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Comments: Attached please find comments as a pdf file and an accompanying pdf attachment.

Dear Custer Gallatin Forest Planning Team and Supervisor Erickson,

After reading through the Montana Climate Assessment again, considering both the dramatic increase predicted for the population in the Gallatin Valley and the increased mechanized/motorized recreation focus found in the other Alternatives, I am concerned about the Gallatin watershed. Protecting watershed health was one of the original purposes of the national forests. This includes the management of surface and groundwater resources as well as water uses and rights on NFS lands I

didn't realize that almost one fifth of the nation's water originates on NFS lands. As watersheds support productive soils, biological diversity, and fish and wildlife habitat, decreasing availability of historic water flows with climate change will greatly impact habitat.

Alternative D, the Custer Gallatin National Forest (CGNF) plan revision that provides the greatest amount of wilderness, is the best alternative for the long term conservation of forest watersheds. The CGNF and the Hyalite watershed provides water critical to the people of Bozeman, plants and animals in the watershed, including endangered species. Unprecedented human population growth in south central and western MT increases demand for water production. In addition changing climate is forecast to decrease mountain snowpack and increase annual temperatures.¹

The cumulative effect of human population growth and changing climate will stress forest watersheds. Managers should exercise extreme caution in allowing human activities known to impact forest watersheds. Two contributing sources include motorized and mechanized vehicle access, including mountain bikes.

Potential effects from these uses that may affect watersheds include trails created by off-road vehicles (ORV) causing denuded vegetation and soil erosion. Wheels can spread non-native species. In Wrangell-St. Elias National Park and Preserve, AK, ORV trails have caused local resource damage in intermountain lowlands. Comparison of aerial photography with ground survey revealed an increase in trail length and number and show an upslope expansion of a trail system around points of stream channel initiation. It was hypothesized that these impacts could also cause premature initiation and headward expansion of channels because of lowered soil resistance and greater runoff accumulation as trails migrate upslope. Several rainfall-runoff events showed increased and sustained flow accumulation below trail crossings and channel shear forces sufficient to cause headward erosion of silt.² With precipitation changes predicted to occur in the Custer Gallatin National Forest accompanying warmer temperatures, the likelihood of rainfall runoff events increases.

Other reports and analyses of mechanized and motorized impacts to forest watersheds include: Cooperman, J., 2012. Habitat Destruction from Offroad Recreation in BC

KTVZ.com., 2019 Federal Judge Rejects Ochoco NR Off-Road Trails Plan.

1 Whitlock, C., et. al. 2017. Montana Climate Assessment. Bozeman and Missoula MT: Montana State University and University of Montana, Montana Institute on Ecosystems, 318 p. doi:10.15788/m2ww8w

2 Arp, C.D., et al., 2013. [ldquo]Analyzing the Impacts of Off-Road Vehicle (ORV) Trails on Watershed Processes in Wrangell-St. Elias National Park and Preserve, Alaska[rdquo]

Lathrop, J. (undated) Ecological Impacts of Mountain Biking: A Critical Literature Review. Prepared for Wildlands CPR through the University of Montana[rsquo]s Environmental Studies Scientific Approaches to Environmental Problems.

Rocky Mountain Research Station, Ft. Collins. 2010. Onroad and Offroad Access May Increase Erosion and Runoff From Forests and Rangelands.

<https://mountainjournal.org/scientists-say-mountain-biking-negatively-impacts-bears>

<https://mountainjournal.org/mountain-biking-and-hiking-with-dogs-impacts-wildlife>

Vendeman, M.J., 2004 The Impacts of Mountain Biking on Wildlife and People.

The Colorado chapter of Backcountry Hunters and Anglers put together the attached 2018 report after hearing from an increasing number of hunters, anglers, public land managers and others about the detrimental impacts of increasing off-road recreation on public lands habitat. Sportsmen and wildlife managers were finding that elk hunting opportunities were being compromised by trail development in many parts of the state.

Due to the risk to the Gallatin watershed from the deleterious combination of climate change[rsquo]s temperature increase and decreased snowpack, predicted continuing acceleration of population growth in the Bozeman area and the ecological impacts from mechanical and motorized recreation, I strongly support Alternative D with an additional 230,000 acres of wilderness in the Gallatin Range.

Thank you for your consideration of this input.