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Comments:

Please see attached comment letter.

Thank you for the opportunity to comment on the revision of the Custer Gallatin Forest Plan. I write as a biologist and civil engineer, and a member of the community who has benefitted enormously from the proximity of the CGNF for 35 years, and wishes to see it persevere into the distant future in robust ecological condition. I've organized my comments according to draft document section, below.

2.3.4 Watershed, Aquatic, and Riparian Ecosystems

"The Custer Gallatin has been working to restore soil, watershed, and aquatic habitat conditions by implementing best management practices, removing excess roads, improving road conditions (reducing sediment), removing fish migration barriers, and implementing riparian conservation strategies"- these are all positive approaches, that should be incorporated into the final plan, whatever its configuration.

2.3.5 Watershed and Aquatics

Achieving and maintaining desired conditions 03 and 04 will be compromised by the human activities permitted or encouraged by some of the alternatives. Alternatives A, B, C and E allow substantial motorized and mechanized travel. Alternatives A and E jeopardize soil and streambank integrity with substantial earth-moving equipment for timber harvest. These activities should be permitted, with restrictions to protect soils, wetlands and streambanks, and on-the-ground enforcement of the rules.

Objective 01: If hundreds of miles of stream are in condition calling for restoration, there is a clear need to restrain/cease the activities that degraded them in the first place. Such restriction needs to be incorporated into the final Forest Plan.

The number of stream crossing structures envisioned for all the alternatives seems unlikely to keep up with the degradation of existing structures. A single wet spring washes out or fills multiple culverts. At least 10 projects per decade should be planned.

Standard 02: As a civil engineer, I endorse the standard requiring that replacement stream crossings accommodate the 100-year runoff event. As climate changes, hydrologic recurrence intervals are

shortening. By the time of the next plan revision, it is likely that what is now a 100-year event will be a 50-year event.

2.3.6 Riparian Management Zones

Standard 02: "Pesticides, other toxicants and chemicals, or bio-controls shall only be applied within riparian management zones if needed to maintain, protect, or enhance aquatic and riparian resources or to restore native plant communities" - this is the definition of why a pesticide is used in any

circumstances; it's not properly sensitive to the special nature of riparian environments. A stronger standard is appropriate. I recommend something like "shall only be used when non-toxic alternatives are infeasible, and shall incorporate the highest levels of protection for aquatic biota."

2.3.9 At-Risk Plant Species

The CGNF recognizes the grave jeopardy to the survival of whitebark pine, yet no goal of reviving the species is set forth. Besides cooperating with the Greater Yellowstone Coordinating Committee- Whitebark Pine Subcommittee, the Forest should set forth an explicit goal of restoring some proportion of the stands on the forest that have died. As part of this restoration effort, new timber harvest in whitebark pine stands should be suspended indefinitely.

2.3.10 Forested Vegetation

The prevalence of large trees in all types of forest is strikingly lower than the goals (as identified in Tables 6 and 12). This indicates that harvest of old-growth forest should be avoided, and the amount of old-growth forest should be allowed to increase or at least be maintained to promote biological diversity.

Objectives: The proposal regarding forested-vegetation-management projects is excellent. These need not be gargantuan – presumably burning or cutting off 10 acres of encroaching junipers would qualify as such a project. Regardless of the alternative ultimately selected, the CGNF should aim to carry out as many such projects as possible. Ten per decade is so low that it seems unlikely to keep up with the growing need.

Goals: I concur with the proposal to expand inventories, identify potential habitat for at-risk species, and promote protection and restoration of associated habitats.

2.3.13 Carbon Storage and Sequestration

Forests store many times more carbon than adjoining grasslands¹. This argues for prompt reforestation of timbered lands.

The goal of enhancing carbon storage is enhanced by minimizing soil disturbance, that liberates soil organic carbon. Claim credit where you can.

2.3.14 Invasive Species

It's very pleasing to see the gravity with which the CGNF is treating the threat of invasive species. This is indeed a very serious issue, that has the potential to derail many of the goals set forth in the

¹ Erb K-H, et al. (2017) Unexpectedly large impact of forest management and grazing on global vegetation biomass. *Nature* 553:73–76.

Plan if not confronted with substantial resources. Goal 04 is good; there is definite potential to enlist forest travellers to assist in mapping and perhaps even eradicating weed infestations.

Standards: It's important to monitor both before and after control measures, so that the treatment efficacy can be evaluated. Broad-scale herbicide application, such as boom spraying, should generally be avoided.

2.4.5 Permitted Livestock Grazing

Wetlands and riparian areas should be protected from livestock grazing, especially during the growing season.

2.3.15 Wildlife

It's confusing and perplexing that the draft plan does not list at-risk wildlife species, although it uses the term repeatedly. Readers understand that this list can change, but please incorporate a current one into the final plan.

Desired condition 05 is critical, and well supported by Goal 03. Several of the other desired conditions will be endangered if the state of the forest doesn't allow for connectivity of habitat for both animals and plants. I also endorse the intent of collaborating with other organizations to explore where and how such connections can be made.

Bats

Guidelines: White-nose syndrome presents such an existential threat to bats that the entrances of known hibernacula should be closed to human entrance.

Bighorn Sheep

On this forest, it would be appropriate to set forth much more detail regarding desired future conditions, goals, objectives and guidelines for bighorn sheep populations. I request that the Forest pledge to consummate at least two project per decade to reintroduce bighorn sheep in suitable habitat where they have been extirpated, and craft the appropriate standards and guidelines to make this happen. If not here, where?

Bison

In past years the Gallatin Forest made great progress in smoothing the path for Yellowstone bison to re-enter Montana as wild animals, particularly by acquiring lands needed for seasonal migration. The CGNF should follow this up. Desired condition 04, here articulated only for Alternative D, should be incorporated into whatever form the final forest plan takes. There should be wild, free-roaming bison on the forest year-round.

Grizzly Bear

I endorse the sole goal listed here, to coordinate with other organizations to enhance connectivity of habitat to allow currently-segregated populations to intermingle. Without this connectivity, sustaining the Yellowstone population will be a perpetual effort.

Prairie Dogs

Guideline 02: Any [varmint] hunter worth his salt can plink a prairie dog from a range of 100 feet. This buffer distance should be expanded to 100 yards.

Wolverine

Guideline 01 states [there should be no increase in special use authorizations or designation of winter routes in maternal habitat for wolverines during the reproductive denning season.] This needs to be supported with surveys to locate these routes, and standards, including temporary area closures, to protect them. I have seen wolverines and their tracks in multiple locations at high elevation in the Hyalite and Sourdough drainages, but not in recent years. If the forest is serious about conserving these animals, it must get a handle on [and preferably manage - the effects of backcountry winter recreation at high elevation. Designating the Gallatin Crest for recreation will encourage disturbing activity.

2.4.8 Energy, Minerals, and Geologic Areas of Interest

Introduction [Significant cave] paragraph [I encourage the forest to adopt a policy of not divulging the locations of caves, for the protection of bats from white-nose syndrome.

2.4.15 General Recreation

Objectives: Assuming recreation sites have been inventoried and their effects documented, the CGNF should strive to remove or relocate all existing recreation facilities, including dispersed sites, outside of riparian management zones, or undertake other means practicable if they are degrading aquatic or riparian resources, over the life of the plan. Regardless of the alternative adopted, such degradation is not acceptable.

2.4.45 Recommended Wilderness Areas

It has been several decades since the establishment of the Absaroka-Beartooth Wilderness and the Lee Metcalfe Wilderness. All of us collectively have learned where wilderness additions will best fit, based on a history of human land use, wildlife needs, and environmental research findings. Table 28 in the draft Plan (p. 129), illustrated by the maps in Appendix A of the Draft EIS, shows the potential additions and new designations. I cannot speak to all of these, but I urge the CGNF to recommend new Wilderness designation for a significant portion of those areas listed. The criteria driving recommended area designations should be a priority on long-term ecological health, keeping in view the pressures of human population change, recreation demand, climate and other natural change, and and scientific findings accrued since the last Plan revision. This set of priorities will best facilitate the draft Plan's stated goal of sustaining a healthy landscape throughout the life of the Plan. The best way to shepherd natural communities is to restrict human activities through Wilderness designation. To this end, I request Wilderness recommendation for those AB additions shown on the map on page 44 of Appendix A of the draft EIS (Alternative D). Cowboys Heaven, Taylor Hilgard, Spanish Peaks South and Spanish Peaks East, lower in elevation than the customary rocks-and-ice, have been de facto Wilderness for many years, and should be recommended as additions to the Lee Metcalf Wilderness.

For the Bridger, Bangtails and Crazy Mountains Geographic Area, I believe that the proposed designations of Alternative C represent the best protection practically achievable at this time, given the proximity to Bozeman and the existing mechanized recreation demand.

Finally, within the Gallatin Range, the Gallatin recommended wilderness of Alternative D, with the Gallatin Key Linkage Area, represent the foremost alternative. This alternative best protects large wildlife and allows for connection to populations to the north, which is essential to sustaining grizzlies, wolves and wolverines. In particular, grizzly security should not be sacrificed to mountain biking. This is a trade-off clearly demonstrated to harm the bears. 2 Exciting trails for riding are found throughout the Forest, but the Gallatin Range is uniquely crucial to the sustenance of grizzly populations. Along this line, the designation of the Gallatin and Bridger Key Linkage Areas in Alternatives C and D is superb. This should be augmented by designating the I-90 corridor within Rocky Creek Canyon as a "permeable wildlife barrier," so that safe crossing structures can more easily be constructed there.

Finally, although it is not addressed anywhere in the draft Plan (!), I urge the CGNF to devote substantially increased resources to enforcement of regulations. Nearly every time I'm in the backcountry I come upon user-created bike trails, snowmobile trails in Wilderness, campsites on lakes, etc. Without enforcement, a non-trivial portion of Forest travellers assume the rules don't apply to them. Their activities compromise everything you are commendably trying to do, in crafting a solid new Forest Plan.

Thank you for considering these comments.