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Robert Claybrook
Redbird District Ranger
Daniel Boone National Forest
91 Peabody Road
Big Creek, KY 40914

February 21, 2022

Dear District Ranger Claybrook,

Please be advised that Kentucky Heartwood has retained the counsel of Environmental and Animal Defense. On behalf of Kentucky Heartwood, we submit the enclosed supplemental information letter and USB with referenced attachments, pursuant to the National Environmental Policy Act, 40 C.F.R. § 1502.9(d)(1)(ii); 36 C.F.R. 220.4(j)(1)(iii).

We would also like to arrange a telephone conference to discuss the possible remedies that the U.S. Forest Service may conduct in order to rectify the issues presented in the supplemental information letter. Please contact our office by phone or by email, listed below, to arrange this conference within 14 days of receipt of this letter.

We look forward to speaking with you,

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KENTUCKY HEARTWOOD

Protecting the Beauty and Wellbeing of Kentucky's Native Forests

Robert Claybrook
Redbird District Ranger
Daniel Boone National Forest
91 Peabody Road
Big Creek, KY 40914

February 21, 2022

RE: South Red Bird Wildlife Habitat Enhancement Project

Dear District Ranger Claybrook,

Kentucky Heartwood is requesting that the Daniel Boone National Forest pause implementation of the South Red Bird Wildlife Habitat Improvement Project (South Red Bird project) until a supplemental environmental analysis is completed that adequately addresses the issues raised in this letter or the project is modified to remove the actions that have not been analyzed in accordance with law. The issues described in this letter represent significant new information related to the South Red Bird project. We believe that the following information demonstrates that the Decision Notice (DN) and Finding of No Significant Impact (FONSI) are based on incomplete and flawed information, and that a supplemental analysis for this project is required by law.

Where significant new information is presented to an agency after environmental analysis for a project is complete, the agency has an obligation under NEPA to supplement its original findings. "An agency's NEPA responsibilities do not end with the initial assessment; supplemental documentation 'is at times necessary to satisfy the Act's 'action-forcing' purpose.'" *Price Rd. Neighborhood Ass'n, Inc. v. U.S. Dep't of Transp.*, 113 F.3d 1505, 1509 (9th Cir. 1997) (quoting *Marsh*, 490 U.S. 360, 371 (1989)). NEPA requires an agency to supplement an EIS where there are "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." 40 C.F.R. § 1502.9(d)(1)(ii). Likewise, Forest Service NEPA procedures require supplementation regardless of whether the original document was an EIS or an EA. See FSH 1909.15 sec. 18.4 (explaining that supplementation is necessary if "changes in the EA are needed to address environmental concerns that have a bearing on the action or its impacts").

An existing environmental analysis prepared pursuant to NEPA cannot support future Forest Service action where "[a]ny new information or circumstances relevant to environmental

concerns” would “substantially change” the agency’s analysis. 36 CFR 220.4(j)(1)(iii). Thus, Forest Service officials apprised of new information or changed circumstances—i.e., information not previously before “the attention of the responsible official”—must conduct an interdisciplinary review to determine whether the effects of that information were considered in the original environmental analysis. FSH 1909.15, Sec. 18.1. If not, the Forest Service must supplement or revise the project’s EA, reconsider the original project decision, and prepare a new FONSI if applicable. FSH 1909.15, Sec. 18.4. Consideration of new information in a non-NEPA process “cannot repair deficiencies in the original environmental analysis or documentation.” *Id.*, Sec. 18.1.

This letter includes significant new information and changed circumstances affecting the environmental impact of the proposed action which were not adequately considered in the environmental analysis for the South Red Bird project. The information presented below is highly relevant to the agency’s assessment of likely impacts and, had this information been considered, would almost certainly have resulted in modification of the proposal in order to comply with the requirements of law. The information presented in this letter includes events that took place or became known after the Forest Service made its decision authorizing the project. The letter also details information which arguably should have been analyzed and disclosed previously, but which was not before the responsible official’s attention at the time of the decision because of mistakes and omissions in the prior analysis. A supplemental EA is therefore obligatory, unless the agency drops the proposed actions for which prior analysis did not account for the effects of this new information.

First, serious natural disturbance events in February and March 2021 altered the forest composition of the project area and represent significant changed circumstances which must be considered. The final Environmental Assessment (EA) found 0% young forest habitat within the South Red Bird IRMA, and the project was designed to create such habitat through timber harvest. Indeed, the Forest Service declined to adopt a lower-risk alternative on the basis that it would not provide enough young forest. However, Forest Service desired conditions for stands in the 0-10-year age class include those created by natural disturbance, and such disturbances have now undermined the need for the project and the dismissal of lower-risk alternatives. During February and March, heavy rain, wind, and ice contributed to extensive treefall. Young forest created by these natural events must be considered before the project proceeds.

Additionally, documents obtained through our FOIA request have revealed inconsistencies and inaccuracies in the calculations of stand ages and old-growth evaluations for the South Red Bird project. Necessary corrections for these miscalculations represent substantial changes to the original analysis for the project. These errors are particularly apparent in the determinations of potential old-growth status (POG). In the supplemental analysis for this project, we request clarification on the 8 potential old-growth sites discussed by the Forest Service as possibly meeting old-growth criteria but which were excluded from POG classification without explanation. We also illuminate errors the Forest Service made in the calculation of stand ages through stand exams, including using an insufficient number of plots for stands which are heterogenous in composition. Biased sampling methodology and failure to evaluate multi-age

forests differently from even-aged forests resulted in the Forest Service finding stands to be younger than their true age and constituted a failure to take a hard look at the effects of logging old-growth forests. Correcting these miscalculations represent significant changes to the original environmental analysis, the effects of which could not have been accurately considered in original documents. This information should not only have been considered by the decisionmaker, but should also have been disclosed to the public. In particular, the Forest Service should amend or explain its decision to exclude the proposed Natural Research Area at the Right Fork of Elisha Creek from POG classification. This is especially important considering newly verified old-growth and POG stands, as well as the important Pine Mountain tigersnail population connected to that area.

The Forest Service should also account for the discovery of the national champion red hickory (*Cary ovalis*) in a harvest unit in the Little Flat Creek watershed. The measuring of, submission for certification, and forthcoming certification of this tree as a national champion represent significant new information and circumstances which affect the proposed actions in the South Red Bird project area. While the Forest Service has not marked the tree for harvest, it has not analyzed or disclosed impacts to the tree from cutting all the surrounding trees and locating a road over its root zone. The new information and circumstances must be considered in a supplemental EA for this project.

Because of the Forest Service's failure to perform adequate surveys during the NEPA process, we also conducted surveys of bat populations in the South Red Bird project area. We found evidence of Indiana bat and northern long-eared bat colonies. We also recorded the presence of federally-endangered grey bats, which the Biological Assessment and Evaluation (BAE) said were absent from the project area. This information too must be considered in the Forest Service's supplemental analysis.

Finally, we submit substantial new information about landslides in the project area. Although landslides have been an issue throughout the NEPA and objection processes, additional information regarding landslide risk continues to accumulate and undermine the Forest Service's analysis and decision.

Below, we provide this new information in detail and explain how new information and changed circumstances require project modifications and/or supplemental analysis. Until those steps are taken, the project must halt. As Forest Service NEPA procedures explain, when new information relating to a project's environmental impacts comes to the responsible official's decision, implementation can continue only after interdisciplinary review and completion of needed supplemental analysis. FSH 1909.15, Sec. 18.1.

I. Procedural History

- February 22, 2017 - First public workshop/meeting for South Red Bird IRMA. Kentucky Heartwood participates and raises concerns over old-growth, interior forests, and limited non-motorized recreational access.
- April 24, 2017 – Jim Scheff (Kentucky Heartwood) emails Jared Calvert (DBNF staff/ Project team leader) with literature on alternative silvicultural methods (i.e., old-growth silviculture, structural complexity enhancement) as a follow-up to discussion from the February 22, 2017 workshop.
- May 2, 2017 – South Red Bird Field Trip. Kentucky Heartwood invited by USFS to talk about old-growth issues. USFS took participants to an SRB fire salvage unit, Fish Trap strip mine, and noncommercial ESH/Grouse Habitat site in the Group One project. The potential of restoration of the strip mine site for grassland habitats and ESH dependent species was discussed on site¹. The DBNF did not propose or consider planting or management of native grassland habitat in reclaimed strip mine sites for wildlife habitat as suggested, instead relying completely in timber harvest.
- August 24, 2017 – Second public meeting and workshop. Kentucky Heartwood participates and again advocates for old-growth and interior forest management. Kentucky Heartwood suggests alternative silvicultural methods (i.e. “old-growth silviculture”) and non-commercial methods for creating ESH for habitat (including intensive management of old-clearcuts/third-growth forests in the project area) as a means to limit impacts to older and interior forests.
- February 20, 2018 – USFS public meeting in Berea to discuss forestwide management. Redbird District table has first publicly available map of proposed South Red Bird management.
- March 1, 2018 – USFS mails scoping letter to public.
- April 1, 2018 – Kentucky Heartwood submits scoping comments to DBNF on behalf of Kentucky Heartwood and the Center for Biological Diversity. Comments emphasize old-growth and forest age classifications, alternative silviculture to promote old-growth, ESH and grouse, Kentucky arrow darter & snuffbox mussel concerns, and other issues.
- April 26, 2018 – USFS holds meeting with members of Ruffed Grouse Society. Kentucky Heartwood was invited by the RGS KY Chapter Chair. At RGS request, Kentucky Heartwood created and provided maps of forest cut in the 1980s and 1990s to consider as focal areas for management, specifically cutting back these young forests. Meeting participants strongly supported this approach.

¹ A representative for the Rocky Mountain Elk Foundation followed up with letter to USFS regarding strip mine site stating: “I realize there may be some internal desires to reforest that particular site- but having an opening of that size planted with native warm and cool season grasses would be a magnet for elk on the Redbird! Not to mention the host of other wildlife species (and hunters) that could benefit. If and when the time comes- I would hazard to say that RMEF would be very interested in offering funding support to a proposal for such habitat stewardship work. Likewise, I think my connections with NWTf and Zak’s relationship with the grouse-related sporting groups could generate additional matching funds. In short- there is great potential for this site so please keep me in mind when discussions arise!”

- June 12, 2018 – Kentucky Heartwood submits additional comments for consideration following field observations. Comment letter included discussion of specific alternatives (i.e., managing old clearcuts/third-growth forests) for grouse and limiting impacts to Kentucky arrow darter. The letter stated that: “Instead of limiting thinning to the release of individual potential mast trees, the Forest Service ought to re-establish ESH by cutting down nearly all stems excepting for potential mast trees (oaks, hickories, etc.). This approach is consistent with discussions that the Ruffed Grouse Society had at a meeting with the Forest Service on April 26th in London, which we attended. This approach is also consistent with the KDFWR Ruffed Grouse & Young Forest Strategic Plan 2017-2027, which includes for Objective 1, Strategy 2, “Use noncommercial practices to perpetuate high-stem density.”
- October 16-18, 2018 – Invitation-only “Daniel Boone Collaborative Meeting” hosted by DBNF and Rocky Mountain Elk Foundation in Redbird to discuss and plan logging and habitat management in South Redbird and elsewhere in DBNF. Kentucky Heartwood was not invited or notified, and DBNF staff later denied this meeting occurred and refused to provide documents through FOIA. Materials were provided through subsequent FOIA after Kentucky Heartwood informed DBNF staff that Kentucky Heartwood had learned of the meeting from certain participants.
- November 15, 2018 – Kentucky Heartwood submits letter to Redbird District Ranger Robert Claybrook regarding South Red Bird and Group One projects. Kentucky Heartwood raised concerns about non-native invasive plant (NNIP) infestations in logged areas in the Group One project. Kentucky Heartwood also informed Ranger Claybrook that they had looked at stand 0024 in the Little Flat Creek watershed (which was proposed for shelterwood logging). Kentucky Heartwood noted that the stand age in the DBNF database was 134 years, and that the forest appeared to have well-developed old-growth characteristics and needed to be assessed following the Region 8 Old-Growth Guidance.
- December 18, 2018 – District Ranger Claybrook responds to Kentucky Heartwood request for old-growth inventory in Little Flat Creek stating: “In regard to your concern for possible old growth in Stand 08311727010024 in the Little Flat Creek drainage, this stand has been inventoried for old-growth criteria and their status has been determined... Based on inventory data it has been determined that this stand does not meet the necessary criteria to be considered potential old-growth.”
- February 8, 2019 – Kentucky Heartwood submits FOIA request for documents pertaining to the South Red Bird Wildlife Enhancement Project.
- February 25, 2019 – Kentucky Heartwood emails Ranger Claybrook asking for clarification on which old-growth criteria were not met in the Little Flat Creek stand.
- February 26, 2019 – District Ranger Claybrook responds regarding the Little Flat Creek stand stating: “In May of 2017 a stand exam was conducted for Compartment 2701, Stand 24. A black oak, representative of the stand was chosen to be cored, and the age was approximately 65 years old. The Region 8 Old Growth Guidance requires the stand to be a minimum of 130 years old to qualify as existing old growth for Dry-mesic oak Forest Communities. While the stands layer reports a year of origin of 1884, this age was

previously reported in error and will soon be updated within the Forest Sampled Vegetation (FSVeg) Spatial Database.”

- March 26, 2019 – Public meeting for Forest Plan Amendment. Kentucky Heartwood brings pictures of erosion, slumps, and unstable slopes from the Group One Project and shows to DBNF staff, including Forest Supervisor and Deputy Supervisor.
- April 26, 2019 – USFS provides response documents to Kentucky Heartwood in response to February 18, 2019 FOIA request. The response documents provided were very limited, excluding a majority of the documents requested. Most of the documents provided were redacted or represented very old, non-project related documents.
- November 6, 2019 – Notice of publication of the Draft EA is published. Draft EA increases the amount of logging in the project, adding 725 acres of variable density thinning along 45 miles of roadsides. The Draft EA fails to disclose that two road sections added for logging are outside of the South Red Bird analysis area, including an area in the Designated Old-Growth management area along Big Double Creek.²
- December 6, 2019 – Kentucky Heartwood submits comments on the Draft EA on behalf of Kentucky Heartwood, the Center for Biological Diversity, and the Kentucky Resources Council. Comment letter raises concerns over old-growth and interior forests, aquatic habitats for federally-listed species, alternatives for creating/managing ESH, invasive species, oak recruitment, and other issues. Kentucky Heartwood presents information on the discovery of landslides in the Group One project, and raises concerns that analogous conditions exist in the South Red Bird project area. Data collected by Kentucky Heartwood demonstrating that regeneration harvests in Redbird have failed to result in oak recruitment are presented. Also included are data on tree ages and large tree distribution in the Little Flat Creek site (2701-24) demonstrating that the stand meets R8 Old-Growth Guidance criteria.
- February 12, 2020 – DBNF publishes notice of Final EA and Draft DN and FONSI. Final EA includes an Addendum to the Soil and Water Report addressing landslide issues raised by Kentucky Heartwood in their comments on the Draft EA. DBNF removes stand 2701-24 from proposed harvest but still refutes old-growth status. Data presented by Kentucky Heartwood was not addressed.
- March 20, 2020 – DBNF cancels objection process on account of COVID-19 emergency with intent to reinstate objection process.
- May 7, 2020 – DBNF creates “Errata to Soil and Water Report” revising slope data included in the Addendum to the Soil and Water Report. The Addendum asserted that slopes in Group One were much more steep than in South Redbird. The Errata presented slope values for South Red Bird that were essentially the same as those found in Group One. However, nowhere did the Forest Service address the fact that the portion of their rationale stating that landslides would not be a significant issue because of differences in slopes was incorrect and based on faulty data.

² The addition of logging outside of the South Red Bird analysis area was only denoted through changed symbology in the project area map, and was not discussed in the effects analysis. The effects analysis points to *not* logging the Designated Old-Growth in Big Double as a primary reason for not needing to manage for old-growth in the South Red Bird project area.

- August 19, 2020 – DBNF reinitiates objection process.
- October 5, 2020 – Kentucky Heartwood submits a predecisional objection on behalf of Kentucky Heartwood and the Kentucky Resources Council. The objection addresses several issues, and brings forward new information about landslides in the Group One project, including facts that refute the Forest Service’s reasoning and effects determinations in the Addendum to the Soil and Water Report.
- November 16, 2020 – Kentucky Heartwood submits a FOIA request for documents relating to the South Red Bird and Group One projects, updating and expanding the request from February 8, 2019.
- December 9, 2020 – Objection Resolution meeting for the South Red Bird project held online. Ruffed Grouse Society participated as objectors, despite the objection submitted by RGS not meeting the requirements of the Sec. 218 regulations (i.e., complaints in objection letter did not connect to any previous issues raised). DBNF presents new analysis and report addressing landslides, though information is ultimately dismissed by Forest Supervisor.
- January 19, 2021 – USFS issues Final DN and FONSI. Forest Supervisor makes no substantive changes to the project and dismisses use of new information on landslides presented by Forest Soil Scientist Claudia Cotton.
- January 25, 2021 – USFS provides approximately 16,000 pages of documents in response to the November 16, 2020 FOIA request. Among the response documents are draft Stewardship Agreement documents and correspondence between the Ruffed Grouse Society and DBNF regarding the South Red Bird project, including financial relationships and commitments to the RGS for timber and other incentives to take on management of the South Red Bird project. Documents demonstrated that DBNF and RGS were coordinating on implementation of the project before, during, and after the objection period without disclosing the information to Kentucky Heartwood. The FOIA response included a large number of documents, many of which are described in detail in this letter.
- May 15 – August 15, 2021 – Kentucky Heartwood conducts acoustic surveys for federally-listed bats in South Red Bird project area.
- June and September 2021 – Kentucky Heartwood assists with permitted tree coring research in the South Red Bird project area following review and field-checking of CSE (common stand exam) reports provided in the January 25, 2021 FOIA response.

II. Information Arising After the Decision

1. Recent natural disturbance events

Severe weather events in February and March 2021 (after the final decision was signed) require supplementation. The severe weather, including severe rain, wind, and ice events, resulted in substantial canopy disturbance and treefall across the Redbird District and South Red Bird project area. The disturbance caused by these severe weather events represents changed circumstances which undermines the purpose of the project and the basis on which less harmful alternatives were dismissed. The disturbance also substantially changes the environmental impact of the South Red Bird project, because artificial creation of young forest would be additive and overshoot the analyzed levels of young forest asserted to be needed in the project area. Natural disturbance can and does provide suitable habitat for species utilizing ESH, including ruffed grouse. An article in the May/June 2021 edition of Bugle, the newsletter of the Rocky Mountain Elk Foundation, focused on management for elk and grouse in the South Red Bird project area. In that article, Kentucky Division of Fish and Wildlife Resources Wildlife Division Director, Chris Garland, is quoted stating that an EF-3 tornado in eastern Kentucky resulted in the creation of habitat beneficial to grouse, and resulted in an increase in the local grouse population.

“We started hearing rumors that the grouse had responded, so we went in and surveyed, and it was pretty amazing how they’d come back,” Garland says. “Obviously, none of us would ever wish for a tornado, or want our habitat stewardship to look like one, but it demonstrates just how quickly and strongly wildlife can respond to some major disturbance.”³

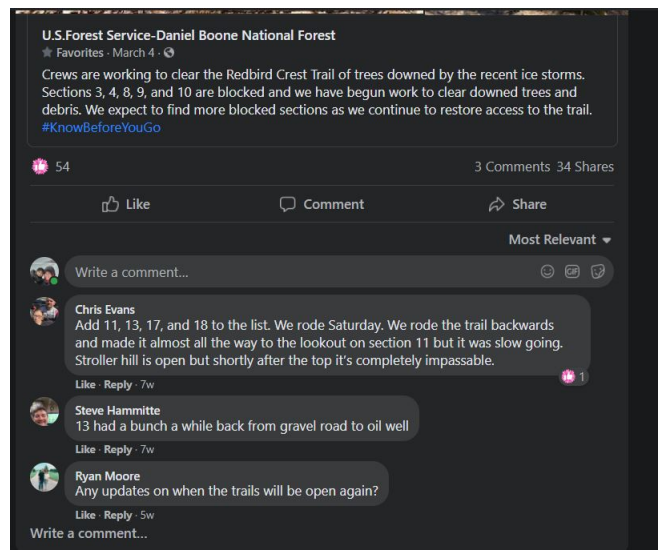
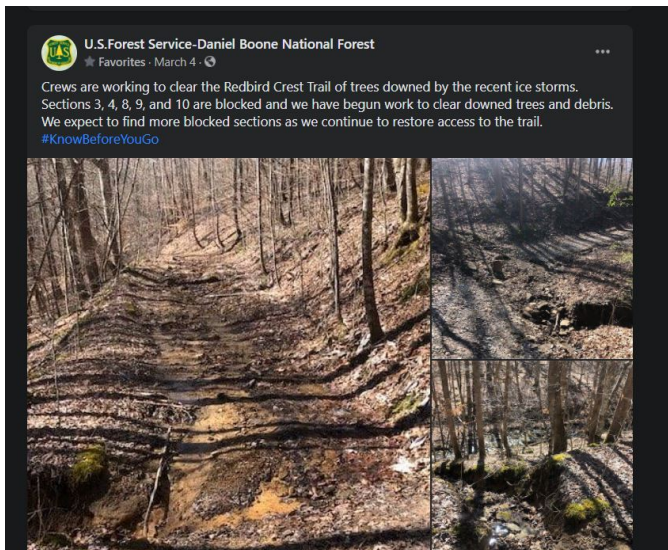
The Forest Service must consider the impact of this information in a supplemental EA.

The February 1, 2022 scoping notice for the Hector Mountain Salvage project, which proposes up to 250 acres of salvage logging in the Redbird District under a Categorical Exclusion, states that “Between February 8, 2021, and February 16, 2021, a series of severe ice storms sweeping west to east severely impacted the high elevation forest stands of the Redbird Ranger district.” (See Hector Mountain Salvage scoping letter at 1).

On March 4, 2021, the Daniel Boone National Forest made a Facebook post stating:

Crews are working to clear the Red Bird Crest Trail of trees downed by the recent ice storms. Sections 3, 4, 8, 9, and 10 are blocked and we have begun work to clear downed trees and debris. We expect to find more blocked sections as we continue to restore access to the trail. Members of the public responded to the post stating that Sections 11, 13, 17, and 18 were also blocked by fallen trees.

³ Kentucky’s Finest, REMF’s First, by Dan Crockett in Bugle, May/June 2021



Figures 1 and 2: Facebook post from Daniel Boone National Forest dated March 4, 2021

In a March 16, 2021 Facebook post the Daniel Boone National Forest posted:

The Red Bird Crest Trail is CLOSED.

As crews began work to assess and clear the trail following February's ice storms and subsequent flooding, they realized that the extent of the damage required a complete closure. This closure will allow crews to clear debris and repair damaged sections without putting visitors at risk. We will provide updates as sections are cleared and reopened to the public.

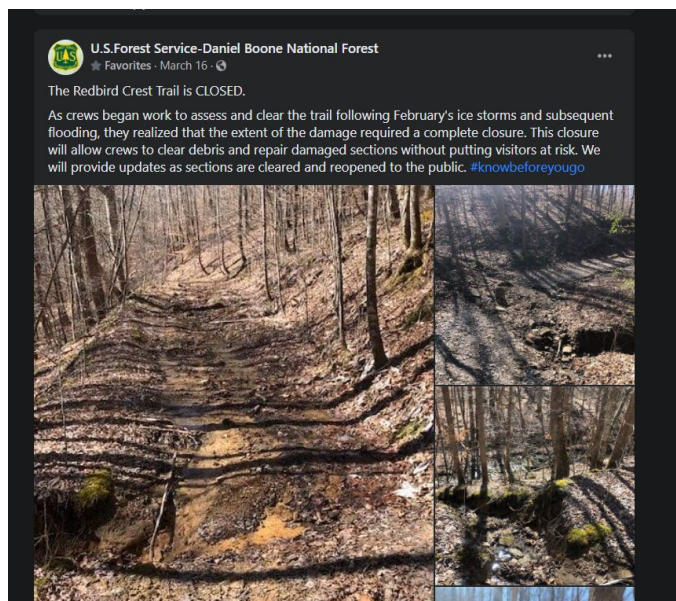


Figure 3: Facebook post from Daniel Boone National Forest dated March 16, 2021

On March 26, 2021, the Daniel Boone National Forest posted on Facebook:

Red Bird Ranger District – The Red Bird Crest Trail remains **CLOSED** to visitors as trail crews work to clear sections of downed trees and limbs due to an ice storm that occurred in the area.



Figure 4: Facebook post from Daniel Boone National Forest dated March 26, 2021

On April 28, 2021, the Alerts & Notices page on the Daniel Boone National Forest website had a notice that the Red Bird Crest trail was “closed due to storm damage,” including trailhead recreation sites.

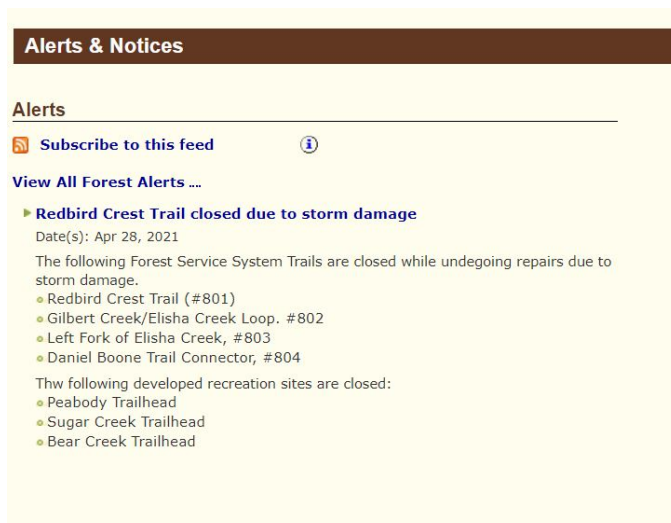


Figure 5: Screenshot from Daniel Boone National Forest website dated April 28, 2021

In June 2021, the Daniel Boone National Forest webpage changed the status of the Red Bird Crest Trail to “Open.” However, we found that as late as June 24, 2021, Section 7 of the Red Bird Crest Trail was still blanketed in down trees and debris. We do not know if or when that section was cleared, or if other sections remained similarly impassible after the trail was officially reopened by the Daniel Boone National Forest.

Our examinations of the forest along Section 7 of the Red Bird Crest Trail revealed substantial amounts of canopy disturbance resulting in mid-density forest and early seral habitat from canopy breakage and treefall. Based on the Forest Service’s prolonged closure of the entire 95-mile Red Bird Crest Trail system, it is reasonable to surmise that similar conditions occurred throughout the South Red Bird project area and 5th level (HUC 10) Red Bird River watershed.

Figure 6 (below) is an image of a shelterwood harvest presented in the Final EA for the South Red Bird project meant to illustrate habitat conditions created through planned timber harvests. Figures 7 through 11 (below) show examples of existing and recently created mid-density forest and early seral habitat created by natural disturbance in the Mosely Fork and Elisha Creek areas.

The primary purpose of the South Red Bird project, as described by the Forest Service, is to meet 1.K-Objective 1.A., which states:

Maintain 5 to 6 percent within each 5th level watershed in the 0-10 age class, ***including the effects of catastrophic events***. Site-specific stand conditions will determine timing of harvest. Rotations are expected to normally range between 140 and 190 years. Stands with a predominance of trees that have a shorter life expectancy or are in poor condition should have shorter rotations. Stands with a predominance of trees that have a longer life

expectancy and are in good condition should have longer rotations. (Forest Plan 3-35, emphasis added)

The Final EA states that “there is currently no (0%) young forest habitat within the South Red Bird IRMA.” (Final EA at 42). Action 1 is designed to address this issue.

The Final EA also states:

Action 1: Early seral/ young forest habitat: Create approximately 2,220 acres of young forest habitat (0-10 years old) using the following methods:

• **Action 1.A: *Modification-Reduced: Two-aged Shelterwood:*** This habitat condition is created by reducing basal area to 10 – 20 ft²/acre, but retains about 7 – 20 select trees per acre, depending on their diameter, creating a community made up of older overstory trees and young trees that will eventually take their place. This will be accomplished through several small commercial timber harvests over the life of the project. Each shelterwood unit would be no more than 40 acres in size and buffered by at least 330 feet between it and the next two-age shelterwood. We would select units 40 acres or smaller in size within the stand boundaries delineated in the Proposed Actions Map (Figure 1 above), as well as the most appropriate treatment for the buffer areas (Action 1.C), based on current and desired conditions. Site selection for shelterwood units and their buffers would occur during project layout to create the best habitat structure possible, based on existing conditions (vegetation, slope, aspect, distance from riparian areas, etc.), state and federal Best Management Practices (BMPs), and project design criteria. Wood products removed in commercial operations would help to meet the needs of local industry and provide economic benefits to communities. Revenue obtained from commercial harvests would fund forest restoration and habitat improvement projects, such as non-commercial treatments, group selections, midstory treatments, planting trees, restoring streams, maintaining roads, and improving wildlife habitat.

In response to comments, 2,300 acres originally proposed for shelterwood treatment have been reduced to approximately 2,220.

• **Action 1.B: *Site preparation:*** Within the two-aged shelterwood units, site preparation for natural or hand-planted oak regeneration would be conducted using a cut-surface treatment of an herbicide a cut surface herbicide application may be felled or remain standing to provide forage and roosting habitat for bats and bark-foraging birds, such as nuthatches and woodpeckers. one to two years prior to the harvest, or immediately following the harvest to reduce re-sprouting of undesirable native and non-native tree species, such as red maple and paulownia, and to create additional snags and roost trees across the landscape. Prescribed burning may also be used to reduce undesirable species and promote native fire-adapted species.

• **Action 1.C: *Thinning for mid-density upland forest:*** To create age class and structural diversity in the areas between shelterwood units, a minimum buffer of 330 feet between two-aged shelterwood stands may be commercially thinned, may receive a non-

commercial midstory removal with herbicide, or may remain untreated. Trees that receive a cut surface herbicide application may be felled or remain standing to provide forage and roosting habitat for bats and bark-foraging birds, such as nuthatches and woodpeckers.

Action 4 was approved to create an additional 300 acres of mid-density forest, in addition to the areas described in Action 1.C. The Final EA states:

Action 4: Modification-Substituted: Commercial Thinning, Mid-Density Upland Forest: Due to potential sensitive species habitat, approximately 300 acres originally selected for shelterwood treatment would receive commercial thinning instead. These 300 acres, divided into eight treatment areas, would be thinned to approximately 60 ft²/acre of basal area, retaining about 30-60 trees per acre, to create a dense shrub/sapling layer and high canopy structure made up of mid- to old- age canopy trees. Unmerchantable and undesirable species would be treated with a cut-surface treatment of herbicide to reduce re-sprouting and competition and to create additional snags and roost trees.

The Forest Plan states:

1.K-Objective 1.D. Maintain five percent within each 5th level watershed in stands thinned to 60-70 basal areas.

The Final EA states that:

Inventory sampling within the IRMA area found that almost 7% of stands sampled fell within the 60-70 BA range... thus exceeding desired condition set in the Forest Plan that calls for 5% of forest stands to be within 60-70 BA. (Final EA at 39)

Despite the Forest Service recognizing that the amount of forest with a basal area of 60 to 70 ft²/acre already exceeded the desired condition in the Forest Plan, timber harvest was approved to create more forest meeting these conditions. Three hundred acres were approved for harvest to create mid-density forest with approximately 60 ft²/ac through Action 4, while an undisclosed additional acreage of mid-density forest is approved through timber harvest under Action 1.C. The extensive natural disturbance which occurred across the project area in early 2021 appears to have added even more acreage of forest meeting this basal area objective. If the amount of mid-density forest meeting these basal area objectives in the project area exceed Forest Plan Objectives, then additional timber harvest to create more habitat of this type is unwarranted.

The Forest Service needs to conduct appropriate inventories to determine how much mid-density and young forest habitat has been created through “the effects of catastrophic events” to ensure that the Forest Plan is being followed.



Figure 6. Example of shelterwood harvest presented in the Final EA (Fig. 14, p. 42)



Figure 7. Recent natural disturbance in the Mosely Fork area



Figure 8. Recent natural disturbance in the Mosely Fork area



Figure 9. Open grassy habitat following treefalls, Elisha Creek/Mosely Fork area



Figure 10. Open grassy habitat following treefalls, Elisha Creek/Mosely Fork area



Figure 11. Recent canopy disturbance in the Mosely Fork area

2. Errors in stand ages and old-growth evaluations

It appears that the Forest Service made significant errors in determining forest stand ages in multiple locations. This has resulted in substantive errors, particularly as relates to determinations of potential old-growth (POG) status. Kentucky Heartwood has since verified existing primary old-growth forests which have inappropriately been approved for logging under the South Red Bird decision as a result of the Forest Service's errors. Additional old-growth and potential old-growth may have been effectively "hidden" from the record through recording incorrect stand ages in the FSVeg database and relying on those flawed data for purposes of analysis and management decisions. These errors may have long-term negative consequences by obscuring old-growth forests and effectively removing them from consideration for future conservation and scientific purposes. The variety and breadth of errors that we have found suggests that these errors in the South Red Bird analysis are systemic. A detailed and thorough evaluation of stands across the project area, using appropriate sampling effort and avoiding anti-old-growth bias, needs to be undertaken. Knowledge of these pervasive miscalculations represents substantial new information which is highly relevant to the environmental impacts of the South Red Bird project. It is clear from these miscalculations that impacts to old-growth forests were not before the attention of the responsible official. The Forest Service could not have adequately considered such impacts in the initial analysis, and thus NEPA requires the agency to analyze these data anew in a supplemental EA.

2.A. Forest Plan old-growth direction

Identifying old-growth forests is an important part of the Forest Plan. Identification, assessment, and documentation of old-growth sites is important for a variety of conservation, scientific, and cultural purposes.

Under Forestwide Goals and Objectives, the Forest Plan states:

Goal 1.4 Develop a network of old-growth areas of various sizes to support the distribution, linkages, and representation of old-growth forest community types on the Forest.

Objective 1.4.A. Within each management area, avoid regeneration of stands that are in 10-year age classes containing less than one percent of all forest land.

Objective 1.4.B. Maintain at least eight percent of each old-growth type (USDA Forest Service 1997) in patches at least 300 acres in size. Acreage can be contributed by any or all Prescription Areas that are recognized as *future* old-growth and by the 1.I Designated Old-Growth Prescription Area.

Objective 1.4.C. Continue the assessment of old-growth criteria in stands identified (USDA Forest Service 1997) as *possible* old-growth.

Footnote 4 to Goal 1.4 states:

These areas can be found in 1.I Designated Old-Growth or other Prescription Areas recognized as *future* old-growth. Managers also have the option to include individual stands that are managed as old-growth, regardless of the Prescription Area in which they are found. (Forest Plan 2-7)

The Forest Plan further states, under the Setting description for Prescription Area 1.I. Designated Old-Growth:

Examination of Future Old-Growth on the forest determined that the dry-mesic oak and mixed mesophytic hardwood (including American beech) were under-represented, with less than 8 percent by old-growth type (Forestwide Objective 1.4.B). (Forest Plan 3-26)

Assessing stands for old-growth conditions during the development of vegetation management projects, using appropriate methodology, is an integral part of the Forest Plan. Old-growth is severely limited and under-represented in the Daniel Boone National Forest and South Red Bird project area. The assessments performed in preparation of the South Red Bird analysis, and which provided the data used to develop the proposed action, were inherently biased against locating and conserving old-growth. In the environmental analysis, accurate information about old-growth forest was not at the attention of the responsible official for purposes of NEPA because it was obscured by biased and inaccurate methodology. The impacts of the proposed action on old-growth forests must be analyzed in a supplemental EA so that it can inform the decisionmaker and so that feedback can be elicited from an informed public.

2.B. South Red Bird analysis

In our review of the South Red Bird project record, comparing the publicly available NEPA documents and the nearly 20,000 pages of documents acquired through FOIA, we found multiple, significant errors in the methodology and determinations used to ascribe stand ages and perform the first filter for assessing the presence of possible old-growth (POG).

The Vegetation Report states:

Forest Plan Objective 1.4.C. encourages the assessment of areas to determine their status as Old Growth. Possible Old Growth (POG) criteria are presented in Table 3-25 of the Environmental Impact Statement for the Forest Plan (USDA 2004b). Data were analyzed to determine if any of the areas proposed for treatment currently meet the criteria for

POG. Data analysis indicates that there are no stands in the project area not within the proposed RNA that satisfy the conditions for classification as POG. (Vegetation Report at 6, emphasis added)

The Affected Environment document expands on this, stating:

Several stands in the South Red Bird IRMA were examined for old-growth characteristics. Old growth defined in 1997 R8 report, in accordance with the *Guidance for Conserving and Restoring Old-Growth Forest Communities on National Forests in the Southern Region: Report of the Region 8 Old-Growth Team, June 1997* (USDA 1997). This guidance states that old-growth status must meet five characteristics: 1) community type, 2) age, 3) past disturbance, 4) basal area, and 5) diameter at breast height (dbh). While some of the stands we examined met some of these criteria, no stand in the IRMA met all five characteristics.

An in-depth old-growth analysis was conducted for the SRB project. Based on that analysis, the Proposed Action does not designate any new stands of old-growth because 1) there is already 1,800 acres of Designated Old-Growth in the North Red Bird IRMA, which is part of the Red Bird River Watershed; 2) there are thousands of acres in the IRMA that will receive no action and allowed to continue to age; and 3) 160 acres of the Right Fork of Elisha Creek Proposed Research Natural Area has been set aside in the Forest Plan to be managed as old-growth. (Affected Environment at 20)

These statements are contradicted both by the project record and by our findings on the ground. It also must be pointed out that the Designated Old-Growth (DOG) area in the North Red Bird IRMA does not include any verified, existing old-growth forest. Based on DBNF stand information data, approximately 260 acres (14.4%) of the DOG meets the minimum age threshold for potential old-growth (POG). The area is designated such that management will allow the area to move *toward* an old-growth condition, where logging “may occur on an unscheduled basis to attain Desired Future Conditions.” (Forest Plan 3-26). Furthermore, the South Red Bird decision approved variable density roadside thinning (commercial logging) *in* the aforementioned Designated Old-Growth area along Big Double Rd/FR 1501. This is a fact that was not explicitly disclosed or discussed in the Final EA or elsewhere in the record.⁴ Additionally, of the 160 acres of the Right Fork of Elisha Creek pRNA, 20 acres (13%) were harvested in 1989, and another 71 acres (44%) are less than 100 years old according to the FS Veg database. That the Forest Service’s *future* old-growth is not, in fact, *existing* old-growth only underscores the importance of gathering accurate information about where and how much existing old growth is in the project area. Had the Forest Service taken this obligation seriously,

⁴ The fact the Forest Service approved logging in the Designated Old-Growth area, outside of the project area and IRMA boundary, was indicated solely in a project area map, and not disclosed in the project narrative. Logging was also approved outside of the project area/IRMA boundary along FR 1533. These prescriptions were not included in maps provided during scoping or the “collaborative” phase of project development.

it would not now be faced with the duty to reconsider its decision in light of new information it should have already considered and disclosed.

In an email from Andrea Felton to District Ranger Bobby Claybrook dated January 5, 2018 (seven weeks before the scoping letter was published), Ms. Felton lists 8 stands meeting the minimum age criteria for old-growth in the Forest Plan, stating:

- Jared was going to check out the stands near the Proposed Elisha Creek RNA—we had discussed allowing some to age into old-growth, but some are already Rx'ed for timber sales. Were you thinking you would like to designate an area for Old-growth IN and Adjacent TO the RNA? We need some clarification as to what to do there. Stands listed in Goals Matrix:
 - 2701-13
 - 2203-32
 - 2901-11
 - 2801-15
 - 3001-09
 - 3001-19
 - 3004-25
 - 3602-18

Given the importance of old-growth in the Forest Plan, and the fact that old-growth management in South Red Bird was raised early and often by Kentucky Heartwood during the “collaborative,” pre-NEPA phase of the project, it is dismaying to see that some stands may have been preemptively excluded from consideration for old-growth management because they were “already Rx'ed for timber sales” before scoping even occurred. As we demonstrate later in this letter, we have delineated and verified an area of existing old-growth adjacent to the pRNA, including stand 3001-09 listed above.

In a January 9, 2018 email to members of the project team, Gavin Wilson provided brief narrative descriptions of the above-listed potential old-growth (POG) stands. Each of these stands had been inventoried by the Forest Service prior to this phase of the analysis and were found to have met the minimum age criteria for old-growth. Mr. Wilson states in his email:

“So, that’s the stands considered for POG. There are three that are contiguous to the RNA. If you’re thinking about incorporating them into the RNA, I’m thinking that’s a congressional designation? Have to get a bit farther into the nuts n bolts on that one. Nothing says you can’t POG it and forget it. Right now we have 1800ac of designated Old Growth, all in North Red Bird.”

Silviculturist Jared Calvert responded to Mr. Wilson’s email, stating:

“Good work Gavin. See attached map showing the POG stands. I can bring that map to the meeting on the 19th and we can make a decision then on whether to propose designation of any of these stands.”

None of the aforementioned stands, nor any others, were proposed for old-growth designation in the South Red Bird project. We have reviewed nearly 20,000 pages of NEPA and FOIA documents related to this project and found no instances where the Forest Service considered whether the above-listed stands (or any others) met the disturbance, basal area, or large tree criteria (criteria 3,4, and 5) in the Forest Plan and R8 Guidance. How the Forest Service went from a list of 8 potential old-growth sites meeting the first two old-growth criteria to a determination that “there are no stands in the project area not within the proposed RNA that satisfy the conditions for classification as POG” appears wholly arbitrary and without justification. More importantly, they show that data regarding old-growth status, which is highly relevant to the decision of how to manage particular stands in order to meet forest plan goals, was not properly before the responsible official when the decision was made. In other words, the deciding official based their decision on incomplete and inaccurate presentations of non-public information. It appears as though the Forest Service has failed to apply the criteria for old-growth forests to these 8 sites despite stating that they have. And the record suggests that the agency has not considered these sites’ old-growth character in any meaningful way. Now that information about the 8 POG sites has been provided to the Forest Service, the agency has an obligation to give it a hard-look in a supplemental EA.

It is clear that the Forest Service failed to gather information necessary to evaluate and properly manage potential old-growth. We have found through an extensive review of common stand exam (CSE) reports acquired through FOIA that the Forest Service failed to properly evaluate stands for age classes and old-growth characteristics in the field. The result of these errors is that some old-growth forests, including high quality primary old-growth, have been mischaracterized as young forests and in some cases approved for logging. The statement in the Vegetation Report that “There would be no direct or indirect impacts to old-growth” (Vegetation Report at 28) is factually and demonstrably untrue. The reason for that arbitrary and capricious conclusion is the failure to consider the information we provide in this letter. As we demonstrate below, old-growth forests in the project area will be directly impacted by timber harvest and road building. The responsible official was misinformed in approving this project, and the public was misled.

Other statements in the record suggest that staff who were responsible for gathering information about the project were biased against conserving old growth, prejudicing the Forest Service from identifying old-growth in the project area. For example, in a June 11, 2019 email from Gavin Wilson to Andrea Felton and other project team members, Mr. Wilson states:

“Of course, we need to look at two things going forward – This little gem of analysis says that we will run out of CTR⁵ stands very soon, and many of our stands that are senescent and in need of regeneration will soon be approaching our “old growth standards”, at least from an age perspective.”

The above statement is illustrative of an outdated and scientifically incorrect belief that old-growth forests are inherently senescent (in the process of dying) or “overmature” and need to be

⁵ CTR stands for “crop tree release.”

cut (regenerated) for forest health purposes. In the document “South Red Bird Habitat Enhancement Project, Methods Used to Develop the Proposed Action,”⁶ Silviculturist Jared Calvert states that “We used GIS and FSVeg data to identify stands and areas that were likely to need treatment, most often based on age classes.”

Targeting older stands and investing staff time to create harvest prescriptions for them was prejudicial to the project. To be clear, the belief that forests are likely senescent simply because of their age is false and has been widely disproven in the ecological literature, but remains too prevalent among forest managers. A growing body of scientific literature demonstrates that old-growth forests continue to sequester large amounts of carbon and accrue biomass, with tree growth actually *increasing* with age in many cases.

McEwan et al. (2014)⁷ assessed disturbance and fire intervals using tree ring data from Lilley Cornett Woods and found that the oldest trees continued to increase in growth rate after more than two centuries.

There was some indication that ring widths increased consistently over the life span of the trees sampled here (grey line, Fig. 1b). Individual series exhibited long-term growth patterns characterized by suppression and growth pulses. For example, the oldest tree in the FHC was a *Quercus montana* (tomp panel, Fig. 2) that exhibited ca. 100 yrs of suppression followed by a growth release that resulted in a step change increase in growth rate. The overall pattern, as evidenced by the individual series (Fig. 2) and the mean for all samples (Fig. 1b), suggests that maximum growth rates for these trees were being achieved near the end of the chronology, after the trees were ca. 200 years old.

⁶ South Red Bird Habitat Enhancement Project, Methods Used to Develop the Proposed Action, 8/30/2019, Acquired as part of the January 25, 2021 FOIA response

⁷ Ryan W. McEwan, Neil Pederson, Adrienne Cooper, Josh Taylor, Robert Watts, and Amy Hruska. Fire and gap dynamics over 300 years in an old-growth temperate forest. *Applied Vegetation Science* 17 (2014) 312-322.

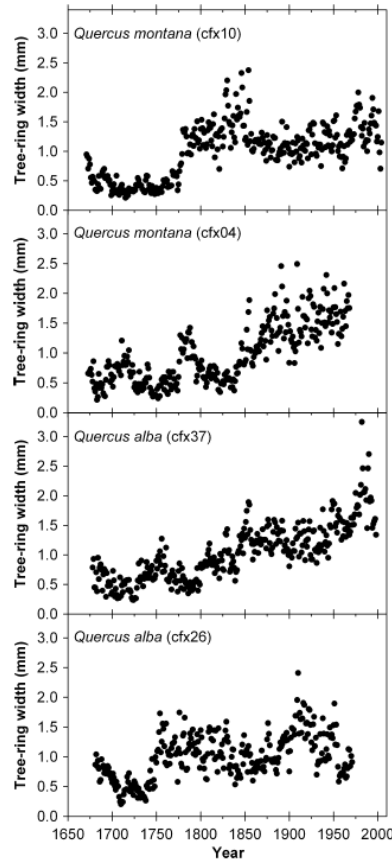


Fig. 2. Long-term growth patterns of the four oldest trees sampled as part of a fire history collection made in an old-growth temperate deciduous forest, central Appalachian Mountains, USA.

Figure 12. Old-growth chestnut oak ring widths from Lilley Cornett Woods (McEwan et al. 2014)

Lilley Cornett Woods Appalachian Ecological Research Station is an extensively studied old-growth forest in Letcher County, Kentucky owned and managed by Eastern Kentucky University. The forest is less than 20 miles from the South Red Bird project area and consists of forest and land types substantially similar to those found in the project area. Kentucky Heartwood discussed Lilley Cornett Woods in detail in our South Red Bird scoping comments. The data from Lilley Cornett Woods, and other recent investigations of old-growth in North America and globally, have upended outdated assumptions leading to the belief that mature and old-growth forests are inherently unhealthy, senescent, or “overmature.” Unfortunately, this evolving understanding of old-growth and forest ecology has yet to filter down through the forestry and silvicultural disciplines.

Unfortunately, Kentucky Heartwood was able to comment on this issue only in the abstract because the project record did not include the information needed to characterize specific stands as old-growth and to inform a responsible decision about whether to harvest or protect them. It is apparent that staff misunderstanding of old-growth—the mistaken belief that older forests should be targeted for harvest—resulted in a process that did not carefully gather and disclose the data

that could have otherwise supported analysis and informed decision regarding old-growth in the project area.

2.C. Stand exam errors

Not only are the omitted data about the condition of older stands “new information,” it was not part of the public record. Thus, the public was not able to sufficiently comment on this, nor was it presented before the responsible official. .

In the document “South Red Bird Habitat Enhancement Project, Methods Used to Develop the Proposed Action,”⁸ Silviculturist Jared Calvert states:

Following the data sort, we conducted walk-through examinations of the stands within the project area to ensure that existing data were accurate and to examine treatment units/data in accordance with Forest Plan and Region 8 Old Growth Guidance. Silvicultural examinations were conducted according to Forest Service Handbook 2409.17- Silvicultural Practices Handbook.

FSM 2470 and FSH 2409.17 provide direction on sampling intensity for stand exams and describe how the design and intensity of sampling need to be sufficient in order to ensure that the proper “support information needed” is available to “diagnose treatment needs.” As we describe in detail below, the Forest Service failed to properly follow the direction in FSH 2409.17, and further failed to follow the Region 8 Old-Growth Guidance, by collecting insufficient and inaccurate information with respect to tree and stand ages in the South Red Bird project area.

FSM 2478.1 – Silvicultural Examinations states:

The examination includes the metrics needed for the diagnosis and silvicultural prescription... The examination design and intensity are based on support information needed to ensure that proper treatment can be prescribed to meet management objectives.

FSH 2409.17 – Silvicultural Practices Handbook states:

8.1 - Silvicultural Examinations

1. Protocol for Silvicultural Examinations. Silvicultural examinations provide the basis for information needed to diagnose treatment needs, prepare detailed prescriptions, implement treatments, and monitor treatment effects. **The kinds and amounts of data gathered and their reliability depend on the resources to be managed, the intensity of management to be applied, and the scale at which the data will be used. Enough information should be obtained at the appropriate scale and resolution to**

⁸ South Red Bird Habitat Enhancement Project, Methods Used to Develop the Proposed Action, 8/30/2019, Acquired as part of the January 25, 2021 FOIA response

adequately describe the site and current condition of the area to be analyzed (for example, stand, watershed, landtype association, or national forest). (Emphasis added)

FSH 2409.17 further states:

8. Number of Sample Points and Intervals. The number of points and intervals are determined prior to field examination to keep conscious bias to a minimum. Chapter 2 of the Common Stand Exam User's Guide provides detailed information for sample design. A general rule is:

- a. If the stand is homogeneous, plan one plot per 10 acres, a minimum of three plots per stand
- b. If the stand is not homogeneous, plan one plot per 5 acres, a minimum of 5 plots per stand.

These are minimum guides and the number of points can be increased depending on the information needed for the decisions to be made.

The Forest Service failed to apply a suitable sampling intensity, and further used flawed methods, to assess stand ages for determining “need for treatment”⁹ and assessing old-growth status. These sampling and assessment errors then led to the Forest Service failing to identify old-growth forests by assuming much younger ages, or otherwise disqualifying forests from potential old-growth (POG) designation based on flawed assessments.

Kentucky Heartwood reviewed common stand exam (CSE) reports acquired through FOIA for 66 stands in the project area. Most of the stands were sampled with 5 plots, meeting the minimum plot number for homogenous stands. However, as we describe below (2.D. Specific old-growth sites), several sites are clearly heterogenous in composition and should have been evaluated with a greater sampling density. With respect to age data for the 66 stands, the Forest Service cored a grossly insufficient number of trees to determine stand ages, much less identify the “oldest age class” per the R8 Old-Growth Guidance. Our review of the Forest Service's CSE reports for the project area found that 3 trees were cored in 11 stands, 2 trees were cored in 29 stands, a single tree was cored in 20 stands, and no trees were cored in 4 stands. This sampling intensity is inadequate for ascribing reasonably accurate ages to stands of trees, much less identifying the multiple age classes typical of old-growth forest conditions.

The tree age sampling methodology was also fundamentally biased against identifying old trees or the “oldest age class” as required by the R8 Old-Growth Guidance. Specifically, most or all of the trees with a recorded age in the CSE outputs are denoted as “Site Trees,” with either an “S”

⁹ South Red Bird Habitat Enhancement Project, Methods Used to Develop the Proposed Action, 8/30/2019, Acquired as part of the January 25, 2021 FOIA response

or “F” code.¹⁰ Site trees are primarily sampled for the purposes of evaluating site index, and not stand age. According to the FSVeg Common Stand Exam User Guide, field examiners are explicitly directed to avoid old-growth trees in their selection of site trees.

3. Similar age class, preferably middle-aged, avoiding old growth and young age classes; Typically > 50 years and < 120 (User Guide 4-88, also R8FG-49)^{11,12}

Similarly, FSH 2409.26d – Silvicultural Examination and Prescription Handbook Chapter 30, 7(e)^{13,14} states the following regarding the selection of site trees:

- e. Close to 50 years of age if suitable tree is available. Trees younger than 30 or older than 70 tend to give inaccurate readings. If the stand is younger than 30 or older than 70 and an acceptable site tree (between 30 and 70) is available, the tree used to determine site will not be a true indicator of stand age. In this situation stand age will need to be established from other trees in the stand.

The CSE User Guide also states that site trees should exhibit “No pronounced period of radial growth suppression,” which is a well-documented and normal characteristic of many old-growth trees (See, for example, McEwan et al 2014 and Pederson 2010).^{15,16} By employing a methodology that explicitly seeks to avoid trees >120 years of age and trees which exhibit characteristics typical of old-growth trees, the Forest Service has failed to follow the Forest Plan and R8 Old-Growth Guidance by selectively avoiding “the oldest age class” in stand age assessments. The User Guide also states that a Growth Sample Tree (GST), as opposed to a Site Tree, is to be “used to age the stand” (User Guide 4-90).

Even if site trees were appropriate for determining stand ages (which, in a non-even-aged stand they are not), the Forest Service failed to core enough trees to make a reasonably informed age determination for most sites. The User Guide states that the person collecting data should “Select at least one site tree from the sample trees tallied for each sample plot when the sample trees meet site tree criteria.” (User Guide 4-88) As we describe above, the Forest Service selected site trees from less than half of sample plots.

Regardless of the methodology used for sampling and dating individual trees, there are few congruities between the tree and stand ages provided in the CSE reports. Thus far we have found no clear methodology across Forest Service documents and guides regarding how stand age is

¹⁰ See The Region 8 CSE Field Guide (R8FG-49):

¹¹ FSVeg Common Stand Exam User Guide, Chapter 4: Collecting and Recording Data, ver. 2.12.6, March 2015

¹² Common Stand Exam Region 8 Field Guide

¹³ FSH 2409.26d – Silvicultural Examination and Prescription Handbook, R8 Amendment 2409.26d-93-1

¹⁴ While FSH 2409.26d was superseded by FSH 2409.17, it bears noting that the R8 Old-Growth Guidance explicitly refers to the methods in FSH 2409.26d as the basis for old-growth field inventories, excepting that “the age of the stands should be determined based on the oldest age class as opposed to the ‘representative stand age.’”

¹⁵ Ryan W. McEwan, Neil Pederson, Adrienne Cooper, Josh Taylor, Robert Watts, and Amy Hruska. Fire and gap dynamics over 300 years in an old-growth temperate forest. *Applied Vegetation Science* 17 (2014) 312-322.

¹⁶ Neil Pederson. External Characteristics of Old Trees in the Eastern Deciduous Forest. *Natural Areas Journal*, 30(4), 2010

supposed to be calculated from tree ages. But the data from South Red Bird suggest an inconsistency and arbitrariness that should not be the basis for management prescriptions and old-growth determinations. The following figure presents tree ages and stand ages (adjusted to 2021) based on the CSE outputs for selected stands.¹⁷

Compartment	Stand	Tree ages (2021)	Recorded stand age (CSE)
2802	25	118, 87	86
2804	11	57	121, 69
2903	16	101, 65, 114	81
2904	28	171, 97, 59	108
2904	6	140, 70	121, 113
3001	12	63	121, 111
3001	16	83, 78	121, 118
3004	2	89, 68	121, 129
3005	5	46	121, 97
3402	22	110, 72	64
3403	6	102, 119	71
3701	27	84, 66, 129	71
3703	5	39, 84	30, 63

Table 1. Tree ages versus stand ages from selected CSE datasheets in the SRB project record

The available data for some stands also suggest the presence of multiple age classes at the stand level. Old-growth forests are often typified by the presence of multiple age classes within the stand, with the “old-growth” stage of stand development being recharacterized as the “old multi-age” stage to better describe the structural and age characteristics of older forests, especially in eastern North America¹⁸. The R8 Old-Growth Guidance specifically addresses this by directing examiners to look at the oldest age classes in the stand. However, it appears from the South Red Bird data that the Forest Service is attempting to force multi-age forests into an even-aged model.

¹⁷ Tree and stand ages were adjusted for age in the year 2021, and multiple stand ages are included where datasheets provided multiple or inconsistent year-of-origin data. The stands included in this figure do not represent the only stands exhibiting incongruities between tree and stand ages in the CSE data outputs.

¹⁸ See Frelich, L.E. 2002. *Forest Dynamics and Disturbance Regimes: Studies from Temperate Evergreen-Deciduous Forests*. Cambridge University Press, Cambridge.

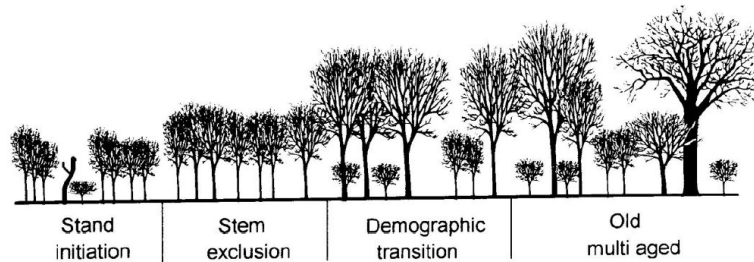


Figure 13. Stand development model from Frelich (2002)

The Region 8 Old-Growth Guidance states that:

The field inventory for old growth will mostly follow the protocol used during Forest Service Silvicultural Examinations (USDA FS 2409.26d). The exception is that the age of the stands should be determined based on the oldest age class as opposed to the “representative stand age.” The information collected or verified by Forest Service natural resource professionals will be used to make project-level decisions concerning old growth, to implement the forest plan, and to monitor and report forest-wide old-growth (R8 Guidance at 23).

Old-growth forests are, by definition, heterogenous. Identifying old-growth trees and older age classes in a multi-age forest requires a sampling intensity much greater than that employed by the Forest Service in the South Red Bird project.

The NEPA documentation for this project contained only staff assertions about stand ages. Neither the actual forest ages nor the methodological errors that made staff assertions unreliable were before the attention of the responsible official or available to the public.

2.D. Specific old-growth sites

As indicated above, the information about staff bias and methodological errors is new, and it is important to consider now because it resulted in errors regarding specific stands. We provided detailed information about one such stand (Little Flat Creek, Stand ID 2701-24) in our comments on the Draft EA. This was a heterogeneous stand with multiple age classes, but its previous stand age (137 years, originating in 1884) was replaced based on the sampling of one or more younger trees within the stand, resulting in a reported stand age of 70 years (65 years as of 2017).¹⁹

¹⁹ By email on February 26, 2019, Ranger Claybrook explained that “In May of 2017 a stand exam was conducted for Compartment 2701, Stand 24. A black oak, representative of the stand was chosen to be cored, and the age was approximately 65 years old. The Region 8 Old Growth Guidance requires the stand to be a minimum of 130 years

As we wrote in our Draft EA comments:

To begin with, coring one tree is not the correct protocol for assessing old-growth per the methodology described in the Region 8 Guidance or the Forest Plan, into which the Guidance is incorporated. A visual inspection of the stand made it clear that the Forest Service's revision of the age data for the stand was completely incorrect. Therefore, Kentucky Heartwood performed an extensive structural and age analysis of the forest. We first measure and mapped nearly 500 trees, determining that the stand had an overall density of 11 trees per acre at least 20" dbh. The Region 8 criteria for this forest type, Dry-Mesic Oak Forest require that there to be at least 6 to 10 trees 20" dbh or greater. This criterion was certainly met. The criteria also include a minimum basal area of 40 ft²/acre, which is easily met. As for age, the Forest Service's determination that the stand was 65 years old was clearly preposterous. Therefore, we core sampled 16 trees from 8 species distributed across the stand. Fourteen of the 16 trees ranged from 150 to roughly 370 years old.

The final criterion for determining old-growth status is an assessment of human disturbance. The R8 Guidance states that "For a stand to be considered as existing old growth, no obvious evidence of past human disturbance which conflicts with the old-growth characteristics of the area should be present."¹²⁰ It's important to note that the Guidance does not disqualify stands with "any" human disturbance. During our assessment, we found several uncut American chestnut remnants as well as some cut chestnut stumps near the top of the ridge. Chestnut blight killed American chestnuts in southeastern Kentucky mostly in the mid-1930's, though extending into the 1940's in some locations. Most of the tree core samples that we gathered show an increase in growth rate (a "release" event) around 1946, suggesting that some type of disturbance took place at that time. Given the lack of logging roads or other infrastructure, we suspect that chestnut decline was followed by limited salvage harvesting of dead American chestnuts along with the possible selective removal of a small number of other trees at that time. The timing also appears to correspond to the Forest Service's 65 year-old black oak. We suspect that a pulse of young trees followed the 1946 event, and that the Forest Service undercounted their core sample (typical of field counting instead of proper core preparation and examination with a microscope).

Based on our surveys, the Little Flat Creek stand clearly meets the operational thresholds for old-growth designation under the Forest Plan and R8 Guidance. The stand exhibits classic old-growth characteristics for Appalachian forests, including a multi-aged structure dominated by very old trees, large down woody debris and snags, and a history of moderate- to low-severity disturbance events. The Forest Plan recognizes that the Dry-Mesic Oak old-growth forest type is underrepresented. It is vitally important that this stand be properly categorized in the DBNF inventories for what it is – and not as 65 year-old "future old-growth." While relatively small, the Forest Service should reallocate this

old to qualify as existing old growth for Dry-mesic oak Forest Communities. While the stands layer reports a year of origin of 1884, this age was previously reported in error and will soon be updated within the Forest Sampled Vegetation (FSVeg) Spatial Database."

stand as Designated Old-Growth under the Forest Plan to ensure conservation of its unique value.

It is frankly distressing that the Forest Service could so radically misconstrue the status of an existing multi-aged, old-growth forest – particularly after its potential status has been raised by an entity with expertise on the issue. We question what other stands may exist that have been similarly mischaracterized. We would like to offer training to District and Forest staff in how to consider and assess old-growth forests.

The Forest Service did not correct its error or update the analysis to disclose the age of the stand. However, Kentucky Heartwood did not have the opportunity to press the matter further, because the stand was dropped for other reasons (landslide risk associated with the Fireclay coal seam). Although we had no reason to suspect it at the time, the errors associated with this stand were indicative of a broader failure to properly inventory and characterize stand ages. That broader failure is clear in hindsight, and with the benefit of the new information presented here. Had the Forest Service insisted on cutting this stand, the widespread methodological errors and biases might have come before the attention of the responsible official. As it was, the errors remained hidden. The information we have gathered more recently, however, must now be accounted for and the entire decision must be reconsidered in light of the corrected information.

Mosely Fork, Stand ID 2904-28

This stand is in the Big Middle Fork of Elisha Creek watershed but labeled “Mosely Fork” in the Forest Service’s CSE outputs for the anticipated timber sale name. The stand was approved for logging in the South Red Bird decision and was not considered or evaluated for old-growth based on the available project record. The DBNF GIS database states that the stand is 39.59 acres, with a stand age of 113 years. However, as described below, we have delineated a 20 acre stand of primary old-growth within those 39.59 acres, with canopy trees over 250 years old.

The Forest Service conducted a stand exam for this stand in 2015. Four plots were assessed, using the minimum sampling intensity for a homogenous stand, despite the heterogeneity evidenced by the differing old-growth and second-growth sections. Tree cores were taken from three trees denoted as site trees in the CSE reports. The core-sampled trees were a tulip poplar (LITU), aged 53 years with a DBH of 17.1”, a black oak (QUVE) aged 91 years with a DBH of 16.6”, and a chestnut oak (QUPR2), aged 165 years with a DBH of 15.7”. The Forest Service determined that the “year of origin” for the stand was 1913 (102 years in 2015). It appears (though we are not certain) that the Forest Service averaged the ages of the three sampled trees, which would result in an age of 103 years. However, we have found no basis for using this method of averaging tree ages to provide a stand age.

Those limited data clearly indicated a multi-age forest with an oldest age class exceeding the minimum age for potential old-growth under the Forest Plan (130 years for Dry-Mesic Oak Forest, Old-Growth Forest Community Type 21). However, rather than further investigate the

stand's age and old-growth characteristics based on the oldest age class, the stand age was arbitrarily lowered through some unclear methodology. The underlying data were not included in the NEPA documentation for the benefit of the decisionmaker and the public; only the inaccurate reported age was available.

During summer 2021, we assisted Dr. Justin Maxwell of Indiana University (Permit # 006338) coring trees in this stand for the purposes of his dendroclimatological research. We located the chestnut oak that the Forest Service aged at 165 years using the plot coordinates, measurements, and species data provided in the CSE reports. The tree was sampled, and the core prepared using standard dendrochronological methods, including sanding to 1200 grit and examination under a microscope. While the pith (tree center) was not directly reached, the tree core sample included 301 growth rings. Adjusting for sample year, this means that the tree is at least 130 years older than what the Forest Service determined and reported. This new information casts an even darker shadow on the quality of the Forest Service's investigation.

The FSVeg Common Stand Exam User Guide²⁰ provides accuracy requirements for aging trees as part of stand exam protocols (CSE User Guide 4-117):

Accuracy Standards:

- Based on actual tree ring count at breast height for trees ≥ 3.0 " DBH, otherwise based on total age recorded
- $\pm 10\%$ for trees less than 299 years of age
- $\pm 15\%$ for trees greater than 299 years of age

The Forest Service failed spectacularly to meet the accuracy standards in the Common Stand Exam User Guide. Based on the FSVeg User Guide, the Forest Service should have been within approximately 30 years of the tree's actual age (>301 years) but was instead off by approximately 57%.

A total of 20 trees were sampled in Stand 2904-28 in Dr. Maxwell's investigation. Of the 11 trees where core samples reached, or appeared near, the pith, tree ages ranged from >238 years to >329 years. The remainder of the trees had varying amounts of heart-rot, but visible ring widths, along with tree growth patterns, suggested that the hollow trees were in the same age range as those providing more complete core samples. Six of the 11 hollow trees, despite missing many rings, still had visible rings exceeding the 130-year minimum age for Dry-Mesic Old-Growth in the Forest Plan and R8 Old-Growth Guidance.

Little Flat Creek Stand 2701-0001

While we have not collected any age data in this stand, we offer new qualitative information that the Forest Service failed to document or otherwise bring before the attention of the responsible

²⁰ FSVeg Common Stand Exam User Guide, Chapter 4: Collecting and Recording Data, ver. 2.12.6 March 2015, United States Department of Agriculture, US Forest Service, Natural Resource Manager (NRM)

official and the public. Based on a variety of external characteristics (see Pederson 2020), many trees in this stand appear to be old-growth. As contrasted with portions of the stand which appear to be mature second-growth, these older trees appear to be more prevalent in the southern portion of the stand, and include tulip poplar, various hickories, and black birch. Among these trees is a red hickory (*Carya ovalis*) that far exceeds the measurements of the current state and national champions for the species (See section 4. National champion Red hickory (*Carya ovalis*) below). According to the CSE reports, this stand was sampled with 5 plots despite its apparent age heterogeneity. Two site trees were cored, with reported ages of 67 and 79 years (in 2017), with a year of origin of 1900 or 1904 attributed to the stand. This section of forest needs more investigation. The trees are currently marked for a regeneration harvest and could result in regeneration of forest meeting old-growth criteria.

Elisha Creek/Mosely Fork, Stands 3001-09, 3001-12, 3001-10, & 3001-08

We have delineated a significant 164-acre old-growth stand extending from the ridge dividing Mosely Fork and the Right Fork of Elisha Creek into the valley of the Right Fork of Elisha Creek. This area includes a 16-acre overlap with 3001-08, which is considered part of the Right Fork of Elisha Creek pRNA by the DBNF. Most of this old-growth area overlaps with Stand 3001-09, which the Forest Service characterizes as 136 years old (year of origin 1885 in the DBNF GIS database). This stand was included in the internal list of potential old-growth (POG) sites in the South Red Bird IRMA discussed previously in this letter, and is likely the stand being referred to in the statement “Nothing says you can’t POG it and forget it.” However, approximately 26 acres of this verified old-growth area overlaps with approved logging units in Stands 3001-12 and 3001-10. Those latter stands are mostly mature second growth (below an old road grade), with old-growth primarily above the road grade. Despite the heterogeneity within the stand units, both stands were examined by the Forest Service in 2015 using the minimum sampling intensity for homogenous stands (5 plots each). Tree core sampling was limited to a single site tree per stand. The tree sampled in 3001-12 was recorded by the Forest Service as 57 years old in 2015 (63 years in 2021), with a stand age listed as either 111 or 121 years (in 2021). The tree sampled in stand 3001-10 was recorded as 74 years old by the Forest Service in 2015 (80 years in 2021) with a stand age listed as either 98 or 121 years. These data points are clearly incongruous.

Twenty-nine trees, primarily white oak, chestnut oak, and tulip poplar were sampled across the 164-acre area with Dr. Maxwell over three days of sampling in summer and fall of 2021. While many of the trees sampled were hollow (which is common in old-growth trees), the data show that the oldest age trees representing the dominant canopy and age classes are typically >250 years in age. Included in the sampling was a shortleaf pine (*Pinus echinata*) which dated to 1681 making it the oldest documented shortleaf pine in the world.²¹ The number and distribution of very old trees establish this as an exceptional old-growth site. It is the second-largest known old-growth forest in the Daniel Boone National Forest – only slightly smaller than Rock Creek

²¹ See: Virginia Tech Eastern Oldlist at <https://dendro.cnre.vt.edu/olds/detail.cfm?genus=Pinus&species=echinata>

Research Natural Area in Laurel County, and the fourth-largest known old-growth forest in the state of Kentucky.

Several species of lichens of conservation concern were documented in the site during a survey by the Kentucky Office of Nature Preserves. The lichen species of interest that were documented include *Fuscopannaria leucosticte* (S1), *Lobaria pulmonaria* (S3), *Lobaria quercizans* (more recently named *Ricasolia quercizans*) (S4), and *Sticta* sp.²² *Fuscopannaria leucosticte*, in particular, appears to grow only on bark of old-growth chestnut oaks, including some within the approved harvest areas.

It has also been brought to our attention by the Kentucky Office of Nature Preserves that Mosely Fork contains what may be the most important population of the Pine Mountain tigersnail (*Anguispira rugoderma*) in the state and globally. This species' range is restricted to Clay, Harlan, Leslie, and Bell Counties in Kentucky, and is considered "Imperiled" at the global and state levels (G2, S2) according to NatureServe, with 16 mapped occurrences.²³ According to NatureServe "This Kentucky endemic is mostly associated with old growth, but it also occurs in pure stands of second growth tulip poplar. On the north side of Pine Mountain, it is found around large rotting log (Dourson 2010)."²⁴

The Pine Mountain tiger snail is included in the current list of Regional Forester's Sensitive Species and included in Table 5. of the South Redbird Wildlife Enhancement Project Wildlife Resources Report. The Wildlife Report states that "baseline information for (Pine Mountain tigersnail) may be found in 'Species Baselines for the Daniel Boone National Forest' (Taylor 2019)." (Wildlife Report at 28). However, we have been unable to locate the Species Baselines document in the project record, either through the online NEPA portal or a review of the project records acquired through FOIA.

The discussion for direct and indirect effects to the Pine Mountain tigersnail is bundled with possible effects to several other species. The report states:

The terrestrial snail species dependent on moist leaf litter would experience loss of habitat and altered or destroyed microclimates with the removal of forest canopy. Commercial and non-commercial timber harvest would leave downed woody debris allowing those microclimates to re-establish long term thereby benefitting these individuals. (Wildlife Report at 32)

The direct impacts to this specific occurrence of the snail are not disclosed, and the relative importance of the population is not disclosed either. Additionally, there are no citations or evidence to support the determination that this species would essentially recover due to the

²² These species will soon be listed by the Kentucky Office of Nature Preserves. State Ranking numbers (i.e., S1, S2, etc.) are in the process of being updated.

²³ https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.107192/Anguispira_rugoderma (Accessed August 22, 2021)

²⁴ *Id.*

presence of small diameter logging slash post-harvest. The NEPA documentation discloses only generic impacts to potential habitat, and does not contain the quality of information needed to inform responsible decisionmaking.

The veracity of the effects determination, and appropriateness of the proposed action, shifts substantially upon the site-specific information that Mosely Fork provides habitat for one of the most important populations of this highly-restricted species.

Forest Plan Goal 1.1 states:

Protect and/or enhance current and potential habitat for Proposed, Endangered, Threatened (PET) species, or Sensitive (S) species and Conservation species. (Forest Plan 2-5)

The entire Mosely Fork watershed is approximately 276 acres. Thirty acres of the watershed are young poletimber, logged in 1989. The South Red Bird decision approves shelterwood regeneration harvests on an additional 83 acres in the watershed in stands 3001-12 and 3001-10, including at least 26 acres of verified old-growth. These harvest areas (past and approved) represent the entire the northwest facing side of the valley, and a total of 41% of the valley. This could result in a much more substantial, negative impact on the Pine Mountain tigersnail – locally and globally – than what was presented in the Wildlife Report. It is our understanding that the Kentucky Office of Nature Preserves plans to survey for more rare species, including the Pine Mountain tigersnail, in the Mosely Fork area under contract with the Daniel Boone National Forest. However, these surveys, like most across the project area, are being conducted only *after* the project decision was already made. We again remind the agency that considering new information behind closed doors after a decision is made cannot make up for defects in prior NEPA analysis, which must inform the decisionmaker *and the public* about what is at stake. See FSH 1909.15, Sec. 18.1.

3. Right Fork of Elisha Creek proposed Research Natural Area

The Affected Environment report²⁵ states that:

The Right Fork of Elisha Creek Proposed Research Natural Area (pRNA) consists of 160 acres of second-growth forest in the South Red Bird IRMA and much of it falls within riparian and /or cove habitats. (Affected Environment at 20)

From emails and documents acquired through FOIA, it appears that the Forest Service considered adding units or buffers to the pRNA. However, these additions did not occur and no rationale was provided. The information militating in favor of such additions, of course, were not

²⁵ Affected Environment of the South Red Bird Wildlife Habitat Enhancement Project, 2019

included in the NEPA documentation, and as a result the decisionmaker was unable to take a hard look at the addition and explain the relevant information and decision to the public. We bring this information to the agency's attention now so that it may be properly considered in a supplemental EA.

As previously described in this letter, in an email from Andrea Felton to District Ranger Bobby Claybrook dated January 5, 2018, Ms. Felton states:

Jared was going to check out the stands near the Proposed Elisha Creek RNA- we had discussed allowing some to age into old-growth, but some are already Rx'ed for timber sales. Were you thinking you would like to designate an area for Old-growth IN and Adjacent TO the RNA? We need some clarification as to what to do there."

And in a January 9, 2018 email, Gavin Wilson wrote to project team members:

"So, that's the stands considered for POG. There are three that are contiguous to the RNA. If you're thinking about incorporating them into the RNA, I'm thinking that's a congressional designation? Have to get a bit farther into the nuts n bolts on that one. Nothing says you can't POG it and forget it. Right now we have 1800ac of designated Old Growth, all in North Red Bird."

It should be noted that RNA designation is not a congressional designation, and the 1800 acres of "designated old-growth" in North Redbird is not, in fact, currently in old-growth condition.

Since the issuance of the final decision on the South Red Bird project we have learned that the U.S. Forest Service Southern Research Station considers the Right Fork of Elisha Creek pRNA to be 315 acres, and not the 160 acres described by the Daniel Boone National Forest.²⁶ The boundary used by the Southern Research Station more closely resembles the boundary drawn for the Elisha Creek Research Natural Area found in the 1993 Cooperative Inventory of Endangered, Threatened, Sensitive and Rare Species for the Redbird Ranger District, which describes the "significant area" as being 440 acres.²⁷ The boundary currently being used by the DBNF excludes the 70 acres of old-growth described in the 1993 Cooperative Inventory and all but 16 acres of the 164 acres of old-growth delineated by Kentucky Heartwood and described in this letter. The Southern Research Station's boundary is not disclosed or considered in the NEPA documentation and there is no indication anywhere that the discrepancy was brought to the attention of the responsible official.

Through our FOIA request, we found an undated map in the project record titled "POG/FOG Options" which illustrated stands surrounding and near the 160-acre pRNA boundary, including

²⁶ <https://www.srs.fs.usda.gov/rna/estrnas/elishacreek.php> (Accessed August 22, 2021)

²⁷ Cooperative Inventory of Endangered, Threatened, Sensitive and Rare Species, Daniel Boone National Forest, Redbird Ranger District. March 1993. Cooperators: United States Forest Service, The Nature Conservancy, Kentucky State Nature Preserves Commission, Kentucky Department of Fish and Wildlife Resources.

stands 3001-09 and 3001-19. The latter stand was ascribed on the map with a year of origin of 1885, meaning that it should meet the minimum age criteria for potential old-growth (POG). We have not examined this stand directly. However, as previously discussed in this letter, the Forest Service determined – and with no evident rationale – that “Data analysis indicates that there are no stands in the project area not within the proposed RNA that satisfy the conditions for classification as POG” (Vegetation Report at 6).

None of this makes sense. It seems clear that the original delineation for the Right Fork of Elisha Creek pRNA was based, in large part, on the old-growth areas that have since been excluded from the area by the Daniel Boone National Forest. And when the Forest Service did look at these old-growth areas for addition to the pRNA in the context of the South Red Bird analysis, they were apparently dismissed as not meeting R8 old-growth standards – and without any reason provided – despite the fact that they clearly do meet the criteria. “POG it and forget it” seems to have been whittled down to just “forget it” by DBNF staff. This failure to analyze relevant and significant environmental information related to the South Red Bird project cannot satisfy the Forest Service’s obligations under NEPA. Instead, it appears as though the agency failed to consider the information at all and hid it from the public. Now that it is reintroduced to the agency in full, the Forest Service has an obligation to evaluate the information in accordance with NEPA in a supplemental EA.

Given the historical boundary, the newly verified old-growth in stands 3001-09, 3001-10, and 3001-12, and the potential old-growth in 3001-19, the Forest Service *at minimum* should reconcile the pRNA boundary so that it includes these areas. However, given the significance of the old-growth in stand 2409-28 and the globally significant Pine Mountain tigersnail population in Mosely Fork, we strongly recommend that the Forest Service designate a larger, more inclusive boundary for the pRNA to encompass this larger macrosite for conservation and research purposes. Had all the foregoing information been before the responsible official, we certainly hope that this option would have been seriously considered. And we believe that the public would have strongly supported such an expansion. Consideration of this information must happen before the Forest Service proceeds any further in this area.

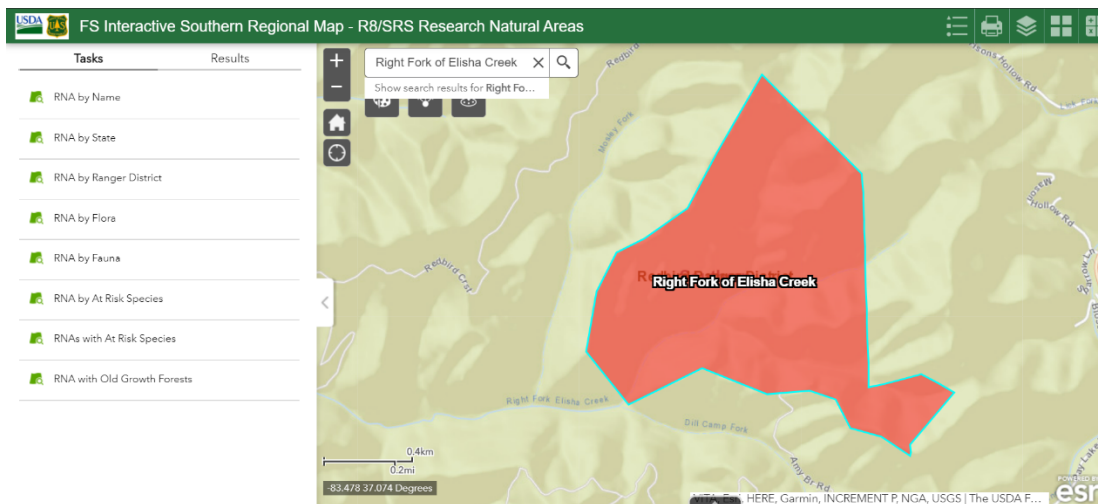


Figure 14. Right Fork of Elisha Creek pRNA map from the USFS Southern Research Station

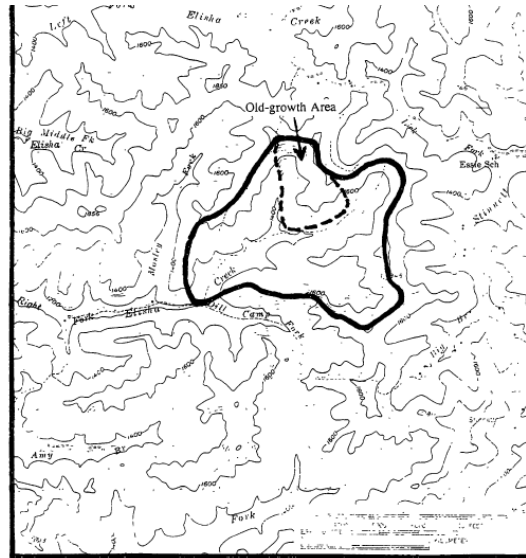


Figure 9. Map of the Elisha Creek Old-growth Area showing significant area.

Figure 15. Map of Elisha Creek pRNA from the 1993 Cooperative Inventory

4. National champion Red hickory (*Carya ovalis*)

Kentucky Heartwood ecologist Jim Scheff documented the new national champion red hickory (*Carya ovalis*) in a harvest unit in the Little Flat Creek watershed. The tree is located in stand 2701-0001 at 37.0748589, -83.6079919. The tree was measured on May 31, 2021 and the nomination form was submitted to the Kentucky Division of Forestry on June 3, 2021. While a certificate is still forthcoming, Jim Scheff communicated with KDF Chief Forester Nick Valentine, Pineville Branch, about the tree. Based on Mr. Scheff's description of species identification and measurement methods, Mr. Valentine stated that he would accept the data. The nomination form has also been submitted to American Forests, which manages the National Champion Tree list. This forthcoming classification represents significant new information which should be considered by the Forest Service in an environmental analysis.

American Forests states:

In 1940, American Forests launched a campaign to locate the largest living specimens of American trees. The National Register of Champion Trees started out as a competition, a national hunt to discover the largest specimens of American tree species. Today, it is part of our National Champion Trees program. Every year people search for America's largest trees, bringing awareness to their beauty and ecosystem services, and fostering a desire to protect and preserve them for future generations. National Champion Trees can be

discovered in rural and urban landscapes, scattered throughout forests and fields, along roadways and in backyards.²⁸

The Kentucky Division of Forestry states:

In 1940, the American Forests organization began a search of the largest specimen of each species of American trees. This list, now called the National Registry of Big Trees, contains the names of more than 870 species. Kentucky has eleven national champions or co-champions.

The Division of Forestry began compiling a list of state champion trees in 1968. The first list contained 51 species. Only trees referenced in the book *Trees & Shrubs of Kentucky* by Mary E. Wharton & Roger W. Barbour are considered for the Kentucky Champion Tree Program. The list is continually changing as new species are added and former champions are replaced either because they die or a larger specimen is nominated.

Kentucky has several trees on the National Registry of Big Trees.

This outstanding hickory measures 160.5 feet tall, 15.5 feet in circumference (CBH), and has an average crown spread of 70.5 feet. In total, the tree receives 364.1 points under the champion tree point system, making it one of the largest trees in Kentucky. By comparison, the current Kentucky State Champion red hickory (located and measured by Jim Scheff in 2019 in Beaver Creek Wilderness) has a total point score of 281.7 (144' tall, 121.5" CBH, 64.75' average crown spread). The current National Champion (in Virginia) listed on the American Forests website receives only 278 points.

We acknowledge that a tree's presence in a stand slated for harvest does not mean that it will be felled. As the Decision Notice and Finding of No Significant Impact for the South Red Bird project states:

"I am fully confident these measures will minimize adverse effects for the following reasons.... d) my staff is highly trained and have the flexibility to mark and avoid any sensitive resources found in the field from impacts of the treatment planned for that area." (DN and FONSI at 2)

While this champion tree itself is not marked for harvest,²⁹ nearly every tree around it is marked for harvest and the haul road is flagged through its root zone. The damage from harvesting the

²⁸ <https://www.americanforests.org/get-involved/americas-biggest-trees/>

²⁹ Forestwide Standard DB-WLF-6 states that "In regeneration or thinning project areas, retain all shagbark, shellbark, and red hickories that are (equal to or greater than 6 inch dbh), unless the removal of these trees is specifically designed to improve habitat for PETS or Conservation species." The tree also has an old fire wound and is likely too large for most logging or milling equipment.

surrounding trees, damage to the root zone from road construction, and exposure of the canopy to windthrow will likely result in the death of this outstanding champion tree. While champion tree status does not confer any legal protections, it is inarguably a notable and sensitive resource with scientific and cultural value. Its stature and uniqueness are obvious to any forestry or natural resource professional familiar with our regional forests. But the layout of the stand, contrary to the assurance that “flexibility” would be used to “avoid any sensitive resources,” all but guarantees damage to this unique specimen. If Forest Service staff had themselves noted and reported the information newly reported here, surely it would have merited discussion of other options, ranging from buffers to protect the tree from windthrow and compaction, to conservation of the site and interpretation for public visitation. Because it did not happen during NEPA, consideration of these kinds of options to avoid a significant impact to a unique resource must happen now in a supplemental EA.

5. Endangered bat surveys

Absence of evidence is not evidence of absence, but it is a chronic problem on the Daniel Boone National Forest that inadequate resources are devoted to surveying for rare bat species. That was certainly true in the South Red Bird project NEPA documentation, which did not even attempt to support a conclusion maternity colonies for federally-listed bats were not present.

Kentucky Heartwood conducted acoustic surveys for Indiana bats (*Myotis sodalis*) and northern long-eared bats (*Myotis septentrionalis*) throughout the South Red Bird project area during the summer 2021 field season. Our surveys followed the U.S. Fish and Wildlife Service’s (USFWS) March 2020 Range-Wide Indiana Bat Survey Guidelines, Phase 2 – Summer Presence/Absence Surveys (Netting or Acoustic Surveys) with the survey design reviewed and approved by staff at the Kentucky Field Office of the USFWS. We had positive findings ($p < 0.05$) for Indiana in Elisha Creek and Katies Creek. We had positive findings ($p < 0.05$) for northern long-eared bats in Little Spring Creek, Spring Creek, Elisha Creek, Sassy Branch, Katies Creek, and Laurel Fork. The only watershed where we did not find northern long-eared bats was Little Flat Creek. The data suggest the presence of two or three northern long-eared bat colonies.

The record for the South Red Bird project includes no affirmative information regarding the presence known Indiana bat roosts or maternity colonies in the project area. However, following our survey, we noted that the Daniel Boone National Forest GIS database includes a polygon for Significant Bat Habitat in the Right Fork of Elisha Creek. This polygon (which is in an area that we did not sample) is > 2 miles from the two locations where we found likely Indiana bat presence. The Biological Assessment and Evaluation (BAE) for the South Red Bird project states that “there are no known occupied northern long-eared bat maternity trees within the project area,” but does not state the same for Indiana bats.³⁰

³⁰ See BAE at 30: “No commercial activities would occur with ¼ miles of any known northern long-eared or Indiana bat hibernaculum. There are no known occupied northern long-eared bat maternity trees within the project area.”

Between scoping and publication of the Draft Environmental Assessment, the Forest Service modified the proposal to change the harvest prescription for 300 acres within 1 mile of the apparent Significant Bat Habitat polygon. Prescriptions were changed from the Two-Aged Shelterwood prescription (10 – 20 ft² residual basal area) to Commercial Thinning, Mid-Density Upland Forest (60 ft² residual basal area). The Forest Service stated that this modification was “Due to potential sensitive species habitat.”³¹ Beyond the cryptic allusion to “potential” habitat, no actual information is included in the NEPA documentation to explain this modification, and the public is left to wonder whether perhaps the Forest Service knows of a maternity tree or colony in the project area. If so, this must be stated explicitly and its implications must be assessed by reference to Forest Plan Standard DB-WLF-8, which requires seasonal restrictions to cutting tress within 2.5 miles of a known maternity colony. The BAE states:

The Forest Plan outlines restrictions which limit the impacts to bat species, specifically Indiana bats with regards to vegetation management. These guidelines establish timber marking protocols that ensure minimal impacts to roosting and foraging habitat, and dates for restricted activities are outlined (Table 2-1 page 2-23 of the Forest Plan). These guidelines combined provide protections for other bat species, including the northern long-eared bat and Eastern small footed bat, and should result in decreased risk for all bat species. Additionally, positive benefits for these species may be experienced through increased foraging habitat.

No commercial activities would occur with ¼ miles of any known northern long-eared or Indiana bat hibernaculum. There are no known occupied northern long-eared bat maternity trees within the project area.

The Final EA provides no further information or analysis. Does the Forest Service know of a maternity roost or colony in the project area? Will DB-WLF-8 be followed? It’s also important to acknowledge that, contrary to the above language from the BAE, the restrictions are not “guidelines,” but are in fact mandatory Standards. And, if the Forest Service believes it is important to modify its proposal for harvest based merely on “potential” habitat, then it surely will be eager to reconsider the decision based on the new information we present here of positive acoustic surveys.

While not a target of our survey, we also recorded presence ($p < 0.05$) of federally-endangered gray bats (*Myotis grisescens*) at several sites including Elisha Creek, Katies Creek, Laurel Fork, Little Spring Creek, Sassy Branch, Spring Creek, and Little Flat Creek. The BAE fails to consider effects to gray bats by stating that “the project and associated activities are outside of the historical range, the species has no documented occurrences, or suitable habitat does not exist.” However, the 2017 range map from the Kentucky Division of Fish and Wildlife Resources for gray bats does include Clay County for counties where this species has been found. While gray bats roost in caves during both the winter and summer season, they are known

³¹ Draft Environmental Assessment at 9; Final Environmental Assessment at 9

to use closed canopy corridors as cover to avoid predation when travelling long distances to foraging areas (typically foraging over water bodies).

Our reporting and results are attached and incorporated into this letter. We expect that this new information will be fully considered in a supplemental analysis. We are also providing this information to the U.S. Fish and Wildlife Service to facilitate reinitiation of consultation.

6. New landslide information

Landslide risk and evidence of landslides caused by similar, recent actions in the adjacent North Red Bird/Group One project area have been discussed a number of times during this project's development. However, the agency's rationale for discounting these risks has shifted over time, with explanations intended to distinguish each new piece of information as it became available. Following the objection period and issuance of the Decision Notice and Finding of No Significant Impact, Kentucky Heartwood documented even more landslides in the Group One project area (North Red Bird IRMA). Detailed information on these landslides was compiled and provided to the Kentucky Division of Water in March, 2021. That report is attached to this letter. We found that more landslides had occurred in timber harvest units in the Group One project areas since signing of the Decision Notice, while some of the landslides we previously brought to the Forest Service's attention had grown larger and dumped more sediment and debris into streams.

One of the new landslides we found occurred in Group One shelterwood Unit 17 on Lower Jack's Branch (Granny's Branch sale, stand 1402-23) and extended over 1000 feet. At the time of our observations the landslide was actively dumping sediment into the creek. This landslide began where a full-bench skid road crossed the Hazard coal bed. Unlike the Fireclay, the Hazard is prominent throughout much of the South Red Bird project area. The Forest Service has asserted that the Fireclay (and less-so the Fireclay Rider) is the only geological hazard of importance with respect to landslides, and therefore modifications to the South Red Bird project to avoid skid road construction across the Fireclay are sufficient to avoid landslide impacts. The Unit 17 landslide provides clear and demonstrable evidence that our concerns over landslides in the South Red Bird project are valid. Avoidance only of the Fireclay is not sufficiently protective. This new information is also particularly important because the Forest Service had dismissed the risk of landslides impacting streams in the South Red Bird project based on changes to required setbacks for skid roads and trails under Kentucky state BMPs. The state BMPs were modified after implementation of the Group One project, requiring skid roads to be located at least 100 feet from perennial and intermittent streams where slopes are greater than 15%, rather than the prior required setback of 65 feet for slopes $\geq 40\%$. The Forest Service argued in the Soil and Water Resource Report that this increase in setback distance provides sufficient protection from landslides, citing the 50-65 foot landslide in Unit 18 that Kentucky Heartwood brought to the Forest Service's attention. These new landslides extend much farther than the 50-65 foot landslide considered by the agency in the Soil and Water Resources Report.

We have also found smaller slumps and smaller slides in non-harvested areas. We documented two small landslides along the Red Bird Crest Trail associated with the Hazard no. 8 coal seam in the Mosely Fork watershed. However, these slides appear to have been minimized or arrested by the presence of the intact, mature forest and the intact nature of its root system. This is consistent with reports found in the South Red Bird project record, in the January 25, 2021 response, stating that loss of root cohesion following logging significantly exacerbates landslide risk and severity.

We located a report in the January 25, 2021 FOIA response titled “The potential influence of coal seams and tree roots on slope stability in response to timber harvest and road construction” by George Chalfant. In the report, Mr. Chalfant states:

A substantial number of slope failures have been previously documented as being associated with some coal seams, in particular the Fire Clay Rider, and the Fire Clay, with timber harvest and road construction. (GRCHalfant11/11/20 at 1)

Mr. Chalfant appears to have been the DBNF soil scientist during the development of both the Forest Plan and Group One project. In the document, Mr. Chalfant describes the ways in which timber harvesting and coal seams in the Redbird District combine to create landslide hazards. He provides details on how the hydraulic characteristics of coal seams in the Redbird District predispose slopes to failure, and how these failures are substantially increased through the loss of root cohesion following timber harvest and the excavation of roads and skid trails.

Slope stability problems often develop after timber harvest on steeper slopes where much of the soil strength is provided by tree roots. As roots decay after harvest, in particular clear cutting, their value diminishes rapidly. Research has disclosed that it is likely that over 50 percent of the tensile strength provided by the root system will be lost within 2 years after harvest and much more within 5 years. As much as 90 percent within 5 to 9 years...

The most sensitive slopes to harvest are ones located at the head of ephemeral and intermittent streams as these are very hydrologically sensitive areas. This is even more so if a coal seam is present which has a regional dip in the direction of surface and groundwater flow (hydraulic gradient). Removal of trees here will upset the hydrologic balance that has been achieved over a long period of time. As the root system decays pore water pressure within the soil profile in response to flow from a coal seam, groundwater, subsurface and surface runoff along a failure surface will likely exceed the inherent soil strength available with cohesion and internal friction. A rapid rise in groundwater will generate a buoyancy force sufficient to exacerbate inherent risks of slope failure...

Locating, designing and construction of roads as a transportation system supporting forest management on slopes possessing potential stability issues should recognize the influence coal seams may play. Excavation of a road prism in proximity below or down dip of a hidden outcrop of a coal seam or through a seam itself of a thickness comparable to the

Fire Clay and Fire Clay Rider itself can potentially release a substantial flow of water previously confined within the seam. Where a seam dips to the roadway this is of highest risk for immediate problems.

In an email to Daniel Boone National Forest soil scientist Claudia Cotton dated November 12, 2020³², Mr. Chalfant writes:

I recall inventorying over 20 slides in clear cuts on the Red Bird and all but about 3 or so were associated with a coal seam. Most of these occurred around 5 years after harvest. The Fire Clay seams I recall were involved with most. I did write something up on that but I don't have a clue if it's still around.

What is remarkable and deeply upsetting is that it appears that these issues were known by Daniel Boone National Forest staff before approval and implementation of the Group One project. Exhibiting a shocking recklessness, the Daniel Boone National Forest proceeded with logging in the Group One project area, included the construction of many miles of full-bench skid roads on very steep slopes, and in the presence of coal seams presenting known landslide hazards. These harvests happened as recently as 2018, under the oversight of many of the same Forest and District staff that will oversee implementation of the South Red Bird project.

And while the Forest Service had this information available internally, agency staff continued to downplay Kentucky Heartwood's concerns and hide the risk from the public, portraying landslides in the Redbird District as exceptional, unpredictable, and unrelated to logging. The Forest Service has continued to assert that Kentucky state BMPs and Forest Plan standards are, on their own, sufficiently protective despite the evidence. Except for avoiding road construction across the Fireclay and Fireclay Rider, the only protective measures offered by the Forest Service for the South Red Bird project are that Daniel Boone National Forest may propose some undefined site-specific measures during implementation at their discretion, based on their personal judgment. This is not an acceptable way to manage our national forest lands. Nor is this pattern NEPA compliant. Information internally reviewed by the Forest Service and obscured from the public after publication of the EA cannot satisfy NEPA. Instead, the agency must undertake and publish full consideration of the data in a supplemental EA.

³² Acquired as part of the January 25, 2021 FOIA response.



Figure 16. Slump along the Red Bird Crest Trail in the Mosely Fork area

III. Conclusion

With this letter, Kentucky Heartwood submits that the Forest Service must either drop the actions that were inadequately analyzed or, at the least, pause implementation of the South Red Bird project and prepare and publish a supplemental EA transparently disclosing the impacts and risks that prior documents have obscured. The inadequacies of the Forest Services decision, including its DN and FONSI, have been magnified by Kentucky Heartwoods surveys and analysis of documents obtained through FOIA requests.

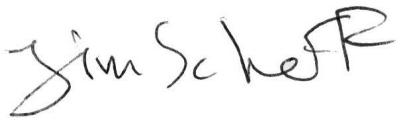
As we have demonstrated, both through previous comments and this supplemental information letter, there are significant factors which affect the environmental impact of the proposed action. This letter focuses on the significant developments since the final decision for this project was made in January 2021 which affect the environmental impact of the proposed action. A supplemental EA would be the Forest Service's first opportunity to consider these data and could mitigate the failures of its initial NEPA analysis.

Additionally, the Forest Service's decision relied on a NEPA analysis that did not include highly relevant information gathered by members of the public and state and federal agency officials

after the environmental analysis for the project was completed in February 2020. This information, too, must be analyzed in a supplemental EA. The agency cannot exclude relevant and significant information which bears on the environmental effects of the project from its NEPA analysis. To the extent that the agency or staff had some of this information *internally* available before the responsible official signed the final decision, this does not excuse the failure to supplement NEPA analysis; it makes it worse. NEPA requires the Forest Service not only to consider this information and its impacts on the environmental impact of the South Red Bird project, but also to disclose it for public vetting and informed comment.

We hope that the Daniel Boone National Forest will supplement its NEPA analysis to fully consider and disclose the information raised in this letter before any irreversible actions are taken. Please do not hesitate to reach out to us should you wish to discuss any the information that we have provided.

Sincerely,

A handwritten signature in black ink that reads "Jim Scheff". The signature is written in a cursive, slightly slanted style.

Jim Scheff, Staff Ecologist
Kentucky Heartwood
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Berea, KY 40403