SOUTH DAKOTA DEPARTMENT OF
GAME, FISH AND PARKS
4130 ADVENTURE TRAIL | RAPID CITY, SD 57702

June 6, 2019

Custer Gallatin National Forest
Attn: Forest Plan Revision Team
P.O. Box 130, (10 E Babcock)
Bozeman, MT 59771

Submitted via email:
Virginia Kelly, USFS R1 Planner at vkelly@fs.fed.us
Direct link at: https://tinyurl.com/caracgnf

Re: SDGFP as Cooperating Agency, Review of R1 Draft EIS, Draft Plan, and Accompanying Draft Documents

Part one of two submissions: pages include 2-page cover letter and addendum pages 1-22

Shelly Deisch

Shelly Deisch
Public Lands Liaison and Wildlife Habitat Biologist
South Dakota Department of Game, Fish and Parks
Division of Wildlife – Region 1 Office
4130 Adventure Trail, Rapid City, SD 57702

shelly.deisch@state.sd.us Desk: 605.394.1756

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Re: SDGFP as Cooperating Agency, Review of R1 Draft EIS, Draft Plan, and Accompanying Draft Documents

Dear Forest Plan Revision Team,

The South Dakota Department of Game, Fish and Parks (SDGFP) submits comments on the above-referenced matters. We have a great appreciation for the tremendous amount of work the Plan Revision Team has undertaken for the Forest Plan Revision. Combining two administrative Forest Service Units required considerable work. We are sincerely grateful for the opportunity to participate as a Cooperating Agency. We look forward to a continued participation to provide substantive comments as the Team prepares the final documents.

Overall, SDGFP generally supports Alternative D, modified with many of our suggested edits for increased ecological conservation in the Draft Plan and DEIS. We were not able to review all draft documents and supportive information. We propose all Alternatives for the Revised Plan consider our edits. Alternative D best meets the 2012 Planning Rule for ecological integrity and long-term persistence of rare species.

We offer no opinion on Alternatives which pertain specifically to montane ecosystems and areas designations, such as Wilderness or Scenic River recommendations, or species which do not occur in South Dakota. Some of our ecological concerns may apply to the entire CGNF planning area but generally are targeted for the pine savanna geographical areas within the Northern Great Plains.

In summary, we list a few highlights which continue to be topics we have previously commented on, some at great length in the past and again today.

- Riparian Areas: The Plan efforts to restore and maintain riparian areas, which would comply with the 2012 Planning Rule, are very encouraging and highly supported. We offer additional suggestions for Plan Components and additional relevant science for the Final EIS and final Plan. We emphasize the need to develop Components for streambank stability and alterations, stubble height to include both hydrophilic and non-hydrophilic species along the greenline, and methods which may be more applicable for the non-salmonid riparian systems in the Northern Great Plains.

- Old Growth and Large Trees: A repeat of previous comments for the pine savanna geographical areas. We look forward to meeting with staff in the near future and appreciate their willingness to discuss our concerns and ideas.
- Greater Sage-Grouse: This section of the draft documents needs considerable revision in our opinion. This species has been selected as a candidate for the Species of Conservation Concern list and is afforded the attendant 2012 Planning Rule requirements for long-term persistence. In that context, we offer what we believe to be relevant, substantive, and necessary information to ensure this species is afforded the greatest conservation and mitigation efforts within the CGNF final Plan and monitoring Plan.
- Rangeland Management: As we stated earlier, we believe the rangeland and grazing sections have developed well since the earlier drafts, but these section continue to require additional ecological and rangeland considerations, in our opinion. SDGFP has years of experience working with various FS Units on range ecology, including comments on the Grassland Plan Revisions in the early 2000's. SDGFP has knowledge of vegetation and the key disturbances that create and/or maintain vegetation conditions in the Northern Great Plains. We are specialists in understanding the life requirements of the flora and fauna which reside within the harsh conditions of the Northern Great Plains. The DEIS and Draft Plan are still shy of offering an evolved, updated, ecological approach to range management when today's rangeland ecology sciences are abundant and sufficient to support necessary management measures. In particular, the DEIS and Plan Components need to develop grassland structure and seral stage directives for heterogeneous rangelands, and increased protections for shrinking, but unique habitats such as woody draws, shrublands, and hardwoods.
- Finally, in the attached addendum, we offer our comments on the draft documents. Some information is new and some is a repeat of previously submitted official correspondence to CGNF. Together these substantive comments represent the best information our Department has to offer in this Plan Revision process within the given comment period.

As we have stated before, we offer to meet and/or talk with various staff specialists who have contributed towards this incredible plan revision effort. A special thank-you is offered to Virginia Kelly who has graciously kept our Department in the loop during all aspects of this process. We also appreciate Bev Dixon and Gunnar Carnwath. Their admirable biological knowledge and willingness to share information are critical to our agency's success as a Cooperator in this process.

Sincerely,

Shelly Deisch

Shelly Deisch
Public Lands Liaison and Wildlife Habitat Biologist
South Dakota Department of Game, Fish and Parks
Division of Wildlife – Region 1 Office
4130 Adventure Trail, Rapid City, SD 57702

shelly.deisch@state.sd.us Desk: 605.394.1756

cc: Brian Garbisch, SD DOA
SDGFP Staff (T.Kirschenmann, P.Coughlin, T.Haffley, J.Kanta, J.Davis, E.Dowd Stukel, others

GENERAL SDGFP COMMENTS

Throughout our comments, direct portions of the DEIS, Draft Plan, or Draft Monitoring are either in quotes or are discussed in general terms. SDGFP offers edits to these selected portions as edits which are generally in red type for ease of viewing the suggested changes. We support suggested edits with an indented response section which contains justifications or substantive (2012 Rule §219.62) reasons for our suggestions.

Comments are generally arranged by subject matter although many resource subjects overlap. Those suggestions which do not fit within that subject matter, are still pertinent and should be directed to the appropriate subject placement by CGNF Planning Team. Within each subject are segments from both the DEIS or draft Plan. This makes it a bit awkward to include both draft documents within one subject heading, but makes it easier to edit on a holistic basis by subject matter.

Many of the comments and scientific references we previously provided were integrated into the riparian habitat and big game sections in the DEIS and Draft Plan. We appreciate the inclusions of our information because it adds to the depth of proper resource management required in the Northern Great Plains.

Unless specifically stated, SDGFP does not make geographic area recommendations for new or edited Plan Components and rather believes proper placement of Plan Components should be the discretion of CGNF. However, we certainly are willing to discuss applicability to a geographic area such as the Sioux Ranger District.

SDGFP's use of the term "livestock" usually includes any domestic animal for human use such as pack animals, goats, sheep, bison, horses, wild horses, llamas and/or cattle.

Incorporate by reference: §219.54(b) allows formal comments previously provided to the FS during a proposed plan or plan revision comment period. As a formal Cooperating Agency, SDGFP submits that all comments we have provided are formal and should be incorporated into the Administrative Record. Correspondence incorporated by reference includes, but is not limited to:

2/26/18: Comments, citations, and references on Proposed Action Appendices. 50 pp.

9/17/18 and 9/28/18: Comments, citations, and references on R1 Draft EIS Chapter 3and Draft Plan: cover letter plus edited Word files of said documents.

6/13/18, 7/6/18, 11/13/18, 12/2/18, and 5/17/19: Comments, citations and references on old growth and large tree definitions, science, and applicability to ponderosa pine in the pine savanna geographical areas.

10/23/18, 11/2/18, 12/7/18, and 5/14/19: Comments, citations, and references with an emphasis on Greater sage-grouse, sage steppe habitats, and various multiple uses which could impacts grouse and habitats.

11/20/18, 11/21/18, and 12/7/18: Comments, citations, and references regarding various wildlife species, unique and rare habitats, and status of various wildlife within South Dakota.

2.3.3 SOILS (SOIL)

FW-STD-SOIL Plan pages 19-20

Standards 01-02: The DEIS (page 52) states, "*Detrimental soil disturbance is management caused soil disturbance in vegetation management areas that persists on the landscape for an extended period of time (minimum of 40 years), unless restoration actions are taken and are severe and extensive enough to reduce soil productivity or the ability of the land to provide desired goods and services.* "

Response: SDGFP supports Plan Components to protect all soil types from all human-caused activities and actions, which will aid in surface vegetation to ameliorate the effects of natural disturbances. Both Standards should clarify what activities these standards impact. We suggest, "vegetation management, which includes livestock grazing activities, ..." See SDGFP comments 2-26-18 and 9-28-18. In the DEIS elsewhere, it does mention that livestock grazing activities can cause detrimental soil disturbance.

The Plan should clarify or define the area (size) in which the 15% detrimental soil disturbance area is measured: an entire timber sale area, an allotment, etc. The DEIS (page 56) states, "*Revised plan alternative soils plan components would help ensure that timber harvesting units under all revised plan alternatives meet the 15 percent maximum detrimental soil disturbance standard, to both protect soil productivity and promote ecological integrity.*"

04 To maintain soil productivity, mechanical scarification used to prepare a seedbed for conifer reestablishment should not result in detrimental soil displacement or invasive vegetation establishment.

Response: See SDGFP comments 2-16-18, 9-28-18 with literature cited. The Plan should justify why seed bed site preparation necessary where ponderosa pine is easily established such as in the pine savanna geographical areas. "Mechanical scarification" is mentioned in the DEIS (pages 56-58) as, "*They* [refers to guidelines but maybe should state "standards or components"] *also cover the extreme instances of improper land scarification practices that were previously used.*" We suggest that "*extreme instances*" were not analyzed nor addressed in the DEIS. The impacts (positive and negative) of mechanically ripping of native soils should be better included in the soils analysis and discussed in the Final EIS to demonstrate how the practice either outweighs long-term negative impacts to understory vegetation and soils, or does not offer a significant increase in tree seed establishment compared to non-scarified areas. The Standard should have tighter directions on when and where it is used because delineating 15% DSD may be difficult in an entire timber sale unit, be diluted because of the large planning area, or truly not capture the negative impacts of ripping within localized areas of application. Some localized areas can experience long-term impacts which SDGFP has seen in similar ponderosa pine forests of South Dakota.

07 To maintain the productivity of conifer and hardwood inclusions and stands, woody draws, shrublands and ~~as well as~~ all inner riparian management zones (inner riparian management zone), vegetation management prescriptions in those areas should ensure that sufficient quantities of coarse woody debris (CWD) are left on the ground site after timber harvesting and other vegetation treatments. ..... This ~~guideline~~ standard applies to all timber harvesting and vegetation activities, including salvage, non-commercial treatments, and wildlife treatments where commercial material remains on site.

Response: Suggested added text to be more holistic in CWD management. The more debris left in plant communities such as hardwoods and woody draws, the more protected the

regeneration from livestock and wild ungulate browsing and animals which camp out under the cool shade of these plant communities and cause soil compaction and understory trampling. Many of these sensitive plant communities are incredibly small in area and not widely available across the landscape. Therefore, they become a targeted use area by large animals or humans within recreation areas.

2.3.5 WATERSHED AND AQUATICS (WTR)

The corresponding DEIS section was extremely well written and thorough with the exception of some multiple uses and impacts to pine savanna/Northern Great Plains ecosystems. We have a few suggested edits integrated below. The Draft EIS and Plan Components regarding riparian areas and livestock grazing are disconnected in information presentation. The DEIS makes statements or lacks statements which truly are correlated to the Draft Plan. We point out those incongruences below.

Desired Conditions Plan page 22

05 The sediment regime within water bodies is within ~~the within~~ the range of conditions of the reference watersheds, as defined by agency monitoring……

Goals page 23

01 The Forest Service cooperates with Montana Fish Wildlife and Parks and South Dakota Department of Game, Fish and Parks ~~Fish and Game~~ to reintroduce genetically pure native fish species in their historic range or introduce in locations the state(s) and the Custer Gallatin agree to for native fish species conservation.

Response: Throughout the DEIS, Draft Plan and elsewhere, please correct the title of the South Dakota Department of Game, Fish and Parks. Abbreviations can be SDGFP or SD Game, Fish and Parks or SD GFP. DEIS page 240, correct the citation (2014) to one of the suggestions above.

Guidelines page 35

03 To protect the ecological functions that beavers provide, management actions to reduce beaver threats to infrastructure should use techniques that sustain beavers (such as, using pipes to reduce water levels, notching dams to restore streamflow, or beaver deceivers).

Response: See SDGFP comments to CGNF on beaver and damage control 9-28-18.

STREAMBANK INTEGRITY

2.3.6 RIPARIAN MANAGEMENT ZONES

Desired Conditions Plan page 26

01 Riparian management zones have native and desirable non-native assemblages of flora and fauna; well distributed ……"

Response: Both Montana and South Dakota have introduced non-native fish into watersheds.

Standards page 28

SDGFP response to all permanent and seasonal water sources: All standards and guidelines should include the words "seeps, springs, wet meadows, and ephemeral streams" because they are critical aquatic resources within the pine savanna geographical areas. With only 4% of perennial streams on the CGNF within the pine savanna, most of the standards and guidelines will not protect seeps, springs, and ephemeral stream.

O5 Annual streambank alterations of ephemeral and perennial streams will not exceed 25% and long-term (such as 3-year) average bank stabilization will not be less than 75% (of reference conditions where they exist or of the most healthy, similarly represented segment of riparian area available) by humans, livestock (all types, ages and breeds) or other managed activities. This standard will increase the likelihood of ecological integrity along streams (permanent and ephemeral) and maintain or improve the greenline to greenline distance. It will also reduce the likelihood of significant bank sluffing, unstable banks, erosion, sedimentation loads, loss of native hydrophilic vegetation, and loss of streamside shading.

Response: The DEIS (page 66) states, "*integrity relates directly to functionality…. geomorphic functionality or integrity is defined in terms of attributes such as slope stability, soil erosion, channel morphology, and other upslope, riparian, and aquatic habitat characteristics. Hydrologic functionality or integrity relates primarily to flow, sediment, and water quality attributes. Biological functionality or integrity is defined by the characteristics that influence the diversity and abundance of aquatic species, terrestrial vegetation, and soil productivity……. Some characteristics of channels commonly measured to help identify changes caused by management include the frequency and depth of large pools, the width-depth ratio of stream channels, and the percentage of fine sediment contained in the substrate (Al-Chokhachy et al. 2010).*"

To aid in meeting this definition of integrity and to identify "characteristics of channels commonly measured to help identify changes caused by management", SDGFP highly suggests that this measurable and repeatable standard should be included in the Final Plan to ensure healthy, resilient riparian corridors within the water influence or riparian influence zone. This standard will also reduce the number of functioning at-risk watersheds (DEIS Table 13 page 67) cause by large animal or human-caused bank issues.

One-fourth or 25% of pine savanna 6th level watersheds are at functioning at-risk. This is astoundingly high and unfortunate given that the pine savanna has only 4% of perennial streams on the CGNF (DEIS page 72). There are numerous ephemeral streams and seeps which require great management oversight to remain in-tact. Northern Great Plains systems may have more fragile and erodible soils compared to the montane ecosystems. Prairie systems do not quickly rebound once a disturbance has ceased (SDGFP experience). DEIS (page 71, third paragraph) correctly describes prairie riparian systems. This information all leads to the conclusion that prairie systems (perennial and ephemeral) are disproportionately important to both terrestrial and aquatic flora and fauna within the Northern Great Plains. It is well known that riparian areas are the most diverse ecosystem in the West. Therefore, management requires a high bar and adherence to the new Plan will remedy those actions which currently are not maintaining or improving long-term stream and riparian integrity.

The DEIS (page 72) states that the PIBO methodology is not suitable for pine savannas because it was developed for salmonid habitats. Instead, SDGFP encourages CGNF to integrate not only the above 2 metrics, which can be easily measured, but investigate the utility and applicability of the Multiple Indicator Monitoring or MIM (Burton et al. 2011) system for non-salmonid habitats. In the meantime, the above 2 suggested metrics should be Plan Components and would be used as design criteria for project planning and management monitoring. SDGFP is available to discuss MIM and its ability to be adapted to local environments.

Streambank alteration is an annual metric while streambank stability is a long-term metric. The suggested percentage limits on degradation are recommended from other Resource

Management Plans similar to the pine savanna. The temporal suggestion for bank stabilization is to place sideboards on "long-term" and could be established up to a 5-year average. The CGNF would determine what reasonable length of stream would be measured to achieve the desired stability and alteration percentages. MIM offers transect lengths for this purpose. Regardless of percentages and temporal repeatable measures, the Draft Plan appears to lack directives to reduce two measurable and damaging impacts to streambanks which can be easily measured.

Streambank is defined as that part of the channel between the scour line and edge of the first relatively flat bench above the scour line (Burton et al. 2008, 2011). This part of a stream is vulnerable to erosion during naturally occurring high flows and is influenced by the presence and type of vegetation (hydric vs. upland). Changes or losses to deep-rooted shoreline vegetation will decrease stability as the DEIS has acknowledged. Unstable banks result from mass wasting, breakoff, hoof slides and shears, and trampling by large animals or other physical disturbances. The Forest Service can control human impacts to streams due to recreation, vegetation treatments, travel, and livestock management, for example. With the MIM methodology, streambanks are recorded as either depositional or erosional, and vegetative covered or uncovered (Burton et al. 2011 at page 50). Only erosional banks are assess for stability class such as fracture, slump, sluff, eroding, or absent of eroding.

Streambank alteration is a direct disturbance by other than natural forces of water, ice and debris. Large herbivores (cattle, sheep, horses, elk, bison, moose, deer, etc.), humans, off-highway vehicles, recreation use, road construction, timber harvesting, energy development, and mining are examples of activities that can cause streambank alteration (Cowley 2002). Excessive degree of streambank trampling and instability are adverse to water quality, stream temperature, streambed substrate, channel configuration and aquatic habitat; all the ecosystem services and functions that the 2012 Rule and the Draft Plan propose to conserve and protect.

Streambanks should be stabilized and can achieve a degree of repair due to annual alterations. However, year after year of impacts creates a much longer healing time once the degrading actions have been removed. Natural disturbances will repair over time but the addition of human-caused impairment year after year can render some stretches of streams improperly functioning and will result in a loss of ecosystem services.

Streambank integrity overlaps with the livestock grazing section and is discussed herein.

FW-GDL-GRAZ Plan pages 77-78

01 New or revised allotment management plans should be designed to maintain stream, seep and spring habitats and water quality by minimizing sediment delivered to watercourses and degradation to *streambank stability* and saturated soils from livestock grazing in riparian areas.

Response: see SDGFP 9-28-18 comments. Clarification. See similar SDGFP comments for the DEIS below. Guidelines which state "new or revised AMPs". Is this suggesting that current grazing practices do not have to meet these guidelines now and in the future prior to a revised AMP? See discussion above for justification for these edits to this guideline. GDL 01 for livestock grazing mentions *streambank stability* and yet no apparent methodology or streambank stability end points are delivered as a definition of degradation in the Draft Plan. The Plan needs definition of lower limits for impacts on annual and long-term basis. In practice, GDL 01 does not meet an intent to protect streambanks from livestock, other large animals, or

human-caused activities because it is extremely vague. To remedy this, SDGFP offers substantive comments and suggestions herein to remedy this omission. Also, because CGNF currently has no methodology to determine streambank alterations/stability, it will be difficult for the public and management to offer adaptive management strategies.

Standards page 28

02 To maintain or improve riparian aquatic habitat and achieve riparian habitat desired conditions specific to an ecological site over time, low gradient, alluvial channels should have end of season stubble height of hydrophilic and/or terrestrial vegetation along the greenline be at least 10 to 15 centimeters (4 to 6 inches). Alternative use and disturbance indicators and values, including those in current Endangered Species Act (ESA) consultation documents, may be used if they are based on site capability, relevant science, monitoring data and meet the purpose of this guideline.

Response: see SDGFP 9-28-18 comments. Some degraded systems may have very little or no hydrophilic vegetation. As it reads, only those systems with proper hydrophilic vegetation are included in this standard. See also DEIS pages 74-75 which indicate non-hydrophilic grasses are within riparian systems.

06 Undeveloped and developed springs, along with an upland buffer, will be protected from multiple-use damage. Undeveloped springs will be assessed for their biological and ecosystem values to determine if development is the best ecological course of action. Developed springs which are no longer used will be assessed and scheduled for restoration.

Response: There is no specific Plan Component to protect springs, a critical aquatic resources in the pine savanna and Northern Great Plains. The DEIS (pages 73-74) states, *"Springs, a groundwater dependent ecosystem, in the pine savanna units are a prominent ecological feature on the landscape in that, similar to streams, they are green lush and diverse areas in an otherwise arid landscape. There are 1,288 stock tanks, which are springs that have been developed for the purpose of watering livestock where the spring water is diverted to a tank. The tanks are often immediately adjacent to the spring. Those spring areas without fencing, can lead to resource damage from trampling and associated soil compaction."*

Guidelines page 29

02 To reduce the likelihood of sediment input to streams, seeps and spring, and to reduce adverse effects to stream channels and riparian areas, new permanent livestock handling or loading facilities (for example, corrals), livestock handling activities, watering tanks and infrastructure, and livestock trailing should be located outside of the riparian management zone unless it can be demonstrated these facilities or handling activities will not affect the riparian area functionality or that such placement improves an existing situation. Livestock trailing is allowed when herding livestock away from riparian areas to uplands or to another pasture to meet riparian resource desired conditions.

05 To reduce the likelihood of sediment input to streams, seeps and springs, and reduce adverse effects to stream channels and riparian areas, new landings, skid trails, slash piles, burn piles, staging or decking should be located outside riparian management zones , woody draws and hardwoods. If these activities are needed inside of riparian management zones, woody draws and hardwoods, minimize the disturbance area footprint and locate activities outside the active floodplain.

Response: The DEIS (page 578) indicates woody draws occur on less than 3% of Ashland and Sioux GAs and are for the most part, are in an at-risk or non-functioning state. Rare habitats such as seeps, springs, and woody draws should be included in all applicable Plan Components to ensure project-level planning is required to consider these communities.

DEIS pages 74-75

Riparian corridors are dominated by non-riparian vegetation types, such as trees (Douglas-fir, Engelmann spruce) and dry grasses.

Response: What are dry grasses? SDGFP cannot find that term within vegetation ecology sources, the Society for Range Management definitions, or the draft glossaries. The sentence indicates vegetation is non-riparian so simply change the term to "grasses" or list some of the concerning grass species.

DEIS page 89

Riparian Areas

Additional riparian protection would be provided since the inner riparian management zone would be increased to 100 feet for all fish bearing streams as compared to 50 feet (on slopes less than or equal to 35 percent) following state stream management zone laws. There would also be a riparian management zone on all seeps, springs, ponds and wetlands regardless of size, which is a change from the current plans.

Response: Suggested inclusions of other aquatic resources. See comments herein on need to protect aquatic resources within the pine savanna and Northern Great Plains.

DEIS page 91

Conservation Watershed Network watersheds would be improved by plan objectives to storm proof five to eight miles of road per year, per plan lifetime? and replace stream crossing .....

These activities would include, but aren't limited to: transporting water across drainage boundaries for fire suppression, livestock (all types, ages, and breeds) and pack animal watering, constructing stream fords, operating equipment in a riparian area and near a watercourse, and the use of pumps and sumps for fire suppression, or construction related dewatering activities. Thus, the revised plan alternatives provide a mechanism for protecting aquatic native species from threats of

DEIS page 93

This would be conducted ~~done~~ on ~~at~~ a project specific scale where, for example, it was determined that hardwoods were underrepresented due to ~~by~~ excessive fire suppression.

DEIS page 96

Plan objectives propose maintaining 30 percent of trails to standard per year across all alternatives, though the concentration would be in front country for alternative E.

Response: Define "front country".

DEIS pages 99-100 as it relates to both riparian areas and livestock/large animal management

The revised plan alternatives may limit livestock effects by having a minimum end-of-season stubble height guideline in low gradient alluvial channels (livestock grazing section guidelines provide more information). This plan component could benefit riparian ecosystems and aquatic species and habitat in those specific stream types. Goss and Roper (~~Goss and Roper~~ 2018) demonstrated that generally in salmonid streams higher streambank stubble height, and lower streambank alteration, can be used as a proxy to improve stream habitat conditions. However, outside of salmonid habitats such as the pine savanna geographical areas, stubble height has not been shown to be a proxy for streambank conditions (Burton et al. 2011) Revised plan alternatives also require new livestock handling or management facilities (for example, corrals) to be located outside of riparian management zones.

Response: Again, the Draft Plan Components offer no streambank alteration or stability percentages that indicate degradation. There is a need to move towards desired conditions and other Plan Components. Height of annual riparian vegetation is not a direct measure of condition, it is simply a measure of residual herbaceous vegetation (both hydrophilic and non-hydrophilic) after animal herbivory and grazing. Burton et al. (2011) state that stubble height is not a substitute for vegetation condition or trend but does provide information that may be used to determine the degree to which livestock grazing is influencing the achievement of management objectives. This is based in part on cited studies within Burton et al. (2011) such as Univ. of Idaho Stubble Height Review Team 2004.

However, the DEIS states that Goss and Roper (2018) have shown that stubble height in a proxy to streambank conditions in salmonid habitats. SDGFP suggests that stubble height cannot be applied outside of that narrow salmonid riparian habitat description outside of the montane geographical areas. SDGFP suggests rewording the DEIS and any corresponding Plan Components for areas outside of salmonid habitats. Outside of salmonid habitats, residual vegetation together with measurable metrics of streambank alteration and stability, will offer a more defensible assessment to meet the 2012 Planning Rule requirements for ecological integrity and long-term sustainability of riparian systems and the flora and fauna which depend upon them.

DEIS pages 592-592 should be edited to:
Methods available to monitor grazing in riparian areas are varied and being improved (Bryant et al. 2004, Kershner et al. 2004a, Coles-Ritchie et al. 2007, Burton et al. 2008 and 2011, Al-Chokhachy et al. 2010, Hough-Snee 2013, Batchelor et al. 2015, Laine et al. 2015). While no one method works everywhere, stubble height has been extensively studied and is widely put in practice as an end-of-season monitoring indicator of residual herbaceous vegetation (Clary and Webster 1990, Clary and Leininger 2000, Goss and Roper 2018).

Response: Clarify that stubble height is an indicator of what. Also, the paragraph following this in the DEIS should mention streambank alterations and stabilization with reference to Burton et al. 2011.

To maintain or improve riparian aquatic habitat and achieve riparian habitat desired conditions specific to an ecological site over time, all revised plan alternative plan components direct that low gradient, alluvial channels should have end of season stubble height of hydrophilic and/or non-hydrophilic vegetation along the greenline to be at least 4 to 6 inches.

Response: See similar SDGFP comments herein. Some highly degraded systems no longer have hydrophilic vegetation, or not enough abundance to measure. By adding non-hydrophilic vegetation to be measured along the greenline, the true grazing pressure and residual vegetation will be measured. As the system heals, monitoring will indicate a reduction in upland vegetation and a recapturing of the site by hydrophilic vegetation.

DEIS pages 99-100
The revised plan alternative plan components direction, as compared to the current plans, would decrease livestock grazing effects while not prohibiting livestock grazing use in riparian areas.....
The revised plan alternatives are a *slight improvement* over the current plans. The effects of livestock can be seen across the planning area particularly in riparian areas. Historical grazing led to riparian vegetation changes and stream channel degradation on grazed streams. Various riparian areas and waterbodies have seen improvements through best management practices and revised allotment

management plans. However, riparian and aquatic habitat improvement within allotments *continues to be a challenge*.

Response: This narrative of only "*slight improvements*" is disappointing for a new revised Plan and EIS which are required to meet ecological integrity and long-term persistence of certain natural resources. On the other hand, the DEIS frequently admits where livestock grazing in the past few decades has caused rangeland ecological issues. Apparently, there are areas on the CGNF that are not in a healthy state. The Draft EIS narratives and Plan Components appear to make ridged statements, guidelines, and standards for most other multiple-uses to comply with the 2012 Rule. This paragraph above is more applicable to the "Assessment" phase of Forest Planning where current conditions are simply divulged. This DEIS paragraph does not outline hopeful projected changes to resources due to changes in future grazing management. In this context, all the Alternatives are arguably, no different than current Plan directions of the Custer and Gallatin National Forests which is a violation of NEPA's requirements for a reasonable range of alternatives *and* the no-action alternative. The DEIS indicates most impacts to livestock grazing are the same across the proposed revised Alternatives (except for Wilderness and so forth). SDGFP suggested that there be additional effects analysis and assessments to the DEIS alternatives to alleviate the fact that that all Alternative only make slight improvements to existing conditions.

DEIS page 587

Plan components emphasize improving riparian and wetland conditions and are expected to continue under all revised plan alternatives. Revisions of allotment management plans would continue to implement best management practices and identify end of season allowable use levels that are expected to move riparian areas toward desired conditions. Management adjustments may result in a loss of permitted animal unit months for some permittees.

Response: This does not appear to be "*slight improvements*"

DEIS pages 99-100

Improper grazing by livestock can reduce *bank stability* and it often changes riparian vegetation, resulting in insufficient overhead cover for fish (Platt 1991). For montane landscapes an extensive review of PIBO data in montane streams of the Pacific Northwest and into the Northern Rocky Mountains was conducted (Kovach et al. 2018). The review found land-uses, and in particular livestock grazing with this study, was closely related to summer thermal regimes and suggested that this land-use may be additive with respect to climate change impacts already underway.

Response: Again, there are no Plan Components for bank stability (long-term metric) and bank alterations (annual metric). Therefore, true assessment of stream health will not be met in the Final Plan for either montane or pine savanna riparian areas, rendering DEIS narratives to unsubstantiated declarations of how the revised Plan alternatives will improve current conditions.

Less is generally known about how grazing impacts the Northern Great Plains watersheds and water quality, given these systems are naturally more erosive than montane landscapes and waters are generally more conductive (have higher mineral content).

Response: Streambank alteration and stability *by any large animal* (and other sources) can still be a measured. Revised Plan Components will aid in future management of these prairie systems for both the public and livestock operators until additional science has been researched and published.

Excessive grazing by both wild and domestic ungulates can remove woody plants (Batchelor et al. 2015), reduce the vigor of perennial forbs and grasses, and cause channel profile and function changes via bank collapse on low gradient streams (Trimble and Mendel 1995, Bengeyfield 2006). Widening channels, increased stream temperature and fine sediment, *altered bank structure*, and increased the loss of overhanging vegetation (that may occur from excessive grazing (Myers and Swanson 1996, Kershner et al. 2004b). This is often harmful to aquatic fauna, especially cold-water dependent species (Belsky et al. 1999, Saunders and Fausch 2007).

> Response: Streambank alteration and stability *by any large animal* can still be a measured metrics in the Revised Plan to aid in future management of prairie and montane systems. The draft Plan does not include directives for percentage of annual browse of leader points which we offer some suggestions herein.

A study of the effects of grazing on North Dakota badlands and prairie stream fish assemblages~~,~~ ~~conducted by Stephens and others~~ (Stephens et al. 2016)~~,~~ found similar guilds in Ashland and Sioux geographic areas. This study also found it difficult to find any reference streams and recommended building enclosures, for years or even decades, would be important to accurately assess impacts to prairie stream fishes. This would facilitate understanding potential impacts from permitted livestock grazing in the Custer Gallatin National Forest pine savanna streams, as most streams and waterbodies in these units are open to grazing with 86 percent of all lands covered by primary rangelands within grazing allotments as compared to 6 percent in montane units.

> *Response*: If 86% of all lands open for livestock grazing are within pine savannas, and the DEIS has repeatedly discussed and cited how prairie riparian systems are naturally more erosive and also more fragile, then it is apparent that the current Plan Directives are woefully inadequate by CGNF's own admission: components only deliver "a slight improvement" over current conditions. The DEIS conclusion states, "*The suite of the revised plan alternatives' watershed, aquatic, and riparian ecosystem plan components are designed to maintain or restore the ecological integrity of the Custer Gallatin National Forest.*" This actually in in stark contrast to a "*slight improvement*".
>
> Also, there was no mention of how horses, bison, pack animals, and big game may be additive to riparian streambank conditions. SDGFP strongly recommends that the various multiple-uses and multiple large animal impacts should be accounted for in the final Plan Components and Final EIS in order to meet the 2012 Rule for riparian health.

DEIS page 101

Montana and South Dakota State owned school trust lands managed by the Montana Department of Natural Resources and Conservation and the South Dakota Office of School and Public Lands, respectively, will continue to support a variety of uses of their lands, from livestock grazing to mining, timber harvest, and recreational fishing and hunting. Montana and South Dakota laws require~~s~~ that school trust lands be managed to maximize income for the school trust.

DEIS page 102

Montana Fish Wildlife and Parks and the South Dakota Department of Game, Fish and Parks ~~Fish and Game~~ have laws and regulations that are adequate to prevent the overexploitation of fish populations from angling impacts through their management of the fisheries populations across the Custer Gallatin. However, with an increasing human population, particularly in the montane areas, and other cumulative impacts mentioned in this section, angling could be an additive stressor in the future if states do not adequately address angling pressure, harvest limits, and other fisheries management concerns.

DEIS page 316

A *standard* would require new or revised allotment management plans to design grazing practices to maintain or improve resiliency of riparian ecosystems *and associated wildlife*.

Response: Please point out where in the Plan this standard is located and its intention. It was not apparent in sections 2.3.4 – 2.3.7.

DEIS page 570

Livestock that use rangelands can remove plant material, trample soils, and alter water flow patterns. However, with proper management these impacts are not substantial when compared with the natural resilience of ecosystems (Holling 1973)..... The science of assessing rangelands is evolving as certain concepts and ecological processes are becoming better understood.

Response: Our review of Holling (1973) follows. If we did not capture the correct science published by Holling, we apologize in advance. We searched the article for the words livestock, grazing, cows, and cattle. If we are correct, we suggest that Holling (1973 – page 9: Resilience and Stability of Ecological Systems, Annual Review of Ecology and Systematics, Volume 4 , pp. 1-23, Canada) only mentioned grazing, presumably cattle, in the arid West where mesquite and cholla occurred. The article then discussed that grazing together with fire suppression allowed the invasion of shrubs and trees at the expense of grass. (Grass, which is critical forage for livestock.) Holling went on to state as the vegetation type changed due to these 2 dominant forces, the natural ecosystem changed and that "elimination of grazing would not reestablish the grassland .....the return to the original domain can only be obtained by the explicit reduction of the trees and shrubs."

If we are correct and understand the intention behind citing Holling (1973), Holling is stale, unrelated data, which is a violation of NEPA's requirement to give a hard look at the EIS assessment process. Holling does not support the statement of "natural resilience of ecosystems" related to cattle grazing. In fact, Holling (1973) is contrary to the DEIS's point that livestock grazing can be resilient to ecosystems and does not support livestock (cattle, horse, and bison) grazing as we know it today. This article certainly is not applicable in the context of livestock grazing in the montane or pine savanna geographical areas of MT and SD because those areas lack mesquite and cholla habitats.

SDGFP questions the purpose and applicability of this near 50 year-old citation, considering the DEIS on the same page acknowledges that range science is *evolving*. The 2012 Planning Rule requires relevant science. In the past 50 years, a significant body of range and ecological peer-reviewed science has enhanced our knowledge of herbivory of large animals and how ecological systems do or do not recover from historic or certain grazing practices (both positive and negative). SDGFP suggests that the DEIS armor statements of ecological resiliency with recent, relevant, peer-reviewed, scientific literature.

DEIS page 576

We support that CGNF acknowledges that today's cattle weights are much larger and that calves may be also larger compared to the SRM and text book definitions of an AUM. Adjusting forage consumption and stocking rates for both increased cow and calf weights are critical to sustaining ecosystem integrity. AUMs for horses, bison, pack animals, goats, llamas, etc. should also match today's weights of these herbivores.

DEIS pages 579-584

Tables 73-79 are very informative and SDGFP appreciates that this information is included in the DEIS. However, the DEIS (page 576) states that there are 22 allotments (15 active, 7 vacant) which have no form of NEPA, which is planned to occur within the next 10 years. It appears that these 22 allotments are not within these Tables based on the Rescission Act revision dates. If this is correct, full disclosure needs to be in the DEIS and an explanation of how these allotments are being managed without NEPA. SDGFP offers a suggestion below:

Standard XX

There may be an absence of site-specific NEPA, special use permits for pack animals, horse and bison management plans, goats for weed management, or livestock Allotment Management Plans. In those cases, management direction for ongoing rangeland management activities on active allotments, newly acquired lands, or periodically used vacant allotments and grassbanks, will follow Plan Components until NEPA has been completed.

DEIS 3.5 AT-RISK PLANT SPECIES AND PLAN 2.3.9 AT-RISK PLANT SPECIES (PRISK)

DEIS page 104

Key Indicators and Measures

Species specific and habitat guild (habitat type group) conditions and threats will be qualitatively evaluated. In addition to natural events such as insects, disease, fire, and climate change, ~~A~~adverse impacts to at-risk plant species result from plan components that increases surface disturbance and competition from invasive species spread or alters hydrological processes. The principle beneficial impacts include~~,~~ plan components that protect, maintain, or restore habitat conditions in known occurrences or potential at-risk plant species' habitats.

Key Indicators Used to Compare Alternatives

Habitat quality by evaluating changes in land allocations generally considered low risk to ground disturbance measured in acres by alternative of designated wilderness areas, wilderness study area, recommended wilderness areas, inventoried roadless areas, backcountry areas (low development areas), designated wild and scenic rivers, and research natural areas.

Potential competition from invasive weed species by evaluating changes in miles motorized route weed spread vectors.

> *Response*: These are not complete sentences. The majority of this section for at-risk species, and some of the terrestrial vegetation section, have multiple grammatical and composition mistakes which make it difficult to provide meaning comments. For example, pages 125, 131, and 135 are filled with run-on and incomplete sentences. Please edit.

DEIS pages 115-116

Broadleaf Woodlands Habitat Guild

……. Deciduous broadleaf woodlands in mesic settings include green ash woodlands in the Ashland and Sioux Geographic Areas, which provide habitat for heavy sedge. Green ash woodlands are best developed under conditions that favor snow entrapment, development of deeper soils, and concentration of moisture. These conditions are typical of ravines formed by ephemeral and intermittent streams where flooding is more sporadic or of short duration. Uplands are generally mixed grass prairies, shrublands and ponderosa pine forest. Soils are usually deep loams. Flooding is very short in duration when it occurs, as water is rapidly channeled downslope.

Response: Another impact to this habitat that should be mentioned is the real likelihood that it will be severely degraded or lost entirely due to emerald ash borer and green ash mortality of mature trees.

Threats to broadleaf woodlands include fire suppression, improper grazing, and noxious species invasion such as the emerald ash borer, conifer colonization, and human activity. There may be loss of tree species to disease, insects, freezes, and fire as well as shifts in warming or drying patterns as a result of climate change which may be beneficial to some species..... This species and habitat type is vulnerable to ~~improper~~ grazing, large animal herbivory, and weed invasion.

DEIS page 116

Montane grasslands are dominated by cool-season perennial bunchgrasses and forbs, with sparse shrub or tree representation. ~~Some~~ Warm-season grass occurs on the Ashland and Sioux Districts.

Response: As written, the information was misleading.

General threats to grasslands and shrublands include fire suppression, improper grazing, off-road vehicle use, noxious species invasion, conifer encroachment, off-trail recreation (for example, all-terrain vehicles, bicycles), disturbed hydrological functions by impounding waters and developing seeps and springs, and other human developments.

Response: hydrological function was completely missing from list of impacts.

3.5.3 ENVIRONMENTAL CONSEQUENCES

DEIS pages 120-121

Mountain ecosystems ~~are~~ can shift upslope, reducing habitat for many subalpine and alpine tundra species. Mountain tree line is predicted to rise by roughly 350 feet for every degree Fahrenheit of warming (Environmental Protection Agency 1997).

All habitat guilds for Regional Forester sensitive or at-risk species are expected to be impacted by warming trends. Riparian, ~~and~~ wetland, ~~and~~ grassland, and shrubland habitat guilds may experience an increase the rate of desiccation due to increased and prolonged summer temperatures and drought conditions. The ~~; although the~~ opposite could be true and all guilds could see an increase in precipitation which could result in longer fire seasons and more fire on the landscape.

Response: Synthesis is needed on the point the author is attempting to make. It seems incongruent that more precipitation equates to more fire on the landscape unless it is through lightening ignitions – please better explain.

Habitat in the alpine habitat guild for sensitive or at- risk plant species may decrease as a result of climate change and an upward shift of lower alpine habitats over time. Increased fire severity or frequency may also affect all habitat guilds except the riparian and wetland, especially those found outside of the sparsely vegetated habitat guild, either favorably or detrimentally depending upon the species' requirements.

Response: The last sentence is unclear.

DEIS page 125

Table 28. At-risk plant species' relationship to areas considered to have low risk for ground disturbance by revised plan alternative.

Response: There are two rows which both state "*Number of at-risk plant species within low risk areas.*" One row has the number 9, the second has the number 16. Please explain the difference between these two identical categories.

DEIS page 136

South Dakota's 2015 Wildlife Action Plan uses an ecosystem and science-based approach to assess the health of South Dakota's fish, ~~and~~ wildlife, and associated habitats (SDGFP 2015; Amended 2018). Plant species are not listed as species of greatest conservation need (SGCN). ~~in the Plan~~ However, the plan refers to the terrestrial, ~~and~~ riparian, and wetland ecosystems' planning approach. This ~~which~~ Plan encourages voluntary actions among conservation partners, agencies (such as the U.S. Forest Service), Tribes, and individuals to provide habitats that occurred prior to European settlement of South Dakota. ~~with~~ The concept of using an historical reference is based on the fact that the array and distribution of ecosystems across South Dakota shaped and sustained the region's biological diversity. ~~and that~~ Most species in South Dakota today resulted from historical ecosystems and associated disturbance regimes in the Great Northern Plains. This plan is complementary to having resilient ecosystems in which at-risk plants can persist.

Response: Corrections to reduce a run-on sentence.

DEIS page 137

Motorized access has limited indirect and cumulative impacts to at-risk plants species on the Custer Gallatin.

Response: Is this sentence trying to convey that motorized access has limited indirect impacts, or limited and indirect impacts? Explain how limited impacts also have cumulative impacts. SDGFP suggests that motorized access, or roads, have direct and cumulative impacts to at-risk plant species because of direct habitat loss and habitat fragmentation due to roads. Please explain and amend the effects analysis if necessary.

Motorized routes are primary weed spread vectors that are threats to at-risk species.

Response: Are motorized access, motorized routes, motorized travel, and trails the same things? Weeds are a direct impact to at-risk species, which contradicts the above sentence that states motorized access has limited [and?] indirect impacts. Please explain and amend the effects analysis.

OLD GROWTH AND LARGE TREES

DEIS page 223

Particularly on the Warm Dry potential vegetation type, increasing tree densities have increased tree stress and vulnerability to mortality from insects, pathogens, and high intensity crown fires. In these areas, *silvicultural treatments in old growth with the purpose of increasing resilience are expected to have the effect of maintaining existing old growth longer in to the future."*

Response: SDGFP greatly acknowledges and supports all efforts to account for, retain, and recruit individual trees and stands as old growth and/or large dbh trees. CGNF recognizes the role both old and/or large trees play in ecosystem functioning and long-term persistence of the species which depend upon old growth and/or large diameter trees. Recognizing that some vegetation treatments are necessary to either create or maintain old growth and/or large trees within the pine savanna is appreciated.

2.3.10 Forested Vegetation (VEGF)

FW-DC-VEGF Plan page 40

Table 13: Forestwide desired and existing condition of old growth.

Warm Dry-Pine Savana	3% (1% - 6%)	Old growth is dominated by pure stands of large, fire-resistant ponderosa pine, in various patch sizes with an uneven-aged and irregular tree distribution. Stands are resilient to low severity disturbance.

At the bottom of this table, it states: "Forest Service (Green et al., 2011) *unless more current regionally-directed best available science becomes available*. This same statement is listed in Guideline 01.

Response: We appreciated the addition of the table and GDL 01 footnote about regionally-directed best available science. We believe that geographically-directed science and local knowledge will further refine accounting for the pine savanna and lack of typical "old growth and/or large trees". Green et al. definitions pertain primarily to the montane ecosystems or those pine savanna areas with historically inoperable logging areas and different growing conditions as compared to the Sioux Ranger District. Rather than repeat our previously stated and substantive concerns regarding old growth/large tree definitions, DEIS analysis, and Plan Components, we incorporate by reference our previously submitted comments to the CGNF as a cooperating agency: 2-16-18, 6-13-18, 7-6-18, 9-28-18, and 11-30-18. Because this is an important subject to ensure ecological integrity and future management to retain and encourage old growth and large trees, we look forward to a June 2019 field trip to discuss ponderosa pine old growth/big trees within the Sioux Geographic Area.

FW-GDL-VEGF pages 41-42

01 To contribute to biodiversity and landscape heterogeneity, as well as provide habitat for old-growth-associated plant and animal species, vegetation management (including timber harvest, fuels treatment, or prescribed fire) in old growth other than lodgepole pine, should be used only to achieve one or more of the following purposes:

1. To maintain or restore old growth habitat characteristics and ecosystem processes.....

Response: see SDGFP comments on old growth and various tree cover types 2-26-18 and 7-6-18 (response to 6-13-18 phone conference) and again on 9-28-18. A geographic-area description of the draft Plan Components may be needed for the Sioux Ranger District.

SNAGS

DEIS page 232

Forestwide, the Custer Gallatin National Forest is currently within the desired condition for snag density and distribution. *While it is not possible to model the creation and decomposition of snags directly*, one can assess the expected trends in the primary processes that create snags – fire and bark beetles – as a proxy to compare alternatives. Wildfire and prescribed burning would generally create snags in the short term, most often of the smaller size classes, although some snags and downed wood could be consumed. Bark beetles would tend to create medium, large or very large snags and not consume any existing snags or downed wood. After these events, the *longevity of the snags would vary* depending on species and site-specific conditions. For the purposes of this comparison, it is also assumed that timber harvest would generally reduce snag recruitment and retention, although appropriate levels of snags and downed wood would be retained as required by plan components.

Response: The model cannot take into account decomposition and longevity of soft vs. hard snags but the Plan Components can take them into account the resource these very different snags provide for insects (prey base for insectivores), birds, bats, and cavity dependent species. Fire and insects do produce the most snags, but again, not necessarily long-term hard snags. See our Plan Component suggestions below. See 7-6-18, 9-28-18 and 11-13-18 SDGFP correspondence on this topic. Correspondence is incorporated herein by reference as a Cooperating Agency. See provided references on longevity of ponderosa pine mortality due to pine beetles.

Draft Plan page 35

03 To maintain soft and hard snags (standing dead trees of any species) over the long term for wildlife habitat and ecosystem processes, all vegetation management projects should retain at least 40 snags per 10 acres. Due to their rarity, longevity, and high value for wildlife, the largest hard snags available should always be prioritized for retention. The largest soft snags should be retained in salvage or sanitation operations where trees have been killed by high intensity stand-replacement fires or insects. Guideline applies as an average of treatment units across a project area and allows for variation in snag retention among treatment units with the intent of preserving the most desirable snags.

Response: See above response.

05 Vegetation management prescriptions should retain, on average, 50 live trees per 10 acres greater than 15 inches in the warm dry broad potential vegetation type, 100 live trees per 10 acres greater than 15 inches in the cool moist broad potential vegetation type, and 80 live trees per 10 acres greater than 15 inches in the cold broad potential vegetation type. Guideline applies as an average across treatment units. Large live trees need not be present on every acre; they may be clumped as appropriate for the site and species. If the minimum amount of large or very large trees are not present, leave all that are available. Where treatment units do not have trees greater than 15 inches, leave live trees acres of the largest diameter trees present. No replacements or smaller sizes need be left unless desired in the site-specific prescription.

Response: SDGFP suggests that retention of "50 live trees per 10 acres greater than 15 inches in the warm dry broad potential vegetation type" (Ponderosa Pine) is going to be improbable on the Sioux Geographic Area. The guideline goes on to state, "If the minimum amount of *large or very large trees* are not present, leave all that are available." This may suffice for amount, but there may not even be large or very large trees on these pine outcrops. And additional caveat is suggested above to meet the intent of the guideline to retain and/or create stands and inclusions of large diameter pine.

New Standard: No firewood cutting is allowed for any hardwood or juniper species, dead or alive. Only if a tree has been removed for safety or administrative purposes, will a hardwood or juniper tree be available for firewood.

Response: There are so few hardwoods and large, mature juniper. All of them dead or alive, should remain on the landscape,

MINOR FOREST COMPONENTS YET CRITICALLY IMPORTANT HARDWOOD AND DECIDUOUS SPECIES

Perhaps we missed it, but the Final Plan should have Standards and Guidelines to ensure the ecological integrity and long-term persistence of hardwood and deciduous species within inclusions, stringer

draws, along riparian areas, toe of the slope, riparian areas, and woody draws. Stating that there should be a diversity of species in Desired Conditions (Draft Plan pages 34-46) is not enough to ensure project planning will appropriately consider these unique, sparse, and under-represented community types. These communities must be actively accounted for in project implementation which only the Plan can ensure. See SDGFP comments 2-26-18 at pages 9-11 regarding aspen inclusions within the Sioux Ranger District and provided scientific references and woody draws and scientific references.

Response: SDGFP suggests a new Standard in the appropriate Plan category:

Standard: There will be no net loss of hardwood inclusions, stands, and associated deciduous shrub and woody draw plant communities due to management of human activities. Condition classes of these communities will not digress further into non-functioning or at-risk states where communities can no longer self-repair.

Response: This standard demonstrates an effort to improve the health and condition of these communities. The DEIS (page 578) indicates that woody draws occur on only 3% of the Ashland and Sioux GAs. The majority of woody draws are in at-risk or non-functional condition for a variety of reasons. If some type of Plan Component is not included in the Final Plan for these sensitive and rare communities, please explain why. Relegating conservation efforts to the Suggested Management Strategies is insufficient to ensure vegetation diversity within the Northern Great Plains.

Are Tables 6-13 (Draft Plan pages 35-40) only for conifer species?

Mesic Deciduous Woodlands

Table 14 Plan page 46

Healthy ~~aspen and~~ hardwood stands have a diversity of age and structural classes and are maintained to provide wildlife habitat, natural fuel breaks, and other ecosystem functions..... Where aspen occur, there ~~is always~~ may be water near the surface and stands thrive best in abundant sunlight. Healthy stands ~~have a mix of older, middle aged and young "trees" (stems) and~~ support a wide variety of native grasses, forbs and shrubs. The rich understory of an aspen stand is many times more diverse than the floor of a conifer forest.

Response: Redundancy, grammar, clarifications. In the dry, Northern Great Plains, not all aspen stands or inclusions grow near surface water.

01 Regeneration, protection, and conservation of aspen, other hardwoods, and woody draws shall be implemented through means appropriately proven successful in scientific literature. Prescribed fire will not be ignited in recently regenerated hardwood stands or woody draws to avoid killing the regeneration.

Response: Addition of a new Plan Standard. See discussion below on regeneration of hardwoods using clear-cut, coppice, or individual tree selection. SDGFP has witness where regeneration has finally made a foothold, only to be completely burned off in a prescribed fire due to a delayed fire window. Plan Components would help avoid this mishap.

02 Conifer planting, seeding, and soil site preparations will not occur in hardwood stands, hardwood inclusions, woody draw areas, meadows or grasslands. A minimum of 150 feet of the outer perimeter of these systems will provide a buffer zone between the outer most hardwood shoot and conifers.

Response: Additional Standards should be included in the Final Plan – place where most appropriate. See SDGFP 9-28-18 comments. Years ago, ponderosa pine (PIPO) saplings were replanted following stand-replacing fires in the Long Pines. Unfortunately, pine saplings were planted within regenerating aspen stands and woody draws or immediately adjacent to aspen and woody draws. It is likely that aspen also finally regenerated where pine was already replanted. Planting too close to and within hardwood stands (or soils that support these species) completely defeats ecological considerations for hardwoods and deciduous species' long-term persistence. Hardwood stands can be fire-resistance and add resiliency to a diverse landscape within the Northern Great Plains, if they are free of conifers. Further, PIPO out-competes hardwoods and woody draw species. Upon maturity, PIPO will naturally re-seed close to and within hardwood stands. This is contrary to 2012 Planning Rule directives for ecosystem integrity and resiliency. SDGFP suggests the minimum of 150' guideline for removing conifer near hardwoods based on Shepperd and Battaglia (2002) "*Clearing surrounding conifer forest back 1 to 1.5 tree heights away from a declining aspen clone will allow new suckers to establish and expand the area occupied by the clone.*"

03 Remove all conifers from hardwood stands, woody draws, grasslands, and meadows. Exceptions in the pine savanna geographical area may occur when very large diameter conifers (> 15") or wildlife trees occur within the stand or within the minimum 150 foot buffer zone. These areas plus the buffer zone will be removed from the suitable timber base and commercial conifers will not be required to be propagated. Smaller diameter (<8" dbh) conifers could be hinged to provide aerial barriers to large ungulates, allowing micro-sites where regenerating hardwoods escape browsing. (A similar standard with exceptions for much larger diameter conifers could be made for montane geographical areas.).

04 Following treatments or natural actions which aid in hardwood and deciduous species restoration, additional protection and conservation measures may require barriers to large animals, livestock deferment, or other means until it is determined that the treated or affected areas have obtained sufficient height and density to withstand large animal impacts. Barriers include but are not limited to piling slash higher than the normal allowed height, hinging of conifers within hardwood stands, and fencing.

Response: Responsible non-conifer vegetation management should be holistic to ensure functioning hardwood and deciduous systems. Conservation and protection of hardwood and deciduous species should be a normal part of forest and vegetation management.

05 Remove all conifers a minimum of 100 feet from within and surrounding established hardwood inclusions. An inclusion is defined as a minimum of 3 mature hardwoods (single or mixed species) and regeneration may or may not be present within the 66 foot radius of the inclusion.

Response: Due to lack of fire, forestry practices which favor commercial conifer species, and lack of historic consideration for hardwoods, many delineated conifer stands now have isolated pockets of hardwoods trying to compete and survive in a shaded forest. If hardwoods are still present, it indicates that they were likely present over 100 years ago (historic range of variability). Hardwood inclusions are often more abundant than delineated stands and should be actively recognized as important ecological components for vegetation diversity in the Final Plan.

2.3.11 GRASSLAND, SHRUBLAND, WOODLAND, RIPARIAN, AND ALPINE VEGETATION (VEGNF) Draft Plan page 48

01 Manage for XXX acres of prairie grasslands and XXX acres of meadows during the life of the Plan. Restored grasslands and meadows will be considered unsuitable for timber production.

Response: No Standards were listed.

FW-GDL-VEGNF Draft Plan page 49

08 To minimize browsing pressure or trampling and rubbing damage to vegetation, new allotment infrastructure should not attract livestock into riparian areas, aspen or hardwood inclusions or stands or woody draws....

Response: As written, only aspen and woody draws would be protected. The guideline *must* be broader and include sensitive riparian management zones and *any* hardwood species, such as green ash, cottonwood, etc.

11 To minimize browsing pressure or trampling and rubbing damage to vegetation, existing allotment infrastructure should be relocated out of riparian areas, aspen or hardwood inclusions or stands or woody draws as best management practices for these uncommon plant communities.

Response: Riparian areas, hardwoods, and woody draws are all uncommon communities within the pine savanna. They are disproportionately critical to the diversity within the Northern Great Plains and require additional management consideration. The DEIS (page 178) states, "*About 11,400 National Forest System acres of woody draws (green ash woodlands) occur on the Ashland and Sioux Districts. As a rare and biologically important landscape component, green ash woodlands should be managed to maintain or perpetuate a network of multi-layer and multi-age class of herbaceous plants, shrubs, and trees. .....Within primary rangelands of permitted livestock allotments on the Sioux and Ashland Districts, 19 percent of inventoried green ash woodlands are functional, 61 percent are at risk, and 20 percent are non-functional. The at risk and non-functional sites are largely a product of legacy issues due to woodcutting, livestock grazing, deer browsing, introduction of invasive rhizomatous sod grasses (predominantly, Kentucky bluegrass), and periods of prolonged drought.*" Further the DEIS (page 172) states, "*Browsing and grazing of mesic shrubs and deciduous broadleaf seedlings can be detrimental to successful stand establishment and maintenance. Some areas may need to be fenced, depending upon extent and location of burned or treated areas or otherwise managed to control use by cattle and wild ungulates until the young trees are big enough to avoid being detrimentally grazed or browsed, which can be when a tree is over ten feet tall in elk habitat and with a fairly strong bole (girth).* "

81% of woody draws are in extremely unhealthy, non-functional condition. This is discouraging but the reality is that bringing these particular woody draws back into a restored functioning state may be costly and infeasible and self-healing is unlikely. However, Plan Components should still aim to protect what is left of these areas especially the more healthy. Plan Components should highly recognize what types of actions can occur in woody draws, especially in the remaining 19% functioning draws. It is recommended to conserve what remains.

Soil compaction and trampling can be alleviated by tighter livestock control. Having seasonal restrictions on winter grazing where woody draws occur is necessary for the Revised Plan.

DEIS page 172

Browsing and grazing of mesic shrubs and deciduous broadleaf seedlings *can be detrimental* to successful stand establishment and maintenance. Some areas may need to be fenced, depending upon extent and location of burned or treated areas or otherwise managed to control use by cattle and wild ungulates until the young trees are big enough to avoid being detrimentally grazed or browsed, which can be when a tree is over ten feet tall in elk habitat and with a fairly strong bole (girth).

Response: We agree that large herbivores and some small mammals can over-browse shrubs and shrubby plant forms. Fencing is not always cost effective but is an effective mitigation tool if kept in good maintenance. This discussion is important to the DEIS assessment, but Plan Components do not always match the narrative. Livestock can be moved or herded out of these areas especially when a certain percentage of the current year's leader has been browsed and a Plan Components to address browsing pressure are needed. Plan Components should provide the ability to move or herd livestock out of these areas and provide late-season guidelines to eliminate or reduce browsing. The DEIS (page 584) recognizes management short-comings in current management which are not ecologically sustainable:

These changes have occurred at a landscape level, while at an allotment level, some allotments have sustained little to no change in stocking rates since the plans were signed, while other allotments have undergone large stocking rate changes. Even though these changes over time helped make improvements to range condition in some areas, continued vigilance and adaptive management will be used to address issues and fine-tune management prescriptions. Attention is especially needed for:

- *areas with season-long grazing,*
- *areas with long durations,*
- *during the fall when cattle diet preferences tend to switch more to browse species (such as green ash, willow or aspen),*
- *periods of time where distribution issues may arise in riparian or green ash draws (for example, during periods of hot season use),*
- *areas where stocking rates may not be in balance with carrying capacity, and*
- *areas with other resource considerations or concerns.*

12 Utilization of willows, shrubs, woody browse and deciduous trees (such as aspen, green ash, cottonwood) in any year by livestock or wildlife is limited to browsing 30% of the total individual leaders produced in that year. Livestock, horses, bison, pack animals and other domestic stock will be moved out of these habitats when browse use has been met or exceeded.

Response: DEIS as stated above acknowledges issues with soil compaction and heavy use of woody draws and hardwood stands by livestock. With livestock on the CGNF until mid-October and mid-November, their diets have switched to browse as mentioned above. Additional Plan Components for protecting annual growth of woody browse will aid in adaptive management, horse, bison, pack animal and other domestic stock management, and AMP revisions. The 30% is a suggestion but other percentage scientifically supported would be suitable. SDGFP's suggested additions to the Plan should not be relegated to suggested Management Strategies. References in the reference section herein, such as Keigley and Frisina (1998) and multiple Uresk et al., should be considered for formulating a browse utilization standard and providing justification in order to sustain these rare and already impaired systems.

2.3.12 FIRES AND FUELS (FIRE)

FW-GDL-FIRE Plan page 50

04 Livestock grazing will be coordinated with other resource specialists to ensure that sufficient fine fuels are present to carry fire, meet prescribed fire prescriptions, and accomplish vegetation improvement objectives. This may result in deferred grazing (rest) at least one season prior to ignition. Livestock grazing will also be deferred (rest) at least one growing season following prescribed or wildfire to allow vegetation to rest, heal, and restore root reserves. Exceptions to post-fire rest may be due to the need to further impact non-native vegetation such as cool-season invasive species. Native vegetation should be protected by removing cattle prior to warm-season vegetation green-up. Rest may be extended beyond one year to allow shrub recovery before livestock herbivory occurs.

Response: SDGFP recommends addition of the above guideline. Perhaps we missed it in this or the livestock section, but the DEIS (page 260) states a concern of reduced fine fuels and therefore, there should be a Plan Component to alleviate this concern: "In all alternatives, livestock grazing would occur on portions of the Custer Gallatin National Forest. Plan components would enable grazing activities to complement fire and fuels management, such as *reducing fine fuels to lower fire risk*. However, grazing can alter grassland and shrubland fire regimes through soil disturbance, increased competition from non-native annual grasses, and *reduction in fine fuels* (Knick et al. 2005). *Duration and intensity of grazing could affect prescribed fire implementation by reducing available fuels. Location and timing of grazing could also affect prescribed fire implementation by restricting available burn units. Coordination with affected grazing allotment permittees should occur for all fuels treatments in order to meet objectives."*

2.3.15 WILDLIFE (WL)

Introduction Plan page 55

"This section provides direction designed to maintain the diversity of animal communities and support the persistence of native and desirable non-native wildlife species on the Custer Gallatin....."

FW-GDL-WL Plan page 58

05 Management activities should avoid disturbance at known active raptor nests and fledging areas during the breeding season. Raptors that establish nests near existing human use areas are assumed to be tolerant of the level of activity present when the nest was established.

Response: Buffer zones should be added.

06 To protect airborne migratory species, new wind, solar, or renewable energy developments should be located and designed to avoid or minimize impacts to birds and bats.

Response: The DEIS recognized that renewable energy sources of wind and solar are evolving and do occur in the Northern Great Plains. Therefore, these energy sources are reasonably foreseeable actions proposed on the CGNF.

BATS (WLBAT)

FW-STD-WLBAT Plan pages 58-59

02 All parties seeking to research bats shall obtain proper wildlife handling permits from the state wildlife agency and US Fish and Wildlife Service.

03 Entrances into bat hibernacula, maternity roosts, or geologic features shall be restricted except for reasons related to human health or human life concerns. Rare exceptions may be permitted and limited for bat research with cooperation from the state wildlife agency.

Response: Suggested standards should be included in the Final Plan to provide more protection and conservation to bats, their habitats, maternity roosts, and winter hibernacula. Too often people enter sensitive bat habitats (maternity and hibernacula) and the mere presence of humans, headlamps, and body temperature disrupt bats, causing stress and death.

04 Multi-directional escape ramps will be install on all new livestock tanks or wildlife guzzlers. Existing watering infrastructure will be retro-fitted with multi-directional escape ramps for bats, birds, insect, and small mammal escape to avoid drowning and tainting water supplies.

GREATER SAGE-GROUSE (WLSG)

Draft EIS (DEIS)

DEIS pages 410 – 420

Information on Greater sage-grouse as a SCC and Need for Additional Scientific References:

The CGNF has recommended to the Regional Forester that the Greater sage-grouse be listed as a Species of Conservation Concern (SCC). The DEIS states that the "Regional Forester has determined that the *best available scientific information* (BASI) indicates substantial concern about the species' capability to persist over the long term in the plan area" (36 CFR 219.9 (c))." The DEIS (page 13) states BASI will be selected by FS Resource Specialists.

Response: SDGFP offers substantive comments (including e-mail correspondence from SDGFP to CGNF on 11-2-18 and 11-21-18 which are incorporated herein by reference) regarding suggested edits to the Greater sage-grouse DEIS section and Plan Components for the Final documents and ROD. SDGFP concurs because this is a species which we track through our upland game surveys, is identified as a species of greatest conservation need (SDGFP Wildlife Action Plan 2014), and has Global and State ranks as G3G4 and S2, respectively. And, lastly, we fund research and participate with various sage-grouse working groups. An SCC requires Forest Service (FS) authority for viability and an all-lands approach to management of sage-grouse habitats. FS attempts to ensure that its Final Plan will be compatible with State Wildlife Action Plans.

However, SDGFP asserts that the current DEIS and draft Plan lack significant and relevant local science which can be integrated into meaningful Plan and Monitoring Components. Correspondingly, we believe that a species identified through the SCC fine-filter approach should have congruent, fine-filter BASI. Overall, the DEIS and Draft Plan primarily rely on two pertinent USDI FWS references (See DEIS citations 2013c and 2015c). These references offer very broad management approaches which do not always meet the intent of FS standards and guidelines for a more narrow planning area. Plan components are supposed to enable the species to be resilient and adaptable to stressors (identified in the DEIS) and likely withstand future environments (2012 Rule at §219.19) such as renewable energy developments. It is SDGFP's opinion, that as written, the DEIS and Draft Plan Components do not meet this Rule requirement.

Standards and guidelines set out design criteria to be applied to projects and actions and lend themselves towards more effective and meaningful monitoring. For the FEIS, we believe these two citations should be supplemented with additional applicable science such as Flake et al.