



KENTUCKY HEARTWOOD

Protecting the Beauty and Wellbeing of Kentucky's Native Forests

Dan Olsen, Forest Supervisor
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1700 Bypass Road
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April 15, 2019

RE: Forest Plan Amendment Environmental Assessment

Dear Supervisor Olsen,

Thank you for the opportunity to submit comments on the Draft Forest Plan Amendment Environmental Assessment (Draft EA). These comments are being submitted on behalf of both Kentucky Heartwood and the Kentucky Resources Council. We also thank you for taking the time to hold two public meetings, and for your willingness to extend the public comment period to accommodate review of supplemental materials.

As you are aware, Kentucky Heartwood has numerous and substantial concerns with the proposed amendment and the environmental analysis. Indiana and northern long-eared bat populations are crashing. Amending the plan to allow for increased impacts to these species, particularly during vulnerable times in their life cycle (i.e., spring staging, fall swarming, and when young are non-volant) is not something that we, nor our members, consider acceptable. We address our concerns and issues with the analysis in detail below.

1. Purpose and Need

Under "Need for the Proposal" (EA-3), you state:

Since the 2004 Forest Plan was signed, there is new information specific to bat habitat management, there are additional Threatened and Endangered species and Designated Critical Habitat, and new USFWS documents regarding definitions and hibernacula for bats. These have combined to create circumstances where the Forest Plan's direction needs to be updated. There is also a need to change some standards from project level to the DBNF landscape level.

The Silviculture Report similarly states that:

The project was developed to address changes in science applicable to the management of bat habitat, changes in the number of threatened and endangered species, and additional designations of critical habitat found on the Daniel Boone National Forest. (Report at 2)

From statements made by you and your staff during public forums, and elsewhere in the analysis documents, we understand that the intent of the Plan Amendment is actually to allow for a substantial increase in vegetation management (e.g., logging, prescribed fire, etc.) than has occurred since the Plan was adopted in 2004. However, the stated purpose and need, as presented in the Draft EA, must form the basis of the analysis and Decision. The weight of the analysis and decision, therefore, rests on 1) "new information specific to bat habitat management," and 2) "additional Threatened and Endangered species and Designated Critical Habitat." We are not addressing "new USFWS documents regarding definitions and hibernacula for bats," as these proposed change merely align terminology and categories with USWFS and will not lead to any actual changes in land management.

2. Lack of Baseline Information

The Draft EA and supporting documents fail to include essential baseline information to help inform the public and, ultimately, any decision to be made. For example, there is no information regarding actual timber harvest and vegetation management acres since adoption of the Forest Plan in 2004. How many acres have been logged, and using what prescriptions? And during what seasons? How many acres of timber harvest have occurred in areas covered by current Forest Plan Standards relating to Indiana bats? How many acres have been burned? During what seasons? The Draft EA and supporting documents instead rely on, and refer only to, acreages allowed by the Forest Plan. A valid description and analysis must compare anticipated changes and management goals to the *actual* completed actions carried out since 2004. The Forest Service's analysis fails to do this.

Additionally, we have not found any information in the Draft EA or supporting documents that provides the current status and trends of federally-listed bat populations on the DBNF, in Kentucky, or range-wide. Reviewing USFWS documents, it appears that the Kentucky population for Indiana bats dropped 18% from 2011 to 2017, with a loss of about 12,500 bats. This proposed Plan Amendment is predicated on updated bat management with current science. Any changes to the Forest Plan with respect to federally-listed bats is necessarily made within the context of sharply declining populations. But this is not adequately presented or analyzed.

3. Even-aged Management is Not Good for Indiana and Northern Long-eared Bats

The Draft EA does not adequately address how different types of forest management may negatively affect Indiana and northern long-eared bats. During the public meeting on March 26, 2019, a DBNF biologist made a general statement about how management (suggesting logging) can be good for bats. Another DBNF staff person made a comment suggesting that logging for "balanced age classes" (i.e., a roughly uniform distribution of different-aged, even-aged stands) was good for bats. But this is not the case. At least, it is much more complicated.

The BA states:

Tree removal has the highest potential to impact roosting, foraging and commuting habitat especially where commercial harvest removes mature trees within large forested areas. **Large-scale tree removal may also cause fragmentation of commuting routes or the isolation of forest blocks, potentially resulting in increased energy expenditure for bats that must seek other foraging areas.** (BA at 74, emphasis added)

And:

Murray and Kurta (2004) demonstrated the importance of wooded travel corridors for Indiana bats within their maternity habitat in Michigan; **they noted that bats did not fly over open fields but traveled along wooded corridors, even though use of these corridors increased commuting distance by over 55 percent.** (BA at 80, emphasis added)

In a fragmented landscape, Indiana bats may have to fly across less suitable habitat. This could pose greater risk of predation (e.g., raptors). Indiana bats consistently follow tree-lined paths rather than cross large open areas. (BA at 81, emphasis added)

Even-aged management using low-retention shelterwood cuts (10-15 square foot per acre of basal area) is the preferred method of timber harvest across the DBNF. For example, of the 3,200 acres of proposed logging in the South Redbird Wildlife Habitat Enhancement Project, 2,600 acres are proposed for shelterwood harvest. Some of the blocks of forest proposed for logging are several hundred acres, where timber harvest would be in 40 acre regeneration patches separated by 330 ft., commercially thinned buffers. While bats are generally mobile

(excepting for maternity colonies while young are non-volant), they do return each year to specific territories and roost trees. As the BA states:

Although researchers have found it difficult to predict where maternity colonies may occur relative to forested habitat, researchers can reliably predict that once Indiana bats colonize maternity habitat, they will return to the same maternity areas annually (BA at 81)

Large-scale shelterwood logging in maternity areas would create large patches of unsuitable habitat for roosting and foraging for Indiana and northern long-eared bats. This sort of logging could result in lactating bats having to expend extra energy as they search the landscape for new suitable habitat while avoiding harvested areas. It is true that these areas of forest will grow back with time, but it will be decades (at least) before they provide suitable habitat for foraging or roosting. There is likely little difference for mature forest-dwelling bats (particularly *Myotis* species) between a 10 year-old shelterwood cut and a farm field. Flying over these areas, as stated in the BA, increases risk of predation and is largely avoided.

Contrary to information in the BA that demonstrates how even-aged timber management can negatively impact Indiana and northern long-eared bats, the BA provides an incorrect determination that large-scale logging projects would have an “Insignificant” effect on Indiana bats, and are “Not Likely to Adversely Affect the Species.” The BA justifies this determination by stating:

While the habitat may be altered to some degree, the conservation measures are intended to ensure that there is no significant loss of forested habitat or fragmentation that would result in measurable effects to Indiana bats. (BA at 82)

What “conservation measures” would those be? The proposed Plan Amendments remove nearly all binding conservation measures for Indiana and northern long-eared bats, and the preferred silvicultural methods used on the DBNF negatively impact these species.

We do, however, agree with statements in the BA that some types of forest management can be beneficial to Indiana and northern long-eared bats. For example, the BA states:

Thinning harvest methods may remove roost trees, however thinning may also positively impact foraging and commuting habitat by reducing canopy and mid-story clutter to expand flyways for bats. (BA at 74)

And:

In heavily forested landscapes, small cuts, thinning and uneven age management prescriptions can provide important habitat heterogeneity for bats and may increase use relative to adjacent undisturbed forest (Hayes and Loeb 2007). (BA at 90)

Midstory thinning, commercial thinning, and uneven-aged management approaches must be viewed differently and separately from even-aged timber management in terms of the effects on Indiana and northern long-eared bats. They simply are not comparable. And while these intermediate silvicultural approaches may have some indirect negative effects, unlike even-aged management they have the potential to enhance the suitability of habitat for Indiana and northern long-eared bats. Negative impacts may be justifiable in the short-term if they help toward recovery in the long-term. But specifics matter.

We point out here that Kentucky Heartwood suggested that uneven-aged silvicultural approaches be utilized in the South Redbird Wildlife Habitat Enhancement Project. These suggestions were made to the Forest Service during early “collaborative” meetings, emails with the District Silviculturalist, and in our formal comments. But these suggestions were completely rejected. The project instead relies almost solely on even-aged shelterwood cuts for commercial management (2,600 acres of shelterwood cuts and 600 acres of salvage logging). This is an instance (though not an exception) where the Forest Service could have opted for less impactful silvicultural approaches that assist in the development of structural complexity at the stand level – structural complexity that lends to high

quality habitat for endangered bats – but instead chose to rely exclusively on silvicultural systems that remove a greater volume of timber.

4. Proposed, Endangered, Threatened, and Aquatic Critical Habitat Designation

The only rationale presented in the Need for Proposal for changing restrictions affecting timber harvest is for reducing impacts to proposed, endangered, and threatened aquatic species and aquatic critical habitats, which have increased in number since adoption of the Forest Plan. The Draft EA states:

Since the Forest Plan was signed in 2004, eight newly listed threatened or endangered species have been identified on the Forest and thirty-nine newly designated Critical Habitat units have been listed under the Endangered Species Act (See tables in Appendix A). All but one of these is an aquatic species or has aquatic-related habitat that requires species specific avoidance and minimization measures. Best Management Practices have been included in past project planning to reduce the risk of adverse effects to listed aquatic species and Critical Habitats; however, risk could be further minimized by removing the restrictive seasonality treatment dates in the Forest Plan Standards. (EA-4)

Kentucky Heartwood has raised concerns about the impacts of logging to at-risk aquatic species and their habitats for years. Each and every time we raise these issues at the project level, the Forest Service responds, with no equivocation, that there will be no meaningful impacts to these species or their habitats. We agree that it is vital to reduce or eliminate damage to soils and sedimentation in streams incurred through logging. However, we find it appalling that after years of the Daniel Boone National Forest insisting that these impacts do not exist (at least in any substantive way), that you are now planning to drop significant protections for endangered bats under the premise that these impacts need to be reduced. If these impacts are significant enough to warrant this Forest Plan amendment, and put Indiana and northern long-eared bats at increased risk, then you must halt all active and pending timber sales until each project EA is revised and projects are amended.

We provide here selections from Environmental Assessments for approved timber projects from 2008 through 2017 that illustrate this point:

Upper Rock Creek Vegetation Management Project (2008)

3.1 Resources not affected by the Proposal

3.2.2 Soil and Water

“Due to all of these reasons it would be very difficult to measure or detect a change in sedimentation at any given point in Rock Creek, and any increases in sedimentation could be considered undetectable.” (EA 3-5)

“This alternative would not affect water quality to the point where it would influence the designation of Rock Creek as a Wild and Scenic River or have an effect on the downstream karst system.” (EA 3-5)

3.3 Biological Environment

3.3.3 Conservation Species

Affected Environment Aquatic

“Prescribed fire would be implemented under Regional (R8) guidelines that protect the integrity of riparian areas and aquatic ecosystems. Special protective measures outlined in the FLRMP have been

incorporated within this project to minimize the potential for adverse impacts to the stream corridors and to ensure water quality protection. With incorporation of these protective measures, it is unlikely that this project would directly or indirectly effect aquatic conservation species.” (EA 3-52)

“As the closest cutting units are at least 0.20 miles away (from Rock Creek) and Best Management Practices are incorporated in the design and layout of commercial and noncommercial thinnings, any sedimentation will likely be filtered out before it reaches the creek reducing the likelihood for adverse indirect effects.”

3.3.4 Proposed, Endangered, Threatened, and Sensitive (PETS) Species

Blackside Dace

“No direct effects are expected since Blackside dace are aquatic”

“With regards to the commercial and noncommercial thinnings that are proposed, all of the sites are on upper slopes or ridge tops except for Stand 47. For all the sites there would be no direct affects (sic).”

“Sedimentation that does reach Rock Creek will do so during rain events and will have diminishing impacts over space and time making sediment generated through silvicultural practices and or prescribed fire, and its effects, very difficult to measure or detect.” (EA 3-62)

Cumberland elktoe

“No direct effects are expected since the Cumberland elktoe is aquatic and all of the proposed actions are terrestrial... Indirect effects in the form of siltation could occur but can be lessened because of the manner in which the Forest Service applies prescribed fire.”

“No direct effects are expected from the commercial and noncommercial thinnings because Cumberland elktoe is aquatic and all the sties for the proposed actions are terrestrial.”

“Sedimentation that does reach Rock Creek will do so during rain events and will have diminishing impacts over space and time making sediment generated through silvicultural practices and or prescribed fire, and its effects, very difficult to measure or detect.”

“These effects can be further reduced by implementing seasonal restrictions, operational restrictions, and clauses in timber sale contracts that will lessen the likelihood that Cumberland Elktoe would be impacted in any of its life stages. Such a negligible increase in sedimentation (4.1%) would not cause measureable effects and would thus be discountable.” (EA 3-64, 3-65)

Cumberland Elktoe Designated Critical Habitat

“Most particulate matter that does enter the stream can be expected to be flushed out quickly. As for the ridgetop and upper slope commercial and noncommercial thinning sites, no direct affects (sic) to upper rock creek are expected as these sites are terrestrial.”

“Indirect effects from sedimentation could occur as a result of the proposed actions. However, the likelihood of these affects (sic) is reduced through the application of best management practices; the distance between the project sites; and the amount of projects implemmented at any one time (year). In addition, stream sedimentation will be spread through time and space. That is, sediment produced as a

result of the proposed action(s) will reach the stream only during rain events and will be difficult to measure or detect from that of the normal baseline. At the conclusion of the proposed actions, the water quality is expected to remain in the excellent category according to KBI standards and is within the acceptable range of the 2004 Forest Plan EIS. When affects cannot be meaningfully measured or detected they are considered discountable.” (EA 3-68)

Spring Creek Vegetation Management Project (2015)

Hydrology and Soils Report for the Spring Creek Vegetation Management Project (Oct. 2010)

“There are several reasons why it is unlikely that changes in stream sedimentation of this magnitude will influence water quality in these drainages. As previously stated, for modeling purposes, the proposed actions were constrained to a single year to display the maximum possible effects that could occur. It is much more likely that activities will occur over a several year period which would reduce the total amount of sediment in the stream and any given time. Stream sedimentation will also be spread through time and space. Sediment will only reach the stream during rain events and there are approximately 25 of these events per year. In addition the proposed activities are spread throughout the watershed and as a result the sediment reaching the Red Bird River is staggered through time. Due to all of these reasons it will be very difficult to measure or detect and change in sedimentation at any given point in the Redbird River. It is also unlikely that groundwater will be affected.” (Report at 9)

“There is no measurable change to the Watershed Condition Rank or the Species Sediment Load index listed in the Forest Plan (USDA Forest Service, 2004, FEIS, page 3-20) from this alternative and would still be in the excellent range.” (Report at 11)

“Based on field work, water quality modeling, and best available science there would be no adverse effects to any of the hydrologic resources as a result of this undertaking if the provided recommendations are followed. The Spring Creek Vegetation Management project is consistent with Forest Plan direction for hydrologic resources, meets or exceeds Kentucky water quality regulations (401 KAR), and complies with the Clean Water Act.” (Report at 12)

Spring Creek Environmental Assessment

Snuffbox mussel:

“The hydrology and soil analysis report indicates that implementing the proposed project would contribute to less than 1% sediment increase, and at this level, it is very difficult to measure or detect sedimentation changes (Walker 2010). The herbicide risk assessment indicates that site preparation using cut stump treatment with a triclopyr/imazapyr herbicide mixture diluted with water would produce negligible and discountable effects to aquatic species. Therefore, the proposed project would have negligible impacts on snuffbox.” (EA-30)

Greenwood Vegetation Management Project (2017)

Greenwood Vegetation Management Soil & Water Report (Jan. 2017)

“Stream Sedimentation - Changes in stream sedimentation in the 6th level watersheds that contain treatment units from this alternative are shown in Table 5. The Proposed Action would produce between 26 and 539 tons/year of stream sedimentation in these watersheds. This represents a less than a 6 percent increase over current conditions. This increase in stream sedimentation can be attributed mainly to skid trails, landings, and temporary haul roads within the commercial harvest areas. Mechanically constructed fire lines may also be contributing to the sedimentation. This sedimentation would be greatest immediately after ground disturbing activities and would return to pre-disturbance levels in 3 years. The implementation of buffer strips and Best Management Practices (BMPs) as detailed in the Forest Plan would reduce the probability of sediment actually being delivered to the stream channels.” (Report at 8)

“In the affected watersheds the cumulative percent stream sediment increases over current conditions are estimated to be between 1.0 and 6.1 percent (Table 3). These changes are often offset by other restoration projects in the watersheds (i.e., road and OHV trail closures). Based on these increases there is no measurable change to the Watershed Condition Rank or the Species Sediment Load index listed in the Forest Plan (USDA Forest Service, 2004, FEIS, page 3-20) from this alternative.” (Report at 15)

Greenwood Vegetation Management Project Wildlife Resource Report (Updated May 2017)

(Regarding Blackside dace, Cumberland darter, and Cumberland arrow darter):

“With regards to the thinnings, mechanical site preparation/reforestation and upland vernal pools, all of the sites are on upper slopes or ridge tops. Best Management Practices (BMP) are incorporated in the design and layout to minimize indirect effects through sedimentation. Forest Plan standard DB-VEG-4 further protects the integrity of streams. Most sedimentation would be filtered out before it reaches aquatic habitat reducing the likelihood for adverse indirect effects.

It has been projected that between 26 and 539 tons of sediment generated from all projects could reach aquatic habitats. This is a less than 6 percent change over the current baseline (Walker 2016). Sedimentation that does reach inhabited streams will do so during rain events and will have diminishing impacts over space and time making sediment generated through the proposed actions very difficult to detect (Walker 2016).” (Report at 59)

“There would be no direct effects to aquatic macroinvertebrates as all of the proposed activities are terrestrial. Indirect effects could occur from all proposed activities as a result of sedimentation and/or a change in water chemistry. This is projected to be very minimal as it is predicted that there would be a less than six percent change in sediments and water chemistry (Walker 2016).” (Report at 73)

Greenwood project EA:

Soil and Water Resources:

“In a worst case scenario, less than a 6 percent increase in stream sedimentation over current conditions could occur for up to 3 years following implementation of this alternative. The worst case scenario assumes that the entire project would be implemented and completed within 1 calendar year, which is infeasible. This increase in sedimentation would be attributed mainly to skid trails, landings, and temporary haul roads within the commercial harvest areas. Mechanically constructed fire lines would also contribute to sedimentation. This sedimentation would be greatest immediately after ground disturbing activities and would return to pre-disturbance levels within 3 years. The implementation of design criteria, such as stream buffers, and BMPs would reduce the probability of sediment actually being delivered to

the stream channels. Water quality changes would be small in magnitude and short-term in duration.” (EA-38)

Wildlife Resources:

“Aquatic species identified for analysis were a macro-invertebrates assemblage, blackside dace, Cumberland darter and Cumberland arrow darter. The proposed action would only occur on terrestrial sites where no aquatics are present; however, aquatic fauna could be indirectly impacted by sedimentation as a result of implementing the proposed action. There could be indirect effects to these fishes if their habitat was affected by any of the practices associated with prescribed fire. Indirect effects are not expected because prescribed fires are typically backing fires that do not consume the duff layer, and they also burn poorly in riparian areas, reducing the likelihood of significant siltation. Mechanical fireline on erosive soils and fire line on steep terrain would be stabilized and reseeded at the completion of this project to further reduce sedimentation. Walker 2016 states that sedimentation is not expected to exceed 6% over the current baseline, which is within the limits of the Forest Plan. This increase would be spread out across the project area and would occur over a period of years. Therefore, specific impacts to aquatics would be low in intensity at any given time or location during project implementation. Design criteria would further reduce or eliminate these impacts rendering direct and indirect impacts to these species negligible.” (EA-45)

Freeman Fork Oak Woodland Restoration Project (2014)

“There are several reasons why it is unlikely that changes in stream sedimentation of this magnitude would influence water quality in these drainages. As previously stated, for modeling purposes, the potential effects from proposed actions were constrained to a single year to display the maximum possible effects that could occur. It is much more likely that activities would occur over a several year period which would reduce the total amount of sediment in the stream at any given time. Stream sedimentation will also be spread through time and space. Sediment will only reach the stream during rain events and there are approximately 25 of these events per year. In addition the proposed activities are spread throughout the watershed and as a result the sediment reaching Beaver Creek and Cogur Fork are staggered through time. Due to all of these reasons it would be very difficult to measure or detect the change in sedimentation at any given point in the receiving streams. With surface water not being affected it is also unlikely that the connected groundwater resources would be affected.” (EA 3-5)

(Regarding macro-invertebrates (MIS))

“There would be no direct effects to aquatic macro-invertebrates as all of the proposed activities are terrestrial. There could be indirect effects (sedimentation) from any of the ground disturbing activities or prescribed fire. These impacts have been considered and predicted in the *Hydrology and Soils Report for the Freeman Fork Oak Woodland Restoration Project* (Walker 2012). In Walker’s report it is predicted that there would be a less than one percent increase in sedimentation over current conditions. The timeframe of the erosion model is bound by activities that occur three years prior and one year following the implementation of this proposed project.” (EA 3-54)

(Regarding Blackside dace and Cumberland darter)

“With regards to the commercial thinnings that are proposed, none of the thinnings would occur in riparian corridors. Riparian corridors are excluded from timber harvest. There would be a buffer of 50 feet for intermittent streamcourses and 100 feet for perennial streamcourses, or the width of the 100 year floodplain, whichever is greater, established to protect streamcourses within riparian corridors. There would be no direct effects to the Blackside dace and Cumberland darter as there would be no skidding or landing in their habitat or the buffering riparian corridor. Design criteria are incorporated as part of the proposed action to protect water quality. The majority of any sedimentation would be filtered out before it reaches suitable habitat, reducing the likelihood for adverse indirect effects. Upland erosion and stream sediment values were determined by following the DBNF Aquatic Cumulative Effects Model (Walker, 2007). The model uses the Water Erosion Prediction Project (WEPP) developed by Elliott (2000). It was also based on erosion research by Dissmeyer and Stump (1978) and sediment delivery research by Roehl (1962). The model predicts that between 40 and 81 tons of sediment generated from all projects could reach aquatic habitats. This is a less than one percent increase in sediments over the current conditions from this project (indirect effect).

Sedimentation that does reach inhabited streams would do so during rain events and would have diminishing impacts over space and time making sediment generated through the proposed actions very difficult to detect (Walker 2012).” (EA 3-75)

(Regarding Designated Critical Habitat)

“During commercial thinning operations, there would be no direct effects to designated critical habitat as there would be no skidding or landing in this habitat or the buffering riparian corridors. Temporary haul roads would be located on ridge tops. Skid trails would be located on ridge tops or benches using pre-existing roads where possible. No temporary haul roads or skid trails would be located in riparian corridors. Riparian corridors are excluded from timber harvest. There would be a buffer of 50 feet for intermittent streamcourses and 100 feet for perennial streamcourses, or the width of the 100 year floodplain, whichever is greater, established to protect streamcourses within riparian corridors. Design criteria are incorporated as part of the proposed action to protect water quality. The majority of any sedimentation would be filtered out by the riparian corridors before it reaches streamcourses, reducing the likelihood for adverse indirect effects to designated critical habitat.” (EA 3-78)

“The likelihood of indirect effects from sedimentation is reduced through the application of design criteria, the distance between the proposed actions, and the amount of actions implemented at any one time (year). Any sedimentation produced as a result of the proposed action that does reach streams would do so during rain events and would have diminishing impacts over space and time making sediment generated through the proposed actions very difficult to detect from that of the normal baseline (Walker 2012).” (EA 3-79)

Group One Redbird River Project (2008)

“Aquatics Macro-invertebrate: Any effects on macroinvertebrates would primarily be indirect through changes in water quantity and quality (sedimentation and suspended particulate matter). Each sub-watershed that would contain a proposed ground disturbing action has been evaluated (See Appendix B). The largest projected increase in water yield would be 3.6% in Lower Jacks Creek. The yields for all others are projected at less than this. The highest projected rate of sedimentation would be for Little Double Creek and Lower Jacks Branch. The tons per decade found in Table B-2 represents only soil movement off-site. It does not represent the amount reaching an active stream channel. The amount of

sediment actually reaching an active stream is very minor. Locally observed field conditions show that the effects of soil disturbance on water quality, even during and after storm events, is minor.” (EA-48)

“Snuffbox – This mussel is found in one known location downstream from the confluence of Sugar Creek and the Red Bird River. The effects of the project on water yield and sediment yield are projected to be minimal (see Section 4.2.2). Completing this project may impact individuals but is not likely to cause a trend toward federal listing or a loss of viability.” (EA-57)

“Table 27 summarizes the effects of stream sedimentation from the proposed actions. This alternative would produce 121.6 tons/year of stream sedimentation in the lower Red Bird River watershed. This represents a 9.5 percent increase over current conditions. This increase in stream sedimentation can be attributed mainly to skid trails, landings, and temporary haul roads within the commercial harvest areas. This sedimentation would be greatest immediately after harvest and will return to pre-harvest levels in 3 to 6 years. However, due to buffer strips and Best Management Practices (e.g. seeding, water bars, and skid road/temporary road closures) it is anticipated that there is less than a 50 percent probability that sediment will actually be delivered to the stream channels. It is unlikely that changes of this magnitude will influence water quality in the Red Bird River. Due to closures, it is also unlikely that user-developed OHV trails will increase as a result of this proposal.” (EA-67)

5. Plan Amendment Would Increase, Not Decrease, Wet Weather Timber Harvesting

The Draft EA and supporting documents state that the proposed Plan Amendment would allow for a reduction in harmful impacts to soils and waters by shifting more timber harvesting activities to drier parts of the year. The Draft EA states:

The Proposed Action seeks to balance the habitat of threatened and endangered species with watershed health and productivity. Adjusting tree felling dates will aid soil and water resource protection. The reduction of harvesting and other ground-disturbing activities in wet weather should decrease erosion and compaction, which should support healthier soils, less potential stream sedimentation, better aquatic habitat, healthier vegetation, and better habitat for the bats we are protecting. These changes to the Forest Plan will strengthen soil and water protection. (EA-18)

However, the proposal actually calls for a substantial *increase* in wet-weather logging over the status quo. This truth is obfuscated by the fact nowhere in the Draft EA or supporting documents is there information on how much timber harvesting has actually been taking place on the Daniel Boone, or at what times of year. The Draft EA states only that “The Proposed action will not increase vegetation management volume extracted identified in the 2004 Forest Plan” (EA-24). This, in itself, is a significant omission that needs to be corrected. Based on previously published data, we estimate that about 900 acres per year of timber harvest have been occurring on the Daniel Boone over the last decade, though your staff has said that it is actually less than this amount.

The Biological Assessment (BA) states:

Tree removal activity could occur on approximately 5,500 acres annually and would occur during two timeframes. From April through October approximately 3,500 acres may be treated and the remaining 2,000 acres treated during November through March. (BA-71)

Because the Draft EA has failed to provide basic data on actual timber harvest acres and seasonality, we have to make some general calculations based on available data and reasonable assumptions. Based on the information in the BA (above), the Forest Service anticipates that approximately 36% of timber harvest could occur during the November through March wet season. Assuming that this seasonal proportionality is similar to the status quo, that would mean that less than 327 acres of timber harvest have been taking place each year during the November to

March wet season. Allowing for 2,000 acres to be harvested from November through March would constitute a roughly 600% *increase* in logging during the wet season.

At the recent public meeting, you stated that the Forest Service's general goal was to reach about 2,200 acres treated with timber harvest annually (not the 5,500 acres that would be allowable). Even at this lower level of timber harvest, there would still be an estimated 250% increase in logging during the wet season over the status quo.

Perhaps these numbers are off somewhat. We hope that you will provide clear and accurate data in a revised EA. But the fact remains that the Need for Proposal, and effects analysis, are based on the flawed (or misleading) statement that the proposed Plan Amendment will allow for a "reduction of harvesting and other ground-disturbing activities in wet weather," when, in fact, you are proposing a substantial increase in "harvesting and other ground-disturbing activities in wet weather."

In other words, we're looking at reducing protections for endangered bats while simultaneously proposing an *increase* in activities that you suggest are negatively impacting federally-listed aquatic species and their habitats. This is a problem.

6. Maternity colonies

We asked two related, important questions regarding maternity colonies in our scoping comments, and asked that they be addressed in the EA. They were not. Our questions were:

- 1) What are the current protocols for identifying maternity colonies or other active roosts? When during planning and harvest operations are surveys made, and by whom? What training is received by personnel to identify active roosts?
- 2) How often have maternity colonies been found in project areas? Following the identification of Indiana (and northern long-eared) bats, how did the Forest Service modify or delay specific projects and operations in order to comply with Forest Plan Standards? Please be specific.

The closest answer comes at EA-24:

Specific summer bat survey information is limited across the Forest, therefore the Daniel Boone National Forest assumes presence across all forested habitat for several forest dwelling bat species. All forest-dwelling bats use forested habitat for daytime roosting and nighttime foraging from April through November.

At the public meeting held in Berea on March 26, 2019, we asked specifically what, if any, protocols were being used by the Forest Service to survey for Indiana bats. The response was that there are not any current protocols or survey efforts under way, but that something was being developed. However, current Plan Standard DB-WLF-9 says that the Forest Service should have been surveying for bat occupancy for felling that occurs from October 15 through March 31.

DB-WLF-9. For non-vegetation management projects, currently suitable Indiana bat roost trees may be felled only from October 15 through March 31, if they are more than five miles from a significant bat caves (Indiana bat). If tree removal occurs at other times, the trees must be evaluated for current Indiana bat use, according to U.S. Fish and Wildlife Service protocol.

DB-WLF-10 has similar language, but for areas within 5 miles of significant bat caves. The Forest Service needs to address in detail whether and how these surveys have occurred.

The Draft EA also predicates the adequacy of a 150 ft. buffer around maternity colonies on the existence of surveys to identify roost trees:

Known Indiana maternity roost trees and roosts documented during surveys or site specific project implementation will be protected with a 150-foot buffer year-round (DB-WLF-6). Any northern long-eared bat roost trees documented during surveys will be protected thru the Final 4(d) Rule. (EA-24)

Again, what surveys? If you have no protocol in operation for surveys, how will maternity roost trees and other roosts be protected?

The proposed Plan Amendment would reduce protections for maternity colonies – and therefore nonvolant pups – by reducing the buffer for logging from 2.5 miles to 150 feet. As discussed in the Draft EA and BA, “Many bats exhibit site fidelity and return to the same general areas each year” (EA-24). This is particularly true for maternity colonies.

Many bats exhibit site fidelity and return to the same general areas each year. Indiana and northern long-eared bats are known to move between roost trees throughout the season (O’Keefe & Loeb 2017, Carter 2003, USDI-FWS 2007a, 2007b). The same can be said for other forest dwelling bat species. Known Indiana maternity roost trees and roosts documented during surveys or site specific project implementation will be protected with a 150-foot buffer year-round (DB-WLF-6). Any northern long-eared bat roost trees documented during surveys will be protected thru the Final 4(d) Rule. Known Indiana bat maternity habitat is considered 2.5 miles from known maternity roost tree or 5 miles from a juvenile or reproductive female captured between May 15 and August 15. The Proposed Action prohibits tree removal for new construction activities within maternity habitat during June and July without prior consultation with USFWS. Standard DB-WLF-5 ensures there will be no direct effects to non-volant pups in these project locations. (EA-24)

As discussed in the BA, bats will return to the same general area for maternity roosts each summer. Because suitable roost trees are temporary, bats will move among trees in a general area. The size of this “territory” is not clear from the literature, and not discussed in the Draft EA or BA. The purpose of the 2.5 mile buffer around maternity colonies is, ostensibly, to account for the fact that maternity colonies will not always be in the same previously identified tree, but will likely be in the same larger area.

And, as discussed in the BA, white nose syndrome has created new hurdles beyond mortality during winter hibernation. Bats that survive winter hibernation are severely depleted and may struggle during spring staging, migration to summer habitat, and successfully raising their young.

These effects are compounded because most returning bats are coming from hibernacula infected with white-nose syndrome (WNS). Individuals surviving WNS have additional energetic demands. For example, WNS-affected bats have less fat reserves than non-WNS-affected bats when they emerge from hibernation (Reeder et al. 2012; Warnecke et al. 2012) and have wing damage (Reichard and Kunz 2009, Meteyer et al. 2009) that makes migration and foraging more challenging. Females that survive the migration to their summer habitat must partition energy resources between foraging, keeping warm, maintain a successful pregnancy, rearing pups, and healing their own bodies. (BA-75)

Given that the proposed Plan Amendment has been “developed to address changes in science applicable to the management of bat habitat,” and that new science suggests new stressors from WNS, it is contrary to the purpose of the of the proposal to reduce, rather than increase, protections that support bats in establishing and maintaining maternity colonies.

The proposal does add the following:

DB-WLF-5. Tree cutting is prohibited during June and July within known maternity habitat for new construction projects unless consultation with USFWS is conducted. Examples of new construction sites include new system roads, trails, recreation, and administrative sites that would result in permanent loss of habitat.

This proposed Standard is confusing, because it disallows tree cutting for “new construction,” which, presumably, would only affect a small number of trees and areas (probably no more than dozens of trees), but does allow for tree cutting during this period for logging projects, which would probably include the cutting of hundreds or thousands of trees. Disallowing the cutting a few trees for trail construction while allowing the cutting of thousands of trees for other timber management is arbitrary and capricious and not justified by any new science or reasonable rationale.

At the March 26, 2019 meeting it was stated that maternity colony buffers on the DBNF were based on previous surveys. It is possible, even probable, that the identified roost trees are no longer standing, and that the maternity colonies are utilizing other suitable trees in the general area. But the DBNF is not surveying for them. If the maternity colony buffer is dropped from 2.5 miles to 150 feet, and that 150 feet protects only formerly utilized or existing roost trees, then the maternity colony is not protected.

Absent mandatory, clearly defined, and rigorous surveys in new project areas, reducing maternity colony buffers from 2.5 miles to 150 feet essentially removes all protections for maternity colonies on the DBNF. This is not acceptable.

7. Spring Staging

As is discussed in the BA, the spring staging period for Indiana and northern long-eared bats is a critical juncture in their life cycle. At this time, bats are depleted of energy stores and must be able to forage and roost in their spring staging areas without hindrance. The BA also points out that white nose syndrome exacerbates the normal depleted state upon waking in the spring.

These effects are compounded because most returning bats are coming from hibernacula infected with white-nose syndrome (WNS). Individuals surviving WNS have additional energetic demands. For example, WNS-affected bats have less fat reserves than non-WNS-affected bats when they emerge from hibernation (Reeder et al. 2012; Warnecke et al. 2012) and have wing damage (Reichard and Kunz 2009, Meteyer et al. 2009) that makes migration and foraging more challenging. Females that survive the migration to their summer habitat must partition energy resources between foraging, keeping warm, maintain a successful pregnancy, rearing pups, and healing their own bodies. (BA-75)

The proposal does not provide adequate protections for spring staging areas. The proposal would remove DB-WLF-11:

Timber harvest will not occur on the DBNF within one mile of a known significant bat cave, or PETS bat staging cave (with the exception of the wooded grassland/shrubland habitat association), if this activity would result in more than 120 acres of forest less than 10 years of age on all ownerships (public and private)

And replace it with DB-WLF-8:

DB-WLF-8. Timber harvest will not occur on the DBNF within one mile of a known P1, P2, P3, and Virginia big-eared bat hibernacula (with the exception of the wooded grassland/shrubland, woodland habitat association), if this activity would result in more than 120 acres of contiguous open forest less than 10 years of age on all ownerships (public and private) at the time of decision.

Foraging and roosting Indiana and northern long-eared bats use relatively mature forest. These conditions do not develop after 10 years. Generally, these are conditions that begin to emerge after >50 years on the DBNF (with true complex structure not occurring until >135 years). Even-aged forest of 15, 20, even 40 years of age will not provide suitable spring staging habitat for emerging Indiana and northern long-eared bats.

Furthermore, the new Standard changes the limit of no “more than 120 acres of forest less than 10 years of age” to no “more than 120 acres of *contiguous* open forest less than 10 years of age” (emphasis added). This is very problematic. The one mile radius from P1, P2, and P3 caves and Virginia big-eared bat hibernacula represents approximately 2,000 acres. Under the proposed Standard, most of that 2,000 acres could be logged, developed, or otherwise exist as unsuitable swarming habitat, and logging (including intensive, even-aged harvests) would still be consistent with DB-WLF-8. For example, DB-VEG-22 and DB-VEG-23 state:

“The maximum size of a temporary opening created by even-aged or two-aged regeneration treatments is 40 acres” (DB-VEG-22)

And

“Temporary openings created by even-aged or two-aged regeneration treatments will be separated from each other by a minimum of 330.” (DB-VEG-23)

The document Public Meeting Map – March 26, 2019 (provided on the project page) shows a priority hibernacula in the South Redbird project area. That hibernacula has 436 acres of shelterwood logging proposed within the 1 mile buffer. That 1 mile buffer also includes 307 acres harvested since 1980 (under 40 years old), and about 40 acres of former strip mine land. Under the new Plan Amendment, 783 acres of the 2000 acre, 1-mile buffer around the maternity colony could be turned into unsuitable habitat. It’s worth noting that this particular unit is also within a Critical Habitat unit for the Kentucky arrow darter.

In effect, under the newly proposed DB-WLF-8, all of any 2,000 acre spring swarming buffer could be logged without violating the Forest Plan because regeneration cuts would have thinned buffers, and therefore not be contiguous. The repercussions for endangered bats could be severe. DB-WLF-8 is simply not protective of endangered bats, and is essentially meaningless.

The Forest Service has not demonstrated that the proposed DB-WLF-8 is supported by existing science. The Standard should ensure a suitable acreage of forest representing high quality foraging and roosting habitat (forest > 50 years, mature canopies, complex structure, etc.) for forest dwelling bats during the especially vulnerable, post-hibernation period. We recommend that this Standard be changed to provide for a scientifically defensible total acreage of suitable staging and foraging habitat within the one mile radius around P1, P2, and P3 hibernacula. Even-aged logging for “balancing age classes” and future forests doesn’t count as creating habitat for forest-dwelling bats just because it will grow up in the future.

8. Fall Swarming

The proposal would reduce the area protected from logging during the fall swarming season from 5 miles around priority hibernacula to ¼ mile. The existing Plan Standards state:

DB-WLF-12. Within five miles of a significant Indiana bat hibernaculum, tree cutting is not to be conducted from September 1 through December 1.

And:

1.J-VEG-2. Do not permit tree-cutting activities from September 1 through December 1 within five miles of known significant Indiana bat hibernacula.

The above Standards are removed and replaced with:

DB-WLF-7. Tree removal may not occur within ¼ mile of Hibernacula and Maternity Cave Prescription Area unless the purpose of the project is to protect or enhance microclimate of hibernacula, rare species, or rare communities.

We acknowledge and appreciate the restriction on logging within ¼ mile of Hibernacula and Maternity Cave Prescription Areas year-round. However, the BA states:

Swarming 1 habitat is considered forested areas within 10 mile of P1-P2 hibernacula. Swarming 2 habitat is considered forested areas within 5 mile radius of P3-P4 hibernacula. (BA at 53)

The Forest Service has not demonstrated with any science that removing harvesting restrictions within 5 miles during the fall swarming season (when bats are mating) will not impact federally-listed bats.

9. Roost Trees

The Forest Service appears to be basing all changes to management for suitable roost trees on one study, O'Keefe and Loeb, 2017. That study does recommend taking a landscape approach to roost tree management, as is stated at several points in the Draft EA and supporting documents. The main findings of the research were that, in the study area (which included the Cherokee National Forest in east Tennessee, the Nantahala National Forest in North Carolina, and Great Smoky Mountains National Park in TN and NC), Indiana bats preferentially used conifer (primarily shortleaf pine) snags. These findings suggest that there is considerably different roost tree selection behavior from the more Midwestern populations, which have been found to use live shellbark, shagbark, and red hickories, occasionally white oak, and a variety of dead hardwoods.

How these findings relate to roost tree selection in the DBNF is not clear. Our forests are intermediate in composition between the mountainous southern Appalachian forests in the study area and previously, more intensively studied Midwestern forests. Furthermore, the southern pine beetle has reduced the amount of available pine snag habitat in the DBNF (and pine is not terribly abundant in the Redbird District). The bottom line is that we really don't know what trees and sites are best suited to roosting Indiana and northern long-eared bats in the DBNF. However, the Draft EA does propose significant changes to management for roost trees, and does not back these changes up with studies or other data.

The proposal gets rid of most binding standards regarding the retention of roost trees and replaces them with the following, non-binding Guideline:

DB-WLF-1. Ensure that Forest management maintains suitable roost trees across the entire forested landscape. Preference should be given in the following order: trees with a sheet of exfoliating bark, hickories (shagbark, shellbark, and red), and other live trees with cracks or crevices.

The Silviculture Resource Report similarly states:

Under the Proposed Action the presence of snags and suitable roost trees would be analyzed across the landscape during site-specific project planning, and strategies would be assigned within stands to meet landscape-level habitat needs for threatened and endangered species. (Report at 7)

But the Draft EA and supporting documents do not discuss how snags and suitable roost trees would be “analyzed across the landscaping during site specific project planning” or what “strategies would be assigned within stands.” Our experience has been that issues in the Forest Plan left to project- and site-specific surveys are not actually carried out adequately (or at all) during project planning and implementation. As you likely recall, this was a central issue in our comments and objection to the Greenwood Vegetation Management Project (relating to rare plants and rare community surveys).

We note here that the proposed amended definition for suitable roost trees for Indiana bats states that they “will have a dbh of 5 inches.” The Silviculture Report also appears to rely on the presence of 5” dbh snags for meeting landscape-level habitat needs for Indiana bats.

Recent Forest Service Forest Inventory and Analysis (FIA) data shows that on average there are ten snags per acre across the Forest (USFS FIA, 2018). In addition, FIA data for the Forest estimated over one-million trees over five inches in diameter dying annually (USFS FIA, 2018). This data shows that new snags are constantly being recruited by the annual mortality of live trees across the Forest. (Report at 4)

However, O’keefe and Loeb, 2017, which is cited as the scientific basis of many of the proposed changes to roost tree management, states:

During harvests, retaining patches of large snags (≥ 35 cm dbh, with ≥ 12 snags/0.1 ha) and buffering such patches with live trees to protect them from wind throw may benefit Indiana bats in this area.

Thirty-five centimeters is 13.8 inches, not 5 inches.

10. Cave protections

The BA makes the claim that:

“All DBNF caves and abandoned underground mines are closed thru regional closure order: FS-RO-08-01-2014; CFR 261.53(a), (b), and (d).” (BA at 52)

This statement is made more than once, and it suggests protections that do not exist. Caves and underground mines are indeed (and properly) under a closure order. However, they are not “closed” as there have been no additional barriers put in place, and many caves do not have signage telling people that there is a closure order in effect. Last year we were fortunate to join USFWS and DBNF staff during a winter bat surveys, and it was clear that one of the ungated caves we visited had been recently used recreationally. No signage regarding the closure was posted.

The effect of the statements and omissions is to imply that winter habitat for *Myotis* species, and year-round cave habitat for *Corynorhinus* species, are protected through administrative actions. Our observations are that they are not.

11. Stream Restoration

During the March 26, 2019, the issue of stream restoration was emphasized by DBNF staff, due to the difficulty in cutting trees for these projects given current Plan Standards. It seems a reasonable, rather simple alternative to create exemptions for the very limited amount of tree cutting associated with the very limited amount of stream restoration occurring on the DBNF. If stream restoration is indeed a major driver for this proposal, then the specifics of an exemption for this type of action should be considered and analyzed. Specifically, how much stream restoration work is occurring (or is anticipated to occur) on the DBNF? How many trees are typically cut (or are projected to be cut) for these projects? Certainly the number of trees to be cut for stream restoration annually would be several orders of magnitude fewer than the number of trees that would be cut to harvest timber on 2,200 to 5,500 acres, with very limited opportunity for incidental take. These actions need to be separated out in the proposal and analysis.

12. Restoration of Abandoned Mine Lands

The Soil and Water Report states that existing Plan Standards have been an impediment to the restoration of abandoned mine lands. To our understanding, restoration of abandoned mine lands typically includes ripping of compacted soils and planting of trees – not the cutting of forest and removal of potential roost trees. The Forest Service needs to explain how the existing Standards stymie restoration work on abandoned mine lands if this issue is to be used as a justification for eliminating or reducing forestwide protections for endangered bats. The Forest

Service must be specific about actions, acres of forest impacted, number of trees cut, etc. Similar to the issue of stream restoration, we suspect that a narrow exemption could be crafted for the very limited amount of abandoned mine restoration work happening that could result in take or otherwise negatively impact federally-listed bats.

13. Red Maple

The Silviculture Report states:

Under the No Action Alternative, it is likely that in some stands it may be impossible to conduct treatments to move existing conditions towards desired future conditions due to the overabundance of undesirable species such as red maple that have characteristics of immediate roost trees, and must be retained due to existing Forest Plan Standards. It is also likely that the current Standards requiring retention of immediate roost trees may lead to losses in stand volume, decline in species diversity within Forest communities, future dominance by undesirable species such as red maple, and reduction in overall Forest health. (Report at 6)

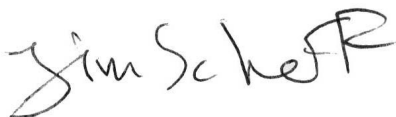
And:

The Proposed Action would allow land managers to focus snag retention and roost tree development across the landscape where they are most needed. Increased flexibility within site-specific project planning would ensure that snags and roost trees are maintained across the landscape where they are most needed (O’Keefe & Loeb 2017). This transition towards snag and roost tree management across the landscape would allow for overall increases in species diversity, and forest health due to the ability to be more flexible in forest stand prescriptions. It also allows for more holistic treatments that encourage the development of desirable species across the landscape, rather than encourage the development and retention of undesirable species such as red maple, that may be more vulnerable to decay, as we have observed in the No Action alternative. (Report at 7)

The issue of red maples was also raised by DBNF staff at the March 26, 2019. The issue is that existing Standards require that the Forest Service leave too many red maples in stands managed with midstory removal or commercial harvests, thus encouraging potential red maple dominance. The Forest Service could much more easily craft a narrow exemption to allow the removal of red maples. This would be a relatively simple change.

We look forward to continuing our dialogue over this proposal, and hope that you will ultimately make a Decision that supports our imperiled bat species.

Sincerely,



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