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December 22, 2022

Ref: 8ORA-N

Kevin Wright, Forest Supervisor
Dixie National Forest
820 N. Main
Cedar City, Utah 84721

Dear Supervisor Wright:

The U.S. Environmental Protection Agency Region 8 has reviewed the U.S. Department of Agriculture Forest Service Environmental Assessment (EA) for the Prescribed Fire Landscape Resiliency Project (Project) in the Dixie National Forest (Forest). The Forest administers 1.631 million acres of National Forest System lands in Garfield, Washington, Kane and Piute Counties, Utah. In accordance with our responsibilities under Section 102(2)(C) of the National Environmental Policy Act (NEPA), we are providing comments. These comments convey important questions or concerns that we recommend addressing during the NEPA process.

Using LANDFIRE datasets, the USFS has identified 1.477 million acres in the Dixie NF as burnable. The EA indicates the Forest is currently applying fuel treatments composed of both prescribed burning and mechanical treatment to an average of 13,300 acres per year (0.9 percent of the burnable acres annually). The Proposed Action would apply prescribed fire to 49,500 acres annually (3.35 percent of burnable acres) to increase the pace and scale of prescribed burning to increase resiliency of existing vegetation, restore proper ecological function to native vegetation communities and wildlife habitats, improve firefighter and public safety, and promote fire adapted communities within wildland-urban interfaces. The EA states the use of prescribed fire to address the described need is more efficient than mechanical treatments, and is a cost-efficient, proactive management tool that could reduce the amount of large, high-severity and high-intensity wildfires. Pretreatment actions include hand thinning, slashing, pruning, piling, and pile burning to reduce existing surface and ladder fuels, to prepare a fuel bed to carry fire, to increase safety where people are working, and to reinforce firelines. Mechanical treatments would be limited to burn preparation treatments and include chipping, mastication, slashing, thinning, or piling to reduce existing surface and ladder fuels, to create a fuel bed to carry fire, reinforce firelines, and increase safety where people are working. Prescribed fire treatments would include broadcast burning, underburning, jackpot burning, pile burning, and tree-well burning.

EPA submitted scoping comments in a letter dated November 17, 2021, outlining our preliminary recommendations for the Project. As we stated then, EPA is generally supportive of well-designed prescribed fire projects as an ecologically preferrable forest management practice. However, we continue to recommend the Forest consider developing this project as a programmatic NEPA document that commits to site-specific NEPA post decision that provides opportunities for public involvement and comment on individual treatment projects.

We appreciate the opportunity to provide recommendations for this NEPA planning document and enclosed are our detailed comments for your consideration. These comments are intended to facilitate the decision-making process. If we may provide further explanation of our comments, please contact me at (303) 312-6155, or Shannon Snyder of my staff at (303) 312-6335 or snyder.shannon@epa.gov.

Sincerely,

MELISSA MCCOY

Digitally signed by MELISSA MCCOY
Date: 2022.12.22 18:18:55 -07'00'

Melissa W. McCoy, Ph.D.
Manager, NEPA Branch
Office of the Regional Administrator

Enclosure

Enclosure – EPA Comments on the Dixie National Forest Prescribed Fire Landscape Resiliency EA

Water Resources

We appreciate the discussion and analysis included in the *Water Resources Effects Analysis*. The baseline information about water resources in the project area, the importance of certain water resources, and the condition of specific waterbodies and watersheds is valuable information for the reviewer, the public and the decision makers. The analysis also includes maps depicting the watersheds in the Forest; watershed condition ratings; streams; floodplains; wetlands; groundwater dependent ecosystems and potential springs and peatlands; public drinking water systems and source water protection zones; and representative streams used in the erosion modeling. We note the maps are useful for understanding the general location of water resources in the Forest but are difficult to read due to image resolution. We recommend the NEPA document include maps of sufficient resolution to understand where water resources are located within the Forest. We recommend the Forest attach the specialist reports as appendices in the NEPA document and summarize in the NEPA document the existing conditions and impact analysis contained in the reports. Providing the specialist reports and other supporting documentation in publicly accessible appendices and a summary of these reports in the environmental baseline and effects sections of the NEPA document would help to ensure a comprehensive picture of the Project and its impacts for reviewers, the public and the decision makers.

We also appreciate the runoff, erosion and sedimentation modeling that was conducted to assess impacts to waterbodies down slope and downstream of the project area (p. 19 - Forest Service WEPP, Disturbed WEPP model). The Report indicates Clean Water Act (CWA) 303(d) Class 4a and 5 water quality limited streams and critical habitat for aquatic species listed in the Aquatics Report (Bonneville cutthroat trout, Colorado River cutthroat trout, and virgin spinedace) were reviewed and included in the erosion modeling analysis as representing the most sensitive water features to proposed activities (p. 19). The modeling also included a climate generator module that captured 50 years of model-generated storm events based on the weather record for each stream or stream group's customized climate and included typical storm events that occur annually, as well as less frequent but more damaging events (p. 20). The Report indicates the surface soil texture selected for erosion modeling varied for each modeled stream and included areas with more erodible soils (p. 20). We appreciate the Forest's efforts to capture sensitive aquatic species, impaired waters, climate information, and erodible soils in its analysis.

We appreciate the inclusion of the model inputs for each of the modeling runs in the Report. The model assumed adherence to and implementation of all applicable Forest Plan standards and guidelines, regional soil and water conservation practices, prescribed fire standard operating procedures, project-specific design elements, USFS Best Management Practices (BMPs), mitigations and contract provisions during all project activities (p. 18). In addition to the design features in Appendix B, we recommend the NEPA document contain in the appendices all the above-mentioned Forest Plan standards and guidelines, National BMPs, soil and water conservation practices, prescribed fire guidelines and operating procedures, mitigations, and contract provisions that will apply to the Project. This will foster public understanding of the specific measures the Forest will apply to prevent significant impacts and provide an opportunity to the public to comment on and influence the development of these measures during the NEPA process.

Fen Wetlands

We appreciate the baseline information in the *Water Resources Effects Analysis* regarding peatlands (includes fens and bogs) in the project area (pp. 10-12). The analysis indicates there are 187 acres of likely peatlands in the project area, 478 acres of possible peatlands, and 1,189 low likelihood peatlands. The analysis also discusses the ecological importance of fens, and that they are considered irreplaceable due to the slow rate of peat accumulation. The EA contains a design feature, Watershed 5, that establishes a 100-foot Aquatic Management Zone buffer associated with peatlands (fens and bogs): no wheeled or tracked equipment will enter the peatland buffer unless coordinated and recommended by the Dixie hydrologist and botanist with line officer approval (p. 82). The EPA considers any temporary or permanent impact to fens or to their groundwater source to be a "significant" impact under NEPA. Please clarify in the NEPA document how the Forest will ensure there will be no temporary or permanent impacts to fens from project-related activities.

Site Specificity and Programmatic NEPA

According to the available information in the EA (pp. 4-5 and 10), the Forest appears to be using a condition-based management approach for the Project.

> "The Forest Service has frequently been in a position of spending two to three years on National Environmental Policy Act (NEPA) analysis for a specific prescribed fire project, only to have a wildland fire burn part or all the project area prior to NEPA completion. Forest-wide prescribed fire project planning supports a management approach that allows for responding to dynamic environmental and site conditions that may have changed between the decision and the implementation. Fuels and risk conditions change across the landscape and from season to season. Landscape planning allows for proposed treatments to be aligned, after the decision has been made, with the conditions on the ground at the time of implementation... Landscape scale implementation has a distinct advantage for prescribed fire, where conditions at the time of implementation allow managers to choose among several implementation areas, to place prescribed fire treatments in the right place at the right time."

The EA does not contain the actual locations of the individual treatment area projects, what types of pre-treatments and prescribed fire will be performed and where, the types of vegetation that will be burned, the equipment and machinery that will be needed, the timeframes for those treatments, the localized impacts of those treatments, or the specific mitigation and monitoring measures needed for each burn project. Instead, prior to implementing prescribed fire or pre-treatment activities, an Interdisciplinary Team would use an implementation checklist to address necessary design features, policy requirements, monitoring, and mitigation (p. 5). Based on this information, individual treatment project design and impact assessment will occur post-FONSI, years after the public comment period on this EA, and outside of the NEPA process. Page 7 of the EA indicates the implementation checklist would direct specific tasks that would need to occur before applying prescribed fire, including determining what public involvement and public notices would be provided. This lack of specificity and informal approach to public engagement after the decision does not provide for as meaningful public participation or full understanding of the potential impacts and mechanisms for avoiding them as would site-specific review through the NEPA process.

The EA also contains a response to scoping comments addressing landscape-scale analysis and site specificity.

> "As stated in the purpose and need, the project is designed intentionally to allow for flexibility needed to address changing conditions. Rather than identifying specific locations for prescribed fire now, this project uses design features and the implementation checklist to provide sideboards to the actions; ensure consistency with other laws, regulations, and policies; and to reduce environmental effects. Our analysis considers application of fire and associated treatments within the analysis area, along with the design features and location-specific review required in the implementation checklist. When all these pieces are considered, our analysis found that the proposal would not have a significant adverse effect (see National Environmental Policy Act (NEPA) section)."

The Council on Environmental Quality (CEQ) NEPA regulations anticipated the need for a deft approach to an ever-changing landscape and conditions. Those regulations allow for a programmatic NEPA analysis to define the overall landscape-scale strategy and sideboards of the program, and for quicker and more efficient site-specific project analyses tiered to it. A programmatic analysis followed by tiered site-specific NEPA analyses would be consistent with CEQ's regulations and would be expected to speed the consideration and implementation of individual treatments while providing the "hard look" and required opportunity for public review and input under NEPA. Also, the long-term nature of the project is a cause of the concern. Conditions, and therefore impacts of individual projects, could change with time, especially as the climate continues to change. To this point, the EA states that after 10 years this decision will be re-evaluated for consistency on the Forest (p. 4), though it does not contain the total time-period for Project implementation. Our recommendation is for the Forest to develop this as a programmatic NEPA document that commits to carrying out site-specific analyses in tiered NEPA documents, ensuring that those impacts are evaluated, disclosed, and informed by public engagement. We recommend the NEPA document explain how the USFS will evaluate the decision for consistency on the Forest; include the total timeframe for Project implementation; and outline a process and commit to periodic Supplemental Information Reports, made available for public comment, to review and determine the sufficiency of the NEPA analysis and subsequent decision. As the Forest has acknowledged in the EA, conditions on the ground are changing rapidly and the Forest may need to review the NEPA analysis and decision more frequently than every 10 years.

Roads

It is unclear if the Project will require new or temporary roads. Please clarify in the NEPA document whether new or temporary roads will be built for project activities. If they will be built, please specify how many miles of each will be required. We also recommend the Forest prepare tiered site-specific NEPA documents for each treatment area prior to project implementation that map the location of any proposed new or temporary roads within the project area.

Biological Soil Crusts

The *Soil Resource Effects Analysis* acknowledges the ecological importance of bio-crusts and mentions the potential impacts of prescribed fire to bio-crusts (p. 6), but it does not contain further information about the prevalence of this resource across the project area or other potential impacts (i.e., from

motorized or foot disturbance). The analysis states that "for this project, impacts to bio-crusts are expected to be relatively low. Areas where bio-crusts are located are fairly barren of vegetation and won't be treated. The implementation checklist (Appendix C of the environmental assessment) provides that the implementation plan minimizes potential impacts to sensitive soils which include biological soil crusts." It also states on page 7 "bio-crusts should be protected from fire extremes and the associated effects from prescribed fire such as vehicle travel cross-country, mastication equipment, and fire lines." We did not locate design features specific to protecting bio-crusts from disturbance. However, there is a design feature that would minimize prescribed fire residence time on soil. This could minimize heat transfer to the soil profile, which could potentially protect bio-crusts. We recommend including a design feature that requires all project-related activities avoid bio-crusts. We also recommend the NEPA document describe unavoidable impacts to biological soil crusts as irreversible commitments of the resource. Given the ecological importance of bio-crusts, we recommend the Forest prepare tiered site-specific NEPA documents for each treatment area prior to project implementation that map these irreplaceable soils and select management practices that would avoid biological soils as they can take up to 250 years to regenerate depending on the species composition.

Air Quality

Since prescribed fire is the primary treatment proposed in the EA, air quality is a key resource area for analysis in the NEPA documentation due to impacts that could result from the action. The air quality section of the EA and the *Air Quality Report* does not discuss the baseline air quality conditions, nor the different sources of air pollutants or emissions associated with the project activities. The analysis only discusses nearby Class I areas, impacts related to smoke and particulate matter (PM) and indicates the Forest will comply with the interagency prescribed fire guidelines and its burn plan to minimize impacts. Fires emit $PM_{2.5}$ and PM_{10} along with hundreds of gaseous compounds, including nitrogen oxides, carbon monoxide, methane, hundreds of volatile organic compounds, and air toxics such as formaldehyde. Focusing the EA analysis on impacts related to $PM_{2.5}$ underrepresents the impacts of the combination of pollutants that are emitted. The chemical complexity of wildland fire smoke makes it very different from typical industrial pollution. Once emitted, this smoke undergoes chemical transformations in the atmosphere, which alters the mix of compounds and generates secondary pollutants, such as ozone and secondary organic aerosol. This complex mix of pollutants has the potential to compound health-related effects of the emissions. We recommend the NEPA document estimate, or at a minimum acknowledge, the other pollutants associated with fire (e.g., NOx, CO, SO_2, Pb, hazardous air pollutants, and greenhouse gases (GHG)). This information will assist in framing the impact of the project.

The EA notes states are given the primary responsibility for air quality management, and that the Clean Air Act (CAA) requires states to develop state implementation plans that identify how the State will attain and maintain National Ambient Air Quality Standards (NAAQS)(p. 38). While the state has primary responsibility for ensuring it complies with the CAA and its State Implementation Plan, the Forest has the responsibility under NEPA for ensuring its Proposed Action complies with the CAA and for evaluating potentially significant impacts, such as exceedance of one or more NAAQS, in its NEPA document. To accomplish this, it is important to understand what the baseline air quality conditions are related to the NAAQS and Air Quality Related Values, including visibility. Quantitatively estimating emissions for each alternative would then inform whether a Finding of No Significant Impact (FONSI) is supported. This information will also inform whether the Proposed Action alternative has a greater or lesser environmental impact on air quality than the "No Action" alternative. Using this information, the Forest

would know whether it needs to scale back treatments to support a FONSI, or if there is room to accelerate the pace of treatments to reach desired conditions more quickly.

The EA does not include an implementation plan that identifies the timing and specific locations for the prescribed treatment types and actions. Without a plan for implementation of the Project that describes the location and intensity of activity, it is difficult to ascertain the level of impacts that could occur to a given resource. To better understand project effects, we recommend the Forest prepare tiered site-specific NEPA documents for each treatment area prior to project implementation that describes the management activities and timelines for implementation. This would inform the level of emission generating activity and potential air quality impact. Examples of potential air emissions associated with the proposed project activities include air pollutants from conducting the planned burns (broadcast, jackpot, pile burning, etc.), gasoline and diesel emissions from equipment used in the planned activities, emissions from idling equipment, and emissions from vehicles traveling on paved and unpaved roads, including re-entrained dust. We recommend estimating the amount of material to be combusted along with the method of combustion (pile burning, backing fire, etc.), the types of emissions generating equipment needed, and if applicable, the number of truck trips associated with pre-treatments. Emission factors may then be used to estimate emissions from planned activities. Based on this information, we recommend preparing an emission inventory that could inform a discussion of the pollutants generated from project activities. The preparation of annual emission estimates would inform long-term and potential long-range implications of the proposal that may not be captured by the prescribed fire planning process that will be followed as project activities are implemented.

Once the Forest has an emissions inventory, please discuss in the NEPA document the direct, indirect, and cumulative impacts associated with the proposed action to air quality. Regional wildfire smoke transport, and other USFS landscape-level prescribed fire projects in the area (i.e., projects on the Dixie, Manti-La Sal and Fishlake National Forests), also have the potential to cause long- and/or short-term impacts to air quality and may occur concurrently with project activities. Wildfires are no longer confined to the summer months and the Dixie, Manti-La Sal and Fishlake National Forests may utilize the same burn windows based upon favorable weather conditions. We recommend the document evaluate how project activities could affect air quality and what measures are needed to prevent significant impacts.

We recommend the Forest implement public notification procedures for each planned burn to reach remote areas that may not have access to newspapers or the internet. Disadvantaged communities can lack computer and internet resources and can be difficult to notify. If there are residents or communities with environmental justice concerns who could be impacted by smoke during burn actions, we recommend providing in-person, door-to-door notification. It may be necessary to include written notice in other languages where applicable. Effective notification is important to ensure that sensitive individuals with compromised respiratory or pulmonary systems can avoid exposure to smoke. We also recommend the Forest consult with the Utah Division of Air Quality for any coordination necessary related to burns, modeling, mitigation, or other measures required under State regulations or the State Implementation Plan to address Clean Air Act requirements.

Climate Change

The EA does not contain a climate change impact analysis, rather on page 40 it states, “In compliance with these Executive Orders signed by President Biden in 2021 and 2022 [EO 14057, *Catalyzing Clean*

Energy Industries and Jobs Through Federal Sustainability, and EO 14008, *Tackling the Climate Crisis at Home and Abroad*] and under direction given by USDA WO in 2009, analysis utilizing relevant research, agency guidance, climate model scenarios and other information applicable to climate change was considered and is incorporated by reference in this analysis (Halofsky, Peterson, et al., 2018)." We recommend any documents incorporated by reference are summarized in the NEPA document and related to the Proposed Action. This will aid the reader in understanding how these documents support the proposed action.

It is uncertain if "USDA WO in 2009" above is referring to the 2009 U.S. Department of Agriculture reference, *Climate Change Considerations in Project Level NEPA Analysis*. If it is, this document is 13 years old and CEQ has also issued more recent guidance regarding the consideration of GHG emissions and climate change in NEPA analyses, *Final Guidance for Federal Departments and Agencies on the Consideration of Greenhouse Gas (GHG) Emissions and the Effects of Climate Change in NEPA Reviews* (August 1, 2016). This guidance provides a reasonable approach for analysis of GHG emissions, opportunities to reduce those emissions, analysis of climate impacts on the planning area, and climate change adaptation strategies. The NEPA.gov website[1] includes a non-exhaustive list of GHG accounting tools available to agencies. This analysis should consider the direct and indirect GHG emissions associated with the proposed action, including emissions associated with burning, heavy equipment use, truck trips, and reasonably foreseeable downstream GHG emissions.

The EA included in its list of references the 2020 Dixie NF Forest Carbon Assessment and it is included on the Project's website, but it did not discuss how this assessment is related to the Proposed Action and how the Proposed Action will affect carbon storage and sequestration. It appears that the majority of acreage in the Forest is currently being considered for prescribed fire. Given the forest-wide, landscape nature of this project, it has the potential to significantly impact Forest carbon storage and sequestration. Prescribed fire, as with wildfire, releases forest carbon stocks that may also reduce future capacity of the Forest to act as effectively as a carbon sink. Given this information, we recommend in the NEPA document the Forest either relate the Dixie NF's Forest Carbon Assessment to Proposed Action or conduct a quantitative project-level carbon storage and sequestration analysis for the Project for inclusion in the NEPA document.

EPA recommends the NEPA document utilize information in the EA on reasonably foreseeable climate change impacts in the planning area—such as changes in precipitation patterns, hydrology, vegetation distribution in respective watersheds, and temperature, to inform the development of measures to improve the resilience of the Forest's resources. Climate considerations in the NEPA document should include how the shifting baseline of climate may need to be considered with regard to the resilience of the Forest as affected by each of the future treatments, the potential to influence the significance of impacts in various resource areas over time, and its impact on the effectiveness of design features and BMPs. This is consistent with the 2020 NEPA regulations as updated by the NEPA Phase 1 Final Rule (April 2022). We recommend utilizing this evaluation to develop the design features, monitoring, and mitigation to protect Forest resources and prevent significant impacts.

We appreciate the Forest discussing in the EA how the Proposed Action is consistent with EO 14008, *Tackling the Climate Crisis at Home and Abroad* (p. 40). In addition to the Project potentially providing

[1] https://ceq.doe.gov/guidance/ceq_guidance_nepa-ghg.html

for diverse, healthy ecosystems that are resilient to climate stressors, we also encourage the Forest to: reduce or offset greenhouse gas emissions from authorized activities to the lowest practical levels; identify areas of potential climate refugia; use pollinator-friendly and resilient native plant species in revegetation (if applicable); and consider project design to mitigate potential impacts associated with extreme weather events. We also recommend discussing actions to improve the Forest's ability to adapt to changing environmental conditions. This should anticipate the effects rising temperatures may have on soil moisture levels, seeds/seedlings growth (if applicable), the vulnerability of specific species under projected climate conditions in the short and longer term, and any anticipated shift of forest species to more suitable range elevations.

Environmental Justice

The EA indicates that in compliance with EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, no changes or modifications would be approved under the proposed action that would directly or indirectly affect minority or low-income populations in Garfield, Washington, Iron, Kane, Wayne, and Piute Counties. It mentions that the baseline conditions presented in the socioeconomic report included in the project record are expected to continue under proposed action. It also notes there are some low-income populations in the area of the project site, however no low-income populations would be disproportionately affected by environmental effects resulting from the proposed action. We were unable to locate the socioeconomic report on the Project's website, so we were unable to evaluate how the Project is in compliance with EO 12898. We recommend the NEPA document include a discussion of this analysis. We also recommend any supporting documentation such as this analysis is included in the appendices of the NEPA document and available on the Project's website.

Executive Order 12898 also directs agencies to develop a strategy for implementing environmental justice and providing minority and low-income communities access to public information and public participation. Additionally, Executive Order 13985, *Advancing Racial Equity and Support for Underserved Communities Through the Federal Government*, establishes a whole-of-government equity agenda to address inequities in the implementation of laws, policies and programs and in the protection afforded by those laws and policies, to promote equal opportunity for underserved communities that have been denied fair, just, and impartial treatment. Furthermore, Executive Order 14008 affirms the importance of environmental justice and makes explicit that agencies should address "climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts.'' Addressing climate-related cumulative impacts involves both decreasing GHG emissions to reduce longer term climate risks and promoting resilience to climate change in vulnerable communities. Those who are already vulnerable due to a range of social, economic, historical and political factors have a lower capacity to prepare for, cope with, and recover from climate change impacts.[2] We recommend the Forest include an environmental justice analysis in its NEPA document and address how it complies with the above-mentioned Executive Orders. EPA is available to provide additional resources and recommendations for the environmental justice analysis upon request.

[2] *See U.S. EPA Climate Change and Social Vulnerability in the United States* (https://www.epa.gov/system/files/documents/2021-09/climate-vulnerability_september-2021_508.pdf)

Old Growth

The EA states the Proposed Action is in compliance with EO 14072, *Protecting Mature and Old-Growth Forests, both Foreign and Domestic*, due to the proposed action promoting the restoration of ecological processes and functions upon the landscape that would mitigate wildfire risk to communities, municipal watersheds, and resources (p. 40). The EA does not contain design features specific to old growth, but the implementation checklist includes two measures: Timber Management staff would review and provide feedback to develop a silvicultural prescription, including areas with sensitive vegetation or old growth characteristics (p. 93); and resource specialists would determine if additional site-specific design features are needed to maintain effects commensurate with those disclosed in the Dixie National Forest Prescribed Fire Landscape Resiliency Project Environmental Analysis, including a review of the proposed burn area to identify measures that would be taken to meet old growth standards outlined in the Dixie Forest Plan (p. 94). The old growth discussion in the *Silvicultural Effects Analysis* indicated it was prepared to address the public comments and concerns about how the Proposed Action's activities would affect old growth trees (p. 27). The analysis states:

> "at the fine scale, or considering individual large trees, prescribed burning techniques have been refined over the past 20 years and are designed to control the loss of large trees, these measures are incorporated into burn plans. Mortality from the prescribed fires is anticipated to be greatest in the 1 to 6 inches size classes. That said, there is value in some mortality of large diameter trees which would result in an increase in snags and down and dead material beneficial for wildlife and forest soil protection as a result of mortality from prescribed fire" (p. 28).

We recommend the NEPA document evaluate the impacts of burning old growth or removal of old growth during pre-treatment actions (burn prep), and using available data, include a map outlining areas that potentially have old growth and/or mature/old-forest characteristics. For instance, burning or removal of old growth could impact Forest carbon storage and sequestration, and effect wildlife habitat and sensitive species. We also recommend the NEPA document contain design features that address the protection of old growth stands so that the public has an opportunity to comment and influence development of these measures.

Inspection and Enforcement of Design Features

On page 17 of the *Water Resources Effects Analysis*, it indicates there is a potential for significant environmental effects from the proposed activities. Additionally, the effects represented in the erosion modeling are dependent upon adhering to the design features and BMPs (p. 18). Taken together, this information indicates there is a potential for significant impacts if these measures aren't implemented or implemented properly. In the most recent National BMP Monitoring Report Summary (2015) about one third of the road BMPs were found to be properly implemented.[3] The 2015 Report also rated the relative effectiveness of each BMP, and approximately half of the road BMPs were rated marginally effective or not effective. Furthermore, according to the *Dixie National Forest Biennial Monitoring Evaluation Report* (2017-2018),[4] ground-based skidding, harvesting, and mechanical site treatments (without skidding) are failing some aspect of BMP compliance and effectiveness 83%, 60%, and 33% of the time, respectively.

[3] *See* https://www.fs.usda.gov/biology/resources/pubs/watershed/FS-1070BMP_MonitoringSummaryReport2015_reduced.pdf
[4] *See* https://www.fs.usda.gov/detailfull/dixie/home/?cid=FSEPRD730754&width=full

We note the effectiveness of Project design features and the 2012 National BMPs will also be impacted by climate change. To support a FONSI, we recommend the NEPA document outline a design feature and BMP monitoring and inspection plan for the proposed action, including timeframes for corrective action (see also the *Mitigation and Monitoring* section below). We also recommend discussing the process that will be applied if monitoring budgets fall short of the need for this Project. Typically, lack of monitoring would automatically trigger a more conservative treatment area and/or set of mitigation measures.

Mitigation and Monitoring

With respect to mitigation identified in the NEPA document that will be applied to proposed activities, we recommend including what entity will be executing the mitigation, inspection schedules, documentation procedures, and accountability processes. With these considerations in mind, we recommend the NEPA document include the following information for each mitigation measure:

- A description of the required mitigation and its expected effectiveness.
- Designation of the entity responsible for implementing the mitigation.
- Identification of how the Forest would ensure that the mitigation would be monitored to ensure timely and correct implementation as well as timely maintenance.
- Identification of funding sources.

If adaptive management practices will be utilized, we recommend the NEPA document include the following information:

- A defined monitoring plan.
- Specific environmental thresholds which would trigger action.
- Management alternatives and mitigation measures that would be implemented should a threshold be exceeded, and timeframes for corrective action.
- An evaluation procedure for determining the effectiveness of the implemented mitigation and further measures to take in cases of ineffectiveness.
- A description of the mechanisms for the public disclosure of monitoring data, its analysis, and related management decisions.