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Comments: North Carolina's Natural Heritage Program (NCNHP) appreciates the opportunity to provide input on the Post-Helene Reforestation and Revegetation Project on the Pisgah National Forest. The Forest received severe impacts from Hurricane Helene. Although storm blow down and flooding are natural disturbances in these forests and the natural ecosystems have substantial ability to recover from them, there are some situations where intervention may promote recovery. The scope and scale of the actions proposed in the Post Helene Reforestation and Revegetation Project are widespread and varied, which precludes much specific input. Most of the proposed actions included would be appropriate in some places but unneeded or inappropriate in others. Therefore, we encourage the Forest Service to offer opportunities to comment on more specific proposals for particular locations.

NCNHP is most specifically concerned with areas on the Forest that have been recognized as natural heritage natural areas, along with any similar areas that contain rare species or natural communities. In particular, NCNHP encourages the Forest Service to follow the commitment made in the Nantahala and Pisgah National Forests Final Land Management Plan (2023) to consult with NCNHP early in planning for any activities in recognized natural heritage natural areas. If natural heritage natural areas are identified as priority restoration areas by the Forest Service-coordinated team, NCNHP requests the opportunity to participate in the development of site appropriate prescriptions.

In general, we would encourage allowing natural ecological processes to occur in the natural heritage natural areas and in most other parts of the landscape, with intervention limited to areas where it is clear natural recovery is not occurring, or where severe erosion threatens ecosystems with further damage. Severe disturbance has been extensive, and vast new areas of early successional habitat have been created. Older forest is much reduced, and additional disturbance by human actions should be avoided.

Several of the proposed actions are likely to be beneficial in most places they might be applied. Control of non-native species is needed, as the hurricane disturbance increases the risk of invasive species spread and inhibiting natural regeneration. Prescribed burning, replacing fires that were a major natural process in most of the region's ecosystem, is generally expected to be beneficial. In many places, these two activities are all the action that is likely to be needed. We recognize that construction of firebreaks and some fuel treatment may be needed to make burning feasible. In areas where mesophytic understory trees have become too dense to allow regeneration of oaks in the numerous canopy gaps, reduction of the density of these non-oak species may be beneficial.

We have concerns about some of the other proposed actions. We are particularly concerned about the proposal for building up to 2 miles of temporary road per year to support management actions. Road construction has many impacts, including introduction of invasive species, which would negate the positive impacts of restoration work. The region's soils and streams have endured large impacts from landslides and erosion with the storm and continue to suffer the consequences. Additional ground disturbance should be avoided now more than ever. Rehabilitation does not fully erase roads, and temporary roads tend to remain a permanent alteration. Road construction within natural heritage natural areas should be avoided, and new roads should only be used in cases of most extreme need. In general, we request that activities that require new temporary roads be minimized or avoided within natural heritage natural areas. Appropriate alternatives to use of temporary roads may be very site specific and project specific; NCNHP staff are available to consult on-site to help identify suitable alternatives.

Several of the other potential activities also carry significant concerns. Liming and fertilizing is likely to be

problematic in most natural places. In the naturally acidic and low-fertility soils that prevail in the forests of Western North Carolina, liming and fertilizing represents a significant alteration to the soil, one that can have impacts on future vegetation, including favoring exotic species over native species. Mechanical treatments using heavy equipment across large forest areas, such as mowing, mastication, and piling and burning are also of major concern. We request that NCNHP be consulted prior to using these treatments in natural heritage natural areas. These activities are of even greater concern in areas near streams, in wet areas, and on steep slopes. Even where mechanical treatments may offer some ecological benefit, benefits may be negated if they cause damage to soils, drainages, and non-target species. Strong restrictions to prevent such damage should be incorporated into any work contracts, and the work should be supervised to ensure that mitigation measures are carried out. If contractors capable of working with these restrictions cannot be found, then project work should be held until the work can be done responsibly to promote restoration without further damage.

The USFS ecological zone mapping is a broad tool and will be used by the assessment team to determine what tree species comprise the desired regeneration. We encourage also using the NCNHP natural community mapping where it occurs. Natural community records mapped by NCNHP can be referenced with the NHEO shapefiles and Classification of the Natural Communities of North Carolina - 4th Approximation (Schafale 2024) to determine the desired tree species for a particular impacted area.

As preparations are made for ecological restoration at an unprecedented scale in Pisgah National Forest, North Carolina's Natural Heritage Program appreciates this opportunity to provide these general comments on the Post Helene Reforestation and Revegetation Project. We appreciate the care with which USFS staff plan and coordinate forest-wide activities. NCNHP staff remain ready to assist with site-specific visits and on-the-ground site assessment and consultation.