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Comments: Thank you for your time. I am excited to share with you my comments attached and engage in this opportunity to collaborate. I included some of my favorite quotes from country songs to hopefully lighten up a bit of what I imagine is a lot of heavy reading. Thank you for all that you do to protect the forest and the people around it.

[In attachment]

[ldquo]You got to know when to hold [lsquo]em and know when to fold [lsquo]em[rdquo] - Kenny Rogers.

Scott Ray, Tim Reed and Ken Arney, The question has become does the Forest Service want to look like the federal agency that is [ldquo]Caring for the Land and Serving People[rdquo] or the one that causes species extinctions, kills its neighbors in landslides and floods and is too stubborn to listen to the warning signs when they were screaming in your face.

This is no joke for me. I live in Lee County near the National Forest and my home was lost in March 1st 2021 floods. I am still struggling to recover from this. The amount of rain that fell on the Daniel Boone broke ever record in known history. That was until this year on July 30th when an unheard of 14 inches fell just upriver of me in Jackson, Hazard and Whitesburg, KY and claimed 43 lives. One of the reason the flooding was so deadly was that we rainstorms that are more intense than we have ever seen are falling on landscapes in eastern Kentucky that are logged and mined bare. As a result water flows straight down hill to the people that live on some of the only flat land available. The federal government is supposed to help protect its people not to quicken our demise. Why then are we making a record breaking amount of public land barren from logging in the Jellico Vegetation Management Project?

Climate Change is an existential crisis for humanity if we do nothing about it. It brings me a little bit of solace that it is even more of an existential crisis for the Forest Service than it is for humanity. The more humans ignore the climate crisis and kick the can down the road the more it becomes dangerous. The same applies for the Forest Service. I have been appalled by the level of denial and dancing around the subject that the Forest Service does. IT IS NOT WORKING. It only makes this existential crisis worse for the agency. It is not a question of if climate change and the rapidly changing political and economic landscape will end logging of mature and old growth public forests but when. Does the Forest Service want to be on the right side of history or does it want to ensure it is even more hated and defunded even quicker? Jellico is an opportunity to prove the Forest Service can adapt. That it can embrace new science and management of public lands that prioritizes endangered species and climate mitigation and adaptation. That it can listen to the public and pull itself out of a hole of being hated by our congressmen[rsquo]s constituents (on both sides of the aisle). The Forest Service can prove that it is not just in the pockets of timber industry but rather it is an agency working for the citizens who fund it! Below we detail some of the main issues with this proposed project and suggest remedies which should be analyzed as alternatives in the Environmental Analysis if this project is not withdrawn.

Landslide risks The Jellico mountains are steep, and the soils are unstable. This has already caused landslides in the area, including landslides on private lands that have been logged. Community members live downhill of highrisk areas particularly at Bunch Branch on Little Wolf Creek road in the far north east corner of the Jellico project. Keeping the trees in the forest is the best way to hold soil in place and lessen the risk of landslides. In addition to destroying property and roads, landslides can dump erosion into streams. Wolf Creek and Jellico Creek are critical habitat to the Cumberland darter, blackside dace and Cumberland elktoe which are protected from harm by federal law (Endangered Species Act). The Forest Service[rsquo]s slope data demonstrates the

seriousness of this issue. According to the table within the slope data document, the majority of the potential logging sites average 50% slope with some as high as 75%. These steep slopes intersect 2 or 3 coal beds. Coal beds under steep, logged slopes have high landslide risk as trees' roots decay. In the map below Coal beds are shown as thin black lines Further evidence for landslide risks is provided by USDA soil data, which was created to rate the soils[rsquo] suitability for use with timber harvest equipment. The data shows that soils in the proposed harvest area are low strength and almost the entire Jellico region is rated as the poorest suitability level for using timber harvest equipment. According to the USGS [ldquo]Poorly suited" indicates that the soil has one or more properties that are unfavorable for the specified management aspect. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration."

Flooding risks Mature forest helps soak up water. Catastrophic flooding occurred in the Jellicos as recently as July 30th, 2022. If the mountains are made bare with clearcuts, more water will find its way into the valleys where people live worsening flash flooding. An article published in the Courier Journal brings up valid concerns over the link between logging and the catastrophic flooding we have been seeing more and more of recently in Appalachia. These floods have been devastating to me personally and much of the Appalachia community that Jellico is a part of. The article states "If you get an area that has been strip mined[hellip] you have a surface that is not fully vegetated and you get no water retention whatsoever, and that is what causes these flash floods,[rdquo] said Jack Spadaro, a former top federal mine-safety engineer who works as a consultant for coalfield residents, workers and their lawyers.... [ldquo]It[rsquo]s not just mining,[rdquo] said Davie Randsell, a retired state mining regulator who is from Oneida, Kentucky, in Clay County, which was hit by the flooding. [ldquo]It all gets mixed together [mdash] logging, gas wells, gas well roads, power lines,[rdquo] resulting in more runoff and the potential for landslides during rain from the scars, she said. [ldquo]No one at the state or federal levels wants to admit the regulatory agencies have failed to do their duty to protect the people,[rdquo] (Spadaro) said." The Forest Service plans to clearcut and heavily log so much of Jellico Mountain is very concerning for these reasons. Most of these logging plans are from before the floods of July 30th 2022 so we believe they need to be adapted to avoid logging on steep slopes given this new information and public concern.

Invasive plants Forests in the Jellico area that were logged in the 1990's have become heavily invaded with non-native Tree of Heaven, with some areas having as high as [frac34] of the canopy. One of the best ways to control this invasive species is to not log the forest as it thrives on disturbance. Disturbance will also bring in other invasives such as autumn olive, which is already prevalent on private properties in the area. The image below is from the Stearns Ranger District in the Jellico area. This forest was supposed to be stewarded by the U.S. Forest Service, but after being clearcut this area was all but abandoned and forgotten. These invasive trees are now maturing and dropping seed, only furthering their abundance. If the forest service clearcuts more of this forest, we are sure to see the invasive Tree of Heaven and other invasives dominating the landscape. Clearcuts without stewardship lead to more destruction and herbicide use in the future.

Old growth The proposed logging includes hundreds of acres of forest that could qualify as old-growth (over 120 years old). None of this older forest is protected in the area[rsquo]s [ldquo]Designated Old Growth[rdquo] area despite meeting tree size and age requirements according to the Forest Service's own guidance on old growth. According to work done in the area by expert dendrochronologist, Justin Maxwell, tree ages of one stand were found to be even older than the Forest Service estimated, with trees over 200 years old. Logging mature and old growth forest stands not only creates problems for local community members, but also has negative consequences for the whole nation and even the world. This is because logging releases greenhouse gasses. The Forest Service needs to use the most recent science which shows that logging releases large amounts of greenhouse gasses when considering the environmental impact of this project (source)

Forests and Carbon The Forest Service[rsquo]s analysis should consider the greenhouse gas emissions from the proposed logging. Past Forest Service language on carbon emissions has been insufficient at satisfying the [lsquo]hard look[rsquo] clause of NEPA which requires the Forest Service to use the best available science. Greenhouse gases emissions are cumulative of many small contributors. There is no silver bullet to fighting

climate change and no way to mitigate all of the contributors with one action. Therefore, logging projects that cover 10,000 acres are sufficiently large enough to consider the adverse consequences under NEPA. One study suggests that as a rule of thumb if you were to quantify the negative effects of greenhouse gases released from logging as a dollar amount than it would be greater than the economic value of the timber.1 Although regeneration cuts are not as harmful as deforestation, their climate impacts are not negligible. While we don[rsquo]t have Kentucky-specific data, Oregon, which has a similar population size as Kentucky, has roughly a third of its total greenhouse emissions from logging (not deforestation). 2 3 This makes logging the single greatest source for greenhouse emissions in Oregon. Greater than both the state[rsquo]s transportation sector and electricity use.4 5 These emissions estimate includes considering long-term wood products which the Forest Service mistakenly claims makes logging an activity that takes greenhouse gasses out of the atmosphere. The Forest Service needs to follow NEPA[rsquo]s hard look clause and use the most recent and [ldquo]best available[rdquo] science. This science shows that logging releases large amounts of greenhouse gases.6 7 8

Responding to IRMS comments by Forest Service on Forests and Logging: The Forest Service responded to IRMS public comments with: "While old trees store more carbon than young trees, young trees grow more rapidly which allows them to remove much more carbon each year from the atmosphere than an older forest covering the same area.[rdquo]9 Young trees growing more rapidly than old trees is a common misconception that has been dispelled by recent science which shows mature trees actually sequester more carbon through subtler growth of the trunk, branch and root systems.10 This higher overall growth rate is made possible by 1 Cavender-Bares, J.M. Nelson, E. Meireles, J.E. Lasky, J.R. Miteva, D.A. et al. 2022. The hidden value of trees: Quantifying the ecosystem services of tree lineages and their major threats across the contiguous US. PLOS Sustainability and Transformation 1(4) https://doi.org/10.1371/journal.pstr.0000010 2 J. Talberth. 2017. Oregon Forest Carbon Policy: Scientific and technical brief to guide legislative intervention https://www.angelusblock.com/assets/docs/Oregon-Forest-Carbon-Policy-Technical-Brief1.pdf 3 Hudiburg, T.W. et al. 2019. Meeting GHG Reduction Targets Requires Accounting for all Forest Sector Emissions. Environmental Research Letters 14 (9) https://iopscience.iop.org/article/10.1088/1748- 9326/ab28bb 4 https://www.oregon.gov/deq/ghgp/Pages/GHG-Inventory.aspx 5 Hudiburg, T.W. et al. 2019. Meeting GHG Reduction Targets Requires Accounting for all Forest Sector Emissions. Environmental Research Letters 14 (9) https://iopscience.iop.org/article/10.1088/1748- 9326/ab28bb 6 Id 7 Harmon, M., Ferrell, W., and J. Franklin. 1990. Effects on Carbon Storage of Conversion of Old-Growth to Young Forests. Science. 247 (4943) pp. 699-702 8 Law, B.E. Hudiburg, T. Berner, L.T. and Harmon, M.E. Land use strategies to mitigate climate change in carbon dense temperate forests. Proceedings of National Academy of Science. 115 (14) https://www.pnas.org/doi/full/10.1073/pnas.1720064115 9 Jellico IRMS Assessment Comment Consideration. https://usfspublic.app.box.com/s/k6wfnwld9ydytwzhvozkgcga5lc5gts9 having orders of magnitude more leaves than young trees.10 As a consequence trees over 21 inches in DBH make up less than 4% of the stems in a forest but account for almost half of the carbon.11 The Forest Service responded to IRMS public comments with: [ldquo]The efficiency of young forests at removing carbon from the atmosphere declines steadily with age, with a tree 120-150 years old storing more carbon than it is taking in from the atmosphere. Additionally, the wood products produced are able to store carbon long term. An older forest releases carbon directly back into the atmosphere as trees succumb to mortality. When wood is not harvested and allowed to decay in the forest, less wood products are created leading to less net long term carbon storage. For more information, see the following infographic at: https://www.ncasi.org/wpcontent/uploads/2021/01/NCASI22_Forest_Carbon_YoungVsOld_print.pdf "12 This is not in line with the most recent and thorough science which suggests logging causes emissions when analyzed comprehensively and not just focusing on specific time periods or components (i.e. long-term wood products, and wood product substitution).13 14 The Forest Service responded to IRMS public comments with "Regarding U.S. forests, the Congressional Research Service notes a 30 percent increase of total carbon storage provided by aboveground biomass from 1990-2021 and a consistent negative net annual flux, meaning carbon sequestration annually outpaces carbon emissions. The increase in carbon storage is most prominent in not only U.S. forest aboveground biomass, but harvested wood products, both "in use" and "in disposal." Total amount of carbon stored has increased by around 6 million metric tons. Of that 6 million, approximately 74 percent is attributed to

aboveground biomass and harvested wood products. This indicates that converting aboveground biomass to harvested wood products may actually increase total carbon stored long-term. For more information, see https://crsreports.congress.gov/product/pdf/R/R46313"15 The congress research service report referenced does not make any claims that converting aboveground biomass to harvest wood products may increase total carbon stored long term. In fact they 10 Stecker, T. 2014. Old trees store more carbon, more quickly, than younger trees. https://subscriber.politicopro.com/article/eenews/1059993010 11 D. J. Mildrexler, Berner, L. T., Law, B. E., Birdsey, R. A., & Moomaw, W. R. 2020. Large Trees Dominate Carbon Storage in Forests East of the Cascade Crest in the United States Pacific Northwest. Frontiers in Forests and Global Change. 3. https://www.frontiersin.org/articles/10.3389/ffgc.2020.594274 12 Jellico IRMS Assessment Comment Consideration. https://usfspublic.app.box.com/s/k6wfnwld9ydytwzhvozkgcga5lc5gts9 13 Hudiburg, T.W. et al. 2019. Meeting GHG Reduction Targets Requires Accounting for all Forest Sector Emissions. Environmental Research Letters 14 (9) https://iopscience.iop.org/article/10.1088/1748- 9326/ab28bb 14 Law, B.E. Hudiburg, T. Berner, L.T. and Harmon, M.E. Land use strategies to mitigate climate change in carbon dense temperate forests. Proceedings of National Academy of Science. 115 (14) https://www.pnas.org/doi/full/10.1073/pnas.1720064115 15 Jellico IRMS Assessment Comment Consideration. https://usfspublic.app.box.com/s/k6wfnwld9ydytwzhvozkgcga5lc5gts9 make it clear that the opposite is true saying : "These forest carbon dynamics are driven in large part by different anthropogenic and ecological disturbances. Anthropogenic disturbances are planned activities, such as timber harvests[hellip]. Generally, disturbances result in tree mortality, causing the transfer of carbon from the living pools to the deadwood, litter, soil, and product pools, and/or eventually to the atmosphere."16 While harvested wood products is a carbon pool until they are disposed of, life cycle analyses have revealed that they are not a tool for carbon sequestration as suggested by the Forest Service. Instead the processes of removing limbs from trees and burning them or leaving them to decay as well as all the saw dust created at the mill and all the root systems decaying result in 64% of the carbon being released back into the atmosphere.17 In addition to this as wood products are put into landfills and decay another 16% of the carbon is released meaning that 80% of the carbon that was once in the forest is released back into the atmosphere making logging a large contributor to greenhouse gases and not a sink. In fact, in the state of Washington were underestimating their state[rsquo]s total greenhouse gas emission by 25% by not including all emissions from logging. 18 While long-term storage in wood products makes up a small carbon sink it does very little to counteract the emissions from running heavy machinery, burning slash, and decaying root systems and sawdust.19 In conclusion, the only reasonable course of action is for the Forest Service to do is withdraw all logging involving clearcuts, shelterwood and deferment harvests on slopes over 35% with coal seams to address landslide concerns and be legal in terms of the NFMA language on retaining soil and the ability to regrow forests in 5 years on harvested sites. Furthermore as was done in the Blackwater project in the Cumberland district of the Daniel Boone, no timber extraction should be done in stands with FVEG ages over 120 years old. The most number of stands with these ages is in the area between Little Wolf Creek and Kensee Hollow. 120 years is not only an age that represents forest with the most carbon storage potential but it is also used in the Region 8 guidance for old growth. The area between Kensee Hollow and Little Wolf Creek should be designated as old growth to satisfy the region 8 guidance to designate satellite old growth pockets within the scope of ongoing projects. Furthermore no regeneration cuts should be done on hillsides with greater than 35% slope over streams that are within 1 mile to Jellico Creek and Wolf Creek which are officially designated critical habitat for federally listed species. Without these bare minimum adjustments this project is most likely illegal and mark my words it will haunt the Forest Service and its employees for years to come. [ldquo]See, well then they start talkin' 'bout child support Alimony and the cost o' the Court It didn't take me long to figure out How fond of attorneys I was 16 Congressional Research Service. 2022. U.S. Forest Carbon Data: In Brief. https://crsreports.congress.gov/product/pdf/R/R46313 17 Hudiburg, T.W. et al. 2019. Meeting GHG Reduction Targets Requires Accounting for all Forest Sector Emissions. Environmental Research Letters 14 (9) https://iopscience.iop.org/article/10.1088/1748-9326/ab28bb 18 Id 19 Id I'm tellin' ya they have made a mistake 'Cause it adds up to more than this cowboy makes Besides, everything I ever had worth takin' They've already took She got the goldmine. I got the shaft[rdquo] - Jerry Reed