagency Brucellosis Committee. This interagency committee includes representatives of the states surrounding the park, the

four federal land management agencies, and APHIS. The committee has agreed on the objective of planning for the elimination of brucellosis by the year 2010. However, the states and agencies disagree on the current feasibility of eliminating the disease, the actions needed to eliminate it, and the effect of the disease on wildlife or on the livestock industry if it is not eliminated. Although members are generally very supportive of the committee's efforts, they agree that achieving results has been difficult even when issues are generally agreed upon. For example, a paper summarizing generally accepted information on brucellosis underwent 12 revisions over 22 months before it received final approval.

Despite these difficulties, members of the interagency committee believe they are slowly making strides towards coordinating policies and addressing scientific data needs. For example, the committee has completed a policy on elk feedgrounds, produced an informational report on the potential for brucellosis transmission by bull bison, developed a bison quarantine protocol, and conducted a national symposium on brucellosis in the Greater Yellowstone Area. Among its current activities, the committee is coordinating a joint effort by the park, the state of Montana, APHIS, and the Forest Service, as well as three cooperative efforts in Wyoming.

Since 1989, Montana and the Park Service have been meeting to develop a long-term plan for managing the brucellosis-exposed, free-roaming bison that move primarily during the winter from the park to public and private lands in Montana along the northern and western boundaries of the park. The first goal of this effort was to issue a long-term plan and an environmental impact statement (EIS) by December 1991. In a May 1992 Memorandum of Understanding, the Forest Service and APHIS joined this effort. However, as negotiations have continued on ways to better manage brucellosis in bison, many deadlines for completing this effort have come and gone. In the interim, Montana filed a complaint in January 1995 in federal district court contending that the conflicting policies of APHIS and the Park Service threaten Montana's brucellosis-free certification. To settle the lawsuit, Montana, the park, and APHIS agreed to develop interim bison management procedures to prevent the potential spread of brucellosis from bison to domestic cattle. The August 1996 interim plan was implemented over the last winter and remains in effect. Where cattle graze in Montana, the interim plan has no tolerance for bison. As a result, about 1,100 bison were shot or captured and slaughtered last winter. The procedures do allow bison to use adjacent federal lands where cattle either do not graze or are not present when bison are in the area. Early

this year, to move forward on the long-term plan, the Park Service committed staff from its field area office to assist in preparing both documents. The park and the state are committed to issuing a draft management plan and an EIS for public comment in July 1997 and to completing final products by March 1998. In June 1997, the state, APHIS, the Forest Service, and the Park Service agreed upon a preferred alternative for managing brucellosis and Yellowstone's bison population. Generally, the alternative provides for the capture and shipment to quarantine of animals testing negative for brucellosis. These animals would then be made available to Native American tribes to help establish herds. The alternative also provides for the capture of bison to control their movement onto private lands; the hunting of bison in certain situations; the vaccination of bison when a vaccine is developed for them; and the acquisition of additional winter range outside the park when such range becomes available for purchase from willing sellers.

Three separate ongoing cooperative efforts are addressing brucellosis issues in the area south of Yellowstone Park. First, Wyoming has been working with APHIS, the Park Service, the Fish and Wildlife Service, and the Forest Service since December 1995 to develop an interim brucellosis plan for elk and bison. The goal is to design a plan that will maintain the state's brucellosis-free classification, reduce damage to private property, and sustain the free-roaming bison and elk herds. Last November, the agencies received public comments on a draft plan, which they are now analyzing.

A second effort is being conducted by Grand Teton National Park and the National Elk Refuge, in cooperation with the Wyoming Game and Fish Department and Bridger-Teton National Forest, to develop a long-term management plan for the Jackson bison herd. The plan's goal, in part, is to minimize the potential for transmitting brucellosis among bison, elk, and domestic livestock. A draft plan and environmental assessment were published in September 1996, public comments were received, and a final plan is expected in August 1997. To reduce the risk of transmission among bison, elk and cattle, the draft plan proposes measures such as baiting or feeding the bison for a limited time to keep them from migrating onto the National Elk Refuge, separating bison from elk and cattle when the potential for transmission is greatest, vaccinating cattle, using a vaccine on bison when one is developed for them, and developing disease transmission risk assessments to use as the basis for wildlife management programs. The plan would also allow small public bison hunts outside the park and make some bison available to Native Americans.

A third effort, led by the Wyoming Game and Fish Department, is to develop brucellosis management action plans for each of the state elk herds and the surrounding range used by cattle. The objective is to develop plans that minimize the potential for transmitting brucellosis among elk, and from elk to cattle, by reducing the animals' overlapping use of rangeland and conducting other actions designed to ultimately eliminate the disease.

Finally, at the request of the Secretary of the Interior late last winter, the National Academy of Sciences' Commission on Life Sciences agreed to review the scientific data on brucellosis contained in published studies in the fields of wildlife ecology, epidemiology, zoonotic diseases,[5] infectious disease control, animal physiology and health, and veterinary science. The review is to examine the scientific issues surrounding the transmission of brucellosis among wild and domestic animals, especially among bison and cattle; determine the extent of infection in wild herds; and identify the additional research that is needed on these subjects. Specific questions include, among others, the relationship between blood tests and the ability of animals to transmit the disease, the effectiveness and safety of vaccines, and the impact of various risk reduction measures. The study is due to be published by October 1997.

Observations

The impact of Yellowstone's bison and elk herds on the park's range and riparian areas and the potential for these animals to transmit brucellosis to cattle are highly controversial, sensitive, and emotional issues for the affected parties. Scientific and historic data on some aspects of these issues are limited, and when agreement does exist, the data are often interpreted differently, reflecting differences in people's values and in agencies' mandates and missions. Many questions will need to be answered before these concerns can finally be resolved. For example, how will the reintroduction of the wolf in Yellowstone affect the size of the elk herd and, subsequently, the park's woody vegetation?

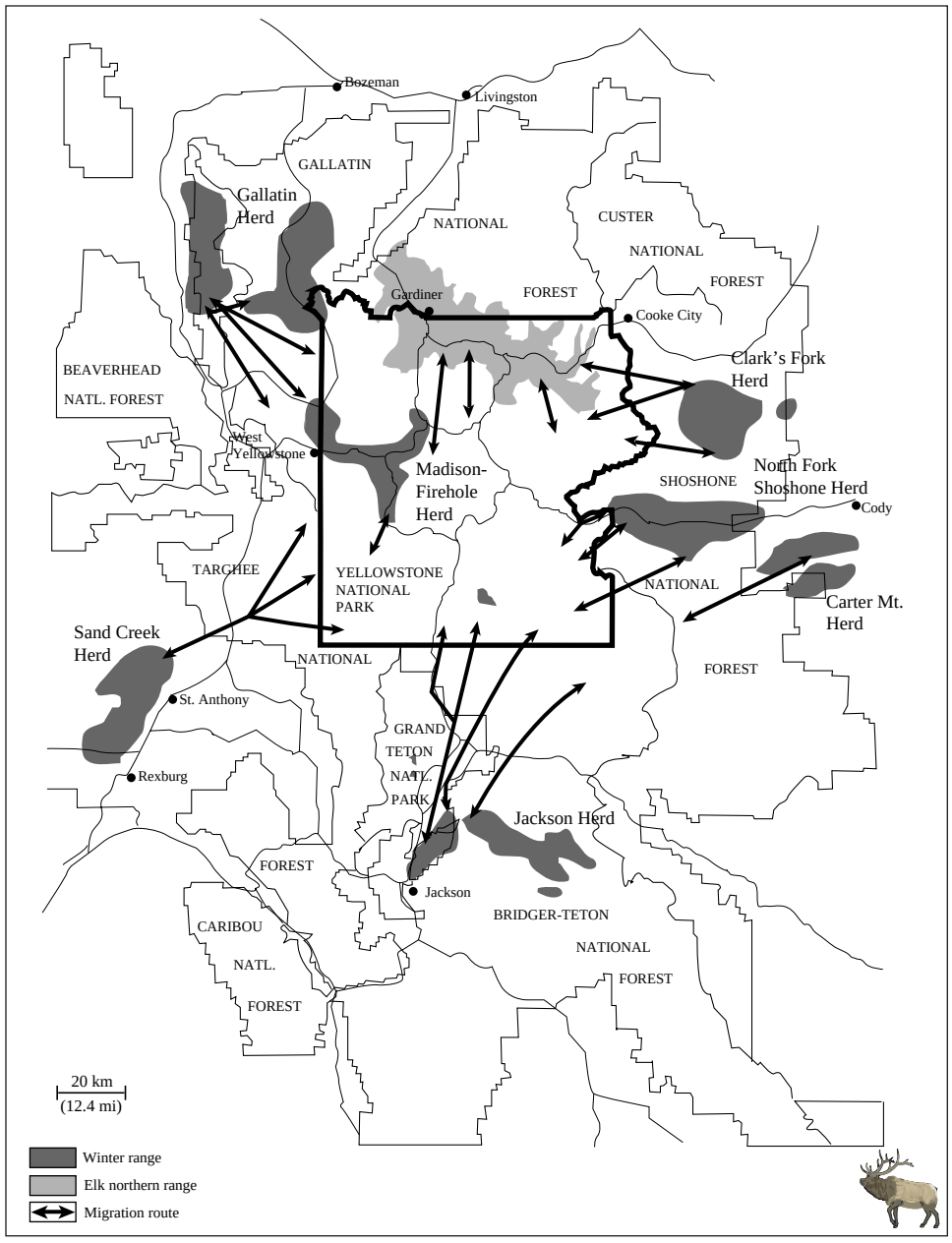
This past winter, the slaughter of bison that migrated out of the park, combined with the winter kill, reduced the bison herd to about half of its size the previous year. In the short term, this reduction may limit the migration of bison from the park, relieve some of the immediate pressure on the Park Service to take management actions, and create an opportunity for the Park Service and its critics to complete and assess the results of studies such as the National Academy of Sciences' review of

[5]These are animal diseases that can be communicated to humans.

brucellosis issues. The results of these studies are needed to make informed management decisions.

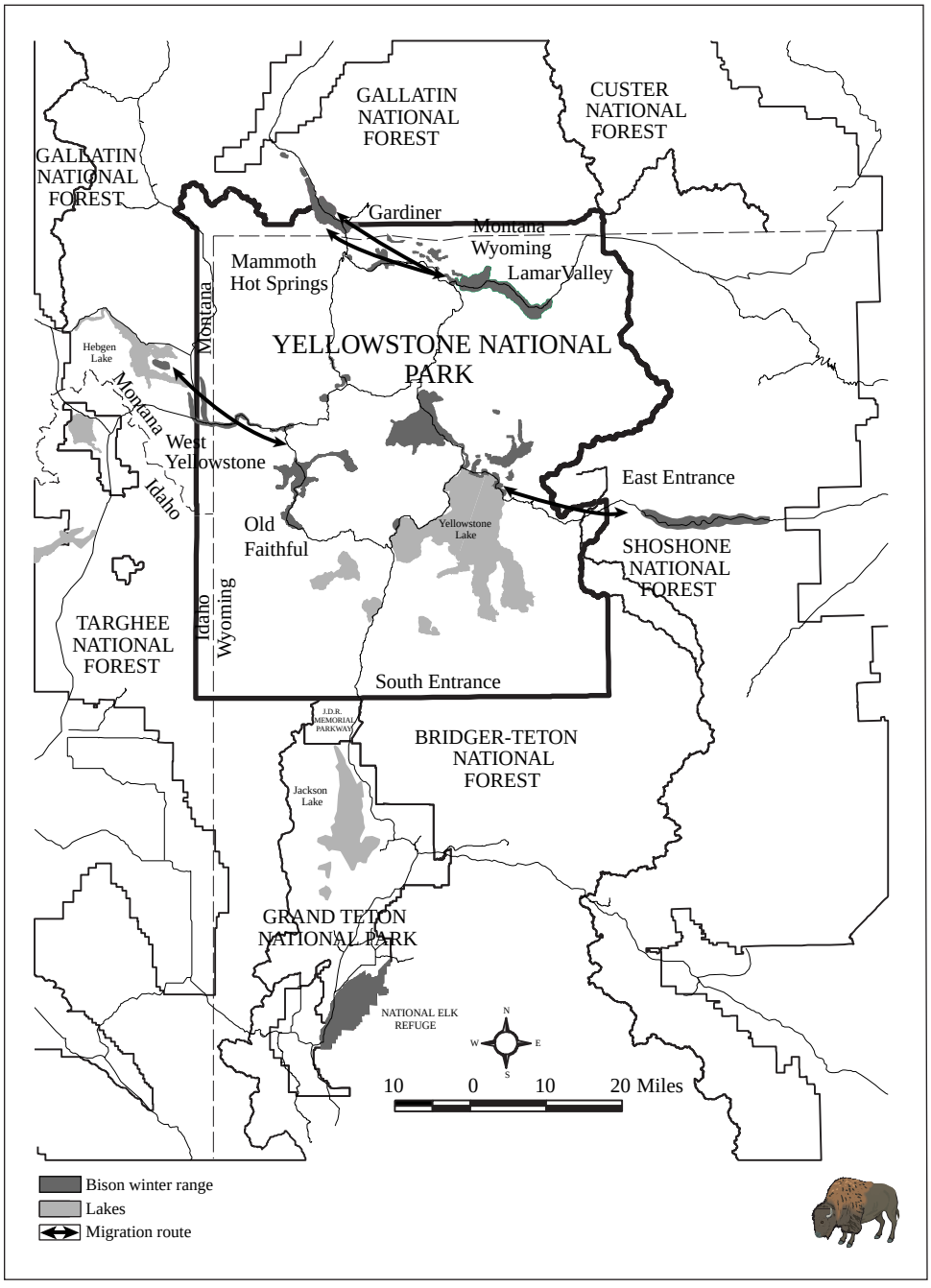
This concludes my statement, Mr. Chairman. I would be happy to respond to any questions you or other Members of the Subcommittee may have.

Winter Ranges and Migration Routes of the Greater Yellowstone Area's Elk Herds



Source: Yellowstone Center for Resources, Yellowstone National Park, National Park Service.

Winter Ranges and Migration Routes of the Greater Yellowstone Area's Bison Herds



Source: Spatial Analysis Center, Yellowstone National Park, National Park Service.

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