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First name: Lauren
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Comments: Tim Reed, District RangerStearns Ranger DistrictDaniel Boone National Forest3320 Highway 27 NorthWhitley City, Kentucky 42655RE: Jellico Vegetation Management Project Draft Environmental AssessmentMay 24, 2024Dear District Ranger Reed and Mr. Hull,The following are comments from Kentucky Heartwood in response to the Draft Jellico Vegetation Management Project Environmental Assessment. Kentucky Heartwood has made a good faith effort to provide information throughout the development of this project. The comments here respond to the analysis and currently available data. We may have further comments and input if more information becomes publicly available, such as through FOIA responses, additions to the EA, or other mechanisms. There is a great deal of information that is not included in the currently available documents, and this stymies our ability to provide as much substantive analysis as we would like. There are also issues raised in our scoping comments which we have not repeated here, or have otherwise abbreviated, as repetition should be unnecessary.A. Slope stability and landslide risksKentucky Heartwood raised concerns regarding landslides and slope stability in our scoping comments. [ldquo]Slope instability and landslides are an ongoing concern in the Jellicos. The combination of steep slopes, highly erodible soils, and the hydrologic properties of coal seams predispose the landscape to mass wasting events. Road construction (including skid roads) and timber harvest can substantially increase the likelihood of a mass wasting event to occur.[rdquo]1 The Draft EA and associated Soils report purport to address this issue but fall far short of what is necessary to make reasonably informed, site-specific decisions that will protect soil and water resources during the Jellico project implement. Landslides and other forms of mass wasting could significantly impact soil and water resources in the project area, including federally-listed aquatic species and designated critical habitat.1 See Kentucky Heartwood scoping comments, p19 It is crucial to point out that extreme precipitation events are increasing in frequency and severity, and that trend is anticipated to increase in eastern Kentucky and the Appalachian region. Flooding, including flash-flooding, landslides, and siltation, are major concerns for area residents and should be a priority for the U.S. Forest Service.The recent report, [ldquo]Flood Resilience in Appalachia: Policy Recommendations[rdquo] (2024) states2:The American Communities Project has stated that [ldquo]Appalachia is ground zero for rainfall,[rdquo] the risk of increasingly extreme rainfall is particularly high for Kentucky, West Virginia, and Ohio. New precipitation frequency modeling by researchers at First Street Foundation found that extreme events (e.g. 1-in-100 year flood events) are likely to occur much more frequently than every 100 years, especially for the Ohio River Basin.But rather than a futuristic scenario, these extreme rainfall and flooding events are already affecting our region. Over the last decade (2013 - 2023), there have been nearly 20 federally declared flooding disasters across Kentucky, Pennsylvania, Virginia, West Virginia, Tennessee and Ohio. The majority have occurred in Kentucky and West Virginia, often also affecting parts of Virginia. Total Federal Emergency Management Agency (FEMA) spending on these events totals nearly $1 billion and at least 230 lives have been lost due to flash flooding.National Forest land in the Jellico project represents a critical headwaters area that directly affects many families and landowners in the immediate vicinity - and many more downstream. The extent to which the Forest Service has, and continues, to downplay or ignore the relationship between logging and landslides, as well as overall flood risks, has gone well beyond any disagreements about science, methods, or even risk assessment.To expand on our previously voiced concerns, and respond to the Draft EA specifically, we are incorporating into this comment letter two documents authored by geological and geohazards consultant Dr. Bill Haneberg. Dr. Haneberg was state geologist and Director of the Kentucky Geological Survey from 2016 through 2023 and is a nationally recognized expert in landslide-related issues with specific expertise in landslide hazards in eastern Kentucky.The first document, [ldquo]Recommended Best Management Practices to Minimize the Likelihood of Sediment Delivery to Streams by Logging Induced Landslides in Eastern Kentucky,[rdquo] is included as Appendix A. This document was prepared for the Appalachian Citizen[rsquo]s Law Center, Kentucky Heartwood, and the National Wildlife Federation as part of an effort to inform federal flood policy in Appalachia in an era of climate change.3 Dr. Haneberg[rsquo]s report describes the various factors affecting landslides and landslide susceptibility in eastern Kentucky, focusing on how logging and logging-related

practices can significantly destabilize slopes for years, decades, or longer. Many of the issues raised by Dr. Hanberg reflect information that Kentucky Heartwood previously provided to the Forest Service during the Jellico project analysis and, more extensively, through our various comments, letters, and litigation over the South Red Bird project. The report also includes recommended Best Management Practices (BMPs) aimed at 2 See the report [ldquo]Flood Resilience in Appalachia: Policy Recommendations[rdquo] (2024) 3 Id reducing the risk of landslides, including specific analytical methods relevant to land management planning. The Forest Service needs to incorporate the science and methodology and adopt the recommended BMPs into the Jellico analysis and any final approved action.The second document prepared by Dr. Haneberg is [ldquo]Review of the Daniel Boone National Forest [ldquo]Jellico Vegetation Management Plan Project Soil Effects Analysis[rdquo] Document.[rdquo] This review was prepared under contract for Kentucky Heartwood. Included below is the [ldquo]Summary Comments[rdquo] portion of Dr. Haneberg[rsquo]s review. The entire review and Dr. Haneberg[rsquo]s comments are incorporated in full as Appendix B.SUMMARY COMMENTSThe Forest Service assessment of potential slope stability problems associated with proposed logging in the Jellico project plan area, as described in the soil effects analysis report, relied primarily on identification of plastic soils using data from a nationwide Web Soil Survey. The report states that Forest Service staff also used lidar, slope, and geology to identify areas of slope stability within project unit boundaries and subsequently verified them in the field. However, the report includes no details about the lidar, slope, and geology-based identification process or project-wide landslide occurrence or susceptibility maps beyond those showing plastic soil occurrence included. In those regards, the report falls short of expectations for a robust regional or watershed-scale landslide hazard assessment prepared in support of land management decisions.Table 3 in the soil effects report lists several known landslides as [ldquo]watch outs[rdquo] but the report contains neither synoptic nor detailed maps documenting the locations of past and/or currently active landslides or defining the potential susceptibility of logged areas to future landslides (either natural or as a consequence of logging). Locations of the landslides listed in Table 3 are given only at the stand level. There appear to be no properly georeferenced landslide polygons or even landslide centroids that can be used to locate the landslides; if those data exist exist, excluding them from the report was a significant omission. The lack of sufficiently detailed and properly georeferenced maps depicting landslide occurrence and susceptibility on a project-wide scale is a major deficiency of the report.Interpretation of freely available high-resolution lidar digital elevation models and derivative maps covering two areas in which landslides had been reported to the Forest Service as public comments showed the areas to have complex geomorphology, significant indications of past slope instability, and thus a potential for future slope instability (especially if subjected to roadbuilding, logging, or other disturbances). The soil effects report states that one of the locations was visited but no evidence of a landslide was found and that a landslide at the second location, which may or may not have been visited, was not confirmed. It is not clear from the report language whether [ldquo]not confirmed[rdquo] means that the site was visted and no evidence could be seen or that confirmation was not attempted. The compelling evidence for slope instability at those two locations, illustrated further on in this review, casts doubt on the ability of the ForestService to understand the prevalence of unstable and potentially unstable slopes in one of the most landslide-prone regions in the country.Although information about soil plasticity can be a useful component of landslide susceptibility studies, the use of soil map units and highly generalized physical properties from a nationwide database is insufficient in the context of the soil effects report and falls far short of the methods routinely used for such work in Kentucky and elsewhere. The Kentucky Geological Survey, for example, has developed a peer-reviewed approach based upon lidar-based landslide inventory mapping by trained geologists, statistical analysis of the regionally significant geologic and geomorphological variables associated with landslide occurrence, and use of modern geospatial processing methods like logistic regression to extend those rigorously developed association across large areas. It is important to know where landslides have occurred; however, it can be equally or even more important to understand where they may occur in the future, especially in the context of land-use planning and environmental impact assessment. As such, the use of modern GIS-based computational tools to predict landslide susceptibility is essential.Throughout the report, suggestions that plastic soils are uniquely susceptible to rapid pore-water pressure increases[mdash]and thus instability[mdash]ignore the basic mechanical principles of landslide initiation, dangerously implying that other kinds of soils are not susceptible and need not be considered. That is untrue. A discussion in the report about the increased unit weight of wet plastic soils as a driver of slope

instability is similarly na[iuml]ve and, likewise, dangerously misleading because it appears to suggest the primary potential cause of landslides in the project area will be heavy equipment traffic across wet and heavy plastic soil. The focus on plastic soils and equipment traffic ignores the substantial body of peer-reviewed scientific literature showing a strong relationship between tree removal per se and subsequent landslides due to decadal-scale post-logging tree root cohesive strength decreases and pore-water pressure increases. Nowhere in the soil effects report is the impact of tree removal per se on slope instability considered. Likewise, the report limits the potential impacts of slope instability to plastic soil deformation, reduced water capacity, and issues related to aeration, mineralization, and vegetation growth. The potentially significant water quality and ecological impacts of landslides and debris flows[mdash]which in many cases mobilize from landslides[mdash]as agents of sediment delivery to streams and water quality degradation is ignored. The report[rsquo]s focus on soil plasticity and equipment traffic while ignoring the potential effects of tree removal on forest slope stability, sediment delivery, and water quality is a major deficiency.Finally, the report consistently uses a non-standard definition of full-bench roads. Full-bench roads, in which all excavated material is hauled away from a cut, are typically the recommended option when roads must be built across steep and/or potentially unstable ground. Full-bench roads stand in contrast to side-cast or balanced section roads in which some of the excavated material is placed downslope to develop the road prism, thereby loading the slope below the road and decreasing stability. Admonitions to avoid full-bench roads (if understood as conventionally defined) imply that options like side-cast roads are safer options, when they will in fact almost certainly reduce slope stability.B.Cerulean warbler/ Forest Plan consistencyForestwide Objective 1.1.B in the Forest Plan directs the Forest Service to [ldquo]Create and maintain at least one approximately 7,400-acre area of cerulean warbler habitat in the Licking River Management Area, Upper Kentucky River Management Area, and the Jellico Mountains of the Cumberland River Management Area.Objective 1.1.B. Protect or enhance habitat for species identified by Partners in Flight (PIF) as well as others that need special attention. Management activities should:a)Provide artificial cavities and nest boxes for species that may be limitedby cavity availability.b)Create and maintain at least one approximately 7,400-acre area ofcerulean warbler habitat3 in the Licking River Management Area, UpperKentucky River Management Area, and the Jellico Mountains of theCumberland River Management Area. Each 7,400-acre area can becomposed of tracts at least 618 acres in size connected by corridors ofeither upland hardwood forest or riparian areas. Upland hardwood forestcorridors should be no more than two miles long, and at least [frac14]-milewide (see Figure 2 - 1 for example of possible pattern).Footnote (3) for Objective 1.1.B states:Predominantly mature (age[ge]70), open (60 BA and up) contiguous upland hardwood or riparian forest (canopy with moderate to dense shrub/midstory layers, large grapevines are required in the mix; Buehler and Nicholson 1997), with some trees >20 in.; can be upland or bottomland/riparian. Contiguous is defined as having no more than 5 percent of the area in grassy openings, regenerating forest with less than 40 BA canopy, or roads greater than 50 ft. in width; tracts may be composed of blocks of minimum 618 acres in size connected by upland hardwood corridors approximately 0.25 mile wide or riparian corridors at least 100 ft. wide, neither of which is more than 2 miles long.Figure 2-1 in the Forest Plan provides an illustration of how cerulean warbler habitat may be spatially arranged.The Forest Plan envisions only three such areas across the entirety of the Daniel Boone National Forest for meeting this objective, and meeting this objective in the Jellico Mountains is directly specified. The Jellico project Draft EA makes no mention of Forestwide Objecive 1.1.B., nor does it describe how the Proposed Action or Alternative 1 will help or hinder meeting this Objective. The Forest Service cannot simply brush aside this forestwide direction without substantial analysis and robust reasoning as to why it can be ignored. Such an analysis is required under NEPA, and it must establish that the project will not interfere with the accomplishment of the objective for cerulean warbler.44 See 36 C.F.R. [sect] 219.15(d).The Biological Evaluation includes a brief discussion of Cerulean warbler (Dendroica caerulea) as Management Indicator Species (MIS). Cerulean warbler is used as an indicator species for [ldquo]Closed Canopy, Mature Forest Species.[rdquo]5 The Report argues that the approximately 5,200 acres of regeneration harvests in the Proposed Action [ndash] which remove suitable habitat for the cerulean warbler [ndash] will result in nearly three times as much suitable habitat as Alternative 1, which would approve regeneration harvests on 1,122 acres. This does not make sense and is misleading. Table 11 states for [ldquo]Proposed Action-Current[rdquo] that [ldquo]4,301 ac of potentially suitable habitat is widespread in the Proposed Action Area,[rdquo] and anticipates [ldquo]3,425 ac of potentially suitable habitat widespread in the proposed Action Area[rdquo] following implementation of the Proposed Action. But

Table 12, presenting information for Alternative 1, states that [ldquo]1,311 ac of potentially suitable habitat is widespread in Alternative 1 Action Area,[rdquo] and [ldquo]1,173 ac of widespread potentially suitable habitat is anticipated[rdquo] following implementation.First, it is unclear how the current acres of suitable habitat could be both 4,301 acres and 1,311 acres. And while the differing temporal frames for the Proposed Action and Alternative 1 make projections complicated, it does not make sense to argue that regeneration harvests on ~5,200 acres would result in more closed canopy, mature forest habitats than regeneration harvests on 1,122 acres. The presentation implies that significantly more regeneration cuts will result in nearly three-times the acres of suitable habitat for the Cerulean warbler. While we recognize that the timeframe for the Proposed Action is 40 years and the analysis for Alternative 1 is for 10 years6, this creates an apples-to-oranges comparison. Alternative 1 does not anticipate future logging following implementation. To evaluate and compare the environmental effects between these two alternatives, the Forest Service needs to look at the effects on the same timeframe.Footnote 6 to Table 11 also states that [ldquo]Cerulean Warbler, however, is known to utilize two-aged shelterwood cuts and other treatments of similar structure.[rdquo] This only partially true. For example, Boves et al. (2013) 7 report increases in habitat use by territorial males following [ldquo]Intermediate treatments[rdquo] that reduced basal area and canopy cover by approximately 40% (BA = 14 m2/ha or 60 ft2/ac). In some studies and practices this may be considered a [ldquo]shelterwood[rdquo] harvest, but in the context of the Jellico project is on the high end of retention following a thinning and leaves around 4 times more trees than the Jellico shelterwood prescription. In that study [ldquo]Heavy treatments[rdquo] were defined as reducing basal area and canopy closure by approximately 75% to a residual basal area of 6 m2/ha (26 ft2/ac), which is still more retention than the shelterwood harvests proposed for the Jellico project. Cerulean warbler habitat use for heavy treatments in this study was much less than for intermediate treatments. Generally, the authors found that Cerulean warblers benefited from intermediate levels of disturbance which (though not noted by the authors) is consistent with disturbance regimes most beneficial to oak reproduction.A report by Wood et al (2013) for the American Bird Conservancy8 provides similar insights. The report states that [ldquo]Heterogenous stand structure including large trees, canopy gaps, and5 Biological Evaluation and Specialist[rsquo]s Report, Table 10 (p 63)6 Biological Evaluation and Specialist[rsquo]s Report, footnote 3 to Table 117 Boves TJ, Buehler DA, Sheehan J, Wood PB, Rodewald AD, et al. (2013) Emulating Natural Disturbances for Declining Late-Successional Species: A Case Study of the Consequences for Cerulean Warblers (Setophaga cerulea). PLoS ONE 8(1): e52107. doi:10.1371/journal.pone.00521078 Wood, P.B et al. 2013. Management guidelines for enhancing Cerulean Warbler breeding habitat in Appalachian hardwood forests. American Bird Conservancy. The Plains, Virginia. 28 pp. understory vegetation promote density and reproductive success of ceruleans.[rdquo] The authors further state that:Before extensive clearcutting in the late 19th and early 20th century, tree mortality from old age, windthrow, ice storm damage, and fire contributed to the development of structurally complex and relatively open stands in which oaks were dominant. In the even-aged stands that developed following those extensive harvests, natural canopy disturbances tended to be unevenly distributed and relatively small thereby creating a relatively homogenous canopy structure (e.g., a closed canopy forest with an undeveloped understory and/or midstory).And that:Ceruleans favor the complex canopy structure characteristic of unevenaged stands and old growth forest. Canopy gaps allow mid- and uppercanopy trees the growing space to form long horizontal branches and develop dense foliage. Tree species composition is relatively diverse with shade-intolerant species abundant in the overstory.The authors add that Cerulean warblers [ldquo]preferentially use canopy gaps ~400-1000 ft2 in size[rdquo] and highlight the importance of grapevines, stating that [ldquo]Cerulean nest success was positively associated with density of grapevines (Vitis spp.) in Ohio.[rdquo]Forests in the Jellico mountains have a notable amount of very large grapevine. The Proposed Action proposes to use herbicides to control grapevine on [ldquo]up to a total project acreage of 9,537 acres.[rdquo]The Report goes on to describe the The Cooperative Cerulean Warbler Forest Management Project (CWFMP) which implemented a series of studies in Tennessee, Ohio, Kentucky, and West Virginia. The study implemented harvests and controls that appear to be the same as in Boves et. al (2013). In the CWFMP study, harvests resulted in stands with a residual basal area of 93 ft2/acre (light harvest), 62 ft2/acre (intermediate harvest), and 27 ft2/acre (heavy harvest), along with controls. The investigators found that [ldquo]The largest and most consistent increases occurred when RBA was between ~40 and 90 ft2/ac.[rdquo] Nest success has highest in unharvested controls, and next highest in the medium harvest treatment. For management considerations, the report states that [ldquo]The results from the CWFMP indicate

that retaining RBA levels of ~40-90 ft2/acre after harvesting trees in 25-acre harvest units in oak-dominated stands creates a forest structure that is generally favorable for ceruleans.[rdquo]Contemporary research demonstrates that Cerulean warblers benefit from intermediate disturbance in mature forests with large trees. While they can, and do, use forests subject to [ldquo]heavy[rdquo] logging treatments, these habitats are less than optimal. Furthermore, the shelterwood prescriptions proposed in the Jellico project exceed the amount of harvest applied in the [ldquo]heavy[rdquo] treatments in the available literature. It is worth noting that [ldquo]APPENDIX A. Cerulean Warbler Technical Group Forest Management Research Project Treatment Implementation Guidelines, May 3, 2005[rdquo] in Hartman (2006)9 states:9 Hartman, Patricia J., "HABITAT SELECTION OF THE CERULEAN WARBLER IN EASTERN KENTUCKY" (2006). University of Kentucky Master's Theses. Paper 285.Intermediate Treatment: Between July 15, 2006 and April 1, 2007 this stand should be harvested by removing enough of the overstory to leave approximately 55 sqft BA/acre (12.6 m2/ha). The removal should be conducted such that the residual stand is comprised almost entirely of well-spaced dominants and co-dominants. All other commercial stems (i.e., > 6[rdquo] DBH) should be felled. The marking objective should be designed to roughly mimic a shelterwood harvest as commonly practiced in the region in question. (Emphasis added).The recurring use of [ldquo]shelterwood[rdquo] by the Daniel Boone National Forest to describe harvests that remove substantially more timber than is typical under this terminology continues to create confusion and allows for the misapplication of research regarding the effects of [ldquo]shelterwood[rdquo] harvests on species and habitats. The U.S. Forest Service needs to start using terminology in a manner that is consistent with regional science and practice.C. Timber targetsThe Draft EA fails to disclose the relationship between the Jellico project and the mandated timber targets assigned to the DBNF and the Stearns District. These timber targets have included a more than 400% increase in the volume harvested on the DBNF over the past 20+ years. FOIA documents show that the DBNF is prioritizing these harvest volume mandates over other forest needs, including recreation, forest health, water quality, and other issues. According to FOIA response documents, meeting these targets is directly tied to performance reviews for DBNF staff.For example, a May 25, 2023 email from Brian Emerson to District Rangers states10:We are significantly behind on our target execution. I know everyone is diligently working, but I think it is time for us to discussWe have received a significant amount of support from the RO this year and it is critical for us to produce in order to continue to receive support.A document titled [ldquo]Daniel Boone NF Timber Sale Schedule Expectations[rdquo] including volumes and acreages expected by the Stearns Ranger District for the years 2017 through 2026 states11:PERFORMANCE [ndash] This schedule is used as a performance element for line officers, IDT members, and othersThis document assigns a goal of 6,300 CCF to be sold from the Stearns District annually, and an [ldquo]Approximate acres to plan using 2-aged shelterwood at 15 ccf/ac[rdquo] on 400 acres annually.10 See: FOIA request 2024-FS-R8-00752-F response document [ldquo]PDF-2[rdquo], page 170 of the PDF11 See: FOIA request 2024-FS-R8-00752-F response document [ldquo]Release in Full 2024-FS-R8-00752-F[rdquo], page 77 of the PDF document. Multiple versions of [ldquo]Daniel Boone NF Timber Sale Schedule Expectations[rdquo] are found in in the document. Note also that this PDF one of several relating to this FOIA and is not the release in full as the file name indicates.Another document titled [ldquo]DBNF SALES PROGRAM[rdquo] prescribes an annual harvest volume forthe Stearns District of 7,500 CCF through at least fiscal year 2028.12FOIA documents, including notes from so-called [ldquo]Timber Target Meetings,[rdquo] show that ForestService staff intend to use the Jellico project to meet at least some of these required targets. Atthe very least, the Forest Service has started the project with a predetermined volume of timberthat will be produced. See FSM 2432.15 (requiring, at Gate 1, certification of estimated volumefor the project). That information has not been provided to the public, nor has the agencyexplained how its hidden purpose is influencing its range of alternatives.In effect, the Forest Service has already locked itself into an alternative that will provide timbervolume to meet mandated timber targets. That directly contravenes the requirement to prepare aNEPA study [ldquo]early enough so that it can serve as an important practical contribution to thedecision-making process and will not be used to rationalize or justify decisions already made.[rdquo]40 C.F.R. [sect] 1502.5 (emphasis added); see also Metcalf v. Daley, 214 F.3d 1135, 1145 (9th Cir.2000) (agency violated NEPA by agreeing to a support a gray whale harvest quota beforestudying the impacts of that decision in an EA).Predetermining that the Jellico project would be used to satisfy timber targets on which staffperformance is measured likely infected numerous aspects of the Forest Service[rsquo]s EA. To start, itmay have influenced the range of reasonable alternatives the agency was willing

to consider.Though Kentucky Heartwood suggested numerous project alternatives during scoping, the ForestService rejected nearly all of them because they [ldquo]would not meet the purpose and need of thisspecific project.[rdquo] Draft EA at 11. In addition, [ldquo][i]t is highly likely[rdquo] that since the Forest Service(1) has already decided to use the Jellico project to meet its mandated timber targets, and (2)Forest Service staff have a vested interest in seeing those targets achieved, that [ldquo]the [draft] EAwas slanted in favor of finding that the [Forest Service[rsquo]s] proposal would not significantly affectthe environment.[rdquo]13By neglecting to disclose the effects of mandatory timber targets on project design, the ForestService also failed to consider and disclose an important aspect of the problem. If the agency[rsquo]sdiscretion to design and choose a project alternative is being influenced by the need to meettimber targets, then it must disclose that information to the public. See N.C. Wildlife Fed[rsquo]n v.N.C. Dep[rsquo]t of Transp., 677 F.3d 596, 604[ndash]05 (4th Cir. 2012) ([ldquo]When relevant information [ldquo]is notavailable during the [NEPA] process and is not available to the public for comment[,] ... the[NEPA] process cannot serve its larger informational role, and the public is deprived of [its]opportunity to play a role in the decision-making process.[rdquo]).The Forest Service[rsquo]s failure to disclose the impact of timber targets on project design violatesNEPA and the APA.12 See: FOIA request 2024-FS-R8-00752-F response document [ldquo]PDF-2[rdquo], page 82 and 106 of the PDF (and otherpages)13 Metcalf, 214 F.3d at 1144.There is also a direct relationship between the Forest Service[rsquo]s goal of meeting timber targets and the prescriptions included in the project. As we[rsquo]ve expressed to the DBNF on many occasions, the use of [ldquo]shelterwood[rdquo] to describe cuts with a residual basal area of 10 to 15, or even 10 to 20 ft2/acre deviates substantially from the normal use of the term in regional forestry. The Forest Service cannot have it both ways: it can implement shelterwood harvests with retention consistent with the literature, in which case it might be better justified in assuming benefits for oak regeneration or cerulean warbler habitat, or it can acknowledge that it is using heavier harvest methods to extract more volume per acre in service of a timber target. The tradeoffs of using these prescriptions (volume versus other benefits) must be disclosed under NEPA.D. Tree of HeavenKentucky Heartwood described in detail issues with tree of heaven (Ailanthus altissima) in the Jellico project area. Tree of heaven is a highly invasive, ecologically destructive non-native invasive plant species (NNIP), and its occurrence in the Jellico project area is extensive. As we previously described, in addition to its occurrence along roadsides, we have seen numerous stands that were regenerated in the 1980s or 1990s where tree of heaven represents a significant component of the forest canopy. In some locations it is a dominant species. This is a pattern widespread across all portions of the project area. The Forest Service[rsquo]s failure to engage in responsible stewardship of these stands during the decades since the timber was sold has allowed tree of heaven to develop to reproductive maturity in forest canopies and produce vast amounts of seed to further infest the forest.The Vegetation Report, under Direct and Indirect Effects for Alternative 2 [ndash] No Action states:Without treatment, invasive species abundance would be expected to increase thereby impacting species composition in affected stands. Specifically, during field reconnaissance tree of heaven was noted to be thriving in canopy gaps created by single tree and small group mortality.This is highly selective and misleading by omission. Tree of heaven will establish in forest understories and take advantage of canopy disturbance. But the greatest abundance of tree of heaven in the project area is in stands that the Forest Service cut and then abandoned. It is these mismanaged stands [ndash] distributed across the project area [ndash] that have allowed for an extraordinary seed source to invade and establish in mature forests. Instead, the Vegetation Report portrays tree of heaven as primarily a problem of mature forests that were not harvested in recent decades.The Biological Evaluation and Specialist[rsquo]s Report provides a better discussion of tree of heaven specifically, as well as other problematic NNIPs:(T)hinning and regeneration activities are likely to increase the population sizes of tree-of-heaven, princesstree and Amur honesuckle if existing individuals are not treated during or prior to activities. These three species have a high potential to interfere with tree regeneration.Since scoping, concerns about the spotted lanternfly (Lycorma delicatula) have become more pressing after it became documented in Kentucky in October 2023. It is understood that tree of heaven is its primary host species. Spotted lanternfly will preferentially feed on tree of heaven, and may induce declines in the species. But tree of heaven also attracts spotted lanternfly to forested areas where it also impacts native species. Reproductive success of spotted lanternfly facilitated by the abundance of tree of heaven is likely to cause a population explosion that will increase pressure on native tree species throughout the project area. Controlling tree of heaven at a landscape scale, and

rapidly, is arguably the most pressing forest health issue affecting the Jellico project area.The Draft EA and BE describe how NNIPs, including tree of heaven, will be treated as part of other management actions, especially commercial timber harvest. The BE states:Nonnative invasive plants in the general project area would likely respond to the disturbance with increase of current population sizes and increased establishment of new populations. At the same time, for some species such as tree-of-heaven, princesstree, Amur honeysuckle, multiflora rose, and Japanese honeysuckle, increased extent of management activities would make treatment easier by improving detection of and increasing access to interior populations.However, the BE also states that Alternative 1, with a reduction in harvest acres, would result in fewer acres of tree of heaven and other NNIPs being treated:As a more limited area will be affected by management activities, infestations are likely to be missed allowing them to continue producing propagules.For Alternative 2- No Action, the BE states that the lack of timber harvest may result in reduced spread of tree of heaven (and princess tree) but also allow for [ldquo]These species (to) continue to produce and disperse seed throughout the general area increasing population size and difficulty to control.[rdquo]The Forest Service needs to commit to a concerted effort across the Jellico project area to treat and control tree of heaven. This includes all areas, regardless of planned timber harvest or other management. The EA and associated documents describe a situation where the only way that the Forest Service will commit to addressing this exceptional forest health issue is if it is paired with commercial timber management, with fewer commercial sales meaning less control of tree of heaven, and no commercial sales meaning that the Forest Service won[rsquo]t address it.E. Old-growth assessments and specific old-growth sitesThe need to manage for current and future old-growth, including specific old-growth and potential old-growth (POG) sites was an issue of importance raised by Kentucky Heartwood in our scoping comments. Those concerns are further elevated by the Biden administration[rsquo]sexecutive order aimed at conserving and promoting mature and old-growth forests (MOG) andthe Forest Service[rsquo]s proposed national forest plan amendment.14Yet the Jellico Project prescribes regeneration harvest in areas that Kentucky Heartwood and theForest Service know to meet POG and MOG conditions with little to no analysis or discussion ofwhy and how these stand-level decisions were made. The sparse analysis of stand-specificinformation in the Draft EA is in direct contravention to both NEPA and the Forest Service[rsquo]smost updated technical guidance on old-growth management.Without stand-specific analysis describing how and why the agency made the prescriptionselections in this project, the Draft EA is defective with respect to both of NEPA[rsquo]s aims. TheForest Service neither had the opportunity to [ldquo]consider the environmental impacts of theiractions[rdquo] nor to keep the public informed about environmental concerns related to governmentdecision making.15 This must be rectified before the project can continue.Moreover, the absence of stand-specific analysis in this Draft EA also disregards the ForestService[rsquo]s most current technical guidance for silvicultural prescriptions in old-growth forests,which requires that [ldquo]even-aged methods (seed tree cutting and clearcutting) should be consideredas the last resort[rdquo] for old-growth areas, and [ldquo]should be used when they are the only option left tomove the stand toward desired conditions and/or improve ecological integrity.[rdquo]16 The ForestService must explain why such prescriptions were necessary for the old-growth stands describedbelow.The Draft EA states that [ldquo]The original project proposal included approximately 177 acres ofexisting old growth being considered for regeneration[hellip] To align with the intent of the NOI,these four stands were removed from consideration.[rdquo]17 The Vegetation report expands on this,stating:Possible Old Growth (POG) criteria are presented in Table 3-25 of the EnvironmentalImpact Statement for the Forest Plan (USDA 2004b). Data were analyzed to determine ifany of the areas proposed for treatment met the criteria for POG. Approximately 316acres proposed for treatment met the minimum age criteria for POG. Those stands whereinventoried for old growth features and approximately 177 acres were determined to beExisting Old Growth (EOG) according to Guidance for Conserving and Restoring Old-Growth Forest Communities on National Forests in the Southern Region (Gaines, et al.1997).A careful review of the included maps allows the public to see which stands were removed fromthe Proposed Action. However, the Draft EA does not disclose which stands were analyzed, whatdetermination was made, and why. Several other sites that appear to meet POG and EOG criteria14 See Executive Order 14072, 87 Fed. Reg. 24851 (2022); Land Management Plan Direction for Old-Growth ForestConditions Across the National Forest System, 88 Fed. Reg. 88042 (2023).15 40 C.F.R. [sect] 1500.1(a) (2020); see also 40 C.F.R. [sect] 1500.1 (a), (b) (1978).16 USDA Forest Service, Technical Guidance for Standardized Silvicultural Prescriptions for Managing of Old-Growth Forests (Mar. 2024) at 5.17 Draft EA at

8were left in the proposed harvest plans, including sites that Kentucky Heartwood provided specific data for during scoping. No rationale or data have been provided for why these other stands have remained in regeneration prescriptions in the Proposed Action.Again, this paucity of analysis is incompatible with NEPA. The Forest Service must include a discussion of how and why harvest prescriptions were assigned to various stands which meet old-growth criteria in the Jellico Project, both for the agency[rsquo]s own inspection and for informed public comment. Where analysis of a project[rsquo]s impacts lacks this level of specificity, the NEPA documents are inadequate. See, e.g., Klamath-Siskiyou Wildlands Ctr. V. U.S. Forest Serv., No. 2:05-CV-0299, 2006 WL 1991414, at *9[ndash]10 (E.D. Cal. July 14, 2006) (invalidating the use of an EA without site-specific analysis for project locations). And to conform with the Forest Service[rsquo]s own technical guidance, the Forest Service must explain why no other harvest method was appropriate for the old-growth stands described herein.18Kentucky Heartwood cited stands 6267-04 and 6267-02 as meeting the minimum age threshold and having significant old-growth characteristics. Both sites have a [ldquo]year of origin[rdquo] of 1878 in the FSVeg database, making them 148 years in 2024. These stands would be categorized as [ldquo]Dry-mesic oak forest[rdquo] under the Forest Plan and Region 8 old-growth guidance, which has a minimum age threshold of 130 years for consideration as POG. Tree coring of those sites by Dr. Justin Maxwell of Indiana University, under a permit issued by the DBNF, confirmed that these sites included a significant amount of very old trees. While many of the trees were hollow, the sampled trees clearly show that the oldest age class exceeds the POG age requirements.Tree ages of old trees in stands 6267-04 and 6267-02These stands do not appear to have any major anthropogenic effects that detract substantially from their old-growth condition. Regardless, the Forest Service has kept these stands in the Proposed Action under a deferment harvest prescription. These stands should be considered as old-growth subject to the technical guidance on developing old growth prescriptions. The Forest Service needs to explain in detail how these sites were evaluated for their old-growth condition and why they were excluded from designation as old-growth18 See USDA Forest Service, Technical Guidance for Standardized Silvicultural Prescriptions for Managing of Old-Growth Forests (March 2024).SpeciesNumberInner Ring Year (visible)HollowDBH (cm)Core Length (cm)Minimum AgeLITU1B1892Hollow7644.5129LITU2B1875Hollow11039146LITU3A180082.529221NYSY1A1770Hollow6428251QUAL1A18488538173QUAL1B1956Hollow1011365QUAL2A190675.533115Another stand of concern is 6747-07 on Ryans Creek Mountain. The FSVeg database provides a [ldquo]year of origin[rdquo] of 1886 making this stand 138 years old in 2024. The stand should be considered as Dry-mesic oak for the purpose of old-growth evaluation. Even if the stand were categorized as mixed mesophytic (with a minimum POG age of 140 years) it is likely that sufficient tree coring would demonstrate that the oldest age class exceeds 140 years. The stand has experienced some significant natural canopy disturbance, yet exhibits significant old-growth characteristics. The Forest Service has kept this stand in the Proposed Action and Alternative 1, prescribed for shelterwood harvest. This stand should be excluded from harvest and designated as old-growth. The Forest Service should make available any information or analysis considering this stand, including its reasoning for rejecting it from old-growth designation.Kentucky Heartwood endeavored to survey other sites with ages in the FSVeg database indicating POG, or otherwise exhibiting structural characteristics strongly indicative of old-growth condition. We worked with Rob Messick19, a long-time and well-respected old-growth expert to examine several more sites in the Jellico project area. Stands exhibiting old-growth characteristics and needing further investigation or exclusion from harvest include: 6249-01, 6249-03, 6251-18, 6251-23, 6251-24, 6251-25, and 6251-30. Summaries and descriptions of each of these sites are included in these comments as Appendix C.Under NEPA, the Forest Service needs to provide clarity and data describing which stands received were analyzed as POG, what the specific findings were, and whether or not these stands were reviewed by the USFS Washington Office as required under the December 18, 2023 memo to Regional Foresters entitled [ldquo]Review of Proposed Projects with Management of Old Growth Forest Conditions.[rdquo] If they were not, then they cannot move forward with them because WO review is mandatory. If they were, then the Forest Service must disclose the reasons for keeping them in the project despite their old-growth characteristics. Further, the Forest Service must explain why it could not pursue a reasonable alternative that would not involve the harvest of old-growth. Old-growth harvest is a significant impact requiring an EIS and consideration of alternatives.20 At the very least, the Forest Service[rsquo]s current efforts show that whether to harvest old-growth is an [ldquo]unresolved conflict[rdquo] that requires consideration of alternatives under NEPA.21Another deficiency in the proposed action and Draft EA

relates to old-growth assessments and the 40-year implementation timeframe of the proposed action. We described this issue in our scoping comments. Based on the tables in the Vegetation report, after 40 years the Proposed Action would result in 5,960 acres of forest over 130 years (the minimum POG age threshold for most forest communities in the project area). The No Action alternative would result in 11,103acres of POG. This means a reduction in POG of 5,143 acres through implementation of the project. Another way of looking at this is that around 5,000 acres of forest will meet POG minimum age thresholds over the implementation timeframe but be exempt from review as EOG (existing old-growth) because they were filtered out years or decades before being logged. This is a violation of the Forest Plan. For example, a stand that is 120 years old in 2024 would not be reviewed for old-growth characteristics because of its current age [ndash] and structurally may not be old-growth [ndash] but would be harvested in 2054 when it is 150 years old and meeting old-growth criteria. And yet the stand would never receive an old-growth evaluation because it was approved for harvest decades earlier. This is an end-run around the clear direction in the Forest Plan (and the proposed national Forest Plan amendment). Again, these decisions warrant a consideration of alternative impacts, and the Forest Service cannot obfuscate this duty by approving these activities before old-growth criteria fully manifest.We also point to the mischaracterization in the effects analysis where the Vegetation report states that, for Alternative 1, [ldquo]Impacts to FOG, POG, and EOG would be the same as those described in the Proposed Action.[rdquo]22 This is only true if the Forest Service assumes subsequent approval of the timber project over the subsequent three decades to implement [ndash] in essence [ndash] the Proposed Action. If the Proposed Action and Alternative 1 are compared over the same time period (40 years), the Proposed Action will result in 5,960 acres of forest over 130 years in age, while Alternative 1 will result in 10,271 acres of forest over 130 years in age. Based on the data in the Vegetation Report, the Proposed Action will result in 4,311 fewer potential old-growth acres than Alternative 1. The effects are not the same.The Forest Service must correct these violations of NEPA and revise these inconsistencies with the agency[rsquo]s own internal guidance before proceeding with the Jellico Project.F.Roadless Areas analysisSince the publication of the scoping document, examination of the Ryans Creek Mountain section of the Jellico Project area has revealed a significant area that should be designated and managed as a Roadless Area under the Forest Plan. The area (illustrated below) includes 2,115 acres of national forest land within a larger, 2,419-acre roadless area polygon that includes adjacent private lands meeting roadless area criteria. This acreage exceeds the minimum acreage necessary for evaluation as a Roadless Area under the Forest Plan.The Forest Plan cites FSH 1909, Chapter 7, section 7.11b, Criteria for Roadless Areas in the East in its evaluation (and elimination) of potential Roadless Areas23:1)The area contains no more than one half-mile of improved road for each 1,000 acres,and the road is under Forest Service jurisdiction.2)The area contains only a few dwellings on private lands and the location of thesedwellings and their access needs insulate their effects on the natural conditions of federallands.22 Vegetation Report at 1723 See: Forest Plan FEIS Appendix C, Roadless EvaluationThe area does include two road segments (NFSR 6279C and NFSR 6279D). In the DBNF Roads GIS data available to us these roads are designated as Operational Maintenance Level 2 [ndash] High Clearance with a total length of 1.27 miles. This amounts to 0.6 miles per thousand acres of federal land, and 0.5 miles per thousand acres of full polygon. While the former appears [ldquo]on paper[rdquo] to exceed the requirement that [ldquo]The area contains no more than on half-mile of improved road for each 1,000 acres,[rdquo] the reality on the ground is that much of the distance accounted for in the GIS data fails to meet any reasonable definition of [ldquo]improved road.[rdquo]To further support this point, FSH 1909.12 Chapter 70 [ndash] Wilderness, directs the Forest Service to include in any Wilderness inventoryd. Areas in Forests, Grasslands, Prairies, and other Administrative Units east of the 100th meridian with forest roads maintained to level 2 that are identified as closed to motor vehicles yearlong in a previous decision document, or as identified in a travel management plan (36 CFR 212.51) or a travel analysis (36 CFR 212.5(b))24The aforementioned roads are maintained at level 2 and are closed to motor vehicles yearlong and therefore meet this criterion.The Forest Service should have considered this area in the analysis for the Jellico project. The Draft EA needs to be corrected by conducting an appropriate Roadless Area analysis for the areas on the south side of Ryans Creek Mountain.Candidate Roadless Area on Ryans Creek Mountain24 See: FSH 1909.12 [ndash] Land Management Planning Handbook, Chapter 70, 71.22a [ndash] Road ImprovementsG. Oak recruitment and oak regenerationThe Draft EA, in its description of the Proposed Action, states that [ldquo]Forest community impacts would consist of either maintenance of the existing community or a shift from the existing

community towards oak and hickory dominated forest communities as competing and invasive species are removed or eliminated through harvests and intermediate treatments.[rdquo]25 For Direct and Indirect Effects, the Vegetation Report states:Direct impacts to forest communities in stands proposed for treatment would occur immediately after treatments and consist of either maintenance of the existing community or a shift from the existing community towards oak and hickory dominated forest communities. Specifically, all harvest methods and intermediate treatments are designed to favor desired species, namely oak and hickory. With the removal of undesirable species, such as red maple, the percent stand composition (i.e. trees per acre expressed as a percentage) of desired species would increase immediately.26Kentucky Heartwood raised concerns in our scoping comments regarding the efficacy of oak regeneration following the Forest Service[rsquo]s proposed regeneration cuts in the Jellico project area. We reiterate all of the concerns and information included in our scoping comments. The bottom line is that stands in the Jellico project area do not have sufficient advance oak regeneration to result in a new cohort of oaks following regeneration cuts. The Draft EA states:Recent stand data and reconnaissance indicate high stem densities (i.e. over 2,500 stems per acre) of sugar maple in stands that are oak dominated suggesting that forest communities are shifting from dry-mesic and dry-xeric oak to mixed mesophytic.27This statement, describing how maples dominate understories in many oak stands in the Jellico project area, does not assert that there is sufficient advance oak regeneration to make a regeneration harvest successful with oaks. Our observations in the field indicate that there is little advance oak regeneration in these stands. We note that the Center for Biological Diversity has submitted two FOIA requests for CSE (Common Stand Exam) reports that would provide these data, but the Forest Service has only responded with data from a few stands, most of which have been dropped from harvest plans.It is also a basic fact of forest ecology that increasing abundance of maples under an oak or oak-hickory understory does not indicate a community shift from dry-mesic and dry-xeric oak to mixed mesophytic forest types. It is a different, distinct phenomenon. While the term [ldquo]mesophication[rdquo] is sometimes used to describe this understory compositional shift, mixed mesophytic forests represent a different forest assemblage than just oak forests with maple incursion.Without sufficient advance oak regeneration, the proposed regeneration harvests (especially shelterwood and clearcut) will serve to reduce or eliminate the oak component of many stands,25 Draft EA at 1326 Vegetation Report at 927 Draft EA at 4which is contrary to the purpose and need of the project and the Forest Service[rsquo]s requirements for assuring adequate stocking of desirable species.Kentucky Heartwood collected canopy tree species data in 2019 in 100 tenth-acre plots in oak-typed stands that were subjected to regeneration cuts on the Daniel Boone National Forest from 1985 through 1994. Plots were distributed across all four DBNF Ranger Districts, though no plots were located in the Jellico project area. All trees > 5[rdquo] DBH were recorded by species in order to assess which species appeared dominant or poorly represented. In particular, we were interested in determining whether or not these stands, which were typed as oak forests in the FSVeg database, remained oak forests three decades after regeneration. While we have yet to perform statistical analysis, the raw data demonstrate that regeneration cuts on the DBNF have largely failed in reproducing. Instead, the cuts have accelerated the loss of oak species and conversion to tulip poplar and red maple-dominated forests.The results of this sampling reflect years of observations of the Forest Service[rsquo]s failure to reproduce or regenerate oak through clearcutting and shelterwood methods [ndash] as is proposed in the Jellico project. The science is well-established. Oak reproduction and regeneration require multiple episodes of intermediate disturbance for advance oak reproduction to establish (regardless of whether or not overstory removal is desired). But the Forest Service continues to jump to the end of the process, against all science and best practices, conducting regeneration cuts (especially seed tree cuts incorrectly described as shelterwood cuts) before managing for advance oak regeneration in the understory.The White Oak Initiative produced the report [ldquo]Restoring Sustainability for White Oak and Upland Oak Communities: An Assessment and Conservation Plan.[rdquo] The report is undated but appears to be from 2023. The U.S. Forest Service is listed as a partner and financial contributor to the White Oak Initiative. The report includes a section on [ldquo]Upland Oak Management Techniques.[rdquo]As a part of the White Oak Initiative, Dr. Jeff Stringer at the University of Kentucky coordinated leading oak researchers and practitioners in the development of a suite of 10 management practices to sustainably manage oak over the wide range of stand ages and conditions that occur across the region. Where appropriate, specific recommendations were provided for white oak.The management guidelines that have been developed for each practice include specific information on when and under what conditions to apply the practice,

and details of how to implement and monitor the practice to ensure oak success in upland hardwood stands. Because of white oak[rsquo]s importance, specific information on how to apply the practice to enhance white oak is also provided.28Under [ldquo]Harvesting[rdquo] the report states:Several practices are designed to do this. A shelterwood harvest retains approximately 50 percent of the overstory, delivering an appropriate amount of reduced sunlight that favors the oaks while slowing competitors such as yellow poplar that grow quickly in full sunlight.29Note here that the report describes shelterwood as retaining [ldquo]approximately 50 percent of the overstory,[rdquo] while the Jellico project uses the term [ldquo]shelterwood[rdquo] to describe harvests that remove 85 to 90 percent of the overstory ([ldquo]Similar to a clearcut, this treatment would remove most trees; however, approximately 10-15 percent of the residual stand would be retained[rdquo]30). What the report describes as [ldquo]shelterwood,[rdquo] as an effective component of oak management, is what the Forest Service describes as [ldquo]thinning[rdquo] in the Draft EA ([ldquo]This treatment would remove approximately 40-60 percent of the trees and retain 40-60 percent[rdquo])31.Note also that the report describes how retaining 50% of the overstory allows for an appropriate environment [ldquo]that favors oaks while slowing competitors such as yellow poplar that grow quickly in full sunlight.[rdquo] Kentucky Heartwood discussed this issue in detail in our scoping comments [ndash] namely that intensive cuts, like the proposed shelterwood and clearcut prescriptions, serve to bolster oak competitors at the expense of oaks.The report also recommends group cuts:At times, group openings or gap cuts, one-half to two acres in size, can be harvested. The edge around the openings is partially shaded from the adjacent unharvested forest, encouraging oak growth while slowing shade-intolerant competitors Restoring Sustainability for White Oak and Upland Oak Communities: An Assessment and Conservation Plan at 40 29 Id. at 42 30 Draft EA at 11 31 Id. 32 Restoring Sustainability for White Oak and Upland Oak Communities: An Assessment and Conservation Plan at 42Kentucky Heartwood discussed the efficacy of small group selection harvests over larger regeneration systems in our scoping comments. We note that, as described in the response to comments document, the Ruffed Grouse Society also suggested expanding gap (femelschlag) systems in the Jellico project. Harvests of this type are far less impactful with regard to many of the resource concerns that Kentucky Heartwood and others have voiced (e.g., landslide hazards, conservation of interior forest blocks, etc.). However, these types of harvests have not been included in the project.The report also describes how and when a deferment harvest can be used, and offers a distinctly different definition and practice than the Forest Service is using in the Jellico project:A third type of harvest, called a two-age deferment harvest, can be used to help with long-term oak sustainability if a harvest is required when limited advance regeneration or stump sprouters are present. This practice retains scattered, long-lived overstory oaks (reserve trees) while all other overstory trees are removed.A regenerating age class will start to grow beneath them but without any oaks, due to the lack of advance regeneration or stump-sprouters. The oak reserve trees are kept to ensure that acorns continue to be produced in the stand. While the rapidly developing regenerating class will be devoid of dominant oaks, the reserve trees will continue to produce acorns. As the regenerating stand develops below the reserve trees, the acorns produced will start to establish seedlings that can be cultivated and initiate the development of advance regeneration that can be used to establish oak in the next generation 50-70 years in the future, when the forest will be harvested again. This practice is used to [ldquo]life-boat[rdquo] oaks in the stand. If the oak regeneration potential is low or nonexistent when a harvest occurs and the overstory oaks are removed, there is little chance of easily reintroducing oak back into the stand. The two-age deferment harvest ensures that long-lived oak species such as white oak can be maintained in the stand for future regeneration.There are several things to note in this section. First, this description of how a deferment harvest is to be used to support oak reproduction does not include an overstory removal after 10 to 15 years, as described in the Jellico project. Under the system recommended by the White Oak Initiative, overstory trees are retained throughout the development of the regenerating understory until [ldquo]50-70 years in the future, when the forest will be harvested again.[rdquo]And perhaps most importantly, is the statement that [ldquo]If the oak regeneration potential is low or nonexistent when a harvest occurs and the overstory oaks are removed, there is little chance of easily reintroducing oaks back into the stand.[rdquo] This is critical. This is also completely known and understood. It does not matter that the Forest Service plans to use herbicide and other tools to kill competing vegetation. Without advance oak regeneration, jumping to overstory removal will knock out oaks for the long-term.The Forest Service and others have begun to advance artificial regeneration (planting) following harvest as a means of establishing oak after a harvest when advance oak regeneration is insufficient. This is not proposed

in the Jellico project. If the Forest Service plans to using planting as part of its strategy then this needs to be made explicit. Regardless, the White Oak Initiative report describes the difficulty of this technique:Enhancement/enrichment planting can be used directly before or after harvesting to establish oaks. This practice requires planting oak seedlings and using appropriate competition control measures to [ldquo]enhance or enrich[rdquo] the naturally regenerating age class that is deficient in oaks. While this practice of planting oak seedlings directly before or after a harvest seems like a direct means of regenerating oaks, it has significant hurdles. Browsing by wildlife of the planting seedlings is common and is exacerbated by the high level of nutrients in seedlings from tree nurseries. Protection for the seedlings can be required, adding cost to the practice. Also, practices needed to adequately control competing species can be significant and costly. Plastic mulch, tree shelters, herbicides, or mechanical controls of competing species may be required. The high cost and degree of risk involved in planting oak seedlings in natural forests currently precludes the widespread use of this practice.33 (Emphasis added)The report ranks its [ldquo]Ten Suggested Upland and White Oak Management Practices,[rdquo] with intermediate treatments [ndash] and not significant regeneration harvests as proposed in the Jellico project [ndash] as being the priority tools for supporting oaks.The Jellico project would advance practices and systems that, under current conditions, will serve to reduce oaks in the Jellico mountains. Is the DBNF emphasizing high-volume timber sales over science and best practices to meet timber quota objectives? If not, then what reasoning is there for ignoring this well-known science?H.Socioeconomic analysisThe socioeconomic analysis for the Jellico project is decidedly one-sided and avoids a reasonable, unbiased accounting of costs and benefits. Incorporated into these comments as Appendix D is a review of the Socioeconomic Analysis: Jellico Vegetation Management Project conducted by Zachary Christin, Research Economist with Equilibrium Economics. The conclusion reached by this analysis is that:Results show that, for the Proposed Action, clearcutting and two-age shelterwood practices will induce costs between $5.0M to $18.5M in just the first year. Likewise, under Alternative 1 option of only two-stage shelterwood practices, practices will induce costs between $2.1M to $12.7M in just the first year.It is worth highlighting that costs are not limited to the first year and will continue to be incurred each year until the first succession species replace this value, likely in a diminished capacity. It is also worth highlighting that the Year 1 costs highlighted here negate the net benefits identified in the Socioeconomic Analysis of $1.4M over the life of the project.34 (emphasis added) 33 Id at 4434 Christin, Zachary. Appendix D. Response to Socioeconomic AnalysisThank you for the opportunity to submit these comments. If you have any questions or need clarification on any issues we have raised please do not hesitate to reach out. Kentucky Heartwood and our members are very invested in, and concerned, over the future of the Jellico section of the Daniel Boone National Forest. We encourage you to take these and others[rsquo] comments into serious consideration and look forward to future dialogue over the future of these forests.Sincerely,Lauren Kallmeyer, Executive DirectorKentucky Heartwood