

**BEFORE THE FOREST SUPERVISOR
OF THE DANIEL BOONE NATIONAL FOREST
UNITED STATES FOREST SERVICE**

In Re:

Predecisional Objection of the Environmental Assessment, Draft Decision Notice, and FONSI for the South Red Bird Wildlife Habitat Enhancement Project, Redbird Ranger District, Daniel Boone National Forest

NOTICE OF OBJECTION

Pursuant to 36 CFR § 218, Kentucky Heartwood is seeking predecisional administrative review by Forest Supervisor Dan Olsen and Redbird District Ranger Robert Claybrook of the Environmental Assessment, Draft Decision Notice, and Finding of No Significant Impact for the South Red Bird Wildlife Habitat Enhancement Project on the Redbird District of the Daniel Boone National Forest.

The Objectors are:

Kentucky Heartwood, Inc., a forest advocacy group founded in 1992 and dedicated to the health and well-being of the public forests in the Commonwealth of Kentucky. Kentucky Heartwood submitted comments during Scoping and on the Draft Environmental Assessment.

The Kentucky Resources Council, is a membership-based nonprofit organization founded in 1984 with a mission to protect our built and natural communities from pollution and environmental damage. Kentucky Resources Council submitted joint comments with Kentucky Heartwood on the Draft Environmental Assessment.

Respectfully submitted by:

Kentucky Heartwood (Lead Objector)

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1. Introduction

This predecisional objection presents a range of claims and concerns regarding the environmental impacts of South Red Bird project and the adequacy of Environmental Assessment (EA). We assert that the Forest Service has violated multiple laws and regulations, failing to comply with the National Environmental Policy Act (NEPA), Administrative Procedures Act (APA), National Forest Management Act (NFMA), and Endangered Species Act (ESA). As we describe in the sections below, the Forest Service has presented numerous claims and interpretations that are factually incorrect, arbitrary, and capricious. The flawed assessment provides no rational basis for the agency to make an “informed decision” regarding whether, and how, to implement the project.

Kentucky Heartwood participated in the public meeting on February 22, 2017, the public field trip held May 27, 2017, and the public meeting held on August 24, 2017. Kentucky Heartwood submitted formal comments on April 1, 2018, in response to the project scoping notice, an addendum to those comments on June 12, 2018, and another letter on November 15, 2018. On December 6, 2019 Kentucky Heartwood and the Kentucky Resources Council submitted comments on the Draft EA. At each stage of the process we have sought to provide useful and qualified information on a range of issues, representing the interests of our members and constituencies. For the most part, our input and concerns have been ignored or rebuffed throughout the integrated resource management strategy (IRMS) and analysis processes.

We do not address all of our concerns in this objection. Instead we, focus on the most grave issues of environmental concern, and the most legally fraught aspects of the analysis and record. We do, however, point to our scoping comments in section *I. Not collaborative, so please stop using that term*, and our comments on the Draft EA in section *XII. Secret Meetings*, to illustrate some of the issues in the IRMS and NEPA processes that have been particularly frustrating. For the reasons described in those sections, among others, we feel that the Forest Service entered the collaborative process in bad faith, with predetermined objectives and outcomes, and an elevation of specific interest groups that support those outcomes. We believe that the issues and deficiencies identified in this objection stem directly from the agency’s unwavering and predetermined emphasis on creating early seral habitat through the sale of large volumes of timber from the Redbird District of the Daniel Boone National Forest.

2. Erosion, sedimentation, and landslides

The Soil and Water Report make numerous inaccurate and substantially flawed claims to support a finding that detrimental impacts to soil and water resources from the proposed action will be minimal. The Forest Service then relies on the factually incorrect claims in the Soil and Water Report to support determinations in the Draft EA, Revised BAE, and Draft DN and FONSI of limited or no impacts to soil and water resources, critical habitat, and federally-listed species. Kentucky Heartwood raised issues regarding erosion, sedimentation, and landslides, including effects to aquatic habitats, critical habitat, and federally-listed aquatic species, in sections I. through V. in our comments on the Draft EA. The Forest Service’s analysis and effects determination with regard to the environmental impacts associated with erosion, sedimentation,

and landslides is substantially flawed and cannot provide a rational basis for a determination that major environmental harms are unlikely to occur.

As addressed in our comments on the Draft EA, logging can increase the likelihood of erosion, landslides, and other mass wasting events. Both the removal of trees and the construction of skid roads can, and do, affect slope stability increasing the likelihood of these impacts to soil and water resources. The South Red Bird project proposes 3,650 acres of logging and the construction of up to 93 miles of full-bench skid roads.

As described in our comments on the Draft EA, the August 30, 2019 version of the Soil and Water Report states that monitoring of project implementation across the DBNF demonstrates the efficacy of Kentucky state forestry Best Management Practices (BMPs) and Forest Plan Standards with respect to protecting soil land water resources. As we point out in our comments, none of the selected monitoring sites were in the Redbird District, which is distinct in terms of its geology and topography. The Soil and Water Report then describes (however vaguely) one exception:

“A full-bench skid road was constructed on slopes that exceeded 35%. The soil scientist was not informed until after the sale was finished. Repairs were made using soil and water funding. Erosion occurred in this location but it was arrested once the area was seeded and mulched. Communication could have kept this from happening, and the leadership, staff, and district all understand that Granny’s Branch was an unacceptable situation. That is not expected to happen again.” (Soil and Water Report at 13).

In response to a FOIA request by Kentucky Heartwood we learned that the issue was a “road slip” near the top of Unit 18 in the Granny’s Branch sale on Lower Jack’s Branch. Unit 18 is a shelterwood unit in the Group One project which was completed and “closed” in 2017 or 2018 (we have seen different dates provided by the Forest Service). Through the FOIA response we learned that “Purchasers seeded and mulched the unit in summer 2017 but the seed did not take due to lack of rain.”¹ According to an email from Claudia Cotton, in July 2017 DBNF staff visited the site and “saw exposed soil but no landslide... At that field visit we decided to lay back the cut slopes and re-seed and re-straw the areas of exposed soil using NFWW funds (federally allocated funds for vegetation and watershed).”²

On page 11 of our comments on the Draft EA we described a landslide that we observed in Unit 18 (hereafter “Unit 18 landslide #1”). In response, the Forest Service visited the site, and amended the August 30, 2019 Soil and Water Report, adding an “Addendum” to a January 27, 2020 Soil and Water Report.

On March 18, 2020, Kentucky Heartwood emailed the DBNF regarding a new and larger landslide in Group One shelterwood Unit 20 on Ulysses Creek (hereafter “Unit 20 landslide #1”). That landslide measured approximately 300’ of slope distance and dumped very large amounts of sediment on Ulysses Creek Road and resulted in sediment in the creek. According to information provided to us by the Forest Service, Unit 20 was completed in 2012.

¹ Email from Claudia Cotton to Kimberly Bonaccorso, dated March 16, 2020

² Id

In May of 2020, Kentucky Heartwood documented two more landslides in Unit 18. Unit 18 landslide #2 was an older landslide on the west side of the harvest unit, beginning at a skid road and descending about 150' until it joined with an ephemeral stream channel. Unit 18 landslide #3 was a new landslide beginning on a skid road about 120' above, and slightly south, of Unit 18 landslide #1. Unit 18 landslide #3 covered about 300' of slope distance and resulted in large amounts of sediment being deposited in the intermittent channel and extending to the confluence with Lower Jack's Branch. It's notable that this significant landslide occurred shortly after the Forest Service visited the site and determined that the situation was essentially fine.

It is astonishing how the Forest Service has downplayed the significance of the landslides in the Group One project, particularly in light of the gravity with which the Unit 18 issue was initially described in the August 30, 2019 Soil and Water Report. The Forest Service described the issues in Unit 18 *prior* to any major landslides as “an unacceptable situation” that “is not expected to happen again.” (Soil and Water Report at 13). But in trying to make the case for the approval of the South Red Bird Project, suddenly the far-worse impacts of several major landslides are acceptable. Worse, many of the potentially impacted streams in the South Red Bird Project are designated Critical Habitat for the Kentucky arrow darter. Landslides such as those that occurred in the Group One project could be disastrous for the arrow darter. “Arbitrary and capricious” barely scratches the surface here. It is absurd.

There is one very important difference between the Group One and South Red Bird projects, and that is scale. The Group One project approved 1,330 acres of logging. The South Red Bird project proposes 3,650 acres of logging. The individual logging units in the Group One project range from 14 acres to 38 acres (Unit 18 is 36 acres and Unit 20 is 34 acres).³ By contrast, the South Red Bird project proposes multiple large, contiguous timber harvest areas, with the largest ranging from 210 acres to 362 acres. Some of these areas are in watersheds that provide designated critical habitat for the Kentucky arrow darter. The project would allow for up to 93 miles of full-bench skid roads to be constructed on these slopes (Final EA at 29). If conditions between the two project areas are substantially similar (as we demonstrate), how many large landslides should we anticipate? If four documented large landslides have occurred thus far as a result of logging in the Group One project, should we expect 12 large landslides in the South Red Bird project? How will that affect the Kentucky arrow darter and critical habitat? How would it affect the snuffbox mussel?

There are serious issues of intensity and risk that have been brushed aside in the analysis for the South Red Bird project. Any decision to move forward without remedying these issues would be substantially flawed.

Because of the complexity of this issue, we are further subdividing this section to address the various inaccurate and arbitrary claims made in the Soil and Water Report. As we demonstrate, nearly every rationale provided in the Soil and Water Report to support the position that the major and unacceptable problems we documented in the Group One project are unlikely to occur in the South Red Bird Project is facially incorrect.

³ See: Group One Proposal Red Bird River Project Environmental Assessment

2.A. Geologic hazards and stratigraphy

The January 2000 Soil and Water Report places great emphasis on the presence of the Fireclay and Fireclay Rider coal seams as an integral and unique factor contributing to landslides in the Group One project. The Soil and Water Report argues that the absence (or near absence) of these coal seams in the South Red Bird Project area means that no similar hazards will be encountered or environmental consequences result. This is an erroneous and untrue position.

The Soil and Water Report states:

“Upon closer review of the geology of Harvest Units 14 and 18, there occurred two coal seams known as Fireclay and Fireclay Rider. Both coal seams are known to be underlain by rooted clays that act as a restricting layer to normal soil water percolation, allowing groundwater to potentially perch (KGS, 2010). Analysis indicates these coal seams are lower in the slope profile, occurring anywhere from 80 to 280 feet above the stream. In both harvest units, skid trails crossed the Fireclay coal seam.” (Soil and Water Report at 30)

The Soil and Water Report further argues that the landslides and erosion observed in the Group One project are unlikely to occur in the South Redbird project area because the Fireclay and Fireclay Rider are not present.

“The median slope gradient and geology are different in the units of SRB versus Group One. In the SRB Project area the maximum median harvest unit slope is not as steep, and the Fireclay and Fireclay Rider coal seams are lower in the profile. If maximum median harvest unit slopes are not as steep, and the Fireclay and Fireclay Rider coal seams are mostly in the SMZ (lower on the landscape) than they were for the Group One project area, then the potential for landslides should be less in the SRB project area.” (Soil and Water Report at 33).

However, features similar to the Fireclay and Fireclay Rider are present in the overlying strata in the South Red Bird Project area, including all of the proposed harvest units. The Fireclay and Fireclay Rider seams were formerly considered part of the Breathitt Formation, which was later subdivided into the Four Corners and Hyden formations. The boundary between the Four Corners and Hyden Formations is roughly mid-slope through most of the South Red Bird project area.⁴ The Four Corners and Hyden formations are variously interspersed with porous coals and shales underlain by restricting clay layers, similar to (and including) the Fireclay and Fireclay Rider.

The stratigraphic column published by the Kentucky Geological Survey (KGS) for the Creekville quadrangle (covering the Elisha Creek area) states that the strata now represented by the Four Corners Formation include a variety of coal seams, while “Underclay is dark to light gray and light brownish gray, a few inches to 7 feet thick; commonly underlies coal beds.”⁵ The stratigraphic column for the Beverly quadrangle (covering Blue Hole and Bear Creek) states that

⁴ Kentucky Geological Survey Kentucky Geologic Map Service, located at <https://kgs.uky.edu/kygeode/geomap/> and accessed October 1, 2020

⁵ See Kentucky Geological Survey stratigraphic column for Creekville Quad for Elisha Creek area

within the Four Corner Formation “Underclay, silty, gray; plastic when wet; in discontinuous layers and lenses less than 1 inch to as much as 4 feet thick; grades downward to siltstone.”⁶

We observed this effect associated with logging operations in the Elk Fork Wildlife Management Area in September 2020 (See pictures in *Appendix 1: Sedimentation and Elk Forest WMA*). The Elk Forest WMA is private forestland within the South Red Bird analysis area owned by The Forestland Group and managed under a cooperative agreement with the Kentucky Division of Fish and Wildlife. A full-bench skid road similar in size and construction to those found in the Group One project was bulldozed roughly along the 1400’ contour above Redbird Creek (headwaters of the Redbird River). The 1400’ contour is approximately the location of the contact between the Four Corners and Hyden Formations in that location. Surface flow coming off the harvest are above this skid road was clear. However, it appears that a clay layer along the skid road restricted water permeation (including subsurface flow), causing the relatively level skid road to become completely saturated. When we found the site, mud and silt were flowing down gullies and down the slope, putting tremendous amounts of sediment into the Redbird River. The river looked like chocolate milk well past Big Creek, including where it flows by the Redbird Ranger Station (and past beds of federally-endangered snuffbox mussels).

We were frankly surprised that the Forest Service had not reported this to the Kentucky Division of Forestry before we did. The Kentucky Division of Forestry did respond promptly and issued an Emergency Order shutting down the logging operations pending remediation, and fined the loggers. The logging operation was a Forest Stewardship Council (FSC) certified operation. The loggers were in violation of Kentucky state BMPs because they were hauling logs through the muck and contributing to increased sedimentation. However, the specific hazards encountered were caused by the characteristics of the geology and hydrology of the site, where water flowed through (and over) the relatively porous strata and welled up on the relatively impervious clay at the lower strata of the Four Corners Formation. Additional water bars would not have helped. The same geological layers and hazards at issue in the Elk Forest WMA are present throughout the South Redbird project area, including all of the proposed harvest units.

The Kentucky Geological Survey (KGS) recently published a series of reports analyzing the economic costs of landslides with respect to road maintenance in eastern Kentucky⁷. The report for Kentucky Transportation District 11 (which covers the South Red Bird Project area) affirms our concerns with regard to landslide and other soil and erosion hazards associated with the strata present in the South Red Bird Project area.

The report found that the Four Corners Formation was associated with the third highest maintenance costs per mile with respect to landslides, having nearly twice the costs associated per mile than the Hyden Formation (which includes the Fireclay and Fireclay Rider)⁸.

⁶ See Kentucky Geological Survey stratigraphic column for Beverly Quad for Blue Hole and Bear Creek areas

⁷ The Geologic Context of Landslide/Sinkhole and Rockfall Maintenance Costs for Kentucky Transportation District 11 – 2002 to 2009 by Bethany L. Overfield, Daniel I. Carey, Gerald A. Weisenflugh, and Rebecca Wang, Contract Report 34, Series XIII, 2020

⁸ *Id* at 13

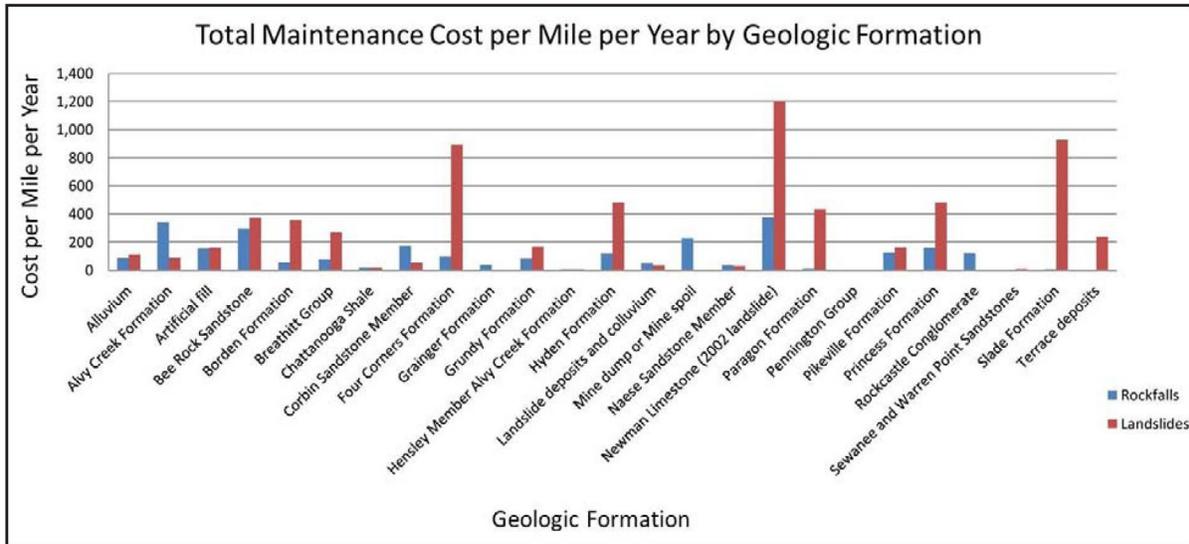


Figure 9. Total maintenance cost per mile per year for significant geologic formations in District 11.

The report found that the Four Corners Formation along Ky. 66 (which runs through the South Red Bird project area) had the second-most repaired road segments resulting from landslides in District 11 (after the Newman Limestone on Ky. 221).⁹

The Forest Service has failed to provide a serious examination of the landslide and erosion hazards associated with the strata present in the South Red Bird project area. The characterization of the Fireclay and Fireclay Rider coal seams as unique hazards that will not be encountered in the South Red Bird project area is factually incorrect.

2.B. Slope hazards

The Draft EA and Soil and Water Report make factually incorrect claims regarding slopes and slope hazards in the South Red Bird Project area. The Forest Service then relies on these factually incorrect claims to support determinations in the Final EA, Revised BAE, and Draft DN and FONSI that significant impacts to soil, water, critical habitat, and federally-listed species are unlikely to occur. In our comments on the Draft EA we raised concerns regarding the risks and hazards associated with logging (including road and skid trail construction) on steep slopes, especially with regards to slope stability and the resultant potential for landslides, erosion, and sedimentation. We made specific comparisons between the slopes, hazards, and observed landslides in the Group One Project with the South Red Bird Project, stating:

“The sites largely exhibit the same soil types and slopes as those in the South Redbird project and would rely on the same BMPs and Forest Plan Standards as the South Redbird project.” (Draft EA comments at 11).

⁹ *Id* at 18

The Forest Service makes the argument in the Soil and Water Report and Final EA that the slopes and slope hazards are substantially different between the two project areas, and therefore comparisons of effects are not applicable. However, as we demonstrate, the slopes are essentially the same between the two project area. The Forest Service’s arguments on this point are invalid and provide no reasonable basis for determining that steep slopes in the South Red Bird project area do not pose any substantial environmental risks.

In the August 2019 version of Soil and Water Report, the Forest Service acknowledges an incident with serious soil impacts resulting from a timber harvest, though fails to describe what actually happened. We learned later that the referenced site was not on Granny’s Branch but was instead shelterwood unit 18 in the Group One project on Lower Jack’s Branch (and part of the Granny’s Branch sale).

“A full-bench skid road was constructed on slopes that exceeded 35%. The soil scientist was not informed until after the sale was finished. Repairs were made using soil and water funding. Erosion occurred in this location, but it was arrested once the area was seeded and mulched. Communication could have kept this from happening, and the leadership, staff, and district all understand that Granny’s Branch was an unacceptable situation. That is not expected to happen again.” (Soil and Water Report at 13).

The Soil and Water Report states (in error) that the mean slope of the project area is 23%, with a maximum slope of 60%:

“Slopes within the project area range between 0-60% gradient (Table 5). The mean slope in the project area is 23%.” (Soil and Water Report at 11)

Table 5. Slope classes within the South Red Bird Project area, Redbird Ranger District, Daniel Boone National Forest.

Slope %	0 – 10%	10 – 20%	20 – 30%	30 – 40%	>40%
Project Area %	9.5	23.1	48.6	17.5	1.3

The explicit implication is that the impacts that resulted in the “unacceptable situation” were at least in part because of the construction of full-bench skid roads on slopes exceeding 35%. And because the average slope for the South Red Bird Project is 23%, and with no slopes over 60%, what happened in the Granny’s Branch sale will not occur in the South Red Bird Project.

However, this is not at all the case.

The Forest Service issued a May 7, 2020 “Errata” to the Soil and Water Report stating that the previous slope analysis was incorrect, and that the median slope for the South Red Bird Project area was 47%, and not 23% as had been previously reported. (The Soil and Water Report switches between mean and median).

“Additional LIDAR analysis (using the KYFromAbove 5-foot LIDAR coverage) resulted in a median slope of 47% for the South Red Bird Project area.” (Errata at 1).

A corrected slope table was included with the Errata (with an incorrect Table number):

Table 2. Slope classes within the South Red Bird Project area, Redbird Ranger District, Daniel Boone National Forest.

Slope %	0 – 9%	10 – 19%	20 – 29%	30 – 39%	40%+
Project Area %	4.6	5.4	8.9	15.0	66.0

The Soil and Water Report does not provide an average slope for the Group One project for comparison, only stating that “the maximum median harvest unit slope is not as steep” in the South Red Bird Project area (Soil and Water Report at 33). The Errata makes no correction with respect to the comparison between the two project areas, carrying forward the argument that slopes are steeper in the Group One project area.

We performed a GIS analysis using the KyFromAbove 5-foot LIDAR coverage (the same data source cited in the Errata to the Soil and Water report) and calculated a median percent slope for the shelterwood units in the Group One project of 46.31% (mean 45.85%). This is a *lower* median (or mean) slope that the Forest Service reports for the South Red Bird Project area. Further, while the Soil and Water Report states that the maximum slopes in the South Red Bird Project area do not exceed 60%, we estimate from our analysis using the KyFromAbove 5-foot LIDAR coverage that approximately 28% of the proposed harvest areas exceed slopes of 60%.

Several GIS outputs using the KyFromAbove 5-foot LIDAR coverage for proposed harvest areas in the South Red Bird Project area are found at the end of this document in *Appendix 2. Slope maps of select South Red Bird harvest units*. As is abundantly clear from these representations, slopes exceeding 60% are found throughout proposed harvest areas.

In the January 2020 Addendum to the Soil and Water Report, the Forest Service states:

“The median slope gradient and geology are different in the units of SRB versus Group One. In the SRB Project area the maximum median harvest unit slope is not as steep, and the Fireclay and Fireclay Rider coal seams are lower in the profile. If maximum median harvest unit slopes are not as steep, and the Fireclay and Fireclay Rider coal seams are mostly in the SMZ (lower on the landscape) than they were for the Group One project area, then the potential for landslides should be less in the SRB project area.” (Soil and Water Report at 33)

We address the issue with the Fireclay and Fireclay Rider above. However, it is clear that the assurances in the Soil and Water Report that similar landslide and erosions hazards are unlikely in the South Red Bird Project area because “maximum median harvest unit slope is not as steep” are invalid and cannot be the rational basis of any effects determination.

2.C. Inadequacy of Kentucky Best Management Practices (BMPs), The Forest Service has relied heavily on the adequacy of Kentucky state forestry Best Management Practices (BMPs), Forest Plan Standards, monitoring, and post-harvest remediation and stabilization to assure the

public and decisionmakers that the environmental consequences of the proposed logging will be minimal. The Final EA states:

“Research has shown BMPs are effective at reducing stream sedimentation and maintaining applicable water quality standards (Swift 1988, Fulton and West 2002, Witt et al. 2013). Required annual BMP monitoring of timber sale landings, skid trails, prescribed burn fire lines, and trail improvements by DBNF staff indicate that BMPs have been implemented and continue to be effective at limiting the amount of erosion on projects across the forest, with few exceptions.” (Final EA at 30)

The evidence, however, demonstrates the inadequacy of each of these safeguards with respect to management on the Redbird District of the Daniel Boone National Forest.

In January 2020, the Forest Service Group One Unit 18 on Lower Jack’s Branch to examine the landslide that we described in our comments on the Draft EA (Unit 18 landslide #1). In the Soil and Water Report section “*BMPs and the Forest Plan in Harvest 18*,” the Forest Service states:

“DBNF personnel walked the entire length of the unmapped intermittent stream to the confluence of Lower Jacks Branch to observe for changes in channel morphology and sediment due to the landslide. There were no changes to suspended sediment levels or streambed conditions of Lower Jacks Branch, upstream or downstream of the confluence of the unmapped intermittent stream.

“In Harvest Unit 18, measurements of the distance between the skid trail and the intermittent stream ranged between 50-65 horizontal feet. The Forest Plan specifies that riparian corridors on intermittent streams have a width of 50 feet on each side. The DBNF follows applicable Kentucky BMPs as well. At the time this harvest unit was logged, it was held to BMPs listed in the 1998 version of the state manual for forest practices (Stringer et al., 1998), which required a minimum distance of 65 feet (for slopes 40% or higher) between a skid trail and intermittent stream. A footnote to this table states, “Where minimum distances are not possible, (then) roads, trails, and landings can be located at less than the recommended distances, but they should be constructed to protect water quality.” Initially, extra water bars were installed to overcome this exception and the water bars were vegetated during our site visit.” (Soil and Water Report at 31)

The Report then states under “*How Will We Keep this From Happening Again?*”:

“Kentucky State BMPs for logging were recently updated and now require a 100-foot streamside management zone for both perennial and intermittent streams with slopes greater than 15% (Stringer et al., 2018). These updated BMPs will be implemented for all harvest units in the SRB project, providing additional protections for soil and water.” (Soil and Water Report at 32)

However, shortly after the publication of the revised Soil and Water Report, Kentucky Heartwood documented new and larger landslides in the Group One project (Unit 18 landslide #3, and Unit 20 landslide #1) which measured approximately 300’ slope distance (as measured with a laser rangefinder). Both landslides dumped large amounts of sediments into streams (Lower Jack’s Branch and Ulysses Creek, respectively). The Forest Service’s claim that

expanding the streamside management zone to 100' will "keep this from happening again" is facially incorrect as demonstrated by the fact that it did happen again, while far exceeding the parameters of updated BMPs.

And while the Forest Service reports observing "no changes to suspended sediment levels or streambed conditions" resulting from Unit 18 landslide #1, we observed large amounts of sediment and turbidity resulting from Unit 18 landslide #3. And Unit 20 landslide #1 on Ulysses Creek resulted in extreme amounts of soil and debris being dumped onto the roadbed adjacent to the stream. It was clear that sediment had gone into Ulysses Creek. Subsequent visits to Unit 20 following removal of the sediment on the road have found suspended solids flowing into the stream despite little precipitation. The entire site is unstable. We note that Figure 4.11 in the Red Bird River Watershed Restoration Project Draft Watershed Plan¹⁰ shows Ulysses Creek as one of the more problematic watersheds with respect to total suspended solids (TSS) in the Redbird River watershed.

Pictures from the Unit 18 and Unit 20 landslides can be found in *Appendix 3: Landslides and erosion in the Group One project*.

2.D. Failure to follow Forest Plan Standards

The Forest Plan incorporates mandatory Standards as protective measures to limit impacts to soil and water from timber harvest operations.

"Standards are measurable and capable of being monitored. Adherence to standards is mandatory. A project that deviates from a relevant Standard may not be authorized unless the Forest Plan is amended to modify, remove, or waive application of the Standard."
(Forest Plan 2-20)

However, the DBNF and Redbird Ranger District have demonstrated an unwillingness to follow these standards in violation of the Forest Plan.

Forest Plan Standard DB-VEG-26 states:

"No more than 10 percent of a harvest area should be in landings, skid roads, or exposed soil."

In our comments on the Draft EA, we noted that we estimated upwards of 30% soil exposure in Group One shelterwood unit 18 (EA comments at 11). Subsequent field visits and newer imagery indicate that the amount of exposed soil is lower than 30%, but still higher than what is allowed by the Forest Plan. In the Addendum to the Soil and Water Report, the Forest Service states that "we estimated 14.4% soil exposure using NAIP and Bing imagery." (Soil and Water Report at 31). It should be obvious, but 14.4% is still greater than 10%.

¹⁰ Red Bird River Watershed Restoration Project Draft Watershed Plan page 73

But the Soil and Water Report refrains from acknowledging the seriousness (and illegality) of violating the Forest Plan. Nor does the Soil and Water Report recognize the possible relationship between this violation and the significant problems at Unit 18.

Instead, the Soil and Water Report states in its section on *Soil Exposure in Unit 18 of Granny's Branch Sale of the Group One Project*:

“The Group One Project was originally analyzed by a former DBNF Soil Scientist who is now retired. Forest Plan standard DB-VEG-26 states, “No more than 10% of a harvest area should be in landings, skid roads, or exposed soil.” It was unclear in the original Soil and Water specialist report if he based the 10% soil exposure on the harvest unit or sale level. At the harvest unit level with field validation, we estimated 14.4% soil exposure using NAIP and Bing imagery. At the sale unit level (average of all units in the sale) the soil exposure was 11%. The purchaser for that sale used bigger equipment than usual. The widest areas of soil exposure were landings and skid road turns, which had a 25’ turn radius in some areas. Geological obstacles were encountered in these units and equipment had to continually adjust track, an action that exposed soil. (Soil and Water Report at 31)

First, Forest Plan Standard DB-VEG-26 refers to a “harvest area,” not an overall sale area. This should be clear. The 10% threshold is a protective threshold applied at the site level. If applied across an entire project or sale area, which can include many separate harvest units distributed across a broad geographic area, then it could be construed as consistent with the Forest Plan to bulldoze and shear an entire site as long as things “averaged out.” We strenuously argue that this is *not* the case. However, if Forest Service staff truly believe that there are no limits on how much of a logging unit can be “in landings, skid roads, or exposed soil” as long as it averages out near 10% across an entire project or sale area, then that’s a major cause for concern.

The Final EA is similarly equivocal on this point, stating “To be in compliance with Standard DB-VEG-26, no more than 392.5 acres of soil may be exposed from landings and skid roads.” (Final EA at 29). There is no statement regarding whether the Forest Service believes that the “10% of a harvest area” applies to a harvest unit, a sale, or (as implied by the Final EA), the project area as a whole.

The Soil and Water Report places blame on “a former DBNF Soil Scientist who is now retired.” Without stating this explicitly, it implies that the Forest Plan violation was the mistake of an individual who is no longer present, and therefore this will not be repeated. However, the Unit 18 sale was active in 2017 (in fact, by email, District Ranger Claybrook stated that it was completed in 2018). Notice for the first “collaborative” meeting to discuss the South Red Bird project was signed and mailed on January 30, 2017. A field trip was held May 2, 2017. The scoping letter for the South Red Bird Project was dated March 2, 2018. Clearly, the South Red Bird Project was developed by the same District and Forest staff as were responsible for implementation and monitoring of the Unit 18 sale. Therefore, it is only rational to presume that the thresholds for acceptability of practices (e.g.,

Under *How Will We Keep this From Happening Again?* (Soil and Water Report at 31), the Forest Service makes no mention of following DB-VEG-26. In fact, in handwritten notes provided through a FOIA request, it states:

“Wes used NAIP and Bing to est 14% to 15%, defensible # per Wes.”¹¹

The implication here is that District staff do not feel obligated to follow the Forest Plan. Given that the Soil and Water Report makes no statements affirming the need to follow DB-VEG-26, that statements from District staff explicitly state that exceedance of DB-VEG-26 is “defensible,” and that the same staff that oversaw implementation of the disastrous Unit 18 harvest developed the South Red Bird Project, it is only rational to conclude that the same practices and conditions that led to the Group One landslides may be repeated.

2.E. Failure of post-harvest reclamation

Under *How Will We Keep this From Happening Again*, the Soil and Water Report states:

“Literature and observations on the ground indicate that generally, at the end of three years, exposed soil has some cover of litter and/or vegetation. In the interim before ground cover is established, waterbars serve to protect soil and water resources within the harvest unit and continue to do so until the soil surface is covered. Waterbars will be installed at a higher density than BMP recommendations and will be seeded and mulched as soon as conditions allow for germination. This will reduce the potential for exposed soil and erosion.” (Soil and Water Report at 32)

The Final EA states this more emphatically:

“Erosion could occur with these activities until the ground cover is re-established, within 3 months to approximately 3 years.” (Final EA at 29)

However, the recent landslides demonstrate that these assertions run contrary to the facts on the ground. As described above, Unit 18 landslide #3 occurred in Spring of 2020, three years after the Forest Service first instituted remediation at the site. Even more telling, is the massive landslide in Unit 20. That landslide occurred in March 2020, eight years after the stand was harvested and “closed.” Making a determination that major effects are unlikely after 3 years when the most applicable evidence demonstrates the opposite is arbitrary and capricious.

2.F. Precipitation

The Soil and Water Report makes much of the increased precipitation in 2018 and 2019 as being unusual causal factors leading to the Unit 18 landslide #1.

“Precipitation was higher in 2018 and 2019 in this area compared to the preceding eight years (Table 1). This likely resulted in more accumulated water in the soil profile, and could have exacerbated the weight of the saturated soil, increasing the probability for a landslide.” (Soil and Water Report at 30)

¹¹ See attached document “DBNF Field Notes Grannys Branch 2020.”

It is true that 2018 and 2019 had higher than average rainfall totals (1st and 3rd for years 2010 through 2019). But the rainfall totals for those years was not extreme. And as of October 2nd, 2020 is on track to meet or exceed the rainfall totals for 2018 and 2019.¹² Furthermore, according to the Intergovernmental Panel on Climate Change (IPCC) report *AR5 Climate Change 2014: Impacts, Adaptation, and Vulnerability*, precipitation modeling indicates that Kentucky will experience an increase both in overall precipitation and extreme precipitation events through the 21st century.¹³ Given that increased precipitation will increase the probability of landslides and other erosion, the Forest Service needs to acknowledge the very real hazards that could arise as a result of implementing the proposed action. Instead, the Soil and Water Report implies that these high levels of rain are uncharacteristic, and therefore unlikely to be a significant factor moving forward. This is magical thinking, and not a sufficient basis for determining that the environmental consequences will be unlikely or of minimal effect.

2.G. Inadequacy of project-specific protective measures

In response to our comments on the Draft EA, the Forest Service added some protective measures in the South Red Bird project design. However, these protective measures are completely inadequate for addressing the issues raised here. The Final EA states:

“Comments to the draft EA voiced concern that the steep slopes in the South Red Bird Project area could increase the risk of erosion and landslides due to logging operations, causing sediment to reach designated critical habitat in the area’s streams. In response to these comments, each harvest unit in the SRB project was examined for interactions among slope, geology, road placement, and proximity to streams. Out of 77 units to be commercially harvested, eight contained the Fireclay and/or the Fireclay Rider coal seam that appear to be related to nearby landslides. Findings and recommendations from this additional analysis are in the Soil and Water Report Addendum (Cherry and Cotton 2020). One unit in Little Flat Creek (Stand 2701-0023) was eliminated from the Proposed Action due to a combination of slope, vicinity to streams, and the presence of Fireclay coal seams (see Figure 10).” (Final EA at 30)

The Addendum to the Soil and Water Report states:

“In addition to known geologic hazards, DBNF personnel will mark off soil protection zones in each harvest unit that exclude heavy equipment due to slope, erodible soils, and/or the presence of Fireclay (Appendix 2). The SMZ will serve to protect soil and water within the riparian zone, and the soil protection areas will serve to protect soil and

¹² Total precipitation based on the Owsley County Mesonet Station is reported at 48.53” for January 1 through October 2, 2020; see <http://www.kymesonet.org/> (accessed Oct. 2, 2020)

¹³ Romero-Lankao, P., J.B. Smith, D.J. Davidson, N.S. Diffenbaugh, P.L. Kinney, P. Kirshen, P. Kovacs, and L. Villers Ruiz, 2014: North America. In: *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Barros, V.R., C.B. Field, D.J. Dokken, M.D. Mastrandrea, K.J. Mach, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1439-1498, Figures 26-3 and 26-4.

water on upland slope positions when the slope or other landform precludes safe equipment operation.” (Soil and Water Report at 32)

The Soil and Water Report adds four Design Criteria to the EA:

1. Skid trails or roads should not cross over the Fire Clay or Fire Clay Rider coal seams when the slope gradient exceeds 35%.
2. Mulch the following areas as the operator finishes with a harvest unit: exposed landings, 3 feet above the water bars, and the entire water bar. Seed as soon as conditions allow for germination, pursuant to the sale contract.
3. It is recommended to either change the operations in the Little Flat Creek harvest unit to non-commercial or drop it altogether, due to the Fireclay coal seam cutting diagonally across the unit. As of 1/24/20, the District Ranger decided to drop the unit.
4. In areas where slopes exceed 35%, install more waterbars on skid trails than prescribed in KY BMPs (Stringer et al., 2018). (Soil and Water Report at 33)

However, the “soil protection zones” – as illustrated and delineated in the maps in Appendix 2 of the Soil and Water Report – only cover the mandated streamside management zones and the very few locations where the Fireclay or Fireclay Rider coal seams intersect with proposed harvest units (total of 8 of 77 harvest units). No other areas have been designated or indicated for any types of additional protections or restrictions on skid road construction, residual basal area, or anything else. No other areas of steep slopes or geological hazards are delineated for protection or modified action.

It’s also important to note DBNF staff failed to recognize the FireClay and FireClay Rider as hazard zones until *after* the damage was done. The Forest Service did not even notice the landslides occurring in the Group One project until the issue was raised by Kentucky Heartwood. The purpose of NEPA is to take a “hard look” *before* an irreversible action is carried out. The Forest Service has failed to take a hard look and make reasoned, fact-based determinations in the effects analysis for the South Red Bird Project.

2.H. Mischaracterization of road miles (i.e., 91 > 3.7)

The Final EA is grossly misleading with respect to skid road construction. *Action 12: Temporary access roads, skid roads, and skid trails* states:

“Approximately 3.7 miles of temporary roads, and logging skid roads and trails are proposed to access some sites for treatment. These temporary roads would be rehabilitated per state and federal BMPs and Forest Plan Standards at the end of the treatment to reduce erosion and sedimentation.” (Final EA at 14)

And the discussion on effects to aquatic species states:

“Approximately 3.7 miles of temporary road and 1.8 of permanent roads would be constructed to provide access for commercial harvests. Temporary roads would be

obliterated following harvest. No new road construction is proposed near DCH or along other streams where known TE, RFSS or CS aquatic species occur.” (Final EA at 55).

The soils discussion in the Final EA states:

“To be in compliance with Standard DB-VEG-26, no more than 392.5 acres of soil may be exposed from landings and skid roads. The project proposes to create 1.8 miles of new access road and 3.7 miles of temporary access road. Assuming the roads are 14 feet wide would result in 9.3 acres of soil being exposed. This number of acres of new access road (exposed soil) is 0.24% of the harvest area, which is well within the 10% standard.

“The allotted 392.5 acres (10%), minus 9.3 acres for access roads, leaves approximately 383.5 acres that may be exposed through landings or skid roads to stay within compliance of the Forest Plan. An estimated 150 landings at 1.5 acres each results in 225 acres for log landings. The remaining 158.2 acres (392.5 acres – 9.3 acres for roads – 225 acres for landings = 158.2 acres remaining) converts to 93 miles of 14-foot wide skid trails that may be established in the harvest units.” (Final EA at 29)

The Final EA fails to discern any difference between a 14-foot wide “temporary access road” and a 14-foot wide “skid trail” or “skid road.” In fact, the Final EA and the Soil and Water Report repeatedly conflate the two. The Soil and Water Report states:

“Approximately 3.7 miles of temporary roads and logging skid roads and trails would be rehabilitated after timber harvests to reduce erosion and sedimentation. Approximately 30 miles of existing roads will be rehabilitated and 1.8 miles of new roads will be constructed.” (Soil and Water Report at 14)

In the original discussion on the “exception” to the efficacy of BMPs at Granny’s Branch, the Soil and Water Report states:

“One large exception occurred in a nearby sub watershed within the last 2 years: Granny’s Branch. A full-bench skid road was constructed on slopes that exceed 35%.” (Soil and Water Report at 13)

In the Addendum to the Soil and Water Report, discussing “*Why Did it Happen?*” with regard to the Unit 18 landslide #1 (and a potential landslide in Unit 14), the Forest Service states:

“The catalyst of the landslides in Harvest Unit 18 and potential landslide in Unit 14 appeared to be a combination of increased precipitation, slope, geology, and skid road placement.” (Soil and Water Report at 30)

The Soil and Water Report further states:

“Page 12 of the KHW letter refers to the S&W report as stating “as many as 91 miles of skid roads may be developed...” This is true; however, the context behind the statement is important. One of the requirements of NEPA is to put effects into context. Page 16 of the S&W report has been updated to the following: “To put the remaining acreage into context, the remaining 155 acres converts to 91 miles of 14-foot wide skid trail.” This

does not mean we are bound to 155 acres or 91 miles of exposed soil, it simply defines the allowable maximum in different terms.” Soil and Water Report at 32).

The Final EA and Soil and Water Report treat “skid trails” and “skid roads” as interchangeable. So, which is true? Are “3.7 miles of temporary roads, and logging skid roads and trails are proposed to access some sites for treatment”? Or will the Forest Service consider 91 miles of skid roads and trails as “the allowable maximum” for the project? This is not a semantic issue. “Skid roads” and “skid trails” in the Group One project area are “full-bench skid roads,” cut deeply into steep hillsides and resulting in a wide range of issues including slope instability and non-native species invasions. There is no indication that skid road construction would be any different in the South Red Bird project. This bears heavily on all of the above issues with regard to landslides, erosion, and sedimentation, as well as issues related to listed aquatic species and critical habitat as described below.

2.I. Inadequacy of cumulative effects analysis

The Soil and Water Report fails to address logging on the Elk Forest WMA or other private lands. As described below in section 4. *Interior forests/Forest Plan consistency*, over 10,000 acres of the South Red Bird analysis area are timber investment lands owned by The Forestland Group and managed for a continual output of timber using even-aged and two-aged harvest methods. In the analysis of the Lick Fork – Red Bird Creek sub watershed, the Report mentions oil and gas wells, coal mines, and *E. coli* impacting the watershed, but does not mention logging. However, most of the logging on private land in the South Red Bird analysis area is occurring in this sub watershed, including the logging that caused the sedimentation described in Section 2.A and illustrated in *Appendix 1: Sedimentation and Elk Forest WMA*.

The Soil and Water Report also fails to acknowledge the presence and impacts of timber harvest in the Phillips Fork sub watershed. The Report states that Phillips Fork “is considered a priority watershed after the WCC assessment,” with “functioning at risk.” (Soil and Water Report at 8). However, the Report again only lists oil and gas wells, coal mines, and *E. coli* as factors affecting watershed quality. This is despite the fact the USFS WCC assessment specifically lists this watershed as impaired because of sediment. The Red Bird River Watershed Restoration Project Draft Watershed Plan, which the DBNF was party to, also recognizes that sediment is an issue in the Phillips Fork sub watershed:

“Other sub watersheds and main stem segments are second priority areas for implementation to both restore and protect segments from future impairments. As noted above, future success monitoring may show improvement in these areas due to implementation in the first priority subwatersheds. It will be important to continue to assess the watershed and modify the implementation strategy (presented in the following chapters) accordingly. TSS reductions are needed in five areas of the Red Bird River Watershed: Lower Phillips Fork, Upper Phillips Fork, Site 2 on the main stem of the Red Bird River, Dry Branch, and Bear Creek (Table 4.6). BMPs to control TSS will be implemented first on Lower Phillips Fork, Bear Creek, Sugar Creek, and Big Double

Creek. Second priority will be given to Upper Phillips, and third priority will be given to Dry Branch and Site 2 on the main stem of the Red Bird River. (Report at 109)

We estimate approximately 800 acres of recent timber harvest on private lands in the Phillips Fork watershed, along with 15 to 20 miles of logging roads. The Forest Service has ignored its own data citing the impacts of sediment in the watershed contributing to its own listing of the watershed as a priority watershed because of this impairment. A rational considering of cumulative impacts has to include role of sedimentation and logging in the watershed.

3. Snuffbox mussel, Kentucky arrow darter, and designated critical habitat

The Forest Service has violated the ESA, NFMA, APA, and ESA in its analysis with respect to the snuffbox mussel (*Epioblasma triquetra*), Kentucky arrow darter (*Etheostoma spilotum*), and designated critical habitat. These issues were raised in sections III. and IV. of our comments on the Draft EA.

The Kentucky arrow darter has been eliminated from 36 of 74 historical streams, with 44% of those extirpations occurring since the mid-1990s (CCA at 7).¹⁴ Federal listing and designation of critical habitat for the Kentucky arrow darter occurred in 2016. At least a portion of 20 of 38 critical habitat units are in the DBNF and managed under the DBNF land resource management plan (LRMP). However, according to the USFWS:

“At least portions of 32 critical habitat units are located on private property (16 are located entirely on private property) and are not presently under the protection provided by DBNF’s LRMP or the CCA developed by the DBNF and the Service. Activities in or adjacent to these areas of critical habitat may affect none or more of the physical or biological features essential to the Kentucky arrow darter.” (Final Rule, Designated Critical Habitat at 69319)¹⁵

The South Red Bird Project area includes 6 designated critical habitat units, representing approximately 16% of all designated critical habitat units, and 30% of the critical habitat units that are at least partially in the DBNF (Revised BAE at 14). According to the CCA, tributaries of the Red Bird River in the DBNF provide habitat for some of “the most stable and largest populations” of the Kentucky arrow darter. (CCA at 8).

The Forest Service signed a Candidate Conservation Agreement for protecting the Kentucky arrow darter with the USFWS on August 31, 2015. The Goals and Objectives for the CCA state:

“This CCA is intended to conserve the Kentucky arrow darter on the DBNF by (a) protecting known populations and habitat, (b) reducing threats to its survival, (c) conserving the watersheds and ecosystems on which the species depends, (d) enhancing

¹⁴ Candidate Conservation Agreement for the Kentucky Arrow Darter (*Etheostoma spilotum*), USFWS and DBNF, July 2015

¹⁵ Department of the Interior, Fish and Wildlife Service, Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Kentucky Arrow Darter, Final Rule, 81 Fed. Reg. 69312 (Oct. 5, 2016).

and/or restoring degraded habitat, and (e) monitoring the outcomes of these conservation efforts.” (CCA at 2)

The CCA further states:

“Kentucky arrow darter conservation is a top priority for USFWS and DBNF. The USFWS and DBNF share a variety of interests relative to this species and its habitat, and both agencies are willing to commit resources to conserve the species and its habitat. Over half of the species' extant streams occur on lands at least partially owned and managed by the DBNF, so conservation of these populations is essential to the species' recovery. Therefore, the premise of this CCA is to provide conservation commitments that will continue to protect, enhance, and monitor known populations and potential habitat of the Kentucky arrow darter on the DBNF.” (CCA at 9)

Fewer than 79 extant populations of the snuffbox mussel remain throughout its range. The Red Bird River population is considered “marginal.” Marginal populations are very small and highly restricted, with no evidence of recent recruitment, of questionable viability, and that may be on the verge of extirpation in the immediate future. The small population in the Red Bird occurs sporadically in the lower 20 river miles and viability is unknown.¹⁶ According to the Revised BAE, the snuffbox mussel has been documented “from six locations in the Red Bird River,” with one occurrence within and one immediately downstream of the South Red Bird project boundary (Revised BAE at 36).

The Revised BAE dismisses potential impacts to these species and designated critical habitat from logging. With regard to the Kentucky arrow darter and its designated critical habitat, the Revised BAE only examines the potential effects associated with three existing roads which cross critical habitat stream segments. The Draft BAE argues (we think correctly) that use and management of these three road segments and the construction of aquatic organism passages do not constitute “adverse modification.”

However, the Final EA and Revised BAE fail to take the required hard look at the potential impacts of logging on the snuffbox mussel, Kentucky arrow darter, and designated critical habitat. Instead, the Revised BAE relies entirely on the flawed analysis in the Soil and Water Report:

“There would be slight, temporary increases in erosion from the proposed logging and associated activities, including temporary road construction and skid trails, but through implementation of Best Management Practices and Forest Plan standards, the sediments would not likely reach the streams (Cherry and Cotton 2020) after being trapped in the streamside management zones.” (Final EA at 53, Revised BAE at 35)

With respect to the snuffbox mussel, the Draft BAE states:

“No direct effects are expected because this is an aquatic species and the proposed actions all occur on terrestrial sites. Logging trucks would not impact mussels because

¹⁶ Department of the Interior, Fish and Wildlife Service, Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Rayed Bean and Snuffbox Mussels Throughout Their Ranges, Final Rule, 77 Fed. Reg. 8632, 8632 (Feb. 14, 2012).

the road crossings described above for KAD would provide the same protections to mussels.”

And further:

“With regards to logging operations and upland ephemeral pools, all of the sites are on upper slopes or ridge tops and are not connected in any way to streams, and therefore would not directly impact DCH Best Management Practices (BMP) are incorporated in the design and layout to minimize indirect effects to streams downslope through sedimentation. Further, no heavy equipment would cross or operate in the Red Bird River, eliminating the possibility of direct impacts to this mussel... There would be temporary increases in erosion from the proposed activities, but through implementation of Best Management Practices and Forest Plan standards, the sediments would not likely reach the streams (Final EA at 53, Revised BAE at 36)

Given the flaws demonstrated in the Soil and Water Report, the determination that no adverse effects are anticipated with regard to the snuffbox mussel, Kentucky arrow darter, and designated critical habitat is not valid.

The Final Rule designating the Kentucky arrow darter as a Threatened Species under the Endangered Species Act¹⁷ states:

“Specific stressors include inputs of dissolved solids and elevation of instream conductivity, sedimentation/siltation of stream substrates, turbidity, and inputs of nutrients and organic enrichment. These high-magnitude stressors, especially the inputs of dissolved solids and sedimentation, have had profound negative effects on Kentucky arrow darter populations and have been the primary factor in the species’ decline. (Final Rule, Threatened Species Status at 68980)

Similarly, the Final Rule for the designation of Critical Habitat for the Kentucky Arrow Darter¹⁸ goes into detail regarding how sedimentation is harmful to the Kentucky arrow darter.

“The species typically inhabits shallow pools, riffles, runs, and glides dominated by cobble and boulder substrates and interspersed with clean sand and gravel and low levels of siltation... Sedimentation (siltation) has been listed repeatedly as a threat to the Kentucky arrow darter (Kuehne and Barbour 1983, p. 71; Etnier and Starnes 1993, p. 523; Thomas 2008, pp. 3–7), and the species has suffered population declines and extirpations where sedimentation has been severe (Etnier and Starnes 1993, p. 524; Thomas 2008, p. 7; Service 2012, p. 1). Substrates with low levels of siltation are essential in accommodating the species’ feeding, breeding, growth, and other normal behaviors. The term “low levels of siltation” is defined for the purpose of this rule as silt or fine sand within interstitial spaces of substrates in amounts low enough to have minimal impact (i.e., that would have no appreciable reduction in spawning, breeding,

¹⁷ Department of the Interior, Fish and Wildlife Service, Endangered and Threatened Wildlife and Plants; Threatened Species Status for the Kentucky Arrow Darter with 4(d) Rule, Final Rule, 81 Fed. Reg. 68963 (Oct. 5, 2016).

¹⁸ Department of the Interior, Fish and Wildlife Service, Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Kentucky Arrow Darter, Final Rule, 81 Fed. Reg. 69312 (Oct. 5, 2016).

growth, and feeding) to the species. Increased levels of siltation (interstitial spaces of substrates filled with large amounts of fine sediment) would reduce the species' ability to feed (e.g., reduced abundance of prey items) and reproduce (e.g., lack of appropriate spawning sites, smothering of eggs)." (Final Rule, Designated Critical Habitat at 69317)

The Final Rule describes five Primary Constituent Elements that are "required to sustain the species' life-history processes." Primary Constituent Element 2 is a "Stable bottom substrates composed of gravel, cobble, boulders, bedrock ledges, and woody debris piles with low levels of siltation." (Final Rule, Designated Critical Habitat at 69381)

Of the four activities that may constituted "adverse modification" of critical habitat, the Final Rule includes:

"Actions that would significantly alter stream bed material composition and quality by increasing sediment deposition or filamentous algal growth. Such activities could include, but are not limited to, construction projects, channel alteration, livestock grazing, timber harvests, off-road vehicle use, and other watershed and floodplain disturbances that release sediments or nutrients into the water. These activities could eliminate or degrade habitats necessary for the growth and reproduction of the Kentucky arrow darter by increasing the sediment deposition to levels that would adversely affect its ability to complete its life cycle." (Final Rule, Designated Critical Habitat at 69332)

The Final Rule also recognizes that sedimentation detrimental the Kentucky arrow darter may result from rare, but highly impactful, stochastic events:

"Given the species' reduced range and fragmented distribution, it is vulnerable to extirpation from intentional or accidental toxic chemical spills, habitat modification, progressive degradation from runoff (nonpoint-source pollutants), natural catastrophic changes to their habitat (e.g., flood scour, drought), and other stochastic disturbances, such as loss of genetic variation and inbreeding." (Final Rule, Designated Critical Habitat at 69318)

The Final Rule conveying Endangered Species Status to the snuffbox mussel similarly describes how sedimentation harms this mussel¹⁹. According to the Final Rule, excessive sedimentation affects the majority of streams with snuffbox populations. Sedimentation has been linked to the decline of mussel populations nationwide and is a threat to the snuffbox. The impacts include reduced feeding and respiratory efficiency due to clogged gills, disrupted metabolic processes, reduced growth rates, limited burrowing activity, and physical smothering. Excessive sedimentation can have detrimental effects that are not immediately apparent. As the USFWS explained in its decision to list the species in 2012:

¹⁹ Department of the Interior, Fish and Wildlife Service, Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Rayed Bean and Snuffbox Mussels Throughout Their Ranges, Final Rule, 77 Fed. Reg. (Feb. 14, 2012).

“Physical habitat effects include altered suspended and bed material loads, and bed sediment composition associated with increased sediment production and run-off; clogged interstitial habitats and reduced interstitial flow rates and dissolved oxygen levels; changed channels in form, position, and degree of stability; altered depth or wide-depth ratio that affects light penetration and flow regime; aggraded (filling) or degraded (scouring) channels; and changed channel positions that dewater mussel beds... Interstitial spaces in the substrate provide essential habitat for juvenile mussels. When they are clogged, interstitial flow rates and spaces may become reduced, thus reducing juvenile habitat availability...Sediment may act as a vector for delivering contaminants, such as nutrients and pesticides, to streams. Juveniles can readily ingest contaminants adsorbed to silt particles during normal feeding activities. These factors may explain, in part, why so many mussel populations, including those of the rayed bean and snuffbox, appear to be experiencing recruitment failures. contaminants adsorbed to silt particles during normal feeding activities. These factors may explain, in part, why so many mussel populations, including those of the rayed bean and snuffbox, appear to be experiencing recruitment failures.” (Final Rule at 8656)

The Final EA and Revised BAE provide no discussion regarding the impacts of sedimentation on the snuffbox mussel, Kentucky arrow darter, or designated critical habitat. Instead, they rely completely on the incorrect assertion that sedimentation resulting from logging in the South Red Bird Project simply will not happen or be only marginal. But, as we have demonstrated, logging in the Group One project *has* led directly to several significant landslides resulting in large amounts of sediment entering waterways in the Redbird District.²⁰ These landslides have caused both a general, ongoing increase in total suspended solids, as well as large amounts of sediment deposition during stochastic mass wasting events. These landslides have happened despite adherence to BMPs and (supposed) adherence to Forest Plan Standards. They have happened after DBNF personnel visited sites and concluded that remediation was successful, and the site stable. They have happened 8 years after a sale was closed, despite claims that sites are stable, and erosion is unlikely to occur after 3 years. And there is no reason to believe that there will be no more landslides or other mass wasting events at these or other harvest sites in the Group One project area.

The signed CCA commits the DBNF to a number of “Agency Responsibilities.” Among those is the following:

“7.Submit management plans and strategies to the USFWS for review so that the Service can make recommendations to avoid or minimize potential impacts to the Kentucky Arrow darter and to ensure the most-recent data regarding the Kentucky arrow darter is being utilized in the development of those management plans and strategies.” (CCA at 13)

Adherence to the CCA is an integral, repeatedly cited component of both the Final Rule of listing the Kentucky arrow darter as “threatened” under the ESA, and the Final Rule designating critical habitat. The CCA is, in fact, cited among reasons that the Kentucky arrow darter “does not meet the definition of an endangered species.”

²⁰ See photos in *Appendix 3: Landslides and erosion in the Group One project*

“For example, the CCA with the U.S. Forest Service (USFS) for DBNF should provide an elevated level of focused management and conservation for portions of 20 streams that support populations of the Kentucky arrow darter. Based on all these factors, the Kentucky arrow darter does not meet the definition of an endangered species.” (Final Rule, Threatened Species Status at 68980)

However, there is no indication that any “management plans and strategies” were submitted to USFWS with regards to potential impacts to the Kentucky arrow darter or designated critical habitat resulting from the South Red Bird project. The only references to communication with USFWS that we find are three notations of “M. Floyd, USFWS, pers. comm” relating to three stream crossings. (Final BAE at 34). There are no references to any sharing of information with USFWS regarding landslides, mass wasting, or other significant erosion that could occur in the South Red Bird Project, or disclosure of these events happening in the Group One project.

The Endangered Species Act provides for strong protective measures and requires a robust consideration of possible effects to federally-listed species. Saying something won’t happen doesn’t make it so, especially when the evidence is stacked the other way. The Forest Service has failed in its obligations under the ESA, and in its duty to protect these imperiled species. The South Red Bird project has the potential to negatively impact 16% of all critical habitat units for the Kentucky arrow darter, and nearly 1/3rd of designated critical habitat within the DBNF. A determination of “no effect” with regards to the snuffbox mussel, Kentucky arrow darter, and designated critical habitat is belied by the facts. Contrary to the conclusion in the Draft FONSI that “the proposed action will not adversely affect any proposed, endangered, threatened or sensitive species (PETS) or its habitat” (Draft FONSI at 9), the implementation of the project clearly “may effect” these species and their habitats, and formal consultation with USFWS needs to be initiated.

We contend that the Forest Service’s analysis here is misleading and inadequate. There is a more than reasonable chance that federally-listed aquatic species could be negatively affected through implementation of the proposed action. Further, management that induces long-term slope instability and the potential for recurring large landslides in designated critical habitat should be considered as adverse modification. Given the importance of the South Red Bird project area to the survival of the Kentucky arrow darter the potential impacts could be catastrophic for the species.

4. Interior forests/Forest Plan consistency

Issues relating to interior forests were addressed in detail in section VII. of our comments on the Draft EA. The Forest Plan FEIS defines interior forest habitat as:

“High canopy forest conditions suitable to meet the requirements of area sensitive species that are adversely impacted by forest edge, including microclimate change (warmer, windier), increased predation, increased brood parasitism, and increased competition.” (Forest Plan FES 6-16).

Interior forest habitats are vital for a wide range of species, including northern long-eared bats. The Forest Plan FEIS discusses the importance of interior forests and importance of considering the effects of within-forest habitat fragmentation:

Within-Forest Habitat Fragmentation

“Changes in forest composition and/or age-class conditions that interrupt or isolate forest habitat is another form of fragmentation. The arrangement of tree species and age structure affects which plant and animal populations may be found in a forested area. Arrangement of forest habitat types across an area and the degree to which they are connected influences habitat suitability. An area where forest habitat types are small or not connected may limit suitability for some species. The implications of habitat fragmentation within the forest depend on the habitat requirements of individual species. Many species thrive in a diverse mixture of habitats while others need a more uniform habitat over a large area.

“In addressing within-forest habitat fragmentation, management activities should strive to:

- Provide interior forest habitat
- Provide habitat continuity/connectivity
- Reduce adverse edge effects created by management activities.” (Forest Plan FEIS 2-13)

In the Forest Plan FEIS section “Partners-in-Flight Landbirds” (Forest Plan FEIS 3-223), the FEIS discusses habitat management for priority bird species. With respect to a listing of 21 avian species needing interior forest habitat, the FEIS describes the following Management Practices for evaluating effects on interior forest birds between Forest Plan Alternatives:

Table 3-66 provides an “Alternative Benefit Score” for each Forest Plan Alternative with respect to various habitat needs for priority bird species. Included in Table 3-66 are the following management practices for conserving interior forest species, including 21 avian species:

“Provide for forest interior species by grouping or localize harvest sites. Concentrate early successional habitat outside or at the periphery of mature interior forest.” (Forest Plan FEIS 3-231 Table 3-66)

The selected Alternative for the Forest Plan is Alternative C-1. Table 3-66 gives Alternative C-1 a ranking of “2” (Partial level of habitat provided) with regard to management for interior forest dependent avian species. The rationale is stated as:

“40-acre regeneration harvest opening limitation, about 5% per 10-year period. Most of the matrix forest will be in a high canopy forest condition, providing large areas of interior habitat.” (Forest Plan FEIS 3-231 Table 3-66)

The Forest Plan FEIS provides a detailed discussion on Fragmentation at 3-236. In describing “Within forest fragmentation,” the FEIS states:

“In the context of forest management, within-forest habitat fragmentation is the interruption or isolation of forest habitat caused by changes in forest composition or communities, and/or changes in age-class conditions or seral stages. This is the primary facet of the fragmentation issue. The arrangement of tree species and age structure affects which plant and animal populations may be found in a forested area. This arrangement of forest habitat types across an area and the degree to which they are connected influences habitat suitability. An area where forest habitat types are small or not connected may limit suitability for some species. The implications of habitat fragmentation within the DBNF depend on habitat requirements for individual species. Many species thrive in a diverse mixture of habitats while others need more uniform habitats over a large area.” (Forest Plan FIES 3-243)

In the effects analysis for Alternative C-1, the FEIS states:

“About half of the Forest would be actively managed to provide a diversity of forest age-class structure. Planned activities within these Alternatives would result in a relatively moderate level of within-forest habitat fragmentation. Regeneration harvest activities would take place on about three percent for the DBNF, introducing a limited amount of regeneration edge. ***Large blocks of mature forest would be distributed across the planning area, supporting interior forest-dependent species.***” (Forest Plan FEIS 3-248, emphasis added)

The distribution of “large blocks of mature forest” is achieved in part through 1.K-Objective 1.C in the Forest Plan, which states:

“Maintain 30 percent within each 5th level watershed in a relatively closed canopy forest at least 70 years old with midstory and shrub/sapling layers. One-fourth of the 30 percent should be maintained in blocks of at least 620 acres for interior habitat. Each block can include up to 200 acres from adjacent cliff and riparian areas; up to one third of each block may be thinned to no less than 60 basal area.” (Forest Plan 3-35).

In our comments on the Draft EA we describe in detail the Forest Service’s lack of consideration in managing for an adequate distribution of interior forest in the South Red Bird project area. The bottom line is that the Forest Service has proposed management that will eliminate or preclude the development of interior forest tracts in the project area and fail to meet the Objectives of the Forest Plan. The Forest Service in the Final EA and Response to Comments has erroneously presented management for both early seral and interior forest habitats within the project as an “either/or” scenario.

Firstly, the Forest Service has largely ignored viable alternatives for creating functional early seral habitat (see our comments on the Draft EA, *Section XIII. Alternative Management for Early Seral Habitat*). But even in proposing shelterwood cuts across the project area, the Forest Service could have considered alternatives and chosen a different total acreage and/or distribution of harvest areas, following the language in the Forest Plan FEIS. The FEIS states that management

activities should strive to provide interior forest habitat, provide habitat continuity/connectivity, and reduce adverse edge effects created by management activities. But this didn't happen.

The Forest Service also discounts the need to manage for interior forest habitats in the South Red Bird project by stating that "a 1,800- acre block of Designated Old Growth is less than 1 mile north of the SRB IRMA and will provide this desired habitat." (Response to Comments No. 16). The Forest Service points out in the Response to Comments that "North Red Bird (Group One) and South Red Bird IRMAs are both in the same 5th level Red Bird River watershed." (Response to Comments No. 17). However, the Forest Service provides no analysis of whether or not the North Red Bird IRMA or entirety of the 5th level Red Bird River watershed fulfill 1.K-Objective 1.C., only pointing to the Designated Old Growth in the North Redbird IRMA and the 315 acre Right Fork of Elisha Creek Proposed Research Natural Area in the South Red Bird project area.

Given that the Forest Service believes it is acceptable to discount the need to manage for interior forest habitats in the South Red Bird project area based on habitats potentially being provided elsewhere the 5th level Red Bird River watershed, it is only fair to look at the full watershed with regard the Purpose and Need and analysis.

One of the primary purposes of the South Red Bird proposal is to meet Forest Plan Objective 1.K 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)

The Forest Plan refers to the entire 5th level watershed, not only federal lands within it. The Response to Comments includes consideration of private land within the South Red Bird project area in asserting that interior forest habitat needs cannot be met in the project area.

"Private lands and past land uses on the district have resulted in a distribution of age classes in the SRB IRMA that precludes our ability to meet this objective at this time." (Response to Comments No. 16).

However, the Final EA also states:

"There is no early seral habitat for wildlife in the South Red Bird IRMA." (Final EA at 6)

This is simply untrue. Based on this untrue characterization, the Forest Service determines that:

"Desired future condition calls for an additional 3.1% to 4.1% (2,246-2,971 acres) of early seral habitat to achieve this Objective within the Red Bird River 5th level watershed." (Final EA at 6, Table 1)

Within the South Red Bird analysis area are 10,922 acres owned by The Forestland Group (TFG) and managed as the Elk Forest Wildlife Management Area in cooperation with the KY Division

of Fish and Wildlife Management (KDFWR)²¹. The Forestland Group is a timber investment management organization (TIMO). According to their website, “TFG Controls the largest portfolio of US Hardwoods, and is the 4th Largest landowner, in the US. The Primary product of the firm’s acquisition and management strategies is valuable saw timber.” The Elk Forest WMA, including land within, adjacent, and very near the SRB analysis area is 16,802 acres. TFG also owns and manages the 31,678-acre Boone Forestlands WMA, which is largely adjacent to the SRB analysis area.

According to the TFW website describing management of forest in the Elk Forest WMA:

“The land base supports forests that receive an array of silvicultural treatments designed to improve timber quality and growth while preserving and often enhancing recreation opportunities and aesthetics. Timberland management focuses on nurturing even and two aged natural forest systems over long rotations.”

Based on an analysis using KyFromAbove²² aerial image data collected in early 2019, we estimate that over 2,000 acres of the South Red Bird analysis area have been logged over the past 2 to 3 years. Including watersheds adjacent to the project area, we estimate approximately 4,500 acres have been recently harvest. Ground verification found that more logging has occurred in the South Red Bird analysis area since the state collected the 2019 imagery. Additionally, using the KyFromAbove imagery we estimate that there are approximately 1,830 acres of early seral habitat provided on reclaimed surface mines. In total, we estimate that the South Red Bird project area contains approximately 3,830 acres of early seral habitat available for wildlife in the analysis area.²³ This is considerably different than the characterization in the Final EA that “There is no early seral habitat for wildlife in the South Red Bird IRMA.”

In addition to even-aged and two-aged timber harvest systems, TFG explicitly manages for public access and hunting of elk and other game species. As such, private lands in the project area are able to meet the Purpose and Need of the project area with regard to early seral and young forest habitat. But, as the Forest Service readily admits in the Response to Comments, prevailing management on private land in the project area is incompatible with managing for interior forest (Response to Comments No. 16). Therefore, on balance, it is a rational position that management on national forest lands within the 5th level Red Bird River watershed should emphasize meeting the interior forest objectives of the Forest Plan.

It is important to point out that we find nowhere in the South Red Bird analysis where the Forest Service states that nearly all private land in the project area is managed by a timber investment management organization emphasizing even-aged management of the forest.

With respect to cumulative effects to wildlife, the Final EA states:

“The spatial boundary for this cumulative effects analysis is either the South Red Bird IRMS boundary depicted in Figure 1, p. 3, or the Red Bird River Watershed/ Redbird

²¹ <https://www.tfgoperations.com/property/elk-forest/>

²² <https://kyfromabove.ky.gov/>

²³ See: *Appendix 4: Elk Forest WMA and Early Seral Habitat*

Ranger District depicted in Figure 2, p. 4, depending on the resource analyzed.” (Final EA at 57)

Both Figures 1 and 2 referenced above include the 10,922 acres of Elk Forest WMA lands described above. The cumulative effects analysis for wildlife states estimates 500 acres per year of timber harvest on private land in the South Red Bird analysis area (Final EA at 56, Table 6). However, the Final EA fails to acknowledge that past, present, and future logging on private land in the project area will provide a continuing input early seral habitat for wildlife.

And nowhere in the South Red Bird analysis does the Forest Service disclose that over 10,000 acres of Wildlife Management Area managed in part for elk habitat and public hunting, while the project wraps management for elk and the economic benefits of elk hunting into the rationale for the project (Final EA at 6 and 27).

5. Northern long-eared bat

Concerns relating to northern long-eared bats (*Myotis septentrionalis*) were raised briefly in section IX. of our comments on the Draft EA. However, new information relating to northern long-eared bat concerns has arisen since the comment period on the Draft EA, and we are raising this new information here per 36 CFR § 218.8(c).

On January 28, 2020, the U.S. District Court for the District of Columbia published a decision in the case Center for Biological Diversity v. Everson, remanding the “threatened” listing decision for the northern long-eared bat and requiring the USFWS “to make a new listing decision consistent with this Memorandum Opinion.”²⁴ The court agreed with plaintiffs that the apparent stability of northern long-eared bats in the periphery of its range did not preclude listing the species as “endangered.” While the DBNF may still rely on the Regional Biological Opinion for the purposes of this analysis, the determination that the listing decision was flawed, and that “endangered” status may be warranted, raises new concerns with regard to the adequacy of the protective measures incorporated into the South Red Bird project for the northern long-eared bat.

The second piece of new information is a recently published thesis from the University of Kentucky examining the effects of logging systems on northern long-eared and other bat species in eastern Kentucky. The thesis, “Effects of Shelterwood and Patch Cut harvests on a Post White-Nose Syndrome Bat Community in the Cumberland Plateau in Eastern Kentucky,”²⁵ was submitted and accepted in mid-2020. The two of three sites examined, the Laurel Ridge tract of Robinson Forest and the Beech tract managed by The Forestland Group, are both approximately 30 to 35 miles northeast the South Redbird project area, and similarly located in the Rugged Eastern Hills (221Ha) subsection of the Northern Cumberland Plateau Section of eastern

²⁴ CENTER FOR BIOLOGICAL DIVERSITY, et al., Plaintiffs, v. MARGARET EVERSON, et al., Defendants and AMERICAN FOREST & PAPER ASSOCIATION, et al., Defendant-Intervenors. DEFENDERS OF WILDLIFE, Plaintiff, v. MARGARET EVERSON, et al., Defendants and AMERICAN FOREST & PAPER ASSOCIATION, et al., Defendant-Intervenors.

²⁵Effects of Shelterwood and Patch Cut harvests on a Post White-Nose Syndrome Bat Community in the Cumberland Plateau in Eastern Kentucky (2020), by Phillip Arant, University of Kentucky College of Agriculture, Food, and Environment.

Kentucky (Forest Plan FEIS 1-7). The third site, Kentucky Ridge State Forest, is south of Pine Mountain approximately 20 miles from the South Red Bird project area. The proximity of the research and land type similarities makes this research directly applicable to the South Red Bird project area.

In his study, Arant examined changes in habitat usage by several species of bats following timber harvest in three sites in eastern Kentucky. Notably, in the shelterwood harvests in the study, 50% of the commercial timber volume was harvested (Arendt at 9), while shelterwood harvests in the South Red Bird project (Action 1.A) would remove 80% to 90% of the basal area in given stands (EA at 8). The 330' buffers between shelterwood harvests would be subject to an unspecified amount of commercial thinning (Action 1.C). The Commercial Thinning, Mid-Density Upland Forest prescription (Action 4: *Modification Substituted*) in the South Red Bird project would remove about 40% to 50% of basal area, similar to the shelterwood harvests in Arant (2020). Patch cuts in Arant (2020) were approximately 1 hectare (2.5 acres), and larger than the 0.5 to 1.5-acre group selection harvests proposed in South Red Bird Action. 3.B.

Arant (2020) found that northern long-eared bats avoided areas following harvest, stating “The lack of activity of these bats in harvests, however, suggests they do not actively forage within cuts (Arant at 71; See also Figure 18 at 46; Table 3 at 48; Figure 19 at 58). Arendt hypothesizes that one reason myotis species may be avoiding these harvest areas areas is due to reduced prey availability:

“The mean number of lepidopterans collected was lower at shelterwood and patch cut stands than unharvested stands (Table 8). There was no difference between shelterwood and patch cut stands (Table 8).” (Arendt at 51).

This directly contradicts the Revised BAE for the project, which states “positive benefits for these species may be experienced through increased foraging habitat.” (Revised BAE at 33)

Arant (2020) also reported that “Most northern long-eared bats were captured in 2.6 m nets over closed canopy ridge top roads” (Arant at 56). Through radiotracking captured bats, he found that “All (northern long-eared bat) roosts were within 100 m of a ridge top road, suggesting these bats preferentially chose roosts in the vicinity of forested flight corridors.” (Arant at 60). Northern long-eared bats were found, to a lesser extent, to use closed canopy stream corridors. The extent that logging could be beneficial to northern long-eared bats, Arant surmises that it would be the result road compaction limiting tree growth, and forming travel corridors once the forest canopy becomes tall enough.

The preference for northern long-eared bats in using closed-canopy flyway corridors, especially along roads and in ridgetop positions, has significant bearing on potential impacts to the species. Action 11.C: Roadside thinning prescribes “Variable density thinning along 45 miles of roadways... within 100 feet of the edge of roads.” (Final EA at 12). Nearly all ridgetops and roadways leading to and connecting proposed harvest areas in the South Red Bird project area are proposed for roadside thinning. This would impact both ridgetop roads and flyways, as well as riparian roads and flyways. It could also destroy a significant portion of roosts and roosting habitat in the project area. See *Appendix 5: Roadside thinning* for illustrations of the spatial relationship between proposed (and approved) logging sites, roadside thinning, and ridgetop flyways.

Northern long-eared bats exhibit high fidelity toward roosting areas. According to the final listing rule²⁶ for the northern long-eared bat:

“Northern long-eared bats change roost trees frequently, but use roost areas repeatedly and to a lesser extent, reuse specific roosts... Once documented, northern-long eared bats are known to continue to use the same roosting areas.” (NLB Rule at 1911)

And while northern long-eared bats are highly mobile (outside of the lactation period), and demonstrate some flexibility and plasticity in habitat use, the scale of the timber harvest matters.

The Programmatic Biological Opinion for the northern long-eared bat states:

“During the summer, NLEB habitat loss is primarily due to forest conversion and forest management. Throughout the range of NLEB, forest conversion is expected to increase due to commercial and urban development, energy production and transmission, and natural changes. The 2010 Resources Planning Act Assessment projects forest losses of 16–34 million acres (or 4–8 percent of 2007 forest area) across the conterminous United States, and forest loss is expected to be concentrated in the southern United States, with losses of 9–21 million acres (USFS 2012). Forest conversion causes loss of potential habitat, fragmentation of remaining habitat, and if occupied at the time of the conversion, direct injury or mortality to individuals. Forest management activities, unlike forest conversion, typically result in temporary impacts to the habitat of NLEB, but like forest conversion, may also cause direct injury or mortality to individuals. ***The net effect of forest management may be positive, neutral, or negative, depending on the type, scale, and timing of various practices.***” (BIOP at 16, emphasis added)

The Final Biological Opinion references Silvis et al. 2014, stating:

“In model simulations based on the tracking data, removal of more than 20 percent of roosts initiated social network fragmentation, with greater loss causing more fragmentation.” (BIOP at 37)

Silvis et al. (2014) also report that overall colony roosting areas were between 1.3 and 58.8 hectares (3.2 and 145 acres), with median distances between roosts of 111.1 and 219.4 meters (Silvis et al. 2014 Table 1). In the South Red Bird project, several timber harvest areas range from 210 acres to 362 acres, far exceeding reported colony size. And the distance across some harvest areas is extreme. One area on Elisha Creek is nearly 1,500 meters by 600 meters across. A harvest area on Laurel Fork of Bowen Creek is approximately 1,500 meters in length. Another harvest area on Bowen Creek is approximately 2,000 meters by 1,100 meters. Other areas are similarly large. So, while northern long-eared bats to exhibit plasticity following disturbance to roosting areas, there are limits.

The final listing rule for the northern long-eared bat states:

“As stated above, northern long-eared bats have been found in forests that have been managed to varying degrees, and as long as there is sufficient suitable roosting and

²⁶ Department of the Interior, Fish and Wildlife Service, Endangered and Threatened Wildlife and Plants; 4(d) Rule for the Northern Long-Eared Bat, Final Rule, 89 Fed. Reg. (Jan. 14, 2016).

foraging habitat within their home range and travel corridors between those areas, we would expect northern long-eared bat colonies to continue to occur in managed landscapes. However, in areas with WNS, northern long-eared bats may be less resilient to stressors and maternity colonies are smaller. Given the low inherent reproductive potential of northern long-eared bats (one pup per female per year), death of adult females or pups or both during tree felling could reduce the long-term viability of some of the WNS-impacted colonies if they are also in the relatively small percentage of forest habitat directly affected by forest management.” (Final Rule at 1909)

According to the Revised BAE, “All areas on the Redbird Ranger District are considered suitable habitat for the Virginia big-eared bat, the northern long-eared bat, and the Indiana bat” (Revised BAE at 32). The scale of disturbance prescribed in this project, including both large logging blocks and the logging of 45 miles of flyway corridors that could serve to connect remaining suitable habitat, could substantially impact northern long-eared bats. Given this fact, the determination of “no adverse effects” is incorrect.

The Forest Service *could* remedy, in part, this by conducting surveys for northern long-eared bats in the project area. The Final Biological Opinion makes discretionary recommendations that Federal agencies may take for the benefit of northern long-eared bats. Among those recommendations are that agencies:

“Perform NLEB surveys according to the most recent Range-wide Indiana Bat/NLEB Summer Survey Guidelines” (BIOP at 6).

The Revised BAE states:

“There are no known occupied northern long-eared bat maternity trees within the project area.” (Revised BAE at 33)

However, the Forest Service has not stated whether or not any surveys have taken place at all.

The BIOP also recommends that federal agencies:

“Conduct tree removal activities outside of the NLEB pup season (June 1 to July 31) and/or the active season (April 1 to October 31). This will minimize impacts to pups at roosts not yet identified.” (BIOP at 7)

Neither of these conservation measures were considered in the analysis for the South Red Bird project. Had the Forest Service taken an appropriate “hard look” at the possible effects to the northern long-eared bat, then perhaps these measures would have been incorporated into the project design.

Furthermore, the Programmatic Biological Opinion states:

“Federal agencies may rely on this BO to fulfill their project-specific section 7(a)(2) responsibilities under the following framework:

“1. For all federal activities that may affect the NLEB, the action agency will provide project-level documentation describing the activities that are excepted from incidental take prohibitions and addressed in this consultation. The federal

agency must provide written documentation to the appropriate Service Field Office when it is determined their action may affect (i.e., not likely to adversely affect or likely to adversely affect) the NLEB, but would not cause prohibited incidental take.” (BIOP at 5)

Given that the Forest Service has erred in its “no effect” determination, it follows that the requirements that flow from a determination that the proposed action “may affect” northern long-eared bats.

6. Suggested remedies

36 CFR § 218.8 (d)(5) requires that objectors provide “suggested remedies that would resolve the objection.” We suggest, first and foremost, that the Forest Service go back to the drawing board with this project and develop a new proposed action. At the very least, the agency must correct each of the factual deficiencies in the environmental analysis identified in this objection. We believe that correcting the factual deficiencies, and applying a rational and balanced consideration of the environmental impacts, would lead to a starkly differently set of actions and protective measures.

Modifications and protective measures that we suggest include:

1. Substantially reduce the total acreage of timber harvest in the project area
2. Limit the size of harvest areas
3. Limit or eliminate timber harvest in watersheds designated as critical habitat for the Kentucky arrow darter
4. Undertake a spatial analysis so that the distribution of harvest areas maximizes the potential for interior forest habitat
5. Allow no construction of skid roads or skid trails, especially “full-bench” skid roads, on slopes over 35%
6. Limit the amount of variable density roadside thinning to maintain flyway corridors for northern long-eared bats, and support connectivity between large blocks of interior forest
7. Perform surveys for northern long-eared bats per recommendations in the Programmatic Biological Opinion

We are open to meeting per 36 CFR § 218.11(a) to further discuss this objection and find resolution.

Appendix 1: Sedimentation and Elk Forest WMA



Skid road in Elk Forest WMA (September 2020)

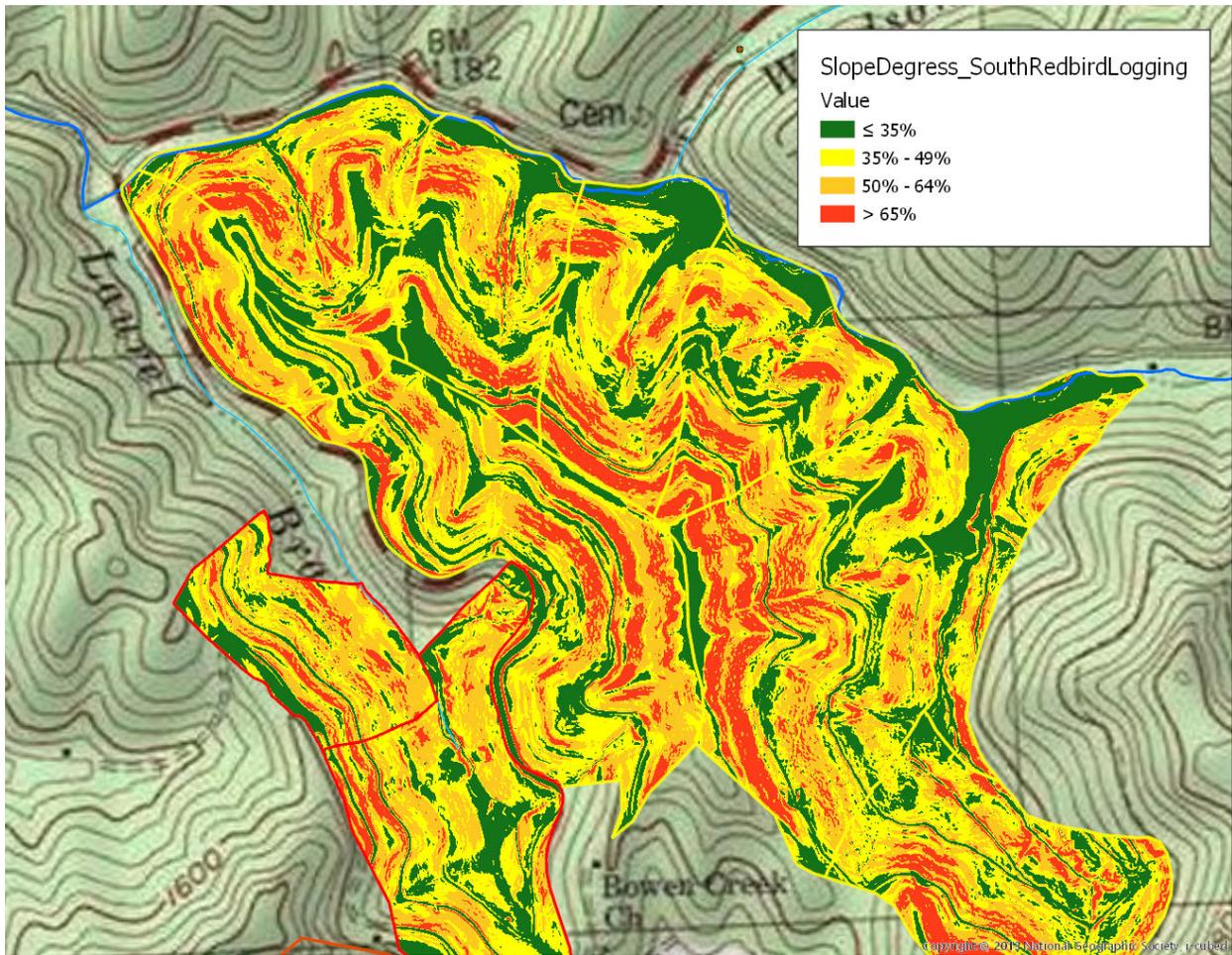


Skid road in Elk Forest WMA (September 2020)

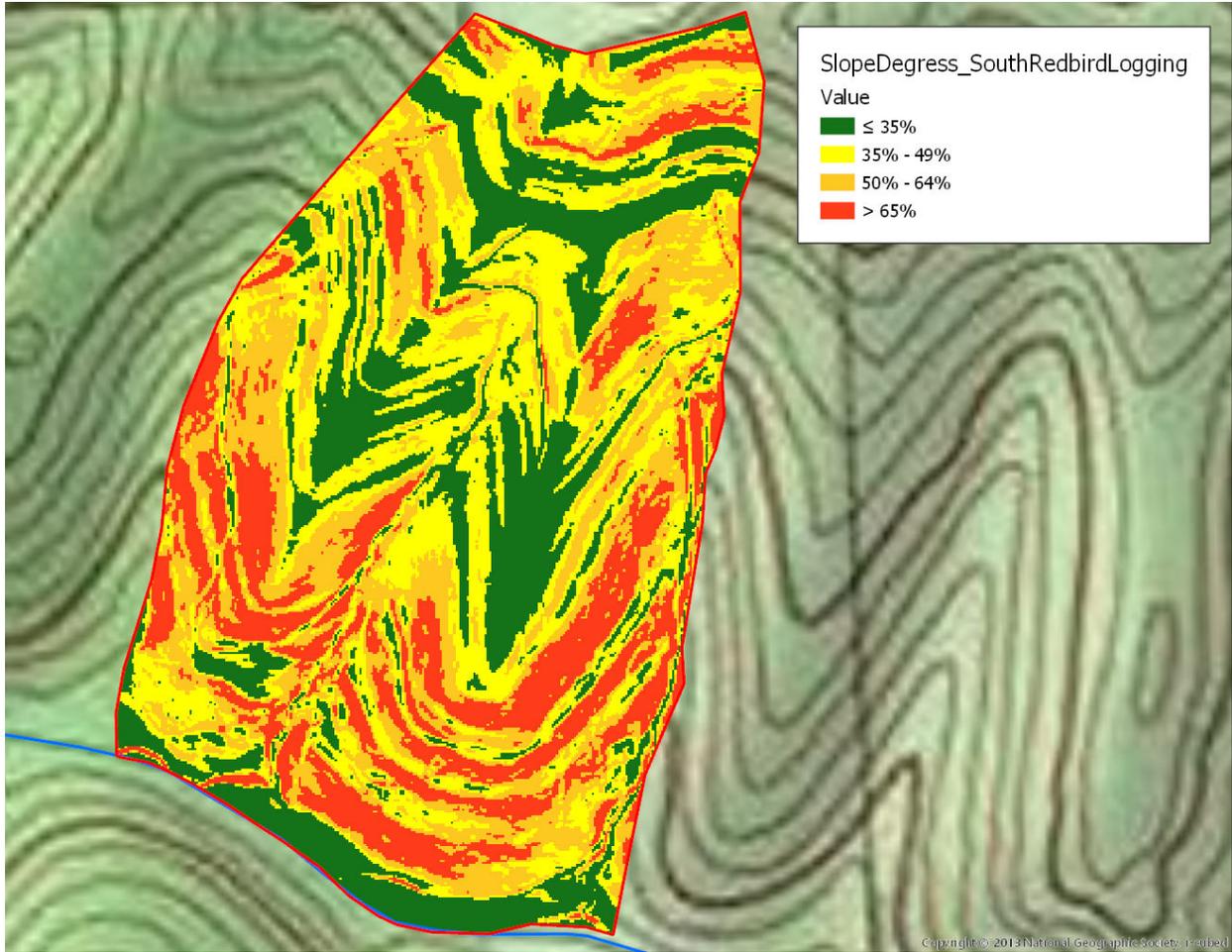


Sediment flowing down the slope in Elk Forest WMA (September 2020)

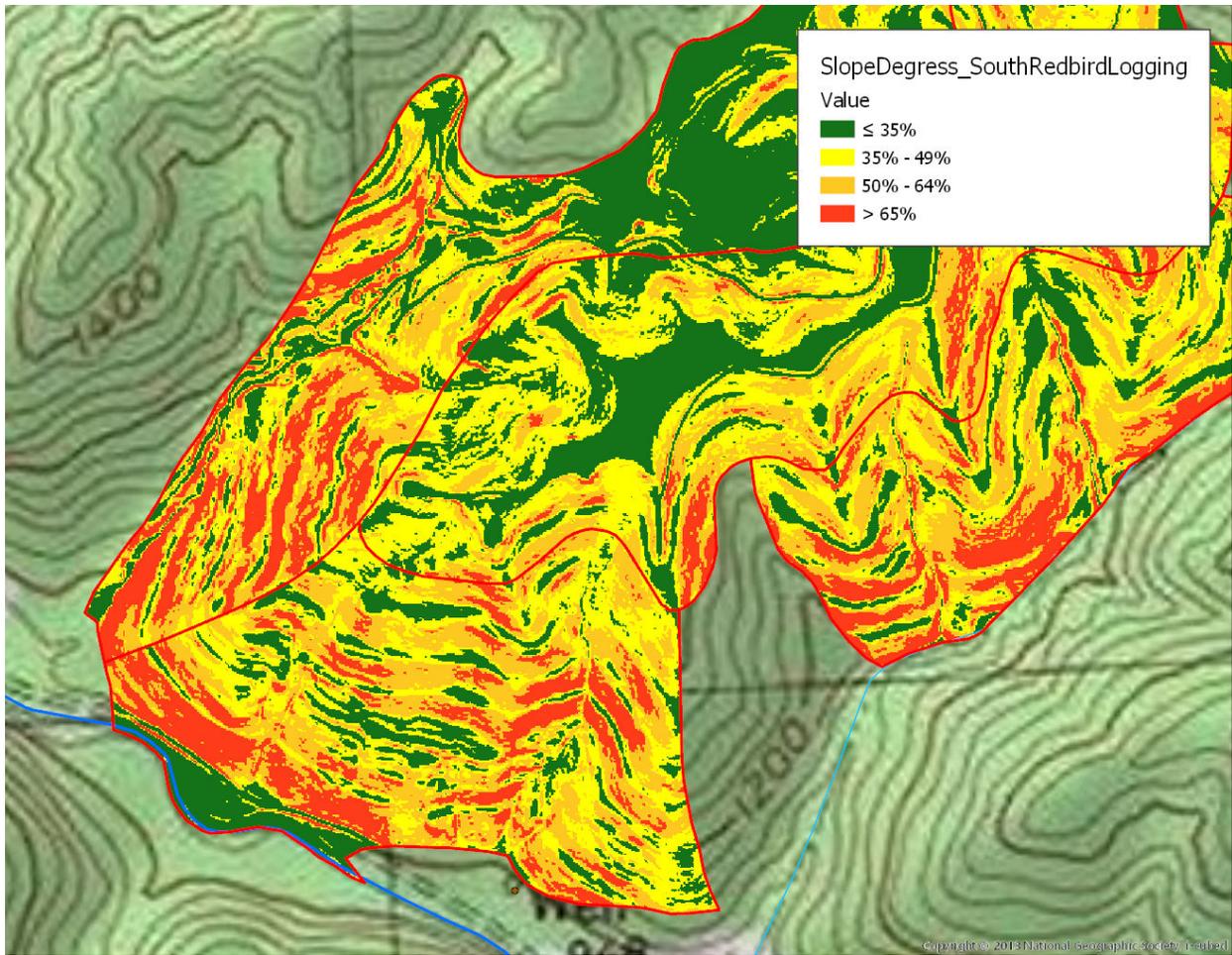
Appendix 2. Slope maps of select South Red Bird harvest units



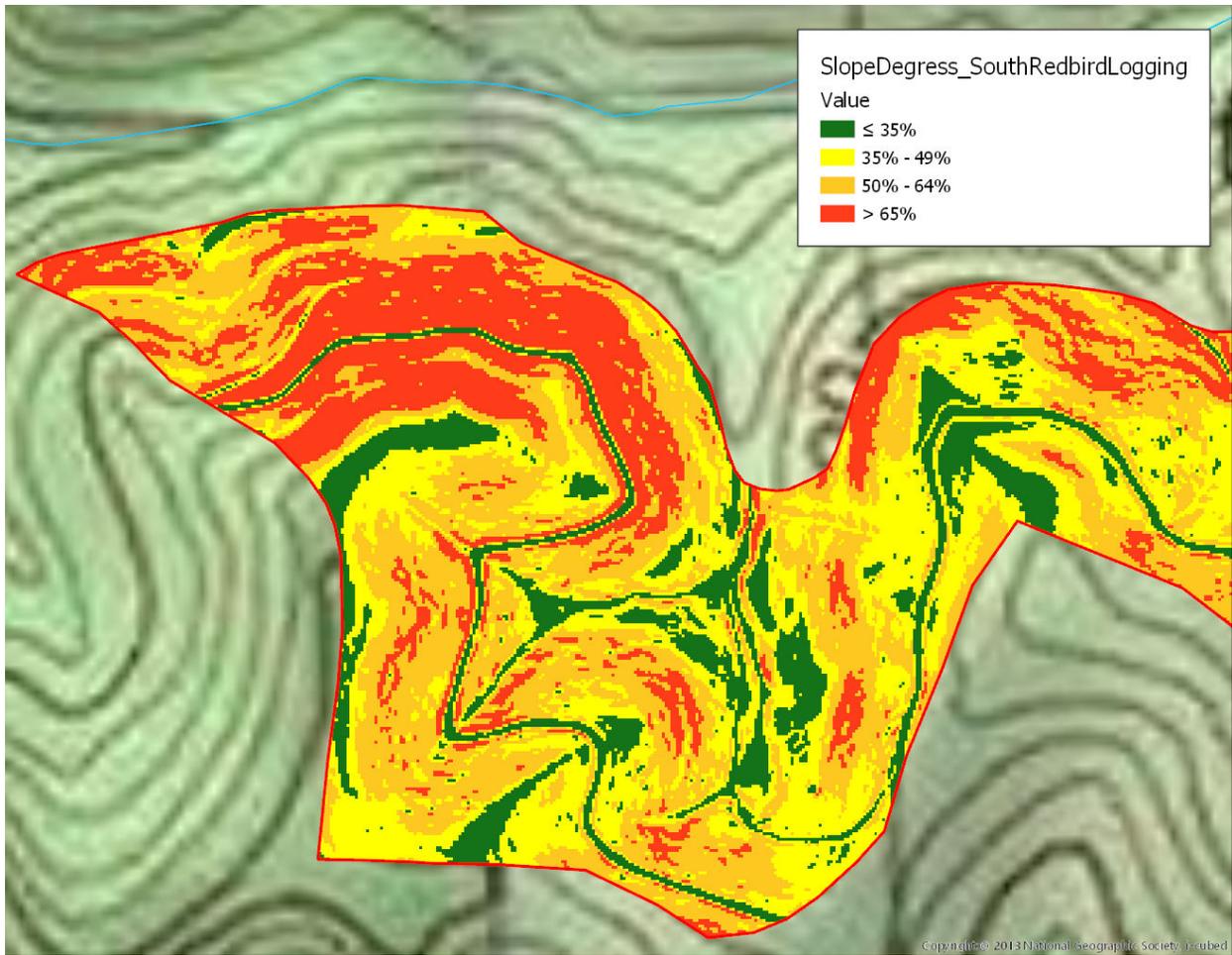
Proposed harvest areas on Bowen Creek



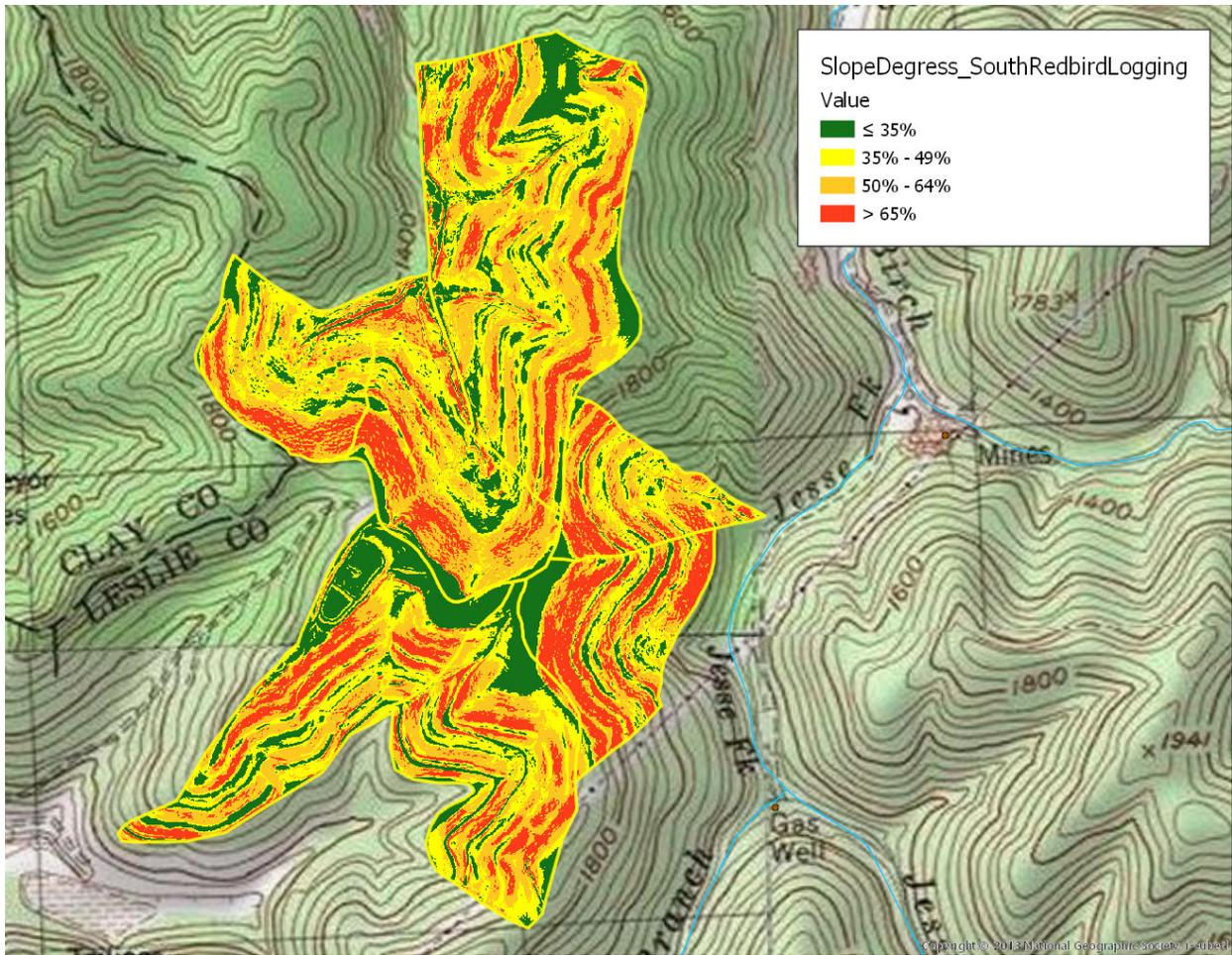
Proposed harvest area on Elisha Creek



Proposed harvest area on Elisha Creek



Proposed harvest area on Elisha Creek



Proposed harvest area on Upper Jacks Creek

Appendix 3: Landslides and erosion in the Group One project



Bottom of Unit 20 landslide #1 on Ulysses Creek Road (March 2020)



Sediment below Unit 20 landslide #1 (March 2020)



Top of Unit 20 landslide #1 (March 2020)



Unit 20 landslide #1 (May 2020)



Unit 18 landslide #3 (May 2020)



Fresh sediment and suspended solids in stream (tributary of Lower Jack's Branch) below Unit 18
(May 2020)

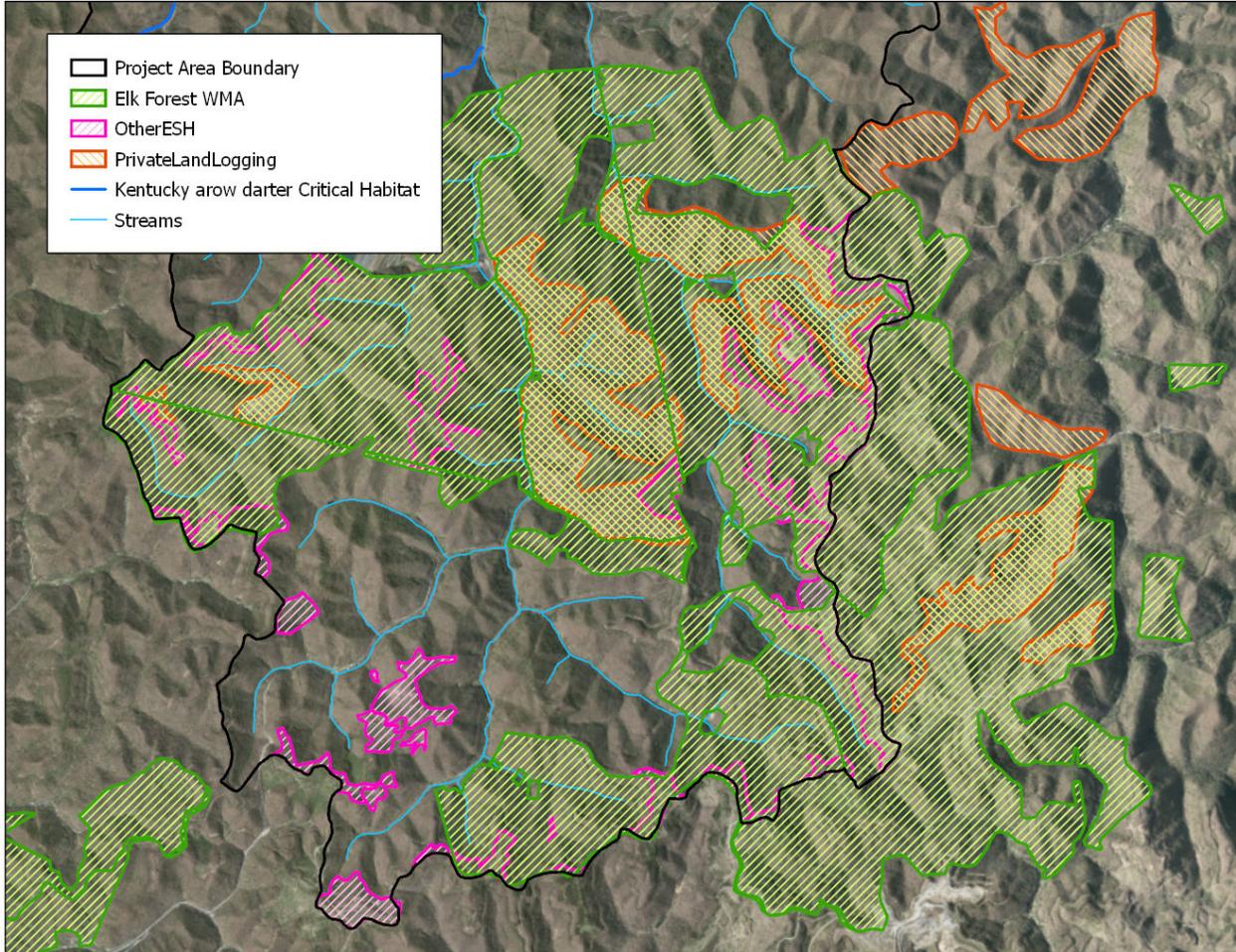


Fresh sediment and suspended solids in stream (tributary of Lower Jack's Branch) below Unit 18
(May 2020)

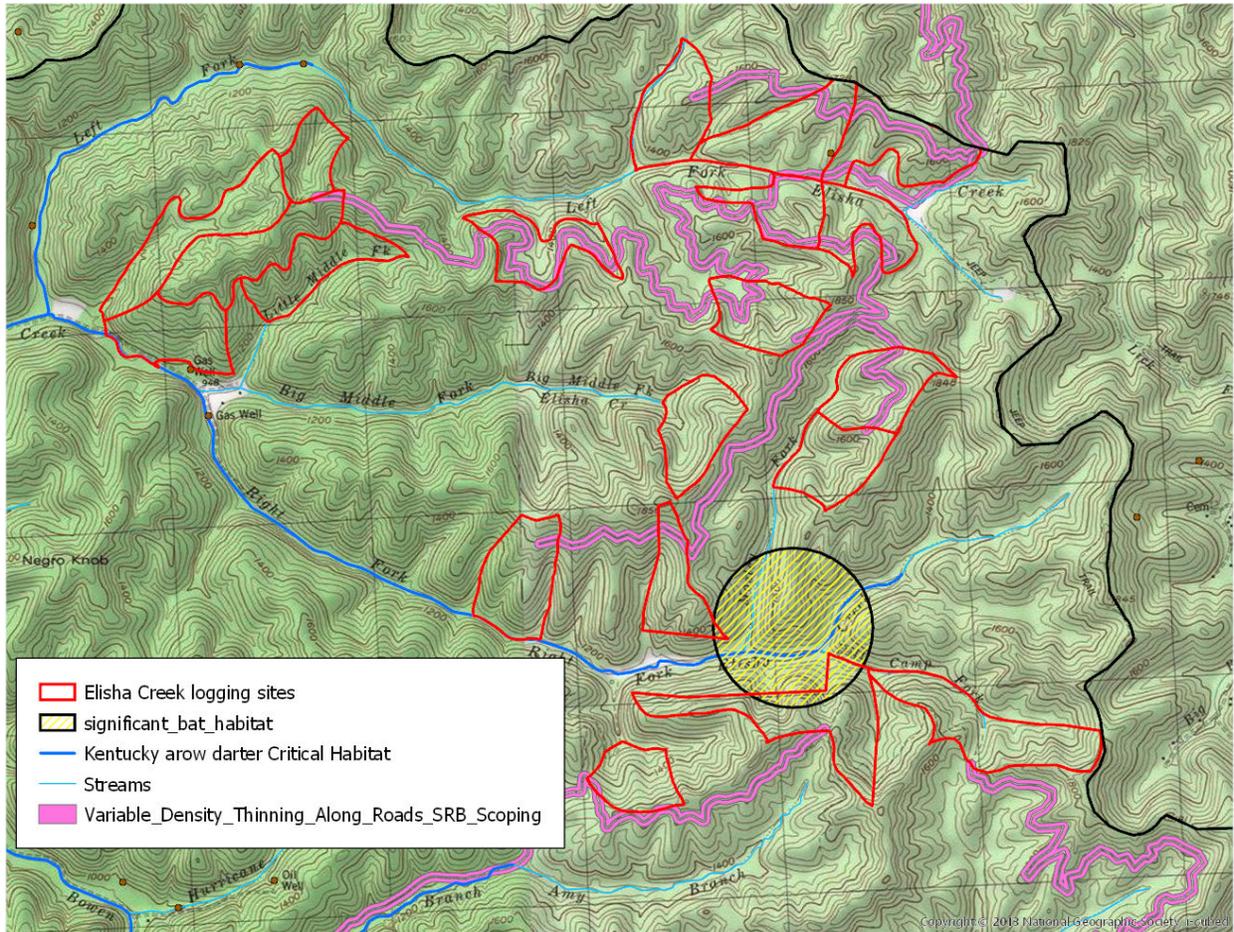


Top of Unit 18 landslide #2 (May 2020)

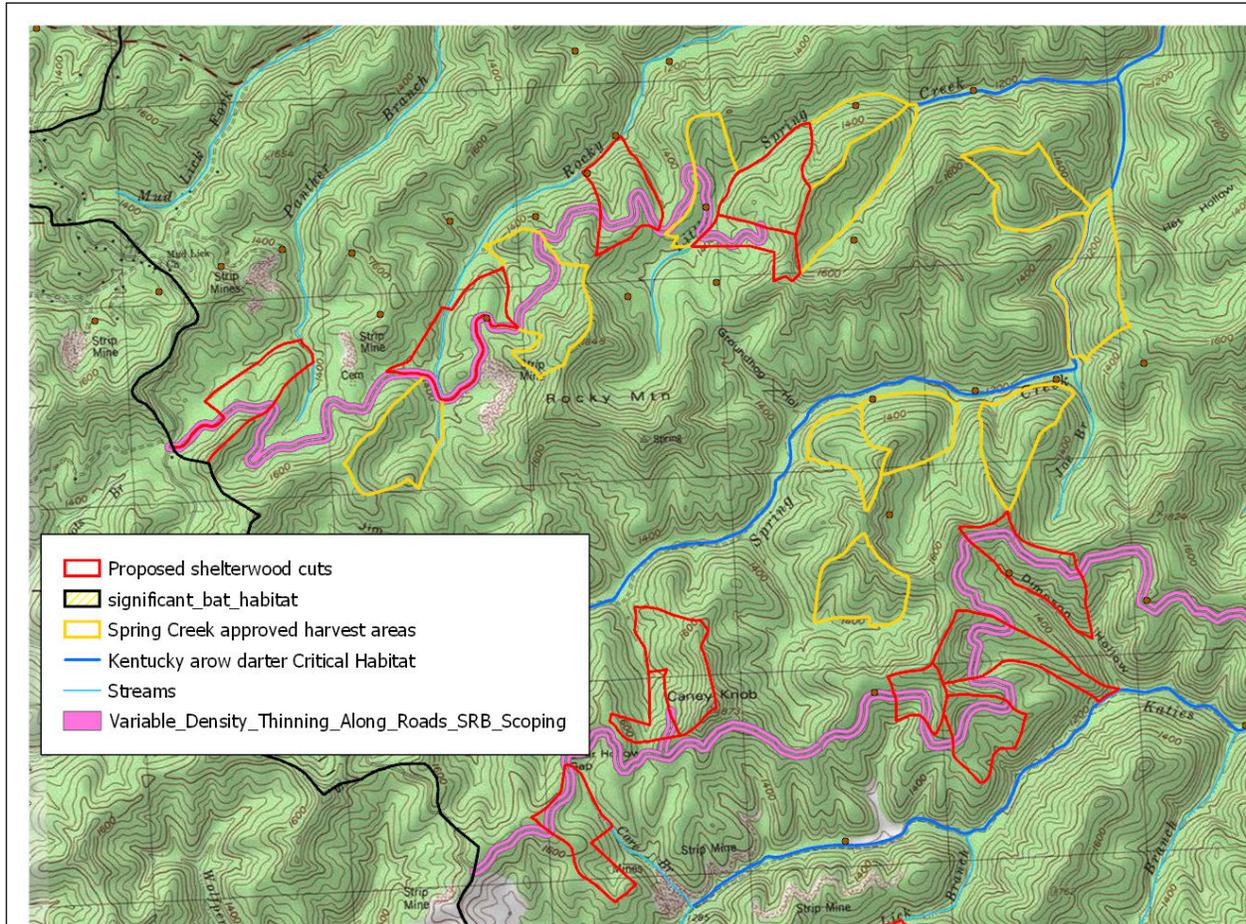
Appendix 4: Elk Forest WMA and Early Seral Habitat



Appendix 5: Roadside thinning



Proposed logging (shelterwood and commercial thinning) and roadside (variable density) thinning in the Elisha Creek watershed



Proposed shelterwood logging sites, approved logging sites from the Spring Creek project, and proposed roadside (variable density) thinning in the Spring Creek watershed