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Comments: I am writing to express a concern I have regarding the Manti-La Sal National Forest Land and Resource Management Plan #50121. I am a student at Whitman College currently engaged in a semester program studying public lands and ecology throughout the interior American West. My peers and I spent time in the Manti-La Sal National Forest this past September studying Pinyon Pine and Juniper growth in thinned and non-thinned regions. I greatly enjoyed my studies in this forest and feel that the forest management here has contributed to supporting ecological vitality and resilience in one of the most magnificent landscapes in the continental west.

I am concerned that the MLNF Plan will not be able to achieve desired conditions for 2.1 Watershed and Aquatic Resources nor 2.3 Soil Resources without a more comprehensive plan to limit the effects of cattle grazing in the forest. In 2012, a comprehensive study was done on the effects of ungulate grazing on public lands in the era of climate change. The study-Adapting to Climate Change on Western Public Lands: Addressing the Ecological Effects of Domestic, Wild, and Feral Ungulates-emphasized the stress that ungulates (particularly, cattle) have on streambanks, riparian resources, soils and biological crusts, and overall ecosystem diversity, sustainability, and resilience. Ungulates are known to erode streambanks from heavy trampling and soil compaction, decrease streambank stability from grazing on native grasses and forbs that keep inclined soils intact, and deplete aquatic species and habitats from their impact on the region (Beschtal 6). All these effects contribute to the degradation of riparian ecosystems and thus climate-induced ecological devastation.

Ungulate grazing severely impacts non-riparian regions as well. Livestock trampling and feeding degrades (and can completely eliminate) biological crust and biologically imperative soil health (Beschtal 5). Ungulate trampling and feeding causes the depletion of vegetation on soils thus leading to greater bare ground and less plant coverage. Bare soils are vulnerable to erosion and cannot adequately sequester atmospheric CO2. In the face of climate change, it will become increasingly more important to maintain adequate soil health and ground cover in forested regions - especially in the interior West of the U.S. - a region that will be greatly impacted by the impending ecologically catastrophes of our generation.

I support the Desired Conditions expressed in 2.1.2 Riparian Management Zones and 2.3 Soil Resources of the draft MLNF plan. Specifically: (FW-RMZ-DC) Desired Conditions 02: "Riparian ecosystems and their associated plant community compositions provide key functions, including streambank stability, sediment retention, temperature regulation, floodplain function, as well as proper groundwater recharge, storage, delivery and water table maintenance."; and 03: "Riparian ecosystems are resilient and withstand disturbance from natural and management activities, including flood, fire, drought, changes in timing and frequency of runoff, recreation, grazing, and in-stream developments." (MLNF Draft, 17). And regarding (FW-SOIL-DC) Desired Conditions 01: "Soil quality, condition, and productivity are stable, or improving, allowing soil resources to maintain key ecological functions."; 02: "Sensitive and highly erodible soils and land types with mass failure potential remain stable."; and 05: "Enough protective ground cover, based on soil types and site potential, is present on desert shrub, upland, montane, subalpine, alpine, and other landscapes" (23). However, I do not think that either (FW-RMZ-DC) nor (FW-SOIL-DC) will be adequately met without a greater emphasis on reducing ungulate impact on these regions. Regarding this concern, I would like to emphasize my support for the adoption of MLNF Alternative Desired Conditions for Riparian Management Zones, and most specifically the Alternative Conditions 07: "Within all categories of riparian management zones, livestock utilization remains at 30%"; 18: "Riparian vegetation has sufficient density, root depth, composition, and distribution along the bank and channel bars to develop and maintain, within capacity, stable streambanks and effectively trap fine sediment that is moving through the system."; and 19: "Willows are reproducing and tall willows are rising above browse height of wild ungulates" as well as the addition of (FW-RMZ-DC) Alternative Riparian Management Standards 01: "Activities associated with adverse riparian impacts (e.g., livestock, mining, motorized routes) may not be newly permitted within 200 feet of streams and wetlands."; 08: " When bank trampling due to human activities or developments (e.g., livestock, roads, routes, trails) exceeds 15 percent for any 200 feet of stream length (i.e., this equals 400

feet by counting both stream sides), one or more of the activities must be altered or eliminated to reduce the bank trampling to 15% or lower."; and 09: "New or replacement spring and seep livestock developments shall not allow livestock to trample the spring or seep riparian vegetation within 50 feet of the water; the springs and seeps must be fenced" (MLNF Draft Alternative, 12-15). Similarly, I support the addition of 2.3 Alternative Soil Resource Standards, especially 03: "Vegetation management activities shall not create detrimental soil conditions, including loss of ground cover, severely burned soils, detrimental soil displacement, erosion or compaction, on more than 15 percent of an activity area. In activity areas where less than 15 percent detrimental soil conditions exist from prior activities, the cumulative detrimental effect of the current condition and proposed activity must not exceed 15 percent following project implementation and restoration. In areas where more than 15 percent detrimental soil conditions exist from prior activities, the effects from project implementation and restoration must address currently impaired soil functions to improve the long-term soil condition in comparison to pre-treatment condition." (23).

Most importantly, I propose that the Forest Service adopt the entire 2.16 Livestock Grazing and Range Management plan offered in the MLNF Alternative (see p. 101 of the Alternative). The thorough Desired Conditions, Objectives and Standards given by the Alternative may seem excessive but are in fact completely appropriate given the pressing climate concerns facing the Manti-La Sal region. If you adopt the 2.16 Alternatives, you may actually be able to adequately satisfy your goals and desired conditions for soil and riparian health in the region.

Thank you for taking the time to consider my comment. I appreciate your dedication to supporting the ecological health and diversity of the Manti-La Sal region.