TOM MANGELSEN

AMERICAN BISON

A SPECIES OF CONSERVATION CONCERN

BUFFALO FIELD CAMPAIGN

JULIA DAVIS

CONTENTS

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Re: Comment draft plan - CGNF

Dear Regional Forester Leanne M. Marten and Forest Supervisor Mary C. Erickson,

We, the undersigned, are writing you to present our case that American bison meet the National Forest planning rule criteria of and should be listed as a species of conservation concern in Region 1.

There is broad tribal, public, and local support for the Custer Gallatin to use your National Forest planning rule to benefit wild bison, and provide habitat to meet the long-term viability concerns the public has raised for this iconic keystone species. The Custer Gallatin must also heed the U.S. Congress's mandate to provide native bison diversity in the new forest plan.

The Custer Gallatin's proposed action for bison is unreasonable and unacceptable. Human threats and stressors continue to jeopardize the viability of America's only intact population of wild American bison to continuously inhabit their original range in the lower 48 states. We call upon the Custer Gallatin to uphold your trust obligation to American Indian Nations and the American people, and use your legal authority to ensure the future legacy of wild migratory bison persists within the plan area.

The best available scientific information does not support the conclusions made in the Custer Gallatin's final draft assessment, and Supervisor Mary Erickson's decision, to stop evaluating wild bison as a potential species of conservation concern and remove the native species from further consideration.

Managing for the removal of wild bison genetic diversity is codified in Montana, Wyoming, and Idaho law, and there is no regulatory mechanism in place to ensure wild bison persist within the plan area in Region 1 or on National Forests in Region 2 and Region 4.

We are asking the Regional Forester and the Custer Gallatin National Forest to continue evaluating and list wild bison as a species of conservation concern in Region 1.

In evaluating whether bison meet the criteria of a species of conservation concern, the National Forest planning rule requires the Custer Gallatin to rely upon the most accurate, reliable, and relevant information, and make your decision based on the best available science that is transparent to the public. The Custer Gallatin has not done so.

The presumptive decision already made rests on an uninformed assessment and falls short of National Forest planning rule requirements for landscape linkages, habitat connectivity, wild bison diversity and persistence. If adaptive management is guiding forest planning, then a new decision can and should be made based on substantial information that the action is warranted.

The Custer Gallatin has acknowledged receiving hundreds of letters in support of evaluating and listing migratory bison as a species of conservation concern. More than twelve hundred people submitted their support online. Based on what we heard during the Custer Gallatin's planning meetings, there is a broad section of people who want to see wild bison persist as a viable native species within the plan area.

Please consider the best available scientific information presented in our report and rationale in support of continuing the public process for evaluating and listing wild bison as a species of conservation concern in Region 1.

Sincerely,

Ken Cole, executive director
Buffalo Field Campaign
PO Box 957
West Yellowstone, MT 59758

ORGANIZATION SIGNATURES

INDIVIDUAL SIGNATURES

EXECUTIVE SUMMARY

Executive summary supporting an evaluation and listing of
American Bison as a species of conservation concern in Region 1.

1. Wild bison meet the National Forest planning rule criteria for a species of conservation concern.
2. The best available scientific information indicates substantial concern about wild bison's capability to persist over the long term in the plan area.
3. Wild bison are extinct or extirpated in four out of five landscapes in the Custer Gallatin plan area. Bison viability and diversity is being depleted in the remaining landscape.
4. Montana Fish, Wildlife & Parks and the Montana Natural Heritage Program list wild bison as a species of concern in Montana.
5. Wild bison are a critically imperiled species in the state of Idaho. Under Idaho law, wild bison are eradicated.
6. The state of Wyoming manages for the removal of low numbers of bison in restricted areas. Wyoming law effectively reduces wild bison genetic diversity to virtually zero.
7. The condition and status of wild bison now and for the foreseeable future is not secure within the plan area in Region 1 or on any other National Forest in Region 2 and Region 4.
8. The Custer Gallatin has erected or permitted barriers to impede wild bison's natural migrations within the plan area. These barriers disrupt habitat connectivity the National Forest planning rule requires be maintained or restored.
9. Human development is accelerating and threatens natural habitats and wildlife corridors for migratory species including wild bison within the plan area. The loss of corridors and connectivity to habitat decreases viability and increases the risk of extinction for wild bison.
10. The U.S. Forest Service's livestock grazing program is a leading source of conflicts with grizzly bears resulting in dead bears, and displaces wild bison, a native species and key grizzly bear food source including within the plan area.
11. The National Forest planning rule supports listing wild bison as a species of conservation concern because the migratory species provides for diversity of plant and animal communities the National Forest Management Act requires be protected. These key characteristics make bison an ideal focal species to monitor ecosystem integrity.
12. The Custer Gallatin's proposed action for bison is unreasonable and unacceptable. An alternative is offered in counterbalance to the regulatory threats and stressors American bison are confronted with in the plan area and beyond.

Report and rationale supporting an evaluation and listing of American Bison as a species of conservation concern in Region 1.

1. Wild bison meet the National Forest planning rule criteria for a species of conservation concern.

> We begin our analysis by recognizing that federal land agencies have an *obligation,* and not just the discretion, to manage and conserve fish and wildlife on federal lands. Before explaining, it is important to first dispel the common myth that "the states manage wildlife, federal land agencies only manage wild life habitat." We found this mantra repeated throughout our study and it was commonly invoked by state *and* federal agencies in multiple cases and contexts.
>
> . . .
>
> Just because the federal government has traditionally deferred to the states in establishing regulations pertaining to hunting, fishing and trapping does not mean "the states manage wildlife and federal land agencies manage wildlife habitat." We suspect that this non sequitur explains why the mantra has been so rarely questioned in the past.
>
> The mantra is wrong from a legal standpoint, limited from a biological one, and problematically simplifies the complexity of wildlife-habitat relationships. Nie et al. 2017 at 95 (emphasis in the original).
>
> Species of conservation concern are those plant and animal species whose long-term persistence within the plan area is of known conservation concern. The rule requires that species of conservation concern must be "known to occur in the plan area" and that the regional forester identify the species of conservation concern for which "the best available scientific information indicates substantial concern about the species' capability to persist over the long term in the plan area." National Forest System Land Management Planning, Final Rule and Record of Decision, 77 Fed. Reg. 21162, 21175 (Apr. 9, 2012) (hereinafter, National Forest planning rule).

Habitat on the Custer Gallatin is key to the survival of the only American bison population that still roams wild in their native range. Custer Gallatin Final Terrestrial Wildlife Report 2017 at 125, 138. The plan area is unique in having native wild bison that have continuously ranged the Yellowstone ecosystem since shortly after the recession of the last glaciers 10,000 to 12,000 years ago. Gates et al. 2005 at vi.

It is vital to note the best available science uniquely identifies two genetically distinct subpopulations within the Yellowstone bison population. Halbert et al. 2012 at 9. Yellowstone National Park bison biologists dispute the finding as an artifact of human intervention, but offer no scientific data to refute observed population genetic subdivision. White & Wallen 2012 at 751-753; Halbert et al. 2012 at 754-755.

In addition to Yellowstone bison's genetically distinct subpopulation structure, scientists have also found other distinctions including different tooth wear patterns (Christianson et al. 2005 at 674), parturition timing and synchrony (Gogan et al. 2005 at 1716), longitudinal differences in migration patterns (Halbert 2012 et al. at 9), differential migration at the herd scale (Geremia et al. 2011 at 6), spatial separation (Olexa & Gogan 2007 at 1536) differences in diet and environment (Fuller et al. 2007 at 1925), and fidelity to rutting and calving grounds (Gardipee et al. 2008 at 31-32).

Central Interior bison also use a significant proportion of geothermally influenced habitats within their winter ranges (4.8 percent in Pelican Valley to 14.4 percent in Mary Mountain), and movement corridors (5.2 percent to 9.2 percent). Gates et al. 2005 at 48, 113, 127, 55. The inclusion of geothermally influenced habitats as a significant proportion of habitat use represents an unusual ecological adaptation unique to Yellowstone bison.

Human intolerance and intervention has multiplied the stressors operating on American bison including: known genetic bottlenecks suffered after the near extinction of the species, few founders, severe fragmentation of populations, small population sizes, very limited number of viable populations, risk of inbreeding depression, introduction of livestock diseases, hybridization and widespread introgression of cattle DNA in public, private, and tribal herds, absence of natural predators and processes, selection for livestock traits and domestication, loss of habitats and migration corridors, among them. Hedrick 2009; The International Union for Conservation of Nature 2016. Because of these factors, wild bison remain a conservation dependent species in North America.

It is also relevant to consider American bison are near threatened, with few populations functioning as wild. The International Union for Conservation of Nature 2016. Within their native range, American bison are regionally extinct in 40 States, and possibly extinct in Texas. *Id.*

According to the U.S. Fish & Wildlife Service, the total North American population of threatened wood bison *(Bison bison athabascae)* numbers 11,000 animals. 79 Fed. Reg. 26175, 26177 (May 7, 2014). In contrast and in comparison, the total North American population of plains bison functioning as wild numbers 14,703 animals. The International Union for Conservation of Nature 2016.

Today, wild bison are "ecologically extinct" occupying less than 1 percent of their original range. Freese et al. 2007 at 175; Sanderson et al. 2008 at 252-253.

The Yellowstone ecosystem is the only place left in the world where the ecological relationship between grizzly bears and bison continues to evolve. Mattson 2017 at 2.

Wild bison are held in trust for future generations, and the Custer Gallatin has legal authority to ensure the viability of this migratory, keystone species. As the public trustee, the Custer Gallatin must consider your obligation to conserve wildlife species and "stop the practice of reflexively acquiescing to state claims of wildlife authority." Nie et al. 2017 at 101.

With 26 affiliated Tribes having ancestral ties to the region (Yellowstone Resources & Issues 2010 at 40) and several American Indian Nations exercising their respective Treaty rights in the plan area, the Custer Gallatin also has unique trust responsibilities (*Id.* at 102), including, a duty to preserve wild bison population viability on open and unclaimed National Forest lands. All Treaties made "under the Authority of the United States, shall be the supreme Law of the Land. . . ." U.S. Const. art. VI, cl. 2. While each Treaty is unique, tribal rights occupy a special place in National Forest management.

> The Nez Perce Tribe . . . never surrendered its sovereignty or its trust relationship with the United States. Nor did the Tribe relinquish its fishing, hunting, and gathering rights in the ceded lands, including millions of acres within five national forests . . . special tribal rights apply to the management of the national forests. Wilkinson 1998 at 435-436.

The Montana Wyoming Tribal Leaders Council (2012) have unequivocally asked managing authorities to recognize "the trust responsibility and Treaty obligations to American Indian Nations in providing for viable populations of migratory buffalo in their native habitat."

The Shoshone-Bannock Tribes have also articulated their concern "to protect, preserve, and enhance populations of wild bison" amidst the "geo-political boundaries preventing them from occupying much of their historic range throughout the Greater Yellowstone Ecosystem." Fort Hall Business Council 2012.

Lack of regulatory mechanisms, human intolerance and developments, livestock grazing and diseases, and the spread of invasive species that follow livestock introductions are among the stressors limiting the natural distribution and abundance of, and threaten wild bison viability in the plan area.

These same human-introduced stressors also operate on and endanger wildlife migration corridors and the phenomena of long distance bison migration.

The Custer Gallatin's fencing schemes disrupt landscape linkages and habitat connectivity that is necessary for maintaining bison viability and diversity. These forest-permitted barriers disrupt habitat connectivity the National Forest planning rule requires be restored in the plan area.

In addition, the U.S. Forest Service's livestock permitting program is a leading source of conflicts with grizzly bears and is a detriment and limiting factor for grizzly bears and wild bison.

The biological elements of representation, redundancy, and resiliency scientists say is necessary to prevent extinction and ensure species viability and persistence (Shaffer & Stein 2000) are not present for wild bison in the plan area or the larger ecosystem they depend upon for survival.

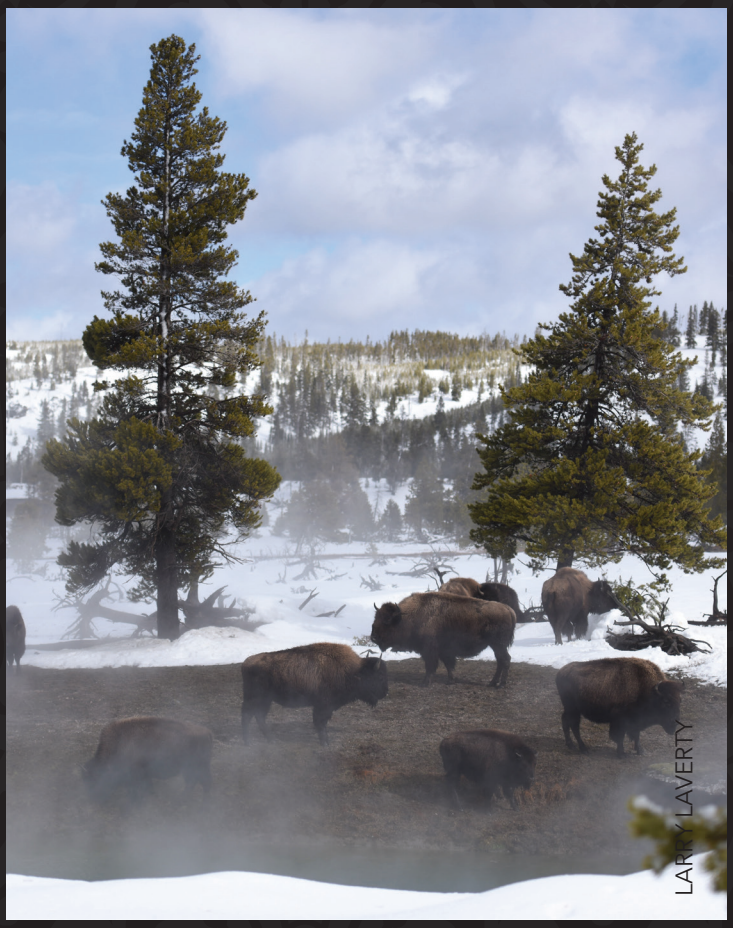
The bison as conservation success story the Custer Gallatin touts in your assessment is undermined by the Central Interior bison herd's precipitous decline. Geremia et al. 2017 at 1.

Once numbering 3,500 Central Interior bison now number 847 – less than one-fourth the population counted in 2005. Geremia et al. 2014 at Table 1. Yellowstone National Park's recent census confirms what Buffalo Field Campaign patrols have been observing in the field: there has been a steep decline in the number of bison in the Hebgen basin plan area. Buffalo Field Campaign 2001-2016. According to bison biologists, it is unknown what is causing the Central Interior herd's decline. Geremia et al. 2017 at 1.

Self-serving narratives of success are a barrier to taking on the ground action to preserve native bison diversity. Real world events have swept away the false story of security for wild bison. The fast-changing circumstances that led to a steep decline in Central Interior bison inhabiting the plan area is a grave cause of concern.


MAP
ILLUSTRATING
THE EXTERMINATION OF
THE AMERICAN BISON
PREPARED BY
W. T. HORNADAY.
EXPLANATION.
Boundary of the area once inhabited by the American Bison (Mainly after J. A. Allen.)
Approximate boundary between the area of desultory extirpation and that of systematic destruction for robes and hides
A Area of gradual extermination by desultory methods
B Area of wholesale slaughter by systematic methods
Range of two great herds in 1870
Range of the herds in 1880.
Range of the scattered survivors of the southern herd in 1875, after the great slaughter of 1870–1873
Range of the northern herd in 1884, after the great slaughter of 1880–1883.
Dates in red figures represent the year of the Bison's extermination in the localities over which the figures are placed.
Figures in green represent the locality and number of wild Bison in existence January 1st 1889.
Compiled under the direction of Henry Gannett, E.M.
HUDSON BAY
BAFFIN BAY
GULF OF MEXICO
CARIBBEAN SEA
CANADA
550
10
200
25
20
25
A
B
A
B


DAWN WILSON


LARRY LAVERTY


DAWN WILSON

The U.S. Congress has mandated National Forests provide for diversity and this mandate encompasses native wild bison. 16 U.S.C. § 1604(g)(3)(B). The diversity mandate comes with the requisite power the U.S. Congress has given the U.S. Forest Service to protect wildlife species on National Forest lands. Schultz et al. 2013 at 8.

> In our view, the 'complete power' that Congress has over public lands necessarily includes the power to regulate and protect the wildlife living there. *Kleppe v. New Mexico*, 426 U.S. 529, 541 (1976).

Within their jurisdictions, the States hold wild animals in trust, but the States police powers exist only "in so far as (their) exercise may be not incompatible with, or restrained by, the rights conveyed to the federal government by the constitution." *Id.* at 545 (quoting *Geer v. Connecticut*, 161 U.S. 519, 528 (1896)).

In addition to the U.S. Supreme Court, other federal courts have affirmed federal wildlife management authority for land management agencies.

> [T]he Tenth Amendment does *not* reserve to the State of Wyoming the right to manage wildlife . . . regardless of the circumstances. *Wyoming v. United States*, 279 F.3d 1214, 1227 (2002) (emphasis added).

> Under the public trust doctrine, the State of Virginia and the United States have the right and the duty to protect and preserve the public's interest in natural wildlife resources. Such right does not derive from ownership of the resources but from a duty owing to the people. *In re Steuart Transp. Co.*, 495 F. Supp. 38, 40 (E.D. Va. 1980) (citation omitted).

There is ample authority protecting Montana landowners from claimed property damage by wildlife. Mont. Code Ann. § 81-2-121 (2017); Mont. Const. art. 2, § 3. Less recognized, and often overlooked, is landowners' corresponding responsibilities to be cognizant of the needs of wildlife in their natural habitats:

> Montana is one of the few areas in the nation where wild game abounds. It is regarded as one of the greatest of the state's natural resources, as well as the chief attraction for visitors. Wild game existed here long before the coming of man. One who acquires property in Montana does so with notice and knowledge of the presence of wild game and presumably is cognizant of its natural habits. Wild game does not possess the power to distinguish between *fructus naturales* and *fructus industriales*, and cannot like domestic animals be controlled through an owner. Accordingly, a property owner in this state must recognize the fact that there may be some injury to property or inconvenience from wild game for which there is no recourse. *State of Montana v. Rathbone*, 110 Mont. 225, 242 (1940).

The Custer Gallatin has legal authority and a trust responsibility to future beneficiaries and American Indian Nations to ensure wild bison persist in the plan area. As this report details, the best available evidence of cumulative threats and stressors indicate substantial concern about migratory bison's capability to persist in the plan area, now and into the foreseeable future.

Report and rationale supporting an evaluation and listing of American Bison as a species of conservation concern in Region 1.

2. The best available scientific information indicates substantial concern about wild bison's capability to persist over the long term in the plan area.

The National Forest planning rule requires the "best available scientific information be used to inform the planning process and be documented, while also taking into account other forms of knowledge, such as local information, national perspectives, and native knowledge." U.S. Forest Service 2012 Summary at 1.

The plan area consists of 3,039,000 acres of National Forest System lands (Federal) and 384,270 acres of non-Federal (private, state and tribal lands; USDA Forest Service Land Area Report, 2015). Custer Gallatin Final Land Status and Ownership, Land Uses, and Access Patterns Report 2017 at 3.

> Bison historically occupied about 20,000 square kilometers (4,942,108 acres) in the headwaters of the Yellowstone and Madison Rivers (Plumb et al. 2009). As of 2008, they occupied 3,175 square kilometers (784,560 acres) predominantly inside Yellowstone National Park. The current tolerance areas include about 200,000 acres on the west side and about 105,000 acres in Gardiner Basin on the north side. Prior to the Governor's decision, the tolerance zones were 12,500 acres on the north and about 70,000 acres to the west. Custer Gallatin Final Terrestrial Wildlife Report 2017 at 133.

Habitat in Yellowstone National Park is not *within the plan area* as defined by the Custer Gallatin. Habitat available in "current tolerance areas" on the Custer Gallatin does not translate into bison use or suitability.

> Bison seem to prefer the narrow band of flat, low elevation habitat along the Yellowstone River. Lemke 1997.
>
> Bison tend to use relatively low elevation habitat, typically using flat areas or rolling foothills dominated by sagebrush grassland vegetation. Lemke 2006.
>
> The South Fork and Watkins allotments have suitable bison habitat, although bison are not allowed to move through the South Fork allotment to the Watkins allotment. Swilling 2011 at 6.

The best scientific information available indicates wild bison use a fraction of habitats available under "current tolerance areas." Wallen 2012. Under "current tolerance areas" of 102,501 acres available to wild bison in the Gardiner basin, predicted use is 30,123 acres. In Hebgen basin and the Upper Gallatin River, of 146,625 acres available, predicted use is 43,602 acres.

Furthermore, management actions reduce predicted habitat use in both basins, e.g. the state of Montana harasses bison migrating south of the Madison River and westward to the South Fork, and biological facts, i.e., during winter, few bison climb to the top of hydrological divides in Gardiner basin. While habitat counted above on the Custer Gallatin is available in the Upper Gallatin River (Jourdonnais 2006) bison no longer roam there after being extirpated by management actions in the early 1990s. Geist & Mease pers. observations.

As a probable baseline, and at minimum, wild bison historically occupied 4,942,108 acres in the headwaters of the Yellowstone and Madison Rivers. Plumb et al. 2009 at 2377. Today, wild bison occupy 784,560 acres *outside the plan area* in Yellowstone National Park, and are predicted to use 73,725 acres *in the plan area*. Objectively, wild bison inhabit less than one-fifth of their original habitat in the ecosystem, and, the migratory species' distribution across their range is strictly confined by management "tolerance areas" *within the plan area*.

> Given current constraints on bison tolerance, there is no expectation that bison would be re-established outside of the landscapes that are adjacent to Yellowstone National Park. Therefore, habitat was assessed only for the Madison, Gallatin and Beartooth landscape.
>
> Currently, within the Madison, Gallatin, and Beartooth landscape, there are 293,151 acres (12.5 percent) of potentially suitable habitat for bison on the Custer Gallatin National Forest. Of that amount, 224,143 acres are grass and shrub lifeforms (Figure 18). Custer Gallatin Final Terrestrial Wildlife Report 2017 at 134.

The Custer Gallatin admits there is an expectation human intolerance will continue to operate on wild bison – severely limiting access to their home range in the plan area for the foreseeable future. It is axiomatic that the less habitat available for wild bison to adapt and evolve, the greater the risk to native species and ecological processes. Committee of Scientists 1999 at 147.

According to the Committee of Scientists, the core elements of ecological sustainability depend on the diversity of plant and animal communities and the productive capacity of ecological systems. "Biological diversity and ecological productivity, in turn, depend on the viability of individual species. Diversity is sustained only when species persist." *Id.* at 176.

Human intolerance and management is severely curtailing the natural distribution, abundance, and migrations of wild bison and is a persistent threat and stressor within the plan area, now and for the foreseeable future. In severely curtailing bison range, the Custer Gallatin is placing the wild species at greater risk of local extinction.

Report and rationale supporting an evaluation and listing of American Bison as a species of conservation concern in Region 1.

3. Wild bison are extinct or extirpated in four out of five landscapes in the Custer Gallatin plan area. Bison viability and diversity is being depleted in the remaining landscape.

Due to human intolerance, wild bison occupy only one landscape within the Custer Gallatin plan area on the Madison, Henrys Lake, Gallatin, Absaroka and Beartooth Mountains. Custer Gallatin Draft Assessment Report of Ecological, Social and Economic Conditions 2016 at 40-41.

> The eastern Custer Gallatin is missing only a few species, such as black-footed ferrets and plains bison. *Id.* at 38.
>
> Bridger, Bangtail and Crazy Mountains
> This landscape includes most native species but not bison, bighorn sheep or grizzly bears. This area is a potential wildlife corridor between the Greater Yellowstone Ecosystem and other large blocks of wildlife habitat to the north, such as the Northern Continental Divide Ecosystem in northwest Montana. *Id.* at 40.
>
> Pryor Mountains
> . . . there are no bison or grizzly bears in the area, black bears and deer are abundant. The Pryor landscape represents a transition from the montane to the pine savanna ecosystem and contains a few notable pine savanna species such as eastern red bat, greater sage-grouse and prairie voles. *Id.* at 41.

On the Custer side of the National Forest, wild bison in South Dakota are "very rare" or "vulnerable to extinction throughout its range."

> Either very rare and local throughout its range, or found locally (even abundantly at some of its locations) in a restricted range, or vulnerable to extinction throughout its range because of other factors; in the range of 21 of 100 occurrences. South Dakota Natural Heritage Program 2007; *see also* South Dakota Game, Fish and Parks 2014 at 16.

On the Gallatin side of the National Forest, wild bison in Montana are subject to livestock agency control under state law that is bereft of provisions ensuring the wild species viability.

> Montana Department of Livestock (DoL) DoL is granted broad and discretionary authority to regulate publicly-owned bison that enter Montana from a herd that is infected with a dangerous disease (YNP bison) or whenever those bison jeopardize Montana's compliance with state or federally administered livestock disease control programs including the authority to remove, destroy, take, capture, and hunt the bison (§ 81-2-120(1)-(4) MCA)). Montana Fish, Wildlife & Parks and Montana Dept. of Livestock 2013 at 13.

The lack of regulatory mechanisms to ensure wild bison persist is preventing the native species from occupying four out of five landscapes in the Custer Gallatin plan area, and is depleting bison genetic diversity and viability in the remaining landscape.

At best, wild bison persistence within the plan area hinges on the uncertainty in who is elected Montana's governor, the makeup of Montana's legislature, and the political will to recognize or rollback "tolerance areas" under livestock management authority. The state of Montana's regulatory intolerance for bison is in conflict with the National Forest Management Act's diversity requirement.

JUDITH DRAGONETTE

Report and rationale supporting an evaluation and listing of American Bison as a species of conservation concern in Region 1.

4. Montana Fish, Wildlife & Parks and the Montana Natural Heritage Program list wild bison as a species of concern in Montana.

> Agency planning policy requires that species identified by states as being at risk be considered as potential SCC [Species of Conservation Concern]. Forest Service Handbook 1909.12 § 1252d(3). Nie et al. 2017 at 61.

The only wild bison in Montana are found within the plan area.

Migratory bison use the National Forest for wintering range, spring calving grounds, and to some extent, summer-fall habitat. Buffalo Field Campaign 2001-2016. Female fidelity to natal ranges (philopatry) appears to be a strong driver behind distinct herd migrations to summer ranges located in Yellowstone National Park. Gardipee 2007 at 31-32.

Central Interior bison occupying the plan area may be unique in selecting geothermally influenced habitats as refugia and movement corridors. Gates et al. 2005 at 48, 54. Notably, Central Interior herd migrations cross the calderas and landforms created by the Yellowstone Plateau volcanic field. Christiansen 2000 at G13, G18, G112. In part, these geothermal habitats prevented the extinction of America's last bison in the wild. Meagher 1973 at 102; Lancaster 2005 at 427; Lueck 2002 at S620, S639, S645, S647.

Given bison's migrations within the plan area occur in the state of Montana and there is no other wild bison population in the state, it is relevant to consider the factors that led Montana Fish, Wildlife & Parks and the Montana Natural Heritage Program to list wild bison as a species of concern.

In Montana, the migratory species is listed as a "species of concern" and "considered to be 'at risk' due to declining population trends, threats to their habitat, and/or restricted distribution" and "vulnerable to global extinction or extirpation in the state."

> As of 2010, bison are listed by the Montana Natural Heritage Program (MNHP) and FWP as a "species of concern" (MNHP, 2010; FWP, 2010a). Species of concern "are native Montana animals that are considered to be 'at risk' due to declining population trends, threats to their habitat, and/or restricted distribution" (MNHP, 2010). FWP and MNHP have given bison an S2 state ranking and a G4 global ranking (MNHP, 2010: FWP, 2010a). An S2 status means the species is "at risk because of very limited and/or potentially declining population numbers, range, and/or habitat, making it vulnerable to global extinction or extirpation in the state" (FWP and MNHP; 2010b). The G4 global ranking means that the species is "apparently secure, though it may be quite rare in parts of its range, and/or suspected to be declining" (FWP and MNHP, 2010b). The Montana Comprehensive Fish and Wildlife Conservation Strategy (CFWCS) lists bison as Tier 1, which are species in "greatest conservation need. Montana Fish, Wildlife & Parks has a clear obligation to use its resources to implement conservation actions that provide direct benefit to these species, communities, and focus areas" (FWP, 2005, pp.32). Adams & Dood 2011 at 32.

Montana Fish, Wildlife & Parks and the Montana Natural Heritage Program present the evidentiary factors – declining populations, threats to habitat, restricted distribution – supporting their finding that wild bison are a species of concern.

Montana's ranking clearly identifies wild bison as a species of concern, and lists the factors that place the migratory species at risk of extinction or extirpation including very limited/declining population, range, and habitat. Furthermore, Montana identifies the wild species as in "greatest conservation need" with the state having an obligation to use its resources to directly benefit wild bison.

These are exactly the factors and scientific information the National Forest planning rule requires to demonstrate substantial concern about the long-term persistence of wild bison, a native species, within the plan area.

Yet, the Custer Gallatin's draft and final assessment entirely fails to consider these factors *within the plan area*. Instead of evaluating the factors that led these authorities to list wild bison as a species of concern in Montana, the Custer Gallatin relies on the status of bison *outside the plan area*. Final Terrestrial Wildlife Report 2017 at 125-139. This fundamental flaw in the agency's analysis is found throughout the Custer Gallatin's draft and final assessment reports.

By failing to establish a baseline for bison, the Custer Gallatin's evaluation obscures the actual status of the wild species as a species of concern *within the plan area* in Montana.

In looking beyond the plan area, bison migrating into Region 4 in Idaho and Region 2 in Wyoming are eradicated and removed. Because these management actions also take place on National Forest lands, the Custer Gallatin needs to take these detrimental factors for bison into account in your proposed action.


SANDY SISTI

Report and rationale supporting an evaluation and listing of American Bison as a species of conservation concern in Region 1.

5. Wild bison are a critically imperiled species in the state of Idaho. Under Idaho law, wild bison are eradicated.

> It is the purpose of the provisions of this section to provide for the management or eradication of bison . . . . Idaho Code § 25-618(1) (2017).

Bison migrating through and beyond the plan area, are purposely eradicated under Idaho law despite being identified as a critically imperiled species in the state.

Wild bison in the plan area migrate onto the Caribou-Targhee National Forest in Idaho, Region 4, where the species conservation ranking is S1, a "critically imperiled species at high risk because of extreme rarity." Adams and Dood 2011 at 108.

Under Idaho law, state and federal officials shoot or eliminate any wild bison migrating from the Yellowstone population. Idaho Code § 25-618 (2017); Associated Press 2012.

Based on Buffalo Field Campaign observations and government reports, Idaho law is enforced to eradicate bison migrating onto the Caribou-Targhee National Forest and adjacent lands – the only place the wild species is found in the state. Buffalo Field Campaign 2009; Buffalo Field Campaign 2017; Montana Fish, Wildlife & Parks and Montana Dept. of Livestock 2013 at 39.

Human intolerance in Idaho law that eradicates bison genetic diversity on the Caribou-Targhee National Forest and adjacent lands is certain to continue for the foreseeable future.


SANDRA ZELASKO

Report and rationale supporting an evaluation and listing of American Bison as a species of conservation concern in Region 1.

6. The state of Wyoming manages for the removal of low numbers of bison in restricted areas. Wyoming law effectively reduces wild bison genetic diversity to virtually zero.

Bison occupying the plan area and migrating into Wyoming are managed in restricted areas for removal.

Bison migrations onto the Shoshone National Forest in Region 2 occurred over most of the latter 20th century and became consistent after a major forest fire in 1988. Wyoming Game and Fish Department 2008 at 7, 10–11.

From 1988-1997, up to 30 bison were annually observed on the North Fork of the Shoshone River. After two seasons of being hunted, only individual bull bison (less than 10) were observed. *Id.* at 12.

State law calls for wild bison migrating onto the Shoshone National Forest in Wyoming to be shot by hunters or removed by state authorities. The low numbers Wyoming has set curtail bison's exploratory movements and do not allow for female-led groups except in the Teton Wilderness.

> In summary, the fundamental recommendation for the Absaroka Bison Management Area is to maintain the current low number and specific distribution of bull bison in the North Absaroka and Washakie Wilderness Areas (no more than 25), and on Shoshone National Forest (SNF) lands along the North Fork of the Shoshone River (no more than 15). In addition, the WGFD may allow up to 25 bison in the Yellowstone River drainage within the Teton Wilderness. The WGFD should not allow cow bison to occupy this management area except in the Yellowstone River drainage within the Teton Wilderness. *Removing bison* would be accomplished by hunters when possible, or by Department personnel when hunting is not possible. Wyoming Game and Fish Department 2008 at 3 (emphasis added).

Under state law, the migratory species falls under Wyoming livestock board authority, who can order Wyoming Game and Fish to remove bison. *Id.* at 15; Wyo. Stat. Ann. § 23-1-302(a)(xxvii) (2017). The outcome of enforcing Wyoming law and placing the native species under livestock authority effectively reduces wild bison genetic diversity to virtually zero on the Shoshone National Forest.

In 2011, Region 2 proposed listing wild bison as a sensitive species, the precursor to today's species of conservation concern.

On April 1, 2011, Regional TES Species Program Leader Nancy Warren recommended American bison be listed to "encourage consideration of restoration opportunities in the future" and noted that the removal of bison, a keystone species, "may have had cascading effects on grassland ecosystem function and the diversity of native plant and animal species."

On April 7, 2011, Deputy Regional Forester Antoine L. Dixon sent a letter to Forest Supervisors proposing the wild species be added to the sensitive species list in Region 2.

On May 2, 2011, Shoshone National Forest, Forest Supervisor Joseph G. Alexander requested wild bison be removed from the proposed list, citing "[e]xisting state management plans may conflict with how the Shoshone would manage for species viability. Until further evaluation of this situation can occur, I respectfully ask for the species to be removed from the list."

Inexplicably, on April 29, 2011, Region 2's TES Species Program Leader withdrew her recommendation writing: "At this time no self-sustaining herds of wild plains bison exist on National Forest System lands. Forests should consider working towards the possibility of restoring wild plains bison where feasible on NFS lands in the future."

The record shows Region 2 ceded the National Forest's regulatory authority and duty to manage for wild bison viability and list the sensitive species because of *potential conflict* with "state management plans" that calls for the removal of bison migrating onto the Shoshone National Forest.

Region 1 can and should chart another course by recognizing wild bison are a species of known conservation concern.

In the absence of federal regulatory action, human intolerance in Wyoming law reducing bison genetic diversity to virtually zero on the Shoshone National Forest is certain to continue for the foreseeable future.

STEPHANY SEAY

Report and rationale supporting an evaluation and listing of American Bison as a species of conservation concern in Region 1.

7. The condition and status of wild bison now and for the foreseeable future is not secure within the plan area in Region 1 or on any other National Forest in Region 2 and Region 4.

> Montana could manage for *zero* genetic diversity of Yellowstone bison in the state. Respondents' Reply Brief in Support of Motion for Summary Judgment, at 18, *Western Watersheds Project v. State of Montana* (emphasis in the original).
>
> Defendants deny that the Forest Service is required to maintain a viable population of bison on the GNF [Gallatin National Forest]. Defendants' Answer to Complaint at 31, 34 *Western Watersheds Project v. Salazar*.
>
> Clearly define a boundary line beyond which bison will not be tolerated. Interagency Bison Management Plan Members 2016 at 2.
>
> Acres of National Forest in the Western Region: 160,820,554.
> Acres of National Forest in Region 1: 28,142,171.
> Acres of National Forest in Region 2: 24,603,199.
> Acres of National Forest in Region 4: 34,246,476.
> Acres of suitable bison habitat on the Custer Gallatin in "tolerance areas" within the plan area: 293,151.
> Acres of predicted bison habitat on the Custer Gallatin in "tolerance areas" within the plan area: 73,725.

U.S. Forest Service 2015 Table 1 and Table 3; Custer Gallatin Final Terrestrial Wildlife Report 2017 at 134; Wallen 2012.

Despite persistent public pressure and popular will supporting wild bison in Montana (Moore Information 2011; Tulchin Research 2015; Science Daily 2008), the harmful conditions, trends, and stressors operating on wild bison within the plan area and beyond are unlikely to abate.

Because managing for the removal of wild bison genetic diversity is codified in Montana, Wyoming, and Idaho law, there is no regulatory mechanism in place to ensure wild bison persist within the plan area in Region 1 or on National Forests in Region 2 and Region 4.

Consider that even with the most recent adaptive decision, in Montana, migratory bison are permitted to occupy no more than 0.4% of the habitat in the state. Montana Fish, Wildlife & Parks and Montana Dept. of Livestock 2013 at 107. The vast majority of suitable and available habitat for wild bison is found within the plan area on the Custer Gallatin. Wallen 2012. Current "tolerance areas" as defined by managers, which are not based on the best available science, further restrict and reduce wild bison habitat. Custer Gallatin Grazing Allotments – Bison Management Zones Figures D6, D7, and D8.

Even when migratory bison have won new ground to roam within the plan area, in each instance, the gain has come with a rollback.

For example, in Hebgen basin, Montana Governor Steve Bullock rolled back "tolerance" for bison on the south side of the Madison River, the South Fork, and habitat westward which is entirely within the plan area. Bullock 2016; Custer Gallatin Grazing Allotments – Bison Management Zones Figure D6.

After a forest fire in 2008, migratory bison, including matriarch-led groups, were frequently seen in burned lodgepole pine habitat south and west along the Madison River corridor. Buffalo Field Campaign 2001-2016. The ecological benefit of having bison in burned forest habitat was negated in an erratum that now subjects the Central Interior herd to government harassment, a more limited summer season, and a limit on the number of bison within the plan area. Bullock 2016.

In Gardiner basin, the ink had hardly dried on manager's decision to expand habitat for bison when the Montana Dept. of Livestock sought and got changes to rollback provisions that benefitted bison within the plan area. Montana Dept. of Livestock 2013.

State-sanctioned actions in Montana continue to infringe upon the right of bison to occupy habitat and persist as a wild species on the Custer Gallatin. The Custer Gallatin has a public trust duty to not let state forces usurp your authority to manage for wild bison viability within the plan area.

The Custer Gallatin's permitted activities continue to threaten bison distribution, abundance, migration, and connectivity with habitats within the plan area in breach of the U.S. Congress's directive in the National Forest Management Act of 1976 to provide diversity, and previous forest plan standards to provide "habitat for viable populations of all indigenous wildlife species and for increasing populations of big game animals." 16 U.S.C. § 1604(g)(3)(B); U.S. Forest Service 2015 at II-1.

> The Custer Gallatin National Forest's involvement in management of bison is primarily through participation in the Interagency Bison Management Plan. There are three permitted activities associated with Custer Gallatin National Forest lands relative to bison. These include a permit for a portable temporary trapping facility on Horse Butte (issued in 1999 and renewed for 10 years in 2009, which was used 5 of the first 10 years and not since), a permit for Montana Fish, Wildlife & Parks to construct and maintain a fence associated with the bison guard at Yankee Jim Canyon, and most currently and in progress, a permit to construct and maintain a fence (Montana Department of Highways) associated with the bison guard on Highway 287 near Hebgen Dam. Custer Gallatin Draft Terrestrial Wildlife Report 2016 at 122.
>
> . . .
>
> Bison movements in areas of no tolerance are controlled by strategically placed "bison guards" on the highways which block movement of bison on the northern range from entering Yankee Jim Canyon on U.S. Highway 89 and from leaving the Hebgen Basin to the west on U.S. Highway 287 near Hebgen Dam. Bison are also hazed from areas of no tolerance such as private lands in the Hebgen Basin and areas south of the Madison River. *Id.* at 128.

As stated above, there is no check on Custer Gallatin management decisions that are adversely impacting wild bison diversity and viability within the plan area. Instead, the Custer Gallatin primarily manages wild bison based on voluntary participation in a plan dictated by Montana law. Mont. Code Ann. § 81-2-120 (2017). However, "[v]ague, voluntary, speculative, and unenforceable measures found in plans are generally not considered a sufficient regulatory mechanism." Nie & Schembra 2014 at 10284 (footnote omitted). We agree.

Without clear direction classifying wild bison as a species of conservation concern or enforceable standards to provide habitat and diversity, the next forest plan cannot be relied upon to ensure wild bison viability and persistence within the plan area.

Report and rationale supporting an evaluation and listing of American Bison as a species of conservation concern in Region 1.

8. The Custer Gallatin has erected or permitted barriers to impede wild bison's natural migrations within the plan area. These barriers disrupt habitat connectivity the National Forest planning rule requires be maintained or restored.

> The best opportunity for maintaining species and ecological integrity is to maintain or restore the composition, structure, ecological functions, and habitat connectivity characteristics of the ecosystem. These ecosystem components, in essence, define the coarse-filter approach to conserving biological diversity. U.S. For est Service 2012 Final Programmatic Environmental Impact Statement at 126.
>
> A commitment to restore or maintain landscape connectivity to facilitate movement, migration, and dispersal is a significant addition to the planning rule. Schultz et al. 2013 at 5.

The Custer Gallatin has approved erecting several barriers in migration corridors.

> The fence installation will be more or less perpendicular to the river with the goal of preventing bison from moving further downstream. Gallatin National Forest 2011 at 1 (approving 900 feet of jackleg fencing uphill from both sides of the Yellowstone River and associated gates and "cattle guards" on HWY 89 near Yankee Jim Canyon in Gardiner basin).
>
> The only identified effect to wildlife is to prevent bison from migrating further west, toward the Madison Valley, which is exactly the purpose of the fence. Custer Gallatin National Forest 2016 at 3 (approving 30 feet of jackleg fencing, gate, and associated "Bison Cattle Guard" on HWY 287 in Hebgen basin).
>
> [T]he Holder is authorized to construct and maintain a bison corridor fence . . . . Gallatin National Forest 2009 at 1 (approving 695 feet of electrified fencing, associated cattle guards, and gates).

Unless the Custer Gallatin withdraws the special use permits, these barriers to landscape connectivity in wildlife corridors will have long-term and adverse impacts on wild bison within the plan area.

While not insurmountable – bison do climb mountains – the barriers are placed in corridors the wild species favors to access habitat within their home range.

> Connectivity is defined under the 2012 Planning Rule as the "ecological conditions that exist at several spatial and temporal scales that provide landscape linkages that permit the . . . daily and seasonal movements of animals within home ranges, the dispersal and genetic interchange between populations, and the long distance range shifts of species, such as in response to climate change" 36 C.F.R. § 219.19 (2012). *There are two primary requirements for habitat connectivity. The first is that suitable habitats are present for species of interest, and the second is that there are no barriers to movement* (USDA 2006). Custer Gallatin Draft Terrestrial Wildlife Report 2016 at 11 (emphasis added).

§ 219.8 Sustainability.
The plan must provide for social, economic, and ecological sustainability within Forest Service authority and consistent with the inherent capability of the plan area, as follows: (a) Ecological sustainability. (1) Ecosystem Integrity. The plan must include plan components, including standards or guidelines, to maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area, including plan components to maintain or restore structure, function, composition, and connectivity . . . . National Forest planning rule at 21264.

§ 219.19 Definitions.
Connectivity. Ecological conditions that exist at several spatial and temporal scales that provide landscape linkages that permit the exchange of flow, sediments, and nutrients; the daily and seasonal movements of animals within home ranges; the dispersal and genetic interchange between populations; and the long distance range shifts of species, such as in response to climate change. *Id*. at 21270.

The Custer Gallatin's permitted activities directly limit wild bison's natural migrations and dispersal to home ranges within the plan area. Permitting such activities within the plan area is disrupting habitat connectivity and undermining wild bison viability and diversity in contravention of National Forest planning rule requirements for habitat connectivity.

> The reason for movement also plays a role in the assessment of habitat connectivity. For example, long-range dispersal movements may contribute to gene flow between populations, genetic rescue of small or isolated populations, and/or colonization of new areas (Parks et al. 2012).
>
> . . .
>
> Given the importance of habitat connectivity for maintaining species viability and associated biological diversity, a great deal of attention has been devoted to identifying potential movement corridors, as well as potential barriers to movement, for terrestrial wildlife species (USDA Forest Service 2006; Hansen 2006; WGA 2008; Cushman et al. 2010; Parks et al. 2012; Haber and Nelson 2015). Custer Gallatin Draft Terrestrial Wildlife Report 2016 at 12.

Berger studied the imperiled, biological phenomena of long-distance migration and conservatively found 100% of 14 migration routes or corridors have been lost for wild bison in the Greater Yellowstone Ecosystem. Berger 2004 at 322. Importantly, bison trails also provide access corridors for many mammal species. Tesky 1995. "During historical times, large herds of American bison commonly moved southward 200 miles (322 km) or more to winter range." *Id*. Current "tolerance areas" within the plan area effectively cut-off Northern range bison from migrating to substantial portions of their home range, e.g. beyond Gardiner basin to Livingston, Montana. Gates et al. 2005 at 79-80.

Migration is an essential life-history strategy for wild bison allowing for adaptation in a rapidly changing environment and evolutionary resilience in a climate that is being disrupted on a global scale. Bison's long distance migrations, corridor use, and connectivity to habitats in their home range needs to be proactively managed so these phenomena do not become endangered within the plan area.

Because the Custer Gallatin has permitted barriers to habitat and intentionally disrupted connectivity thwarting wild bison's ability to naturally disperse in their home ranges, the agency's permitting activities must be evaluated as a factor in listing wild bison as a species of conservation concern.

Report and rationale supporting an evaluation and listing of American Bison as a species of conservation concern in Region 1.

9. Human development is accelerating and threatens natural habitats and wildlife corridors for migratory species including wild bison within the plan area. The loss of corridors and connectivity to habitat decreases viability and increases the risk of extinction for wild bison.

> Nearly 4,000 homes are added to the 20 counties of Greater Yellowstone each year and natural habitats have been lost at a rate of about 60,000 acres (2.2 percent) per year since 1970. Thus, demand for land and resources are increasing while the habitats that allow fish and wildlife to cope with climate change are decreasing. Hansen 2016.
>
> We found that the measured biodiversity responses, including riparian habitat, elk winter range, migration corridors, and eight other land cover, habitat, and biodiversity indices, are likely to undergo substantial conversion (between 5% and 40%) to exurban development by 2020. Gude et al. 2007 at 1004.
>
> We found that future habitat conversion to exurban development outside the region's nature reserves will probably impact wildlife populations within the reserves. Highly productive lands where biodiversity is concentrated, including riparian areas, aspen stands, and bird hotspots, are underrepresented within reserves and highly impacted by exurban development. These habitats are population source areas for some species and their loss would probably increase the risk of extinction within protected areas (Hansen and Rotella 2002). Potential mammal migration corridors are likely to be vital resources for the ungulates and other large mammals that occur within the parks, and were forecasted to be among the most heavily impacted by exurban development (24%). Loss of these corridors would probably reduce gene flow and decrease long-term viability of species isolated within the protected areas of the GYE (Noss 1983, 1987, Noss and Harris 1986). Gude et al. 2007 at 1015.

Human development on private lands in the region of the plan area is another source of on-going stress for migratory species, including wild bison.

Insofar as development brings more humans in conflict with wild bison, it could reinforce the geo-political "tolerance areas" management has prescribed within the plan area. Because human development is a stressor that is likely to continue now and for the foreseeable future it must be evaluated as a factor in listing wild bison as a species of conservation concern. There is precedent for the Custer Gallatin to do more for wildlife species on National Forest lands to compensate for ongoing loss of habitat on adjacent private lands. Egan, New York Times (Sept. 16, 1991).


RIC KESSLER


STEPHANY SEAY

Bison biologists recognize management is a threat to wild bison, and their attendant loss degrades the native species' beneficial ecological roles in the ecosystem.

> Long distance migrations by ungulate species often surpass the boundaries of preservation areas where conflicts with various publics lead to management actions that can threaten populations. Geremia et al. 2011 at 1.

> Limiting bison abundance to lower numbers will likely reduce (but not eliminate) the frequency of large-scale migrations into Montana, but could also hamper the conservation of this unique population of wild, free-ranging bison by adversely affecting the population's resiliency to respond to environmental challenges, genetic diversity, and the ecological role of bison in the ecosystem through the creation of landscape heterozygosity, nutrient redistribution, competition with other ungulates, prey for carnivores, habitat creation for grassland birds and other species, provision of carcasses for scavengers, stimulation of primary production, and opened access to vegetation through snow cover [1,13,14]. *Id.* at 7.

The forecast for more human development and human intolerance is a decrease in viability and an increase in threats to large mammals like wild bison.

Taken as a whole, the total effects of cumulative stressors operating on wild bison clearly pose a substantial risk to, and raise substantial concern about, the migratory species' ability to persist within the plan area and beyond.

It is uncertain if the Custer Gallatin will fulfill your duty and affirmatively use your authority to provide enforceable regulatory relief under the National Forest planning rule recognizing wild bison as a species of conservation concern.

In the absence of U.S. Forest Service leadership, the passage of time is likely to complicate and potentially eclipse opportunities to conserve the migratory species in the region, the iconic long distance migrations wild bison are known for, and the wild species' ability to adapt to and withstand current and predicted stressors on the horizon.

DARRELL GEIST

Report and rationale supporting an evaluation and listing of American Bison as a species of conservation concern in Region 1.

10. The U.S. Forest Service's livestock grazing program is a leading source of conflicts with grizzly bears resulting in dead bears, and displaces wild bison, a native species and key grizzly bear food source including within the plan area.

> [L]ivestock grazing on public lands continues to be a leading source of conflicts between bears and humans . . . . Yellowstone Grizzly Coordinating Committee Habitat Modeling Team 2010 at 72 (citation omitted).
>
> Grizzly bear range was positively related to occurrence in mountainous ecoregions and the ranges of . . . bison. Mattson & Merrill 2002 at 1123.
>
> Although grizzly bears in other ecosystems consume meat in similar quantities as the GYE, grizzly bears in the GYE are unique in their consumption of bison . . . and in their interactions with wolves to obtain carcasses . . . . U.S. Fish & Wildlife Service 82 Fed. Reg. 30502, 30519 (June 30, 2017) (citations omitted).
>
> Meat from ungulates is a high-quality bear food. Because of foraging efficiencies, this is especially true of meat available in large volumes from concentrated sources. Given these two axioms, meat from bison—the largest-bodied of any surviving Holocene ungulates—is predictably of great value to grizzly bears wherever they have access to this food. Because of European-perpetrated extirpations, this no longer occurs anywhere other than in the Yellowstone ecosystem—a 1% remnant of a system that occurred throughout most of the current western United States. Mattson 2017 at 17.

In a brief span of time, European settlers extirpated grizzly bears and bison from 97 percent and 99 percent of their respective ranges. *Id.* at 2. The Yellowstone ecosystem is the only place where the 30,000-year relationship between grizzly bears and bison continues to evolve. *Id.* For grizzly bears and bison, the U.S. Forest Service's livestock grazing program is a leading source of conflict.

In a six-year period, 62 of 260 human-caused Yellowstone grizzly bears deaths involved management removals due to livestock depredation. Haroldson & Frey 2011-2017. Three additional cubs were also lost due to grizzly bear-livestock conflicts. On National Forests, 30 of 62 human-caused grizzly bear deaths were due to conflicts with livestock. *Id.*

Scientific investigations spanning nearly 60 years affirm the importance of meat to Yellowstone grizzly bears and "specifically the disproportionate importance of meat from bison carcasses." Mattson 2017 at 1.

> Yellowstone's grizzly bears are increasingly reliant on meat from ungulates because of declines in other important foods. Dramatic increases in conflicts over livestock and hunter-killed elk suggest that grizzlies are more often seeking meat under circumstances that bring them into conflict with humans. The one exception is bison . . . obtained under circumstances that foster survival of involved bears. *Id.*

Introduced livestock – an on-going source of conflict and subsequent removal of native bison and grizzly bears – are widely distributed and permitted across the Custer Gallatin.

Total livestock grazing allotment acres on the Custer Gallatin: 1,117,456.
Percent of the Custer Gallatin allocated for livestock grazing: 36.
Percent of the Pine Savanna forest allocated for livestock grazing: 93.
Percent of the Montane forest allocated for livestock grazing: 22.
Acres of primary rangeland suitable for livestock grazing: 666,233.
Number of permitted grazing allotments: 216/199 active.
Number of proper functioning riparian habitats within livestock grazing allotments: 185.
Number of functional-at-risk riparian habitats within livestock grazing allotments: 70.
Number of nonfunctional riparian habitats within livestock grazing allotments: 7.
Miles of fencing on active livestock grazing allotments: 2,775.
Number of water developments on active livestock grazing allotments: 1,849.
Number of permitted mature cows, cows with calves, and yearlings: 36,259.
Number of permitted horses: 548.
Number of permitted domestic bison: 400.
Number of permitted Animal Unit Months: 202,200.
An Animal Unit Month: 780 pounds dry weight forage for a 1,000-pound cow for one month.
Cost per Animal Unit Month: $1.41.

Custer Gallatin Final Permitted Livestock Grazing Report 2017 at 7, 1, 42, 49, 15, 18, 19-20; Bureau of Land Management 2018.

In comparison and contrast to widely permitted livestock, the Custer Gallatin has permitted the capture of wild bison for slaughter, and erected or permitted barriers that disrupt the wild species' natural migrations and connectivity to habitat within the plan area.

Given that the Interagency Bison Management Plan specifically manages bison to prevent any temporal and spatial contact with livestock, as a participating agency, the Custer Gallatin must know your livestock grazing program is displacing the native species.

A review of plan area maps shows numerous livestock grazing allotments permitted throughout wild bison's original home range. Custer Gallatin Grazing Allotments – Montane units; Auttelet et al. 2015 Figure 1.1. As a result, native bison have been displaced from a substantial proportion of their home range on National Forest lands.

> The Lamar Valley and the Yellowstone River Valley north of the park . . . to Livingston and beyond was an important area for bison and Native peoples throughout the Holocene. This system can be considered the original Northern Range for Yellowstone bison, functioning as an ecological continuum of grasslands that likely supported seasonal migrations by bison as far south as the high elevation ranges in the Upper Lamar Valley. Gates et al. 2005 at 77 (footnotes omitted).

Since the 1990s, the Custer Gallatin's claimed authority to modify livestock grazing and accommodate bison has been used once. Custer Gallatin Final Permitted Livestock Grazing Report 2017 at 115. This one exception needs to be developed into an enforceable policy to address the legal requirement of native bison diversity in the plan area.

The Custer Gallatin has a successful track record of closing sheep grazing allotments in response to conflicts with grizzly bears. It can do so again and eliminate conflicts with native bison by closing livestock grazing allotments on National Forest lands.

Preferentially managing for livestock displaces wild bison within the plan area and removes a key grizzly bear food at the same time it brings grizzly bears into potential conflict with livestock resulting in dead bears. Mattson 2017 at 16; Haroldson & Frey 2011-2017.

Displacing native bison with domestic livestock limits the "biological suitable" habitat of grizzly bears and the "potential for a self-sustaining population of grizzly bears" in the Yellowstone ecosystem. U.S. Fish & Wildlife Service 82 Fed. Reg. 30502, 30510 (June 30, 2017).

> Traditional food sources such as bison and elk have been reduced and replaced with domestic livestock such as cattle, sheep, chickens, goats, pigs, and bee hives, which can become anthropogenic sources of prey for grizzly bears. *Id*.

By drawing an arbitrary boundary line in the plan area beyond which bison are killed or removed, managers have also severed an ecological relationship between grizzly bears and native bison that has spanned millennia.

The Yellowstone ecosystem is the only place where the ancient connection between grizzly bears and wild bison continues to evolve. The U.S. Forest Service's livestock grazing program is a detriment and limiting factor for grizzly bears and bison. The Custer Gallatin needs to develop a policy to close livestock grazing allotments in support of native bison diversity in the plan area.

Report and rationale supporting an evaluation and listing of American Bison as a species of conservation concern in Region 1.

11. The National Forest planning rule supports listing wild bison as a species of conservation concern because the migratory species provides for diversity of plant and animal communities the National Forest Management Act requires be protected. These key characteristics make bison an ideal focal species to monitor ecosystem integrity.

> § 219.9 Diversity of plant and animal communities.
> (a)(1) The responsible official shall determine whether or not the plan components required by paragraph (a) of this section provide the ecological conditions necessary to: contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern within the plan area.
> National Forest planning rule at 21214.
>
> Viable population. A population of a species that continues to persist over the long term with sufficient distribution to be resilient and adaptable to stressors and likely future environments.
> 36 C.F.R. § 219.19 (2012).

Wild bison shape and influence grassland ecosystem diversity through shared behaviors (rubbing, horning, wallowing) in large migratory herds. Butler 2006 at 451-452. Bison also prevent forests from encroaching into grasslands numerous native species depend on, and act as ecosystem engineers across the landscape.

> Bison . . . act as "ecosystem engineers" by creating and responding to heterogeneity across the landscape (Gates et al. 2010). They create greater plant diversity by preferentially feeding on grasses and avoiding some flowering plants, while preventing plant community succession through hoof action and horning or rubbing on trees and shrubs (Meagher 1973; Coppedge and Shaw 1998; Knapp et al. 1999). Their heavy bodies and sharp hooves combine to till the soil and disturb roots of grasses and grass-like plants (Frisina and Mariani 1995). This prevents grassland succession to shrubs or trees and provides grasses with greater access to sunlight, which is important for growth (Knapp et al. 1999). Large groups of bison contribute to natural disturbances that influence plant species composition and distribution across large portions of grasslands and shrub steppe, similar to fire, windthrow, and mass soil erosion events (Augustine and McNaughton 1998; Turner et al. 2003; Collins and Smith 2006; McWethy et al. 2013). Auttelet et al. 2015 at 108.

According to a U.S. Forest Service Fire Effects Information System study, "[f]ire is important in creating and maintaining American bison habitat. Fire regenerates grasslands and enhances production, availability and palatability of many American bison forage species." Tesky 1995.

Tesky's fire study also found:

- Forest fires may also play a role in maintaining sedge-grasslands, important winter habitat for bison.
- Intense bison grazing of recently burned habitat may reduce fuel loads and function as firebreaks.
- The slaughter and near extinction of bison "may have shortened fire return intervals and increased fire severity during the early settlement period."
- Bison grazing and fire patterns could provide a valuable tool for naturally managing northern mixed-grass prairie.

For grassland streams and their watersheds, "cattle grazing produces significantly higher baseflow suspended sediment concentrations . . . and the substitution of cattle for bison has resulted in degradation of base flow water quality in grassland streams." Grudzinski 2014. The Custer Gallatin admits cattle are damaging riparian habitats in 70 streams. Custer Gallatin Final Permitted Livestock Grazing Report 2017 at 49. Land managers can no longer ignore bison's beneficial ecological role in protecting native grassland ecosystem integrity. Grudzinski 2014.

Numerous scientific studies have found substantial evidence of wild bison's role in contributing to biological diversity, grassland restoration, and ecosystem health. Bison's keystone ecological roles enrich the abundance and diversity of native species.

> Keystone mammal species—grazers such as prairie-dogs (*Cynomys* spp.) and bison (*Bison bison*) in western prairies, and dam-building beavers in eastern deciduous forests—played a crucial, and frequently unappreciated, role in maintaining many grassland systems. Askins et al. 2007 at 1.
>
> Like fire, bison grazing reduces aboveground standing dead biomass. But it is now clear that the unique spatial and temporal complexities of bison grazing activities . . . are critical to the successful maintenance of biotic diversity in this grassland. Knapp et al. 1999 at 48.
>
> American bison may accelerate seed dispersal to burned sites because American bison are attracted to recently burned areas. Tesky 1995.
>
> [L]oss of species diversity due to frequent burning was reversed by bison, a keystone herbivore in North American grasslands. Collins et al. 1998 at 745.
>
> [U]ngulates are important agents of change in ecosystems, acting to create spatial heterogeneity, modulate successional processes, and control the switching of ecosystems between alternative states. Hobbs 1996 at 695.
>
> [B]ison urine deposition leads to patches of vegetation having much higher total aboveground plant biomass, root mass and N concentrations. Day & Detling 1990 at 171.
>
> The isolation of several viable AMF [arbuscular mycorrhizal fungi] taxa from bison feces indicates that wide-ranging bison could be a vector for at least some RFLP types among grasslands within YNP. Lekberg et al. 2011 at 1292.
>
> Wallows are a unique ecological feature of prairie ecosystems created by bison. By rolling repeatedly in exposed soil, bison increase soil compaction in certain areas which aids in water retention. In the spring, these wallows produce temporary pools that can support ephemeral wetland species (Uno 1989). In the summer, wallows support a different vegetation structure and composition that is more drought and fire resistant (Collins and Barber 1986). The combined effect of bison wallows is an increase in spatial environmental heterogeneity and local and regional biodiversity (Hartnett et al. 1997).
> Fallon 2009 at 2-3.

> [G]razing and wallowing create specific environments that result in greater plant diversity across the landscape by holding water in depressions, enabling colonization by pioneering plant species, and increasing the diversity and use of areas by other animals (Knapp et al. 1999; Truett et al. 2001; Fuhlendorf et al. 2006). Auttelet et al. 2015 at 107.
>
> Western Chorus Frogs, *Pseudacris triseriata*, in tallgrass prairie breed in ephemeral aquatic habitats including intermittent streams and bison wallows. Gerlanc & Kaufman 2005 at 254.
>
> The heterogeneous species assemblages of wallows enhance grassland species diversity primarily because wallows increase habitat diversity. Polley & Wallace 1986 at 493.
>
> A bear was more likely to use a bison compared to an elk carcass, and rarely used mule deer. Green et al. 1997 at 1047.
>
> Grizzly bear range in 1850 was positively related to occurrence in mountainous ecoregions and the ranges of oaks (*Quercus* spp.), pinon pines (*Pinus edulis* and *P. monophylla*), whitebark pine (*P. albicaulis*), and bison (Bos bison). Mattson & Merrill 2002 at 1123.
>
> [B]ison, perhaps one of the most important foods of grizzly bears on the Great Plains, were nearly extirpated from 1850 to 1920. Mattson & Merrill 2002 at 1133.
>
> The presence of bison and extensive communities of oaks such as *Quercus gambelii* or *Q. turbinella* would also enhance prospects for restoration by providing high quality bear food. *Id*. at 1135.

An evaluation of the best available scientific information indicates wild bison provide for diversity of plant and animal species the National Forest Management Act requires be protected. These key ecological characteristics also make bison an ideal focal species to "provide insights to the integrity of the larger ecological system." Committee of Scientists 1999 at 39.

> The term "focal species" is defined in the rule as: A small subset of species whose status permits inference to the integrity of the larger ecological system to which it belongs and provides meaningful information regarding the effectiveness of the plan in maintaining or restoring the ecological conditions to maintain the diversity of plant and animal communities in the plan area. Focal species would typically be selected on the basis of their functional role in ecosystems. National Forest planning rule at 21232.
>
> Focal species monitoring provides information regarding the effectiveness of the plan in providing the ecological conditions necessary to maintain the diversity of plant and animal communities and the persistence of native species in the plan area. *Id*. at 21175.

Accordingly, listing wild bison as a species of conservation concern will ensure the Custer Gallatin's decisions provide for viability of plant and animal diversity within the plan area. Identifying wild bison as a focal species will also provide insight into grassland ecosystem integrity. Doing so should move the Custer Gallatin in the direction of desired conditions and legal requirements the agency must meet in providing for diversity of plant and animal communities on National Forests in Region 1.

Report and rationale supporting an evaluation and listing of American Bison as a species of conservation concern in Region 1.

12. The Custer Gallatin's proposed action for bison is unreasonable and unacceptable. An alternative is offered in counterbalance to the regulatory threats and stressors American bison are confronted with in the plan area and beyond.

Defining bison through "state-approved tolerance zones" is incompatible with the Custer Gallatin's authority and duty to manage for wild bison diversity the National Forest Management Act requires. It is unreasonable for the Custer Gallatin to surrender your authority for managing wild bison and their native habitat to Montana's regulatory intolerance. Given the stressors and threats bison are likely to experience over the life of the next forest plan, the Custer Gallatin's proposed action for bison is unacceptable.

We propose an alternative for evaluation in the Draft Environmental Impact Statement including a new goal, standard, objectives, guidelines, desired conditions, and monitoring questions for native bison. Custer Gallatin Proposed Action at 52, 53-54, 153. We request our alternative be evaluated for the public's consideration.

For ease of reference, we rely on the Custer Gallatin's alpha-numeric identifiers to identify an appropriate action for wild bison on National Forest lands.

Bison (WLBI)
Goal (FW-GO-WLBI)
01 The Forest Service engages with state, Federal, Tribal, and willing partners to expand the science of bison ecology, provide for viable native bison populations on National Forest lands, and cooperatively develop strategies to manage bison diversity and their habitats to facilitate natural movement, linkage zones, and connectivity.

Standard (FW-STD-WLBI)
01 Manage for viable native bison populations in the plan area.

Objectives (FW-OBJ-WLBI)
01 Implement livestock grazing closures to resolve conflicts in favor of native bison.
02 Develop a wildlife migration corridor program to enhance landscape linkages and connectivity to habitat for native bison.

Guidelines (FW-GDL-WLBI)
01 Management actions should permit native bison to access home ranges.
02 Management actions should maintain or restore landscape linkages and connectivity for native bison.
03 Management actions should favor native bison diversity and closure of livestock grazing allotments to prevent conflict.
04 Management actions should not limit native bison expansion into unoccupied habitat.

Desired Conditions (FW-DC-WLBI)
01 Native bison have access to forage, security, and movement corridors to facilitate connectivity and natural distribution of the species.
02 Educational materials, including signage at trailheads and campgrounds where native bison may occur, are available to help forest users understand bison behavior and avoid potential conflicts.

Monitoring Questions (MON-WLBI)
01 Are bison utilizing fire-burned habitat on National Forest lands?
02 Are bison contributing to plant and animal diversity on National Forest lands?
03 Are bison contributing to maintaining grasslands on National Forest lands?
04 Are livestock grazing allotments being closed to prevent conflicts with native bison?
05 Are impediments to landscape linkages being removed to maintain or restore connectivity for native bison?

Potential Indicator (IND-WLBI)
- Numbers, location, and timing of native bison use of habitat on National Forest lands.
- Ecological responses to native bison in fire-burned habitat on National Forest lands.
- Ecological responses of plants and animals to native bison on National Forest lands.

Data Sources
- Montana Fish, Wildlife & Parks.
- Forest Service.
- Tribal biologists, traditional and ecological knowledge.
- Scientists.

As a forest wide guideline for wildlife in general, management actions should not create movement barriers to wide-ranging species such as carnivores and wild ungulates. Amending proposed guidelines for wildlife in general (FW-GDL-WLGEN-01).

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