Data Submitted (UTC 11): 9/5/2020 6:00:00 AM
First name: Clinton
Last name: Nagel
Organization: Gallatin Wildlife Association
Title: President
Comments: Dear Forest Service Objection Reviewers:

Please accept the attached Objection on behalf of the Gallatin Wildlife Association. If you see references that are beyond the scope of your retrieval, please notify us. We tried to supply all information necessary, but if you have questions, please contact us.

We are also providing contacts of letters sent in April of 2019 on behalf of GWA to Leanne Marten on the issue of Species of Conservation Concern.

Thank you for your time in this matter.

Clint Nagel

Subject: The following objection pertains to the Regional Forester[rsquo]s List of Species of Conservation Concern on the Custer Gallatin National Forest and as stated in the Custer Gallatin National Forest 2020 Final Forest Plan, Publication No. R1-19-07.

Original comments submitted June 3, 2019:

https://cara.ecosystem-management.org/Public/Letter/1928211?project=50185

Responsible Official:

Leanne Marten, Regional Forester, Northern Region, Region 1, U.S. Forest Service

Standing:

We understand the proposition the Forest Service extolls in that all objections need to be substantive. You definitely have that right to qualify, expect and set that criteria. But if you do so, then we as a people, as citizens should also have the right to expect the same in your return comments. Those return comments should contain the utmost scientific and rationale dialogue in response to our opposition. We feel so far, that rational and scientific dialogue has been lacking. The Gallatin Wildlife Association (GWA) has been in discussion over recent

years with the Forest Service on the matter of Species of Conservation Concern (SCC). We as a wildlife advocacy organization object to what seems to be a lack of determination and the lack of scientific consideration provided to other species which we believe meet existing criteria for consideration of SCC.

GWA has commented on this proposed action several times over the course of the last three years. We submitted comments on this issue as follows with the recorded dates.

March 3, 2018, June 1, 2019, August 13, 2019 October 28, 2019

Past officers and current board members of GWA have also discussed this topic with Mary Erickson of the Custer Gallatin National Forest Supervisor. Two individuals from GWA, then President Glenn Hockett and Dr. Jim Bailey attempted to meet with Regional Forester Leanne Marten on April 8, 2019. A meeting had been scheduled, then confirmed a few days prior to the appointment. Hockett and Bailey drove to Missoula, but Ms. Marten could provide them with only 15 minutes of her time. They learned nothing regarding the evaluation of bighorn sheep for listing as [ldquo]species of conservation concern[rdquo] from the substitute staff member who was on loan from another Forest Service Region. GWA provided in person, two letters (dated April 8, 2019) for their perusal and then we mailed a separate letter under cover on April 22, 2019.

Rationale:

Our current objection is based upon what we perceive is a limited listing of species, especially mammals, several of which we feel meet existing criteria for listing under SCC. We have stated in previous comments, specifically those of June 2019, species such as bighorn sheep, moose, bison, wolverine and swift fox should be included. We object to their and perhaps other species from being excluded from listing.

When a National Forest is determining the applicability of SCC, we understand the Forest Service must follow the procedures and guidelines as stated in the 2012 Planning Rule. In case of the Custer Gallatin National Forest (CGNF), those determinations were made by Regional Forester Leanne Marten. Determinations were made for both plants and animals as defined by the following Code of Regulations. It states the following.

[ldquo]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 (36 Code of Federal Regulations 219.9(c)).[rdquo]

GWA stated in our comments of June 2019 we find nothing inherently wrong with this definition, but we also said: [ldquo]there still seems to be a large deal of ambiguity, subjectivity, and perhaps a lack of perspicacity in the

decision-making process.[rdquo] GWA finds nothing in this definition that prevents listing of further species. This is the primary basis for our objection; there is nothing hindering the inclusion of other species, especially those facing hardships based upon environmental and societal threats, many of which are increasing with human density and growing infrastructure surrounding the National Forest.

The wolverine is the only species we have mentioned that may be in question (based upon 2012 Planning Rule definition) as it is under consideration for future listing under the Endangered Species Act. However, at the time of this writing, this specific consideration is indeterminate being contingent upon litigation. But even here, we feel until a legal decision has been made, there is nothing preventing future listing of the wolverine as a Species of Conservation Concern, a decision which can always be withdrawn depending upon legal action and potential policy decisions taken or not taken.

This is our objection. Not only would the proposed 2020 Forest Plan be improved with the addition of science driven inclusion of other species, but it would portray a more realistic condition of species and their habitat within the Forest. Multiple species are under threat due to climate change, habitat fragmentation, disease and so many other threats and ills brought about by society. By ignoring their real status, aren[rsquo]t we also trying to ignore the problems which exist?

We Object Because:

In our June 3rd comments and those following, GWA presents several articles of scientific evidence as to why particular species should be included under the Species of Conservation Concern. Declining population numbers and loss of habitat are primary reasons for listing and those are brought on by what has already been stated: climate change, habitat degradation and fragmentation, and disease. We would add predation for some species.

1.U.S. Forest Service own scientific literature states otherwise. We object to the Forest Service[rsquo]s action of exclusion because there is scientific literature providing support for their inclusion. We object because it appears the Forest Service is apparently ignoring data cited in their documents. Outside of the obvious reality that the Forest Service must now follow the 2012 Planning Rule, we still don[rsquo]t have an adequate answer to the question: why almost all species previously listed as [ldquo]sensitive[rdquo] are no longer considered [ldquo]of concern[rdquo]? An undated Forest Service table, with seven categories for denying [ldquo]of concern[rdquo] status, merely checks off the types of decisions accepted for each formerly [ldquo]sensitive[rdquo] species. In this table, only 10 of 32 formerly sensitive species are noted as [ldquo]secure[rdquo]. Eight have [ldquo]insufficient data[rdquo]; 5 have [ldquo]uncertain justification[rdquo]. Two species, plus swift fox and moose, were not even evaluated. Three species, plus arctic graying, apparently were recommended for [ldquo]of concern[rdquo] status, but rejected by the Regional Forester for unknown reasons. This summary provides no awareness of, or confidence in, the Forest Service decision-making process for determining species of conservation concern on the Custer Gallatin Forest. Table will be provided in the attached.

Along those same lines, the following excerpt is from GWA[rsquo]s previous set of comments dated June 2019:

GWA: [ldquo][hellip].the U.S. Forest Service used a list of [ldquo]sensitive species[rdquo] for identifying imperiled wildlife. GWA will refer back to a document submitted during the last comment period, a document by the U.S. Forest Service dated October of 2012 entitled Wilderness Character Monitoring Report Hyalite Porcupine Buffalo Horn Wilderness Study Area (Clark, Erin; Schlenker, Kimberly; Filardi, Catherine, 2012)1. On page 20, they define species of concern based upon 2011 baseline:[rdquo]

[ldquo]In 2011, one new sensitive species was recognized for the region: bighorn sheep (Ovis canadensis). This brings the total to 31 known indigenous species that are listed as threatened, endangered, sensitive, or species of concern known or assumed to utilize habitat within the HPBH WSA, or, in the case of plants, known or suspected to be established on the Gallatin National Forest.[rdquo]

Bald eagle

Bighorn sheep

Black-Back woodpecker

Canadian Lynx

Gray wolf

Grizzly bear

Peregrine falcon

Western big-eared bat

Wolverine

With the understanding that we are now under the 2012 Planning Rule, even then, eight years ago there was recognition that many more species were threatened, endangered, sensitive or considered to be species of concern. Have their numbers improved significantly to warrant their exclusion under the 2012 Planning Rule? GWA believes, if anything, the number of species warranting this type of analysis has only grown, not lessened. We have and can again provide data for each species in support of its inclusion under the Species of Conservation Concern.

What was once defined as a [ldquo]sensitive species[rdquo], no longer meets the criteria of [ldquo]species of conservation concern[rdquo]. Just because man has changed the definition and terminology of the condition, doesn[rsquo]t change the actual condition. It is not logical. The condition of the species hasn[rsquo]t changed only the definition of how we apply the terminology has changed.

Moreover, failing to list a species as [ldquo]of concern[rdquo] (therefore it is not of concern) suggests the species is secure and does not foster any new monitoring/investigation of the species status, nor any careful consideration of its needs beyond the Forest Service coarse filter analysis, based on Forest-wide vegetation history, when new Forest projects are proposed. The species of concern process fails to guide future Forest management and it does not encourage outside interest or funding for investigating species that may be in serious trouble.

2.The 2012 Planning Rule is caught up in semantics. Again, from GWA[rsquo]s June 2019 comments.

GWA: [ldquo]The defense stated in the Federal Register Vol. 77 No. 682 dated April 9, 2012 on page 21218 suggests that the new species-of-concern approach is more accurate or scientific. But this defense does not bear fruit. An analysis of these criteria by Dr. Jim Bailey3 states the argument in more layman terms. It has been said that the classification under the 2012 Planning Rule is:[rdquo]

* being [ldquo]more focused[rdquo] than was the 2011 sensitive species list. But this seems bogus since the 2011 list noted each Forest on which each sensitive species occurred.
* a better indicator, whereas, 2011 species could be listed as [ldquo]sensitive[rdquo] if there was a concern for population viability, yet in the new approach, that concern must be [ldquo]substantial[rdquo].
* a better indicator than the 2011 listing, as species could be listed if they were [ldquo]suspected[rdquo] of being present on the Forest area back then, but in the new approach, species presence must be [ldquo]known[rdquo].
* more accurate based upon the following approach. [ldquo]If there is insufficient scientific information available to conclude there is a substantial concern about a species capability to persist [hellip]that species cannot be identified as a species of conservation concern[rdquo].

The actual wording in the Federal Register states bullet points 2 and 3 this way.

[ldquo]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.[rdquo]

The terminology [ldquo]substantial concern[rdquo] is still a subjective word. Who determines if something is substantial? One person[rsquo]s view could be obviously different than another, making this criterion highly unscientific in and of itself.

And moving on to the last bullet point, there is a similar scenario. Again, from our June 3, 2019 comments:

GWA: That language is found on page 80 of the CGNF Assessment Forest Plan Revision, Final Terrestrial Wildlife Report (Dixon, Bev4, et al. 2017):

[ldquo]If there is insufficient scientific information available to conclude there is a substantial concern about a species[rsquo] capability to persist in the plan area over the long term that species cannot be identified as a species of conservation concern. (FSH 1909.12.52c).[rdquo]

Who and what determines if there is [ldquo]insufficient scientific information[rdquo]? This is another subjective phrase without specific guidelines. The same rationale applied above also applies here. It appears that the Forest Service is not willing to accept or take seriously scientific literature or research provided to them by the public or fellow 501 (c) (3) organizations. From GWA June 2019 comments.

GWA: [ldquo]If the CGNF won[rsquo]t list a species because they feel they don[rsquo]t have sufficient data, the answer to that problem is gain more sufficient data. Perhaps this should be a standard or guideline, but species of conservation concern is not even a component. Why not? It is too easy to throw out a species of concern because there is no data. Even though the decision is made by the Regional Forester, we are not sure why the public could not have input in the process. In this example, one potential standard or guideline would be providing opportunities for more research and monitoring to collect that data.[rdquo]

3. Species of Conservation Concern Identification Process: GWA has reviewed the Animal Species of Conservation Concern Identification Process for the Custer Gallatin National Forest[rsquo]s Draft Revised Forest Plan (Draft Environmental Impact Statement) dated December 13, 2018. There are three (3) steps listed in that document which provide insight to the identification process of [ldquo]Species of Conservation Concern[rdquo] with underlying criteria. For brevity sake, we will list the highlighted three steps for our discussion here. The document can be found here.

https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd611269.pdf

Step 1[ndash][ldquo]During the assessment phase, the Custer Gallatin[rsquo]s planning team biologists, in conjunction with regional office biologists, external experts and the public, identified which of the animal species documented to occur within the planning area met the categories described in items 1A-I below. This step resulted in the list of species to consider for potential SCC status.[rdquo]

We want to make special note of category I under Step 1 which states:

[ldquo]Local conservation concern due to significant threats to populations or habitats, declining trends in populations or habitat, restricted ranges or habitats, or low population numbers. This category of species may be identified through public comments and from conversations with local biologists from the Forest Service, other federal agencies, Montana Fish Wildlife & Parks, Montana NHP, South Dakota Game, Fish and Parks (including South Dakota NHP), Tribes, and local groups or individuals with scientific expertise.[rdquo]

Step 2 [ndash][ldquo]During the assessment phase, the Custer Gallatin planning team, in consultation with regional office staff and others, identified which of the animal species that emerged from Step 1 met the criteria in items 2A, B, and C below. This step resulted in the [ldquo]potential SCC[rdquo] animal list disclosed in the Custer Gallatin[rsquo]s Final Assessment Report and supporting specialist reports.[rdquo]

Note: GWA wants to make sure that we have pointed out that our concerns meet the requirements of 2A, B, and C.

2A - The species must be native to and known to occur in the plan area.

2B - The best available scientific information must indicate substantial concern about the species[rsquo] capability to persist over the long term in the plan area.

2C - If there was insufficient scientific information available to conclude that there was a substantial concern about a species[rsquo] capability to persist in the plan area over the long term, or if the species was secure in the plan area, that species was not identified as a potential SCC.

Step 3 [ndash] [ldquo]In response to public comments and to new scientific information, Regional Office staff iteratively reviewed the species selection process and criteria requirements, available information, and the rationale for identifying the SCC. During this phase, Regional Office staff clarified and augmented documentation for the SCC planning record. This step resulted in the animal SCC list for the Custer Gallatin National Forest[rsquo]s Proposed Action and Draft Environmental Impact Statement.[rdquo]

It is GWA[rsquo]s contention that we have met the instruction of Step 1 and Step 2. We have continuously provided a further listing of additional species and have presented science and information as to why they should require listing. Step 3 belongs to the auspices of the Forest Service, and we seriously request them to look at the addition of further species that meet these criteria.

4.Montana Natural Heritage Program: There was this statement on page 55 of the Draft Revised Forest Plan.

[ldquo]Such diversity and associated complexity provides conditions for a vast array of wildlife species and guilds, with over 600 species of mammals, birds, reptiles and invertebrates recorded on the Custer Gallatin, according to the Montana Natural Heritage Program in 2018.[rdquo]

If the CGNF acknowledges the diversity mentioned in the Montana Natural Heritage Program (MNHP)5, why not acknowledge or give credence to the number or variety of species listed as SCC(s) by the same organization. We know the Forest Service has to follow the 2012 Planning Rule, but rationale for inclusion of some species could still be found in both criteria.

http://mtnhp.org/SpeciesOfConcern/output/NHP_Animal_SOC.pdf

GWA believes the Forest Service should acknowledge some of those listings as defined by the MNHP as SCC.

5.Steve Gehman[rsquo]s comments of Feb. 2018 on SCC(s) (pg. 14): Finally, we would like to include those comments by Steve Gehman,6 a wildlife biologist who has performed scientific research on the CGNF and who has had a working relationship with the CGNF. We will not include the full context of those comments due to the length of this work, but we advise the CGNF planning staff go back and read those concerns of Steve Gehman. Here are a few excerpts:

[ldquo]I do not believe that the Species of Conservation Concern (SCC) designation is an adequate indicator of the plant and animal species for which the Forest Service (FS) should have [ldquo]substantial concern regarding the species[rsquo] capability to persist over the long term in the plan area.[rdquo]

[ldquo]Of the more than 600 species of mammals, birds, reptiles, amphibians, and invertebrates that have been recorded on the CGNF[hellip][hellip]it is hard to believe that only three species are deserving of attention due to concern for their long-term persistence.[rdquo]

[ldquo]I am not alone in that belief. The Montana Department of Fish, Wildlife and Parks and the Montana Natural Heritage Program both use the terminology [lsquo]Species Of Concern[rsquo] (SOC) to designate [ldquo]native animals breeding in the state that are considered [lsquo]at risk[rsquo] due to declining population trends, threats to their habitat, and/or restricted distribution.[rdquo][rdquo]

We simple want to state again that we concur with those comments by Steve Gehman on this topic made last

year.

6. [ldquo]Directions in Conservation Biology[rdquo]by Graeme Caughley7: This article was published in the Journal of Animal Ecology in 1994. There are seven summary declarations in this article, but to save time and space only three of those will be stated here.

https://pdfs.semanticscholar.org/15d0/81b4f99b7a274fdcae940b02fe3221d7d71b.pdf

1.
[ldquo]Conservation biology has two threads: the small-population paradigm which deals with the effect of smallness on the persistence of a population, and the declining population paradigm which deals with the cause of smallness and its cure.

1. The small-population paradigm has not yet contributed significantly to conserving endangered species in the wild because it treats an effect (smallness) as if it were a cause. It provides an answer only to a trivial question: how long will the population persist if nothing unusual happens? Rather, its major contribution has been to captive breeding and to the design of reserve systems.

1. The declining-population paradigm, on the other hand, is that relevant to most problems of conservation. It summons an investigation to discover the cause of the decline and to prescribe its antidote. Hence, at least at our current level of understanding, it evokes only an ecological investigation which, although utilizing the rigour of tight hypotheses and careful experimentation, is essentially a one-off study of little theoretical interest.[rdquo]

GWA wants to especially note summary comment 4. What this statement is saying is that if we are really concerned to prevent species extinction or extirpation of a species from a region, maintaining a small-population paradigm is not going to alleviate the problem. The Forest Service and other land management and wildlife government agencies need to think outside the box and change their paradigm because what we have been doing is barely working. We are entering into a new world with new stressors with the largest driver of them all, climate change. Our minimal action or lack of action isn[rsquo]t going to solve the problem of minimal populations. We need to be proactive in our approach and by acknowledging the minimal or declining populations and trying to mitigate further decline is just the beginning of our actions. Not including species as a [ldquo]conservation concern[rdquo] or [ldquo]sensitive[rdquo] doesn[rsquo]t even do that.

Bison: GWA specifically provided scientific evidence as to why bison should be listed as a Species of Conservation Concern. GWA[rsquo]s comments of June 2019 state our argument as to why bison deserve listing. What you see below is just a sampling of what GWA has entered onto our original comments of 2019. We

feel our comments were ignored at that time.

GWA: [ldquo]If there ever was an example of discrimination being practiced against a native species, this is it. As a result, free-roaming bison are not found on the CGNF landscape in any significant numbers. The few that are present only do so as they migrate out of YNP to reach winter feeding grounds and many of these end up getting killed. In reality, there is this fact about bison as presented by (Sanderson, E.W., et al. 2008)8:[rdquo]

[ldquo]Although more than 500,000 bison exist in North America today, we estimated they occupy <1% of their historical range and in no place express the full range of ecological and social values of previous times.[rdquo]

1. The habitat exists: The Forest Service states the best case for why bison should be considered as a [ldquo]Species of Conservation Concern[rdquo]. We like to direct the Objection team to the Draft Environmental Impact Statement (DEIS) of the CGNF. See Below.

On page 455:

[ldquo]The Custer Gallatin is unique within the National Forest System in that it borders Yellowstone Park on the north and west sides, where bison naturally tend to migrate to lower elevation habitats on National Forest System lands when winter snows become too deep in the Park. The Yellowstone bison population is unique in that it is genetically pure due to isolation from domestic bovines (such as cattle), and it contains thousands of individuals that exhibit wild behavior, roaming relatively free over large landscapes (White et al. 2015).[rdquo]

[ldquo]Bison have a key ecological role in the Greater Yellowstone Ecosystem, and are managed largely under the auspices of an Interagency Bison Management Plan, developed in partnership between Yellowstone National Park, the state of Montana, USDA Forest Service and Animal and Plant Health Inspection Service (USDI NPS 2000).[rdquo]

On page 456:

[ldquo]Partly because of their size, but also due to behavioral characteristics, bison have a key ecological role, and are considered a [ldquo]keystone species[rdquo] in prairie/grassland ecosystems.[rdquo]

On page 457:

[ldquo]Bison presence is currently limited to relatively small areas on the Custer Gallatin, primarily located within

state-identified bison management zones west of Yellowstone Park in the Madison, Henrys Lake, and Gallatin Mountains Geographic Area and north of the park in the Madison, Henrys Lake, and Gallatin Mountains and Absaroka Beartooth Mountains Geographic Areas. There is suitable habitat for bison outside these management zones, and bison occasionally wander, but not far, outside the zones. Bison are native to the Custer Gallatin, and their presence in suitable habitat on National Forest System lands is a desired condition.[rdquo]

In these statements, the Forest Service highlights:

1. Forest Service acknowledges that habitat does exist on the Forest.
2. Bison has a key ecological role in the ecosystem.
3. Presence of bison is [ldquo]currently limited to relatively small areas on the CGNF[rdquo].

The only reason significant numbers of bison are not permitted on the landscape is due to political and social rantings of man. Much of that is established by the Interagency Bison Management Plan (IBMP). Until that changes, bison will not reach their full potential on the landscape. They should be considered a Species of Conservation Concern.

The preferred alternative, Alternative F, has no standards securing habitat for bison to roam. On page 58 of the 2020 Forest Plan, Desired Condition 4 makes this statement.

[ldquo]Bison are present year-round with enough numbers and adequate distribution to support a self-sustaining population on the Custer Gallatin National Forest in conjunction with bison herds in Yellowstone National Park.[rdquo]

Currently this is not true. There are not enough bison on the CGNF to have a self-sustaining population alone. They are supplemented by those bison of Yellowstone National Park. The Forest Service has the power to make it happen as long as the IBMP would get out of the way. The Forest Service needs to recognize and establish some standards so that bison can become a species of conservation concern.

2. The genetics of the species. We[rsquo]ll return to GWA[rsquo]s comments of June 2019.

GWA: [ldquo]It is the genetic diversity that is in need of protection, and for that there needs to be a size large enough to prevent a loss of alleles over time. And before that can happen there needs to be a land large enough to maintain that size herd. This is where the importance of CGNF lands can be valuable, to increase the size of herds especially on lands where the bison do not normally occur in significant numbers.

A. This finding is verified by more research. According to (Freese, C.H., et al. 2007)9 in an article entitled [ldquo]Second Chance for the Plains Bison[rdquo] in Biological Conservation, there is this scientific fact:[rdquo]

Research indicates that it takes between 2,000-4,000 bison in order to preserve 95% of the genetic diversity of Yellowstone bison over 200 years (Freese et al. 2006), and this is assuming there is not even the slightest deviation in modeling assumptions. Indeed research has indicated that such deviations have occurred; Yellowstone bison have already lost rare alleles, and this trend is likely to continue under current management protocols.

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B. [hellip]. Traill10 in the 2010 abstract of his paper states the following:

[ldquo]This literature collectively shows that thousands (not hundreds) of individuals are required for a population to have an acceptable probability of riding-out environmental fluctuation and catastrophic events, and ensuring the continuation of evolutionary processes. The evidence is clear, yet conservation policy does not appear to reflect these findings, with pragmatic concerns on feasibility over-riding biological risk assessment.[rdquo]

These papers and others show that in order to preserve the genetics of a species (including bison) we need to have larger population than what we currently have. And these need to be on a larger landscape including lands of the CGNF.

And finally, there is this statement.

GWA: [ldquo]In order to maintain this genetic diversity, GWA believes a listing of bison as a Species of Conservation Concern is necessary. That and the effect that numbers of bison need to occur on the landscape of CGNF. According to a scientific journal article entitled [ldquo]Conservation Genetics and North American Bison[rdquo] (Hedrick, Phillip, 2009)11 genetic rationale is provided for the conservation of the species as we know it:[rdquo]

[ldquo]However, it is clear that bison need to be managed as a conservation species because of the potential effects of the low initial numbers of founders, past bottlenecks in various herds, cattle hybridization in a number of conservation herds, artificial selection for nonadaptive traits, isolation of most conservation herds, and the observation of severe inbreeding depression in 1 conservation herd.[rdquo]

Again, these comments are just a token of the arguments made during our 2019 presentation.

Bighorn Sheep: a prime example of a species of conservation concern on the Custer Gallatin National Forest.

Bighorn sheep exists on the CGNF. Habitat is available, but it[rsquo]s not well. The population and the health of the herds are not well either. But this does not mean that these conditions are irreparable. They are, but it takes the acknowledgment that management options need to change. We can[rsquo]t ignore or pretend there are no problems upon the forest for bighorn sheep. This is why we believe that a listing of species of conservation concern can help in that change of management.

There are many reasons for the condition that bighorn sheep find themselves in: habitat fragmentation, predation, disease, invasive plants, etc. GWA advises the Forest Service to look at Data that is provided by the Montana Dept. of Fish, Wildlife and Parks article entitled Montana Bighorn Sheep Conservation Strategy12 of 2010 on pages 82-83. As the Forest Service will see, the threats are multifold, aligning with what was said within the DEIS.

We[rsquo]ve already stated in our original comments the following.

GWA: According to the definition as stated in the 2012 Planning Rule, bighorn sheep meet the criteria of being listed as SCC. They appear on the landscape, they are not federally recognized as endangered or threatened, and there is concern of a viable population across the West if action is not taken. Just because there are no current grazing allotments on the CGNF shouldn[rsquo]t mean there isn[rsquo]t a concern about healthy populations.

1. The Habitat:

The Assessment, Forest Plan Revision, Final Terrestrial Wildlife Report13 (Feb. 2017) discusses bighorn sheep for more than 8 pages. However, for purposes of relating the status and potential future of bighorn, and for guiding habitat management for bighorn, on the Custer Gallatin National Forest, we find this discussion inadequate and even misleading.

Tables 10 and 11, and associated text, summarize the status of 12 bighorn herds on the Forest. Most or all of this information is from Montana Fish, Wildlife & Parks (FWP). However, there is no recognition of the low quality of FWP bighorn data. No estimates of herd sizes or sex/age compositions provide confidence limits. Among-years variation of estimates is great, indicating that at least 5 years of data are needed for the slightest confidence in trend analyses.

All these herds are inadequate to avoid loss of genetic diversity through genetic drift, and most, if not all, are small enough to experience inbreeding levels that would diminish herd productivity and resistance to diseases (among many impacts of inbreeding). Together, inbreeding and genetic drift inhibit current populations and diminish resilience of populations to stressful challenges in the future, especially disease. Effective interbreeding among herds appears unlikely, at least uncertain. These issues are barely mentioned in the Forest Service Report; yet population size is closely related to habitat abundance and distribution, which is a Forest Service resource.

All proposed or accepted standards for population sizes needed to avoid significant negative genetic issues are educated guesses. However, the [ldquo]50/500[rdquo] rule is a broadly accepted standard. A herd should have an effective breeding population (ne) of 5o to avoid significant inbreeding; and an ne of 500 to avoid significant long-term genetic drift. For any herd, ne may be less than 15% of total population size. Thus, interbreeding herds

on the Custer Gallatin National Forest should have at least 333 animals to avoid significant inbreeding and at least 3333 animals to avoid significant long-term loss of genetic diversity. The bighorn herds on the Forest are all woefully inadequate for genetic health.

The Habitat section of the Forest Service Report finds bighorn adapted to a [ldquo]wide variety of habitats[rdquo]. In reality, bighorn use a wide variety of vegetation types; but [ldquo]habitat is more than vegetation. Bighorn are habitat specialists, based on their needs for habitat security. Habitat security is especially important for ewe-juvenile groups of bighorn. Two components of habitat security are mentioned in the Report (p. 117): proximity to escape terrain and visibility for detecting predators and for visual communication among animals. A third component is group size. Larger groups share the risk of predation and benefit from mutual vigilance. Thus, larger groups exploit habitats farther from escape terrain. However, in foraging, larger groups require forage resources that are abundant and continuously distributed to diminish inter-animal competition. As noted in the Report, bighorn emphasize the use of grassland and shrub/grassland habitats as these generally provide for visibility and needed abundance and distribution of forages.

The diversity of habitat components, cited above, occur together in a patchy distribution on the Forest. And for effective, year-round habitat, they must be connected by local migration corridors in which the security components of visibility and escape terrain occur.

A complete bighorn range includes at least six seasonal ranges: separate winter and summer ranges for each sex (of adult animals), a lambing area and a rutting area. Again, these must be connected by local migration corridors. In contrast, Montana FWP mostly recognizes only one winter range, with the remainder of year-round range being labeled [ldquo]general range[rdquo]. It seems that even lambing areas, which are critical to herd production and maintenance, are generally unknown.

On Forest Service land, bighorn seasonal ranges are lost primarily through encroachment of tall vegetation, diminishing visibility and forage, and with loss of herd memory with declining and small populations. Other historic seasonal ranges, off the Forest, have been lost or degraded due to developing human infrastructures. Consequently, very many herds seem to have abandoned some seasonal ranges and their migration corridors. These herds subsist on a small number of smaller seasonal ranges, limiting their options for responding to variations in weather, wildfire, and the seasons, and perhaps [ndash] by [ldquo]crowding animals in both time and space [ndash] enhancing disease transmission by parasites transmitted through the environment, such as lungworm.

As bighorn ranges have contracted, forest encroachment has been most severe in the mid-elevations of Forests, contributing to loss of seasonal ranges and migration corridors at these elevations. This has resulted in a preponderance of remaining bighorn range at the upper and lower treelines. Some herds are year-round near the upper treeline; even more are year-round near the lower treeline, often near or somewhat off the Forest boundary; and few herds are strongly altitudinally migratory. The preponderance of herds at lower elevations near Forest boundaries exposes bighorns to domestic sheep and goats off the Forest.

The above discussion of bighorn habitat is alluded to, but not well developed, in the Forest Service Report (pp. 118-119). In particular, the Report does not emphasize that the issues of residential and resort development, highway development and mortality, industrial development and domestic sheep and goats are, for the Custer Gallatin Forest, largely off-Forest issues. The Forest Service can only address these off-Forest issues by strategically reestablishing bighorn ranges and migration corridors within the Forest. We need to attract our bighorn away from these negative factors. In contrast, the Report concludes (p. 120) that [ldquo]habitat quantity does not seem to be a driver[rdquo] for this species!

The Report suggests that climate change and wildfire may enhance bighorn habitats in the future. But hope is not a plan, and the location and frequency of wildfire is unpredictable in relation to maintaining the juxtaposition of seasonal ranges and local migration corridors for bighorn in the near future or over the long term.

Much Forest Service response to the habitat needs of wildlife involves a [ldquo]coarse-filter analysis[rdquo] based on the assumption that maintaining the proportion of each major vegetation type on the Forest within its historical range of variation will suffice to maintain habitat for native species. This will not suffice for a habitat specialist such as bighorn, for which vegetation alone is not a sufficient habitat component and juxtaposition and connectivity of seasonal ranges is important for herd productivity and resilience.

The Report (p. 118) suggests, with reservations, that the Forest Service work collaboratively with Montana FWP to explore opportunities to transplant bighorn. However, decades-long trends of bighorn herds indicate that the current environment will not support more bighorn in the long term. (Admittedly, there may be a short-term benefit from diversifying a local herd gene pool; or from increasing the prey-predator ratio, but these effects, if they occur, are not expected to last with the same environment that currently limits herds.) In contrast, the Forest service should approach FWP to begin collaborative herd study and to locate and institute strategic habitat management, likely with prescribed fire, to reestablish complete bighorn year-round ranges, with juxtaposition of seasonal ranges and local migration corridors, within the Forest.

In conclusion: recent trends and status of bighorn herds on the Custer Gallatin Forest, and the complexity of bighorn environmental issues and needs, justify determining that bighorn sheep are a species of conservation concern on the Forest. Such classification would encourage funding and application of a long-term strategic program for reestablishing large, productive bighorn herds on complete year-round ranges on the Forest. Anything less will not be a coordinated long-term plan for the habitat of this species.

1. Historical Status:

We again refer to GWA[rsquo]s previous comments. 2nd paragraph below refers to the Draft Revised Forest Plan (DRFP).

GWA: Once estimated in the 1800s to be around 2 million sheep in North America, now the estimated number is 35,000 (Toweill, D.E. and V. Geist. 1999)14. If you were to do the math, only 1.75% of the original population size is intact. The introduction of bighorn sheep on page 60 of the DRFP provides a quick summary of a sad history of this magnificent species:

[ldquo]Settlement of the western United States led to significant declines of bighorn sheep due to subsistence hunting, range competition with domestic livestock, and contact with domestic sheep, which led to contraction of disease resulting in major die-offs in multiple bighorn sheep herds. Since then, statewide restoration efforts led by Montana Fish Wildlife and Parks focused on habitat improvement projects and bighorn sheep transplants to recolonize areas of historic habitat. Disease transmission from domestic animals, particularly domestic sheep and goats, is considered a primary threat to bighorn sheep populations.[rdquo]

1. Disease:

The Forest Service should be aware of this science. Following paragraph is from GWA[rsquo]s original comments with following article below that from scientific paper.

GWA: Even though [ldquo]there are currently no sheep or goat-grazing allotments on the national forest[rdquo] (page 374 of the DEIS), that does not mean there are no threats of disease to bighorn sheep. In fact, just the opposite is true. In a paper entitled, [ldquo]Modeling Risk of Pneumonia Epizootics in Bighorn Sheep[rdquo], published in The Journal of Wildlife Management, (Sells, S.N., et al. 2015)15; there is this distressing statement:

[ldquo]This paper suggests the Upper Yellowstone and Hilgard bighorn sheep herds on the Custer Gallatin National Forest have an 80% and 85% chance, respectively, of a disease epizootic within 10 years of 2012 if levels of risk factors remain unchanged.

Risk of disease epizootic is estimated for each one of the 42 bighorn herds in Montana.[rdquo]

This highlights our case that even though there may not be sheep-goat grazing allotments in the CGNF, that means the Forest Service cannot ignore the danger. That means they cannot presume or assume the danger isn[rsquo]t there.

More snippets from our original comments.

GWA: [ldquo]The full excerpt will not be reproduced here due to space and time, but brief snippets will be (page 433 of DEIS). GWA is glad to see the acknowledgement as stated at the beginning of paragraph 3 on page 433; that respiratory disease is primarily the limiting factor for bighorn sheep:[rdquo]

[ldquo]Respiratory disease epidemics are perhaps the primary limiting factor for bighorn sheep populations, and research has confirmed that domestic sheep and goats may carry some of the same strains of disease, and can transmit disease to bighorn sheep in the wild. Separation between domestic and wild sheep is considered an effective way to reduce the risk of disease transmission between domestic and wild species (Montana FWP 2010, Wild Sheep Working Group 2012).[rdquo]

[ldquo]Bighorn sheep on the Custer Gallatin carry known disease pathogens, and have experienced respiratory disease epidemics. Some, but not all herds found on the Custer Gallatin have experienced disease-related die-offs, but affected herds generally have recovered either naturally or through population augmentation (Montana FWP 2010, Garrott et al. 2015).[rdquo]

GWA: [ldquo]The DEIS admits that disease does exist on the CGNF (3rd paragraph, page 433). The above paragraphs state one of the current problems; domestic sheep transmitting disease to bighorn sheep. We also know that bighorn sheep on the CGNF have experienced this disease and have had die-offs as a result. With that known fact, it was surprising that the DEIS would state the following at the beginning of the 4th paragraph on page 433:[rdquo]

[ldquo]Under existing plans, domestic sheep and goats could be permitted on grazing allotments in some areas where disease transmission between domestics and wild sheep could occur.[rdquo]

1. Population:

Even the Forest Service admits that bighorn sheep populations have declined in recent years. GWA would like to refer the Region to the U.S. Forest Service[rsquo]s own admission in their [ldquo]Assessment Forest Plan Revision - Final Terrestrial Wildlife Report[rdquo] by Bev Dixon, Revision Team Wildlife Biologist.

[ldquo]However, in recent years, sheep numbers have declined statewide beginning in late 2009, by as much as 10 percent to 20 percent by 2011, due to pneumonia-associated die-offs and subsequent poor to nonexistent lamb recruitment in herds that had experienced disease (Montana Fish, Wildlife & Parks 2010,; Garrott et al. 2015).[rdquo]

But this is only part of the problem, not only is the population in decline as noted, but the numbers of individuals were not great for the species to maintain themselves to begin with. Again, from GWA[rsquo]s original comments of June 2019.

GWA: [ldquo]Concerning the matter of population size, GWA would further like to include research by J. Berger, [ldquo]Persistence of different-sized populations: An empirical assessment of rapid extinctions in bighorn sheep[rdquo] (Berger, J., 1990)16:

[ldquo]In general, large populations persist longer than small populations. Bighorn populations of 50 individuals or less, even in the short term are not a minimum viable population. This paper documents that 100% of bighorn sheep populations reviewed in this study with less than 50 individuals went extinct within 50 years. A [ldquo]population[rdquo] is defined as a bighorn herd confined naturally to a discrete mountainous area. Bighorn populations with >100 individuals persisted for up to 70 years.

There is no mention of 125 animals being a MVP for bighorn sheep in this article. To the contrary, numerous papers mention thousands rather than hundreds of animals are necessary to ensure long term persistence for any given species (Traill et al. 2010, Reed et al. 2003, Snaith, T.V. and K.F. Beaszley. 2002, Dratch and Gogan 2010).[rdquo]

Again, according to Montana Fish, Wildlife and Parks, the population of bighorn sheep in the Custer Gallatin National Forest in 2010 was 640 individuals among 11 herds. Seven (7) of those herds had a population of 50 or less. These are not healthy herds and are in peril of viability.

These are just some of the scientific rationale for the bighorn sheep to be listed as a Species of Conservation Concern. GWA originally submitted comments on our concern over bighorn sheep in June, 2019. In a document of 163 pages long, pages 67-85 pertain to bighorn sheep. Not to mention that we submitted additional comments in an addendum in August 13, 2019.

Moose:

The last species we will justify for being considered and listed as a Species of Conservation Concern is moose, but that doesn[rsquo]t mean that there aren[rsquo]t others that should or would qualify under the current definition of the 2012 Planning Rule. Moose is just another species that are in decline upon the landscape.

1. Declining numbers in Population:

Again, there are many reasons for the decline of moose populations. The DEIS suggests that populations are

declining due to hunter harvest, increased predation, vegetation changes due to large-scale disturbances and natural succession, disease, parasite loads, and climate change (DeCesare et al. 2014). Page 444 of the DEIS.

Even though actuals numbers of moose maybe hard to confirm, there is evidence to suggest the numbers are declining across the west and one reason comes back to climate change. In GWA[rsquo]s previous comments of June 2019, we have this statement found in U.S. Forest Service[rsquo]s publication.

GWA: [ldquo]Interestingly, in an assessment by the CGNF, Assessment Forest Plan Revision, Final Terrestrial Wildlife Report, (Dixon, Bev, et al. 2017, page 110)17, one can see a consensus beginning to form. One reason for a decline of moose populations is climate change. The question will be, are some state and federal agencies willing to admit that?[rdquo]

[ldquo]Montana Department of Fish, Wildlife and Parks, in an interview with the New York Times, noted that there are fewer moose out there, and hunters are working harder to find them (Robbins 2013). The hypothesis for the decline is climate change.[rdquo]

Additional research.

GWA: The paper, entitled [ldquo]Status and Trends of Moose Populations and Hunting Opportunity in the Western United States[rdquo], appeared in a scientific journal specific to moose, a journal called Alces: A Journal Devoted to the Biology and Management of Moose (Nadeau et al. 2017)18. In the 2017 abstract, there is this statement.

[ldquo]On average, hunting opportunity has decreased across 56% of the western US, remained stable across 17%, and increased across 27% during 2005[ndash]2015. Generally, declines in hunting opportunity for moose are evident across large portions (62[ndash]89%) of the [ldquo]stronghold[rdquo] states where moose have been hunted for the longest period of time (e.g., Idaho, Montana, Utah, and Wyoming).

One more scientific data point which was presented in June 2019:

GWA: [ldquo]In a paper dated May 8, 2019, Julie Cunningham100, a wildlife biologist for MFWP, provided these results:[rdquo]

[ldquo]Moose declines began to be noticed in the 1980s, and female moose hunting opportunities were closed for some districts. The remainder of these districts closed female moose hunting in the late 1990s. The total number of moose licenses offered decreased over time, from 158 in 1985 to 110 in 1995 to 58 in 2005 to 22 in 2015.[rdquo]

[ldquo]Given the decline in moose availability and number of moose licenses, as of 2014 MFWP began issuing licenses valid in multiple districts (Figure 1). To simplify the hunting regulations, MFWP may propose officially combining these districts in the 2020 biennium. Moose are no longer so plentiful that we need to force hunter dispersal across the landscape with many small districts, so allowing fewer larger districts with approximately the same number of licenses will make more sense.[rdquo]

These numbers and trends should give the Forest Service pause, for they indicate that all is not well with moose populations and habitat. We could provide several more pieces of evidence in scientific research and literature, but we again would hope that the Forest Service read and reviewed our original comments without repetition here.

1. Susceptible to Climate Change:

There are a couple of ways that climate change is affecting moose. One way is disease from tick loads etc as highlighted here by the Forest Service documentation. There is plenty of research to match and confirm the threats of disease by tick infestations.

GWA: [ldquo]We are seeing that climate change can affect moose habitat in many indirect ways, but we must not forget about the most direct way possible, temperature. In the same assessment by Dixon19, an interesting biological fact about moose needs to be taken into consideration:[rdquo]

[ldquo]Moose are adapted for cold weather, and when the temperature rises above 23 degrees Fahrenheit in winter, as has happened more often in recent years, they expend extra energy to stay cool. In addition, the warmer weather may result in higher tick loads or other parasites or diseases (DeCesare and Newby 2013).[rdquo]

And then there is this fact again shown in our previous comments of June 2019.

GWA: [ldquo]That was winter; how about summer? For that we will reference a document by Alyson Courtemanch, a wildlife biologist for the Wyoming Game and Fish Department. In her paper entitled Jackson Moose Herd Unit Population Objective Review (Courtemanch, Alyson, 2015)20, we see the limits of summer temperature for moose:[rdquo]

[ldquo]Moose become heat stressed when temperatures exceed 60 degrees Fahrenheit in the summer, which interrupts feeding and causes them to seek shade to cool down.[rdquo]

1. Other Diseases:

Besides the infestation of ticks and the parasites that they bring there are other diseases that befall the moose. Here is a list including those found in ticks.

1. [ldquo]Moose, especially calves, commonly experience hair loss and stress in late winter due to winter ticks (Dermacentor albipictus). Winter ticks seem to be especially prevalent in the southern portion of the herd.
2. [ldquo]Elaeophora schneideri is a filarioid nematode that lives in the carotid arteries of mule and blacktailed deer (normal definitive hosts) and is transmitted by horse flies.
3.
[ldquo]In addition, several moose in the Jackson Herd have been observed in recent years with

keratoconjunctivitis, which is a bacterial infection of the eye.

4. [ldquo]Brucella abortus in moose. This infection with B. abortus will kill moose, and progression of the disease is likely rapid under field conditions.
5. [ldquo]Parelaphostrongylus Tenuis. However, current knowledge of the nature of moose declines and the biology of meningeal worm (Parelaphostrongylus tenuis) makes this parasite the most credible explanation.

All of these diseases weaken the status of moose. This is a lot for a moose to overcome in the wild: climate change, predation, disease, vegetation and changes in natural progression of vegetation.

Again, we know the habitat is there, but there are forces outside the control of the Forest Service that should significantly warrant the agencies concern. It should warrant the agencies listing as a Species of Conservation Concern.

Finally, GWA would like to refer the Forest Service to an article that we submitted in November of 2019. It is from a Nov/Dec edition of Bugle Magazine by Heather Fraley21. We will quote what we said at that time.

GWA: [ldquo]We have previously stated moose populations are facing unprecedented declines throughout the west, reasons not fully understood by scientists. However, this article highlights and confirms previous theories and concerns of GWA that the combination of parasites, disease, climate change and loss of habitat, the latter two bringing about changes in food supply are primary rationales for the declining population. As a result of these

facts, Heather states the following in her article.

[ldquo]State wildlife agencies cut moose hunting opportunity by 60 percent across former strongholds in Idaho, Montana, Wyoming and Utah from 2005 to 2015.[rdquo]

GWA: [ldquo]This trend is verified by observations of researchers and agencies across the United States and Canada. These trends and theories were all part of discussions by Canada, the United States as well as European countries who attended an annual North American Moose Conference. Heather again states.

[ldquo]What they saw was foreboding. Populations of the largest member of the deer family have declined over the last 30 years across much of their southern range in the United States and Canada.[rdquo]

GWA: [ldquo]The title of this article is [ldquo]Death By A Thousand Cuts, The Uncertain Future of Moose in Elk Country[rdquo]. Toward the end of the article, Heather makes this statement.[rdquo]

[ldquo]Nothing in wildlife has a single cause, and moose declines are no exception. Multiple factors interact differently in different habitats, but for all the uncertainty, managers are slowly getting a clearer picture of what[rsquo]s happening with moose across elk country.[rdquo]

GWA: [ldquo]Our question to the CGNF continues to be, what is being done by Forest Service researchers to understand population declines on the CGNF? The Custer Gallatin National Forest Draft Revision Plan and the associated Draft Environmental Impact Statement barely recognizes how stressors affecting moose populations on the CGNF. Knowing what we know and knowing what we don[rsquo]t know, GWA would like a full accounting as to why these conditions don[rsquo]t justify status of Species of Conservation Concern?[rdquo]

As you can see, many species are facing severe threats right here on the Custer Gallatin National Forest, not that this is an indication of something the Forest is doing wrong, but because these are regional and with the regard to climate change, global threats. Not listing these species and others as Species of Conservation Concern is a disservice to the reality on the ground. Hopefully the listing of these and other species will help direct the management of the Forest Service back to their original missions of the agency; to protect the resources at large. By ignoring the reality on the ground, we are turning the other way and basically pretending all is well, when we know it is not.

The Proposed Solution:

Our objection is to the lack of consideration and listing of other species which we feel deserve scientific inclusion to the Species of Conservation Concern. We tried to provide the logic and scientific rationale as to why the concept is wrong and to why other species still qualify as being listed even as the current definition exists.

There is nothing that states that there is a limit or cap on the number of species listed. There still is (under the current definition) room to include further species as we have tried to lay out. No matter what, there is still subjective decision making. Nothing as stated or that we could find, negates the possibilities of these species from being listed.

We could go on a provide further discussion as to why the wolverines should be listed or the swift fox and others. We could further discuss more scientific research defending our position, but time and maybe space prohibits prolonging this discussion at length. The proposed solution is to review and to recognize the fact that species on the CGNF are in peril, not just here but elsewhere. This argument could most likely easily be made on other forests across our country. That makes the argument even more strong, not less.

The proposed solution is to list these species and others as a Species of Conservation Concern. It seems as if the classification of [ldquo]sensitive species[rdquo] was given more breadth in its interpretation than what is being applied to Species of Conservation Concern as defined under the 2012 Planning Rule. But it seems as if the term is being given more stringent definition in its application than what is actually intended.

The link between Objection and prior Formal Comments:

This is an easy explanation, there is a direct link as many of the comments provided before are the same as provided now. Our position has not changed and the science has not either. We present the same and some new information because it surely seems that our original comments were ignored. The case we presented in our original comments is the same that we present now. The data backing up those comments has not changed. What needs to change is an openness to accept the data and science as it is and realize the quality of the forest is dependent upon the readiness to accept new upcoming science. The overall purpose here is to provide protection for the resource (in this case wildlife) for future generations. That was the purpose in our prior comments and that is the purpose now.