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Comments: The Climate Action Alliance of the Valley (CAAV) is a local grassroots non-profit organization whose volunteer Steering Committee members focus and act on a variety of issues that are connected to the current climate crisis. We are located in the Central Shenandoah Valley. CAAV's mission is to limit the impact of humans on Earth's climate and minimize the effects of inevitable climate change in order to protect the future for Earth and its inhabitants. The vision of CAAV is to create and nurture climate action in our Shenandoah Valley community so that we can become a regional leader in promoting climate change mitigation and resilience. Our goals are to 1) train and mobilize community members to engage in local and regional efforts that promote climate change mitigation and resilience and 2) achieve policies and legislation that enable and advance the systemic changes required to promote climate stabilization and resilience. CAAV's website is: https://climateactionallianceofthevalley.org/.

As such, we are concerned with many aspects of natural and human behavior that in some way affect the viability of our air, water, land, health (human and wildlife), and plants. For this reason, we are offering our comments on the Forest Service's (FS) Draft Environmental Assessment (EA) for the North Shenandoah Mountain Restoration and Management Project in Rockingham County, Virginia and Pendleton County, West Virginia. CAAV does not represent itself as having expertise in forest management. Rather, we offer our thoughts and recommendations guided by general principles of good stewardship of our natural resources, of which North Shenandoah Mountain's acreage is clearly an important part. We have reviewed the FS's descriptions of the Project Purpose and Activity. We note that the proposed restoration and other actions would occur on about 7% of the planning area.

Following are the considerations we believe the FS must both keep in mind and adhere to in carrying out the restoration and management efforts it envisions.

*In general CAAV is supportive of integrated resource management that "[i]ncludes timber harvesting, prescribed fire, road decommissioning, aquatic habitat improvements, wildlife habitat improvements, and nonnative invasive species", provided that such activities do not have unintended consequences that ultimately do more harm to the forest than good. We question whether the described project design ["to move the existing conditions within the North River Ranger District towards desired conditions described in the 2014 Revised Forest Plan for the George Washington National Forest (Forest Plan)] will yield the most beneficial results given advancements in the science of forest management and climate-change-related environmental impacts that have arisen since 2014. At a minimum, the FS should document both the advancements and the impacts and address if/how the 2014 plan continues to be optimal.
*Current relevant scientific consensus on any proposed action should inform and drive FS analysis and decisions around the necessity, location, and extent of any actions, including tree and plant removal, new plantings (including species, varieties, density, and quantity). Any deviation from this consensus must be documented, including likely consequences; these will be important historical records for future FS actions and decisions. For example, given what we understand is science to the contrary, should this project attempt to simplify the structural complexity of long-lived but not yet fully developed forest tree species only a century after most of the area was deforested? If the FS believes it should, then the reasons should be clearly and publicly stated along with a clear plan for monitoring results and remediation if/when clearly necessary.
*To the extent that the FS will "provide open canopy conditions through timber harvest and prescribed burning", it must understand and consider the implications of prior de-forestations of the area that have occurred. For example, where soil loss has occurred from logging and burning, nature needs long periods of time to restore forest stability and function. The FS must determine, prior to such activities, the extent of soil compaction and degradation and the implications of the loss of leaf litter. If the FS concludes that the anticipated gains outweigh

the negatives, then the reasons should be clearly and publicly stated along with a clear plan for monitoring results and remediation if/when clearly necessary.

*Overwhelmingly, scientists stress the criticality of preserving and restoring natural, native forests to mitigating the impacts of climate change. Science also says that deforestation and forest degradation are major contributors to increased carbon dioxide. Thus questions arise as to the carbon emission amounts that the FS anticipates resulting from each of its planned actions and what effect do those amounts have given the lost carbon sequestration from the loss of the trees burned or timbered, especially from what mature trees would sequester if allowed to grow older? It is our understanding that mature and old trees in temperate, deciduous forests are better at soil storage of carbon than other systems. Other questions arise relative to proposed burns and timber harvesting, such as what are the projected effects on overall forest balance, a complex and ongoing occurrence from natural forces, especially given that this aspect of forests is so crucial to both carbon sinking and the nature and variety of the many plant and animal species that forests support. Tinkering with these natural processes can alter their innate ability to rebuilt soil, soil that burning and harvesting would likely degrade or even remove from the environment. Most proposed FS actions would result in a "simplified" forest structure. So the draft EA proposes is not only silent about how much CO2 will be emitted through burning, logging, and soil disturbance, but the proposed actions, presumably intended to "manage" the many acres addressed in the draft may have the negative effects of upsetting the forest's natural processes that are the basis of its structure and stability. The FS must understand, quantify, and publicly provide the anticipated impacts on CO2 emissions and sequestration before it proceeds with finalizing and implementing the plan.

*Clearly, there are situations in which controlled and even repeated deliberate burning of large parts of national forests may be justified. Two arguments in favor of proactive burning are to remove built-up forest floor debris and to allow for native species to have a better environment in which to flourish. On the other hand, timber harvesting will leave excessive debris behind. And, without careful analysis of the proposed areas to be harvested, with appropriate limits on the age, size, and type of trees to be included and excluded, as well as adequate management of logging processes to insurance compliance with requirements, the intended results may not be realized. If the FS believes the "leftovers" from timber harvesting would not pose a threat because of our relatively humid climate, the question arises as to why naturally occurring forest floor debris that is naturally occurring would pose such a threat. The draft EA does not adequately explain the FS's approach to prescribed burning, especially in terms of this seeming contradiction. Nor is the draft clear as to how the FS will determine which areas "need" prescribed burning or timber harvesting. Prior to undertaking either, in any part of the coverage acreage, the FS needs to fully understand, quantify, and publicly provide the anticipated impacts on the overall forest structure and balance of these activities prior to undertaking them.

*Questions also arise about the effects on the forest system from the proposed activities of using "herbicides to treat non-native invasive plant species … and native plant competitors", creating 2.15 miles of new roads, doing 19.1 miles of reconstruction (presumably repair and upgrade of existing roads), performing 25- 30 miles of "maintenance", decommissioning 15 miles of roads, and building 15 miles of temporary roads. Assuming these activities are essential, they will clearly be destructive of various, but unidentified (in the draft) parts of the ecosystems within and outside the forest areas in which they happen. Even the many other activities that appear to be, and are arguably, both beneficial and necessary could have deleterious effects. Examples include protecting riparian habitat, restoring fire dependent plant communities, applying thinning and regeneration treatments, and acting to create or expand habitats for existing species. It is also not clear that other proposed activities (such as prescribed burns and timber harvesting) will not have unintended consequences such as habitat destruction of these or other animal or plant species or a negative re-balancing from the new species components that result. The FS must explicitly anticipate these effects and establish mitigation and restoration efforts that will precede and follow their occurrences, as well as plan for and budget ongoing assessment and management of any effects.