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Comments: I believe the GMUG Forest Plan should include the 261,000 acres of new and additional wilderness areas from alternative D (USDA Forest Service, 2021b)[USDA Forest Service. (2021b). Draft Revised Land Management Plan Grand Mesa, Uncompahgre, and Gunnison National Forests. US Department of Agriculture. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd939801.pdf]

. Nature in general, provides great physical and mental health benefits for people, habitat connectivity for wildlife, watershed health, and improved air quality (Gunnison Public Land Initiative, 2019). Residents of the GMUG area also benefit from the recreation economy of the public lands in the area. However, this applies to all nature, not just wilderness areas.

We need wilderness areas specifically because of the climate change adaptation opportunities they provide. Scientists most frequently recommended improving land connectivity to aid species migration and improving the ecological integrity of areas, which can be accomplished by adding protected lands near wilderness areas for migration corridors (Groves et al., 2012; Long & Biber, 2014, p 660)[Long, E., & Biber, E. (2014). The Wilderness Act and climate change adaptation. *Environmental Law*, 44(2), 623-690.]

. Long emphasizes the importance of wilderness areas with high elevation habitats for protecting biodiversity as species move into areas with the correct climate for their needs. (Long & Biber, 2014, p 661)[Long, E., & Biber, E. (2014). The Wilderness Act and climate change adaptation. *Environmental Law*, 44(2), 623-690.]

. The GMUG area will provide an essential area for species to adapt or shift with changing climate areas up elevational slopes. In Groves et al's 2012 paper, the authors support using geophysical diversity as a surrogate for species diversity, as species diversity is correlated with geophysical diversity in some areas. Maintaining different kinds of land will not necessarily support the same species that occupy the area currently, however, so this approach should be used in conjunction with others (Groves et al., 2012)[Groves, C. R., Game, E. T., Anderson, M. G., Cross, M., Enquist, C., Ferda[ntilde]a, Z., Girvetz, E., Gondor, A., Hall, K. R., Higgins, J., Marshall, R., Popper, K., Schill, S., & Shafer, S. L. (2012). Incorporating climate change into systematic conservation planning. *Biodiversity and Conservation*, 21(7), 1651-1671. <https://doi.org/10.1007/s10531-012-0269-3>]

. Wilderness areas are especially important for species whose movement is impeded by human activities. One study mapping corridors based on temperature highlights the importance of areas without human development to allow animals to disperse to new distributions (NU[Ntilde]EZ et al., 2013)[NU[Ntilde]EZ, T. A., LAWLER, J. J., MCRAE, B. H., PIERCE, D. J., KROSBY, M. B., KAVANAGH, D. M., SINGLETON, P. H., & TEWKSBURY, J. J. (2013). Connectivity Planning to Address Climate Change. *Conservation Biology*, 27(2), 407-416. JSTOR.]

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Wilderness areas have great potential for climate adaptation whether it is passively or actively managed. Passively managed wilderness areas can act as a refuge for wildlife and protect ecosystem health against invasive species and climate change because the land is left alone (Long & Biber, 2014, p660-661). Active management on the other hand allows the public to decide whether to resist or adapt to change. However, with limited resources, it is wiser to spend funding on actively managing degraded areas. Consequently, protecting land now will prevent the need to spend money on active management to restore the area in the future (Long & Biber, 2014, p 661). Similarly protecting geophysical features such as elevational gradients is less expensive as it can occur in conjunction with other projects and does not resist change but take advantage of

areas that maximize diversity (Groves et al., 2012)[Groves, C. R., Game, E. T., Anderson, M. G., Cross, M., Enquist, C., Ferdantildeja, Z., Girvetz, E., Gondor, A., Hall, K. R., Higgins, J., Marshall, R., Popper, K., Schill, S., & Shafer, S. L. (2012). Incorporating climate change into systematic conservation planning. *Biodiversity and Conservation*, 21(7), 1651-1671. <https://doi.org/10.1007/s10531-012-0269-3>]

. It will be incredibly important to ensure that any active management plans moving forward are backed by science and include funding for monitoring to improve public trust in agencies, achieve desired results, and reduce "science-based political conflicts" (Long & Biber, 2014, p662-663)[Long, E., & Biber, E. (2014). The Wilderness Act and climate change adaptation. *Environmental Law*, 44(2), 623-690.]

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Lastly, protecting these lands will help the U.S. meet President Biden's 30x30 executive order. The executive order is intended to prevent any new oil and gas leasing, create new jobs in restoration and renewable energy, and above all conserve 30% of America's lands and oceans by 2030 (U.S. Department of the Interior, 2021)[U.S. Department of the Interior. (2021). FACT SHEET: President Biden to Take Action to Uphold Commitment to Restore Balance on Public Lands and Waters, Invest in Clean Energy Future. <https://www.doi.gov/pressreleases/fact-sheet-president-biden-take-action-uphold-commitment-restore-balance-public-lands>]

. This idea was brought forward in 2020 by Dr. Sala and Senator Udall to protect the environment for ecosystem services and habitat for wildlife and people for years (30 X 30: A Bold Goal to Protect Our Lands and Water, 2020).

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