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Comments: On behalf of Buffalo Field Campaign, I am submitting the text of our Feedback on the Custer Gallatin[rsquo]s Draft Assessment of Existing Conditions and Need to Change the Forest Plan. PDFs of BFC's feedback and sources are being mailed to you on a CD.

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January 6, 2017

Mary Erickson, Forest Supervisor

Attn: Forest Plan Revision

Custer Gallatin National Forest

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Feedback on the Custer Gallatin[rsquo]s Draft Assessment of Existing Conditions and Need to Change the Forest Plan

Dear Supervisor Erickson and the Custer Gallatin Forest Plan Revision Team,

Buffalo Field Campaign[rsquo]s evaluation of the Custer Gallatin[rsquo]s Draft Assessment finds there is a need to change the Forest Plan to identify wild buffalo as a Species of Conservation Concern and Focal Species.

The best available scientific information supports placing wild buffalo on the list of Species of Conservation Concern to be decided by the Regional Forester.

The best available scientific information supports evaluating and identifying wild buffalo as a Focal Species in the Forest Plan.

Accordingly, Buffalo Field Campaign provides new information, the best available scientific information, local knowledge of wild buffalo, and our rationale in support of changing the Forest Plan to list wild buffalo as a Species of Conservation Concern and Focal Species.

Sincerely,

Daniel Brister, MS

Executive Director

Buffalo Field Campaign

The best available scientific information supports placing wild buffalo on the list of Species of Conservation Concern to be decided by the Regional Forester.

1. The Custer Gallatin failed to properly evaluate the information cited by the agency and erroneously concluded that wild buffalo are not a species of conservation concern.

Appendix A: Species Evaluated and Not Identified as a Potential Wildlife Species of Conservation Concern

The species listed in Table A-1 were evaluated, but not identified as potential wildlife species of conservation concern.

Bison (Bison bison)

Conservation Ranking

G4

MT S2

SD S3

Distribution in Plan Area

Bison occur seasonally in the Madison/ Gallatin/ Absaroka and Beartooth landscape. Nearly exterminated at turn of century due to overharvest.4

Rationale for Evaluating and Identifying or Not as Potential Species of Conservation of Concern
Evaluated due to state ranking in Montana.Not identified as potential species of conservation concern. State ranking is due to low and/or declining population numbers. Bison in plan area are managed under the Interagency Bison Management Plan that dictates population levels. Primary threat is human tolerance. (Draft Terrestrial Wildlife Report at 168).

According to a scientific review of the S2 conservation ranking of wild buffalo in Montana, the migratory species is listed as a [ldquo]species of concern[rdquo] and [ldquo]considered to be [lsquo]at risk[rsquo] due to declining population trends, threats to their habitat, and/or restricted distribution[rdquo] (MNHP, 2010):

As of 2010, bison are listed by the Montana Natural Heritage Program (MNHP) and FWP as a [ldquo]species of concern[rdquo] (MNHP, 2010; FWP, 2010a). Species of concern [ldquo]are native Montana animals that are

considered to be [lsquo]at risk[rsquo] due to declining population trends, threats to their habitat, and/or restricted distribution[rdquo] (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 [ldquo]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[rdquo] (FWP and MNHP; 2010b). The G4 global ranking means that the species is [ldquo]apparently secure, though it may be quite rare in parts of its range, and/or suspected to be declining[rdquo] (FWP and MNHP, 2010b). The Montana Comprehensive Fish and Wildlife Conservation Strategy (CFWCS) lists bison as Tier 1, which are species in [ldquo]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[rdquo] (FWP, 2005, pp.32). (Adams and Dood 2011 at 33[ndash]34).

The Custer Gallatin erred in its review of the state[rsquo]s conservation ranking and came to a contrary and unsupported conclusion that buffalo are not a species of concern or conservation concern.

Montana Fish, Wildlife and Parks and the Montana Natural Heritage Program present the evidentiary factors supporting their conclusion that buffalo are a species of concern. Montana[rsquo]s ranking clearly identifies wild buffalo as a species of concern, and lists the factors that place the migratory species at risk of extinction or extirpation. Furthermore, Montana identifies the wild species as in [ldquo]greatest conservation need[rdquo] with the state having an obligation to use its resources to directly benefit wild buffalo. These are exactly the factors and scientific information the Forest planning rule requires to demonstrate substantial concern about the long-term persistence of wild buffalo, a native species, in the plan area.

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 [lsquo][lsquo]known to occur in the plan area[rsquo][rsquo] and that the regional forester identify the species of conservation concern for which [lsquo][lsquo]the best available scientific information indicates substantial concern about the species[rsquo] capability to persist over the long term in the plan area.[rsquo][rsquo] (National Forest System Land Management Planning, Final Rule and Record of Decision, 77 Fed. Reg. 21162, 21175 (Apr. 9, 2012) herein Forest planning rule).

While the agency may point to the overall population increasing in the last century since the near extinction of wild buffalo, the Interagency Bison Management Plan, which the Custer Gallatin now leads, calls for a decreasing population and a target of 3,000 (Geremia 2014 at 1, 17) regardless of subpopulation distinction which does not represent the best available scientific information.

Even with the most recent adaptive decision, in Montana, migratory buffalo are permitted to occupy no more than 0.4% of the habitat in the state (Montana FWP and DOL 2013 Draft EA at 107; see also Montana Governor Bullock[rsquo]s 2015 Decision Notice). The vast majority of this habitat is on our National Forests (Wallen 2012).

Furthermore, an S3 conservation ranking in South Dakota means the species is [ldquo]very rare[rdquo] or [ldquo]vulnerable to extinction throughout its range.[rdquo]

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. See also South Dakota Game, Fish and Parks 2014 Ch. 2 at 16).

The Forest planning rule requires the Custer Gallatin use the best available scientific information to inform the planning process and plan decisions, and to make those decisions transparent to the public:

Section 219.3[mdash]Role of Science in Planning

This section requires that the responsible official use the best available scientific information to inform the planning process and plan decisions, and provides requirements for documenting the use of the best available scientific information (BASI). The intent of this requirement is to ensure that the responsible official uses BASI to inform planning, plan components, and other plan content, that decisions are based on an understanding of the BASI and that the rationale for decisions is transparent to the public. The Department also expects that this requirement will increase the responsible official[rsquo]s understanding of risks and uncertainties and improve assumptions made in the course of decision making. (Forest planning rule at 21192).

In evaluating the conservation ranking of wild buffalo the Custer Gallatin did not rely on the best available science as required by the Forest planning rule. While the Custer Gallatin is entitled to its own conclusions, the agency must reach them based on the best available scientific information in a manner that is transparent to the public.

2. The Custer Gallatin must consider and evaluate a range of the best available scientific information on the conservation status of wild buffalo, a native migratory species.

[ldquo]Gathering a range of scientific information and acknowledging potential uncertainties is critical to adequately inform the responsible official as well as the public during the planning process.[rdquo] (Forest planning rule at 21192[ndash]21193).

The best available scientific information that includes a range of sources provides evidence in support of listing wild buffalo as a species of conservation concern on the Custer Gallatin National Forest:

In 2008, the International Union for Conservation of Nature Red Listed the American bison as near threatened. (Gates and Aune 2008).

[ldquo][T]he plains bison is for all practical purposes ecologically extinct within its original range.[rdquo] (Freese 2007 at 175).

Scientists estimate buffalo as a wildlife species occupy less than 1% of their original range. (Sanderson 2008 at 252-253).

[ldquo]Yellowstone bison historically occupied approximately 20,000 km2 in the headwaters of the Yellowstone and Madison rivers in what is now referred to as the northern Greater Yellowstone Area.[rdquo] (Plumb 2009 at 2377).

While Plumb[rsquo]s approximation provides a snapshot in time [ldquo]bison appear to have been living everywhere in Greater Yellowstone where habitats were suitable.[rdquo] (Schullery and Whittlesey 2006 at 136).

Another review of written evidence from 1805-1845 [ldquo]indicates bison were widely distributed in intermountain valleys, with a major regional concentration spanning parts of Idaho, Montana, and Wyoming.[rdquo] (Bailey 2016; see also Bison in the Rocky Mountains 1805 [ndash] 1845, Bailey 2016).

As a migratory species wild buffalo must have occupied substantial portions of habitat on the present day Custer Gallatin but are now missing according to the agency:

The eastern Custer Gallatin is missing only a few species, such as black-footed ferrets and plains bison. (Draft Assessment Report of Ecological, Social and Economic Conditions 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. (Draft Assessment Report of Ecological, Social and Economic Conditions 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. (Draft Assessment Report of Ecological, Social and Economic Conditions at 41).

Of five landscapes on the Custer Gallatin, wild buffalo are found on only one: Madison, Henrys Lake, Gallatin, Absaroka and Beartooth Mountains. (Draft Assessment Report of Ecological, Social and Economic Conditions at 40-41).

If a native wild species is listed as near threatened in North America, found by scientists to be ecologically extinct in the wild, extirpated from nearly all of their original range and on significant portions of National Forests they once occupied, identified as a species of concern in the plan area, and there is a clear and substantial public interest in ensuring their persistence, it belongs on the list of species of conservation concern.

3. The Custer Gallatin must consider and evaluate known regulatory threats that contribute to buffalo[rsquo]s conservation ranking as a species of concern.

Today, migratory buffalo are permitted to occupy no more than 0.4% of the habitat in the state. (Montana FWP and DOL 2013 at 107; see also Montana Governor Bullock[rsquo]s 2015 Decision Notice). Of the 0.4% of habitat available to wild buffalo in Montana, a critical portion is located on our National Forests. This lack of habitat for wild buffalo is a consequence of state law MCA 81-2-120 and the Interagency Bison Management Plan, the Montana [ldquo]governor-approved plan[rdquo] MCA 81-2-120 calls for.

Under MCA 81-2-120, from 1995-2010, the Montana Dept. of Livestock shot or captured for slaughter 1,482 wild buffalo migrating into Hebgen basin, habitat comprised mainly of National Forest land. (White 2011 at 1329). The Custer Gallatin contributed to these harmful impacts by approving two 10-year permits for the Montana Dept. of Livestock to capture buffalo for slaughter on our National Forest.

As a signatory to the Interagency Bison Management Plan, the Custer Gallatin has agreed to and permitted activities to restrict the natural migrations, access to habitat, and abundance and distribution of wild buffalo on our National Forests. Hence, the agency must evaluate the full range of impacts and take a hard look at the regulatory mechanisms contributing to buffalo[rsquo]s status as a species of concern in Montana.

Wild buffalo migrate onto the Caribou-Targhee National Forest in Idaho where the species conservation ranking is S1, a [ldquo]critically imperiled species at high risk because of extreme rarity[rdquo] (Adams and Dood 2011 at 113). The Custer Gallatin did not but must evaluate this information as a factor in listing wild buffalo as a species of conservation concern. Furthermore, the agency does not evaluate the impact of Idaho state law that

effectively eliminates migratory buffalo on the Caribou-Targhee.

Wild buffalo also migrate onto the Shoshone National Forest in Wyoming where the species access to habitat and distribution is severely limited (Wyoming Game and Fish Department 2008). The Custer Gallatin does not but must evaluate this information as a factor in listing wild buffalo as a species of conservation concern. Furthermore, the agency does not evaluate the impact of Wyoming state law that severely limits the number and distribution of migratory buffalo on the Shoshone.

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).

The best available scientific information provided throughout our comments is accurate, reliable, and relevant to the issue of listing wild buffalo as a species of conservation concern.

The Department also modified the requirement that the responsible official [lsquo][lsquo]determine what information is the most accurate, reliable, and relevant to a particular decision or action[rsquo][rsquo] to a requirement that the responsible official [lsquo][lsquo]determine what information is the most accurate, reliable, and relevant to the issues being considered.[rsquo][rsquo] This change focuses the requirement on the issues being considered, because the underlying issues form the basis for decision making, and are the appropriate focus for the requirement to ensure that the responsible official uses scientific information to inform plan-related decisions. (Forest planning rule at 21192).

Buffalo Field Campaign[rsquo]s evaluation of a range of the best available scientific information shows ongoing regulatory threats to wild buffalo[rsquo]s access to habitat not just on the Custer Gallatin but on National Forests in the region. Because these regulatory mechanisms are based on state laws, the impacts to wild buffalo are likely to persist through the life of the Forest Plan. These regulatory mechanisms are relevant in evaluating and listing wild buffalo as a species of conservation concern.

4. The Custer Gallatin needs to evaluate the agency[rsquo]s decisions in contributing to wild buffalo[rsquo]s ranking as a species of concern in Montana.

Despite the Custer Gallatin[rsquo]s assessment that the occurrence of wild buffalo on the National Forest system is unique to the Gallatin, the agency did not evaluate the impacts of its role in impeding and diminishing access to National Forest habitat for this valued native species:

The Custer Gallatin National Forest is the only national forest occupied by wild bison for a portion of the year. (Draft Terrestrial Wildlife Report at 121).

The Custer Gallatin National Forest[rsquo]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. (Draft Terrestrial Wildlife Report at 122).

Bison movements in areas of no tolerance are controlled by strategically placed [ldquo]bison guards[rdquo] 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. (Draft Terrestrial Wildlife Report at 128).

The record is clear that the Custer Gallatin is permitting activities that directly limit wild buffalo[rsquo]s natural movements and access to habitat and thereby the migratory species abundance and distribution on our National Forests. In part, the Custer Gallatin[rsquo]s management decisions are contributing to the underlying factors that raise substantial concerns about the persistence and viability of wild buffalo on our National Forests.

5. The barriers the Custer Gallatin has erected or permitted to impede the migrations of wild buffalo on our National Forests also disrupts habitat connectivity the Forest planning rule requires be maintained or restored.

Connectivity is defined under the 2012 Planning Rule as the [ldquo]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[rdquo] (36 CFR 219.19). 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). (Draft Terrestrial Wildlife Report at 11).

In addition to developing, amending, and revising plans under the diversity requirements of this section, the final rule includes requirements for ecological sustainability in [sect] 219.8, and in [sect] 219.10 for providing for multiple uses including wildlife and fish, considering ecosystem services, fish and wildlife species, habitat and habitat connectivity, and habitat conditions for wildlife, fish, and plants commonly enjoyed and used by the public when developing plan components for integrated resource management. Requirements in the assessment and monitoring phases are also linked to and support the requirements of this section. (Forest planning rule at 21213).

[sect] 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 . . . (Forest planning rule at 21264).

[sect] 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. (Forest planning rule at 21270).

The disruption of habitat connectivity approved and permitted by the Custer Gallatin has implications for maintaining wild buffalo viability and biological diversity on our National Forests.

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). (Draft Terrestrial Wildlife Report at 12).

Because the Custer Gallatin has permitted barriers to habitat and intentionally disrupted connectivity to thwart the ability of wild buffalo to naturally disperse, the agency[rsquo]s permitted activities must be evaluated as a factor in listing wild buffalo as a species of conservation concern.

6. Introduced livestock [ndash] a source of disease infection for native wildlife species [ndash] are widely distributed and permitted across the Custer Gallatin. In comparison, decisions made by the Custer Gallatin impede natural migrations, disrupt connectivity, and limit the distribution and abundance of wild buffalo, a native species, on our National Forests.

Roughly 36,200 head of cattle, 550 horses and 400 domestic bison are permitted to graze at various times throughout the year on Custer Gallatin lands and associated private lands. (Draft Assessment Report of Ecological, Social and Economic Conditions at 69).

There are 216 grazing allotments on the Custer Gallatin, 199 of which are in use. The 18 vacant allotments are mostly in the Yellowstone and Gardiner Ranger Districts. Since 1986, 59 allotments have been closed[mdash]all on the Gallatin National Forest[mdash]usually because of longtime vacancies, logistics and economics of operations, limited access, ownership changes from land exchanges, failing infrastructure or wildlife considerations. (Draft Assessment Report of Ecological, Social and Economic Conditions at 70).

There is no question that livestock introduced diseases have negatively impacted native wildlife species in the region. Yet, the Custer Gallatin did not but must evaluate the agency[rsquo]s livestock allotment permitting program to consider numerous diseases that could and can infect native species.

For an overview of livestock diseases that pose an on-going threat to native species, evaluate Adams and Dood (2011 at 63[ndash]75). For a detailed list of livestock diseases see Haigh (2002) and Hoberg (2008).

Among the diseases of concern that livestock can infect, and in some cases have infected native wildlife species, are bluetongue, bovine anaplasmosis, bovine brucellosis, bovine tuberculosis, bovine viral diarrhea, Johne[rsquo]s disease, and malignant catarrhal fever carried by domestic sheep. Livestock introduced diseases

can have and have had devastating impacts on wild buffalo, elk, bighorn sheep and other native species. The Custer Gallatin needs to evaluate the risks and impacts to native species from introduced livestock and the agency[rsquo]s livestock allotment permitting program.

7. Introduced livestock have degraded wildlife habitats.

Current Conditions

Past land use and management actions have influenced the rangeland conditions we see today. This includes overuse from unmanaged livestock grazing from the 1880s to 1930s. (Draft Assessment Report of Ecological, Social and Economic Conditions at 73).

Areas prone to livestock concentration typically occur in riparian and green ash woodlands. In recent studies, 71 percent of riparian survey sites were found to be in functioning condition (meaning conditions are more resilient to ecosystem stressors), 27 percent were found to be functioning but at risk (meaning that improvement could be made to transition back to functioning condition) and 2 percent were nonfunctional (meaning that ecological processes have degraded beyond the point of self-repair). (Draft Assessment Report of Ecological, Social and Economic Conditions at 73).

Permitted livestock use may decline slightly in the future due to loss of forage brought about by conifer and invasive weed spread into grasslands and shrublands. (Draft Assessment Report of Ecological, Social and Economic Conditions at 73).

Domestic livestock were introduced in the late 1800s, and impacts from overgrazing by domestic livestock coupled with severe droughts in the early 20th century had major impacts on sagebrush habitats. (Draft Assessment Report of Ecological, Social and Economic Conditions at 89-90).

The deleterious impacts of introducing livestock and the invasive grass and weed species that follow such introductions to native wildlife habitat have not been confined to the Custer Gallatin but reach into habitats inside Yellowstone National Park.

Our initial analyses confirm that there are significant vegetative differences between the Gardiner and Blacktail exclosure sites. That the cover of native and non-native species was found to be significantly different between grazed and ungrazed plots for the Gardiner exclosures, but not the Blacktail exclosures suggests that these differences are not solely attributable to ungulate grazing effects. Rather, they likely reflect a variety of factors including, but not limited to, climate, soil chemistry, human influence, and grazing. However, Artemesia tridentata occurred with greater frequency (Table 3) and had greater cover (Table 4) in ungrazed areas at both sites, suggesting that grazing may be a driving factor for this species.

Mapping efforts to determine the extent of four non-native annuals, including two mustards, Alyssum desertorum and A. alyssoides, and two grasses, Agropyron triticeum and Bromus tectorum (data compiled by the Greater Yellowstone Coordinating Committee), laid a foundation for modelling efforts to predict where these species may spread under various climate change scenarios. We were concerned about these species dominating and

expanding because they degrade rangeland. Issues with range degradation include reduced palatability (e.g., phytoliths), nutrition, productivity (carbon sequestration), soil fertility and water holding capacity, increased fire frequency, and, related to climate change, phenology or timing of resource availability (e.g., early green-up and early senescence result in reduced forage availability in the winter). The current probable distribution of cheatgrass (Figure 3) is of concern because of its potential to spread in the northern range at the expense of native vegetation that provides more valuable forage and other ecosystem services.

The Gardiner Bench area, which is the hottest and driest part of the park, has become dominated by a few annual, non-native plant species (e.g., Alyssum alyssoides, A. desertorum, Agropyron triteceum, and Bromus tectorum). Our mapping efforts suggest that while Bromus tectorum is relatively widespread throughout the northern range, the range of Agropyron triteceum does not currently extend up the Gardiner River drainage beyond the Boiling River. Similarly, while both species of Alyssum occur sporadically throughout the northern range from Gardiner to the Lamar Valley, A. desertorum dominates vast expanses at the lower elevations of the Gardiner area. Under certain climate change scenarios these species may expand into other portions of the northern range, with potentially negative consequences for critical winter habitat. (Chong 2010 at 89[ndash]91).

Because the Custer Gallatin permits and will continue to permit livestock to graze in habitat for native wildlife species over the life of the Forest Plan, the agency must and should evaluate ways to restore degraded habitats on our National Forests as the Forest planning rule requires.

8. The Forest planning rule supports listing wild buffalo 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.

[sect] 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. (Forest planning rule at 21214).

There are a number of scientific studies that have found substantial evidence of buffalo[rsquo]s role in contributing to biological diversity, grassland restoration, and ecosystem health:

[ldquo]Heavy grazing by prairie-dogs or bison created a low 'grazing lawn' that is the preferred habitat for many grassland bird species that are restricted to the shortgrass prairie and desert grasslands.[rdquo] (Askins 2007 at 1).

[ldquo] . . . grazers influence the distribution of soil N properties at every spatial scale from individual plants to landscapes.[rdquo] (Augustine and Frank 2001 at 3149).

[ldquo]The influence that over 100 million bison wallows in the tallgrass prairie, and perhaps an equal combined number in the mid- and shortgrass prairies, had on surface hydrology and runoff can only be considered to have been regionally substantial and locally enormous.[rdquo] (Butler 2006 at 452).

[ldquo] . . . loss of species diversity due to frequent burning was reversed by bison, a keystone herbivore in North American grasslands.[rdquo] (Collins 1998 at 745).

[ldquo] . . . bison, in conjunction with other factors such as fire and drought, significantly limited the historical distribution of woody vegetation in the Great Plains.[rdquo] (Coppedge and Shaw 1997 at 195).

[ldquo]Bison social groups had different grazing patterns.[rdquo] (Coppedge and Shaw 1998 at 263).

[ldquo] . . . bison urine deposition leads to patches of vegetation having much higher total aboveground plant biomass, root mass and N concentrations.[rdquo] (Day and Detling 1990 at 171).

[ldquo]Bison have a unique ecology that has profound effects on mixed-prairie ecosystems. Their grazing style provides spatial and temporal heterogeneity which benefits plant and animal species diversity. Bison also increase overall plant productivity by enhancing nutrient cycling and nitrogen availability. Their distinctive behavioral trait of wallowing further creates spatial patchiness of resource availability and boosts plant species composition. Finally, predators and scavengers benefit from consuming bison while the remains confer rich nutrients to prairie soils and plant communities.[rdquo] (Fallon 2009 at 1-4).

[ldquo] . . . grazers probably increased NO3 availability to plants . . . ungulates additionally may promote N availability to plants . . . Both would have positive effects on the primary productivity of this ecosystem.[rdquo] (Frank and Evans 1997 at 2245-2246).

[ldquo]The decline in grazers probably had indirect cascading effects on trophic processes that should be expected to reverberate in this grazing-dominated ecosystem until herbivore populations recover.[rdquo] (Frank and McNaughton 1992 at 2056).

[ldquo]Grazers were a particularly important component of the N budget of this grassland. Estimated rates of N flow from ungulates to the soil ranged . . . approximately 4.5 times the amount of N in senescent plants.[rdquo] (Frank 1994 at 163).

[ldquo]Ungulates increase aboveground production of grasslands in Yellowstone by stimulating grazed plants to allocate resources aboveground and by facilitating the rate of net nitrogen (N) mineralization and the availability of N to plants. Moreover, the migration of ungulates from winter to summer range in Yellowstone is associated with animals following the spatio-temporal pattern of nutrient-rich forage across the ecosystem. This is likely

critical in the positive feedback of herbivores on their forage by providing grazed plants extended periods to recover while soil conditions are suitable for plant growth.[rdquo] (Frank 1998 at 410).

[ldquo] . . . a second hypothesis proposes that bison can de-stabilize the vegetated edges of dunes precipitating a geomorphological cascade impacting biodiversity.[rdquo] (Gates 2011 at 11).

[ldquo]Western Chorus Frogs, Pseudacris triseriata, in tallgrass prairie breed in ephemeral aquatic habitats including intermittent streams and bison wallows.[rdquo] (Gerlanc and Kaufmann 2005 at 254).

[ldquo] . . . ungulates are important agents of change in ecosystems, acting to create spatial heterogeneity, modulate successional processes, and control the switching of ecosystems between alternative states.[rdquo] (Hobbs 1996 at 695).

[ldquo] . . . I found ~45% more grasshopper species and significantly increased values of Shannon H' diversity at sites with bison grazing.[rdquo] (Joern 2005 at 861).

[ldquo] . . . unique spatial and temporal complexities of bison grazing activities . . . are critical to the successful maintenance of biotic diversity in this grassland.[rdquo] (Knapp 1999 at 48).

[ldquo]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.[rdquo] (Lekberg 2011 at 1292).

[ldquo]The heterogeneous species assemblages of wallows enhance grassland species diversity primarily because wallows increase habitat diversity.[rdquo] (Polley and Wallace 1986 at 493).

[ldquo] . . . bison are potentially important dispersers of forbs as well as graminoids. A high abundance and wide diversity of seeds were found in both bison hair and dung. The great majority of seeds found undamaged in bison dung were small seeds, which agrees with the [lsquo]foliage is the fruit[rsquo] hypothesis. Dispersal by both epizoochory and endozoochory may play an important role in life history of many species in tallgrass prairie landscapes.[rdquo] (Rosas 2008 at 769).

[ldquo]In combination, urine patches plus grazing produced unique large-scale patch structure compared to urine

patches in ungrazed prairie. The most important impact of urine patches on community structure resulted from preferential grazing of urine patches by bison, which increases both the size and severity of the grazed area.[rdquo] (Steinauer and Collins 2001 at 1319).

[ldquo][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).[rdquo] (White 2015 at 107).

[ldquo]Bison inadvertently act as [ldquo]ecosystem engineers[rdquo] 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).[rdquo] (White 2015 at 108).

Buffalo shape and influence the diversity of grassland ecosystems through shared behaviors (e.g. rubbing, horning, wallowing) in large migratory herds (Butler 2006 at 451-452).

Buffalo grazing can reverse the loss of native grassland species and the disruption of grassland ecosystem structure and function caused by their extirpation (Collins 1998 at 745).

Buffalo enrich the abundance and diversity of species through keystone ecological roles (Askins 2007 at 1; Fallon 2009 at 1-4; Gerlanc and Kaufman 2005 at 254-255, 258-260; Hobbs 1996 at 695; Knapp 1999 at 39-50; Polley and Wallace 1986 at 493) and provide sustenance for predators, scavengers and endangered species (Green 1997 at 1051-1053; Mattson and Merrill 2002 at 1123).

An evaluation of the best available scientific information indicates wild buffalo provide for a diversity of plant and animal species the National Forest Management Act requires be protected. Accordingly, listing wild buffalo as a species of conservation concern will ensure decisions made by the Custer Gallatin will provide for their viability on our National Forests. 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 our National Forests.

9. The Custer Gallatin needs to properly evaluate and review the best available scientific information so the Regional Forester will be able to make an informed decision on whether to list wild buffalo as a species of conservation concern.

Custer Gallatin staff have identified potential species of conservation concern for the Regional Forester, who determines the final list for species of conservation concern. A full list of wildlife species that were evaluated but not identified as potential species of conservation concern by Custer Gallatin staff is included in the wildlife specialist report. (Draft Assessment Report of Ecological, Social and Economic Conditions at 42).

[sect] 219.7 New plan development or plan revision.

(3) The regional forester shall identify the species of conservation concern for the plan area in coordination with the responsible official. (Forest planning rule at 21264).

[sect] 219.9 Diversity of plant and animal communities.

(c) Species of conservation concern.

For purposes of this subpart, a species of conservation concern is a species, other than federally recognized threatened, endangered, proposed, or candidate species, that is known to occur in the plan area and for which the regional forester has determined that the best available scientific information indicates substantial concern about the species[rsquo] capability to persist over the long-term in the plan area. (Forest planning rule at 21265).

Wild buffalo meet the standard and criteria the Forest planning rule requires to list a species of conservation concern.

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 [lsquo][lsquo]known to occur in the plan area[rsquo][rsquo] and that the regional forester identify the species of conservation concern for which [lsquo][lsquo]the best available scientific information indicates substantial concern about the species[rsquo] capability to persist over the long term in the plan area.[rsquo][rsquo] (Forest planning rule at 21175).

Since these species may be wide ranging or may occur on multiple units, the regional forester, in coordination with the responsible official, will identify species of conservation concern. Requiring that the regional forester identify species of conservation concern will increase consistency across units and build efficiency into the Agency[rsquo]s collective efforts to maintain the diversity of plant and animal communities. (Forest planning rule at 21175).

The Department added paragraph (c) to the final rule to modify and clarify the definition of species of conservation concern, formerly in section 219.19. The new wording clarifies that the species of conservation concern must be [lsquo][lsquo]known to occur in the plan area,[rsquo][rsquo] that the regional forester is the line officer who identifies the species of conservation concern, and the standard for that is [lsquo][lsquo]the best available scientific information indicates substantial concern about the species[rsquo] capability to persist over the long term in the plan area.[rsquo][rsquo] (Forest planning rule at 21214).

Response: In response to these comments, the definition of species of conservation concern was moved from [sect] 219.19 to a new paragraph (c) in this section and was modified. The Department changed the line officer who identifies the SCC for the plan area from the responsible official (normally the forest supervisor) to the regional forester in the final rule. The change was made to provide additional consistency and promote efficiency

in identifying species of conservation on and among national forests and grasslands within a region. The broaderscale monitoring strategy will also be developed by the regional forester. The final rule[rsquo]s definition of SCC makes the criterion for identifying such species narrower and more scientific than the definition in the proposed rule. The species must be [lsquo][lsquo]known to occur in the plan area,[rsquo][rsquo] and [lsquo][lsquo]the best available scientific information[rsquo][rsquo] must indicate [lsquo][lsquo]substantial concern[rsquo][rsquo] about the species[rsquo] capability to persist over the long-term in the plan area. Additional guidance for the identification of species of conservation concern will be included in the Forest Service Directives System, with an opportunity for public comment. The Department expects that State or Tribal lists of endangered, threatened, rare, endemic, or other classifications of species, such as those listed as threatened under State law; and other sources such as the NatureServe conservation status system may be used to inform the identification of SCC. (Forest planning rule at 21218).r<

The Forest planning directive or handbook on identifying potential species of conservation concern requires the Responsible Official to assess the existing information for them in the assessment (36 CFR 219.6 (b)(5); FSH 1909.12.52). Not only does the Responsible Official have the authority to do so but a responsibility to leverage public expertise, engage and consider public input in identifying potential species of conservation concern (36 CFR 219.9(c); FSH 1909.12.52.a).

In the assessment process, Buffalo Field Campaign provided our wildlife databases to the Custer Gallatin demonstrating that wild buffalo, a native species, are occupying habitat on our National Forests including in the plan area. Buffalo Field Campaign also provided extensive scientific information and peer-reviewed publications demonstrating substantial concern about the viability and persistence of wild buffalo. The Custer Gallatin needs to review the input the public has provided to inform the development of the Forest Plan including identifying potential species of conservation concern.

Without an effective evaluation of the best available scientific information by the Custer Gallatin, the agency will impede an informed decision by the Regional Forester on whether to include wild buffalo on the list. The Regional Forester cannot make an informed decision listing a species of conservation concern without a thorough review of the evidence by the Custer Gallatin. In the short time allowed for the public to evaluate the agency[rsquo]s assessment, Buffalo Field Campaign has done our best to do so here.

The best available scientific information supports evaluating and identifying wild buffalo as a Focal Species in the Forest Plan.

1. The Custer Gallatin did not identify any Focal Species as it is required to do in the Forest planning rule.

Comment: Questions about focal species. Respondents asked questions about focal species. (1) What are they? (2) What do they represent? (3) What criteria will be used to select them? (4) How many will there be for a particular plan area? (5) How will they be monitored?

Response: (1) The inclusion of the focal species ([sect] 219.19) in the monitoring section is based on concepts from the March 15, 1999, Committee of Scientists report, which recommended focal species as an approach to monitor and assess species viability. The term [lsquo][lsquo]focal species[rsquo][rsquo] 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. (Forest planning rule at 21232).

The term Species of Interest is applied to several native species in the agency[rsquo]s assessment but is not defined in the rule.

2. The Custer Gallatin provides some evidence that wild buffalo should be evaluated and identified as a Focal Species.

For example, the agency recognizes wild buffalo as a keystone species:

When they are allowed the opportunity to access large landscapes, bison are a keystone species; that is, they shape and influence the diversity of grassland ecosystems, and species that are inhabitants those grasslands (White et al. 2015). Some bird species require the short-grass conditions created by bison grazing (Askins 2007). Bison grazing and urine and feces contribute to increased plant nitrogen in areas grazed repeatedly. Bison may be important dispersers of grass and forb seeds. Known predators include wolves and grizzly bears, but they are not reliant on bison (a formidable prey species). However, bison carcasses, gut piles, and winter kill provide carrion for a host of carnivores and scavengers. (Draft Terrestrial Wildlife Report at 132).

The agency also recognizes wild buffalo as ecological engineers:

An on-going study of forage utilization and production in Lamar Valley of Yellowstone National Park has shown that bison grazing stimulates large amounts of soil nitrogen for plants leading to higher nitrogen availability in the food available for bison (Interagency Bison Management Plan Annual Report, 2015). Bison appear to be engineering their own habitat and enhancing the nutritional value by repeated grazing of sites throughout the growing season. Shifting patterns of bison use on the landscape are likely given forage changes, climate change, predation, and management actions. (Draft Terrestrial Wildlife Report at 129).

3. Wild buffalo fit several of the criteria identified by the Committee of Scientists for selecting a focal species.

According to the Committee of Scientists, a keystone species, an ecological engineer, and a species of concern are among the reasons for selecting a focal species to provide insight into the effectiveness of the Forest Plan in maintaining or restoring ecological integrity.

The Committee of Scientists states focal species should be identified in the forest assessment based on [ldquo]the key characteristic . . . that its status and time trend provide insights to the integrity of the larger ecological system. The term [ldquo]focal[rdquo] includes several existing categories of species used to assess ecological integrity:

Keystone species: species whose effects on one or more critical ecological processes or on biological diversity are much greater than would be predicted from their abundance or biomass (e.g., the red-cockaded woodpecker creates cavities in living trees that provide shelter for 23 other species).

Ecological engineers: species who, by altering the habitat to their own needs, modify the availability of energy (food, water, or sunlight) and affect the fates and opportunities of other species (e.g., the beaver).

Species of concern: species that may not satisfy the requirement of providing information to the larger ecosystem but because of public interest will also be monitored and assessed for viability. Such species include some threatened and endangered species, game species, sensitive species, and those that are vulnerable because they are rare. (Committee of Scientists 1999 Ch. 3 at 39).

4. Wild buffalo should be evaluated as a focal species for monitoring and restoring plant and animal diversity on the Custer Gallatin.

The Forest planning rule requires selecting focal species that can provide information on the effectiveness of the Custer Gallatin Forest Plan in maintaining diversity and the persistence of native species on our National Forests.

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. (Forest planning rule at 21175).

Permitting and introducing exotic livestock and the invasive weeds and grasses that follow into the Custer Gallatin has diminished native species diversity.

Data analysis from 2015 (Marlow, unpublished data) showed that range conditions are less than ideal, with most of the sites having 33 to 45 percent bare ground, which is between low-moderate erosion potential. The study also found that there is low species richness (19 species versus 65 suggested from the literature for this range type), which may be suggestive of low ecosystem resilience. However, no conclusions about trend are possible at this point, and it could be that the range condition is heading in a positive direction because of the reduction in elk foraging due to the dramatic decline in the Northern Range elk herd. (Draft Terrestrial Wildlife Report at 129).

The agency needs to restore degraded habitats and ecological integrity by selecting a focal native species that is known to help recover plant and animal diversity. Given the degraded habitat conditions in Gardiner basin and elsewhere, wild buffalo could play a beneficial role in restoring native species diversity on the Custer Gallatin.

5. Wild buffalo should be evaluated as a focal species for monitoring fire conditions in the grassland-forest interface and long-term climate disruption.

Trends and Drivers

Bison habitat suitability in the future will be influenced by climate change and disturbance or the lack of disturbance. Grazing, including grazing by bison, reduces fine fuel accumulations and could be a tool for land managers to deal with the likely higher wildfire risk associated with climate change (Svejcar et al. 2013). (Draft Terrestrial Wildlife Report at 132[ndash]133).

The Forest planning rule requires climate change and other stressors be monitored.

Section 219.8(a)(1)(iv) requires climate change be taken into account when the responsible official is developing plan components for ecological sustainability. When providing for ecosystem services and multiple uses, the responsible official is required by [sect] 219.10(a)(8) to consider climate change. Measureable changes to the plan area related to climate change and other stressors affecting the plan area are to be monitored under [sect] 219.12(a)(5)(vi). Combined with the requirements of the Forest Service Climate Change Roadmap and Scorecard, these requirements will ensure that Forest Service land management planning addresses climate change and supports adaptive management to respond to new information and changing conditions. (Forest planning rule at 21194).

For thousands of years wild buffalo have adapted and evolved to their native ecosystem. It makes sense for the Custer Gallatin to adopt wild buffalo, a keystone grassland species and ecological engineer and potential species of conservation concern, as a focal species to monitor the impacts of fire and climate disruption.

6. Wild buffalo should be evaluated as a focal species to reach desired ecological conditions and to help meet

the guidelines, objectives and standards on the Custer Gallatin for ecosystem integrity and resilience, plant and animal diversity, ecological sustainability and connectivity, among the Forest planning rule and National Forest Management Act requirements.

[ldquo][F]ocal species monitoring is used as means of understanding whether a specific ecological condition or set of conditions is present and functioning in the plan area. (Forest planning rule at 21232-21233).

Ecological Sustainability

The 2012 Planning Rule emphasizes the need to restore National Forest System land and waters, including requirements to maintain and restore ecological integrity. The planning regulations require the revised plan to:

[bull] maintain ecological sustainability and connectivity to provide diversity of plant and animal habitat communities and support the persistence of native species on the Custer Gallatin National Forest;

[bull] identify aquatic, wildlife, invertebrate, and plant species of conservation concern and include plan components to maintain or restore ecological conditions on the Custer Gallatin National Forest to contribute to maintaining a viable population of the species within its range (species of conservation concern replace sensitive species in the current plans); (Draft Assessment Preliminary Need to Change the Existing Custer and Gallatin Forest Plans at 6).

The Custer Gallatin has identified the need for [ldquo]continued or expanded monitoring of existing and potential habitat for bison, northern long-eared bats, Canada lynx, greater sage-grouse, white-tailed prairie dogs and black-footed ferrets.[rdquo] (Draft Assessment Report of Ecological, Social and Economic Conditions at 50). Buffalo Field Campaign agrees that future wildlife management would benefit from such information.

Accordingly, the Custer Gallatin should evaluate and identify wild buffalo as a focal species in the Forest Plan.

Sources

Buffalo Field Campaign has provided pinpoint citations to the best available scientific information in our feedback to, and evaluation of, the Custer Gallatin[rsquo]s draft assessments and reports. In addition to the 83 publications and 2 databases of wild buffalo sightings submitted to the agency for evaluation in the assessment process, Buffalo Field Campaign also submits the following sources for review as part of our feedback and comments.

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