

# FRIENDS of BLACKWATER

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May 18, 2020

Jack Tribble, District Ranger  
Greenbrier Ranger District  
Monongahela National Forest  
Box 67, Bartow, WV, 24920

## **RE: Comments on Greenbrier Southeast Project Draft EA**

Dear Mr. Tribble,

**Friends of Blackwater Canyon** and **Center for Biological Diversity** appreciate the opportunity to submit the following comments on the Greenbrier Southeast Project and Draft Environmental Assessment (EA).

The Draft EA is contrary to the basic tenants of the National Environmental Policy Act (NEPA) because it does not include important information about the project's potential impacts to the candy darter and other listed species. The Forest Service's failure to include this information and analysis, and instead defer to a future biological assessment (BA), deprives the public of the opportunity to provide meaningful and informed public comment. It also precludes the Forest Service from taking the necessary "hard look" at the environmental impacts of the proposed project. The Draft EA also fails to provide a reasonable range of alternatives to provide a clear basis for the choice among options by the decisionmaker and the public.

We therefore urge the Forest Service to suspend its review of this project until consultation is completed or at least the biological assessment is prepared under the Endangered Species Act and ask that the agency provide an additional comment period so that the public can meaningfully contribute to the decision-making process.

## **I. THE COMMENTING ORGANIZATIONS**

**Friends of Blackwater ("FOB")** is a non-profit conservation organization working to protect biodiversity in the Mid-Atlantic Appalachian Highlands. FOB has 5,000 supporters across West Virginia and in the surrounding states and works to protect the public lands used by our members. During the past 20 years FOB has moved 4,650 acres of critical endangered species habitat into public ownership at Blackwater Falls State Park and in the Cheat Canyon. FOB has funded research and advocacy for the endangered Indiana bat, Virginia big-eared bat, Cheat Snail in the Cheat River Gorge, the Cheat Mountain salamander, and advocated for federal protections for the West Virginia northern flying squirrel, the candy darter, Guyandotte River crayfish, Big Sandy crayfish, the rusty patched bumblebee, long-eared and little brown bats. Friends of Blackwater has a longstanding interest in the conservation of rare, threatened, and

endangered species in the Monongahela National Forest, and has a track record of active engagement in Forest planning processes. FOB has a Memorandum of Understanding to work with the Monongahela National Forest on improving water quality, maintaining hiking and biking trails and interpreting historic sites in Tucker County. FOB has done similar trail work in Blackwater Falls State Park and collaborated with Tucker County and the Towns of Hendricks, Thomas, and Davis to place roadside markers at historic sites.

The **Center for Biological Diversity (“Center”)** is a nonprofit environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental and administrative law. The Center has over 1.6 million members and online activists dedicated to the protection and restoration of endangered species and wild places. The Center has worked for over twenty-five years to protect imperiled plants and wildlife, open space, air and water quality, and overall quality of life.

## **II. SUMMARY**

The proposed project would likely cause significant and irreparable harm to instream habitats impacting the listing candy darter and its habitat, negatively impact management indicator species and vulnerable species including the West Virginia Northern Flying Squirrel, and result in the “take” of federally listed bat species, which already face extinction due to white nose syndrome and other threats.

NEPA provides an important framework for developing and selecting alternatives that would reduce these impacts. Rather than utilizing NEPA to do this, the Draft EA contains only a proposed action alternative, with internal discussions taking the place of alternatives that can be reviewed by the public. In addition, no specialists’ reports are available to the public and the BA referred to in the draft EA has not been completed. The Draft EA fails to evaluate a “range” of reasonable alternatives; fails to meaningfully evaluate the project’s adverse impacts to fish and wildlife; and fails to meaningfully evaluate the mitigation measures the Forest Service references in the document.

## **III. DISCUSSION**

### **A. The Draft EA Does Not Analyze the Impacts of the Proposed Project on the Candy Darter.**

On February 19, 2020 we wrote to Supervisor Cochran and U.S. Fish and Wildlife Service (FWS) Senior Endangered Species Biologist Barbara Douglas to express our concern about several projects within or near the Monongahela National Forest that threaten the candy darter. These projects include the Greenbrier Southeast project, Panther Ridge project, and the construction of the Mountain Valley Pipeline and Atlantic Coast Pipeline corridors.

We urged the Forest Service not to log within candy darter habitat. The sedimentation resulting from logging on steep slopes and the creation of miles and miles of new roads that allow for the transport of sediment into nearby streams and creeks, threaten the last remaining habitat for these imperiled species. In addition, the resulting loss of tree canopy can lead to higher water temperatures, thereby posing an additional threat to the species. The proposed siting of pipelines

within the Forest and in areas containing candy darter habitat may also have a significant, adverse cumulative impact on the species. We urged both agencies to take all measures necessary to ensure these and other projects do not jeopardize the continued existence of the candy darter and do not destroy or adversely modify its critical habitat. Given that FWS has not yet designated final critical habitat for the species, we urged the agencies to suspend any decision-making on projects that may affect the candy darter until final critical habitat for the species is designated.<sup>1</sup>

Despite our concerns and the number of supporting materials we provided to both agencies, the Forest Service has decided to move full speed ahead with the Greenbrier Southeast project without analyzing the potential impacts under NEPA and instead deferring to the preparation of a biological assessment sometime in the future.

NEPA implementing regulations provide: “To the fullest extent possible, agencies shall prepare draft environmental impact statements concurrently with and integrated with environmental impact analysis and related surveys and studies required by the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), the National Historic Preservation Act of 1966 (16 U.S.C. 470 et seq.), the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), and other environmental review laws and executive orders.” 40 C.F.R. § 1502.25(a). The concurrency requirement for the NEPA and ESA process is essential for public involvement; since there is no opportunity for public comment on the development of a Biological Assessment or Biological Opinion, it is only through the NEPA process that the public may comment on the impacts to listed species. Furthermore, in order to fully assess the cumulative impacts of the proposal, as NEPA requires, all impacts must be fully vetted in the NEPA documents, and the Forest Service cannot sidestep this analysis by segmenting the impacts to listed species and ignoring them in the Draft EA.

The NEPA regulations direct the Forest Service to prepare environmental impacts analysis for the project concurrently with the biological assessment and integrate that BA and specialists reports into the EA. The Forest Service has provided no compelling reason why it cannot follow the NEPA regulations and wait until the BA is prepared before noticing the Draft EA for public comment. Consultation may result in the FWS requiring that the Forest Service adopt reasonable and prudent measures-including those neither addressed nor disclosed in the EA-to avoid jeopardy or take of a listed species. The Forest Service’s NEPA analysis and decision cannot be complete until the agency understands what measures it may need to undertake to comply with the ESA. The Forest Service should therefore suspend the NEPA process until the consultation process is completed, or at least the biological assessment is prepared. Once that occurs the Forest Service should re-notice the public commenting period so that information about the project’s impacts to candy darters can be shared with the public and the public can have a meaningful opportunity to comment.<sup>2</sup>

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<sup>1</sup> FWS has still not issued a final rule designating critical habitat for the species.

<sup>2</sup> See *WildEarth Guardians v. Montana Snowmobile Ass’n*, 790 F.3d 920, 926-28 (9th Cir. 2015)(failure to provide public information about where impacts to wildlife would occur violated NEPA).

In addition to our request, we provide the following detailed information and supporting material regarding the candy darter, the threats of sedimentation and tree canopy loss to the species, and a discussion of how the Draft EA fails to meaningfully consider these impacts as part of the NEPA analysis.

## 1. Species Overview

The candy darter is a small fish, with vibrant teal, red and orange colors, measuring 2 to 3 inches in length.<sup>3</sup> The species prefers shallow, fast flowing stream reaches with rocky bottoms and is only found in the Gauley, Greenbrier, and New River watersheds of Virginia and West Virginia.<sup>4</sup>

With a lifespan of about three years, candy darters begin to breed around two years of age.<sup>5</sup> They spawn in the mid-to late spring with females selecting areas of finer pebble and gravel among riffles to deposit their eggs.<sup>6</sup> Female candy darters produce relatively low number of eggs as compared to other fish.<sup>7</sup> After males fertilize the eggs, incubation can last five to twenty-five days depending on water temperature.<sup>8</sup>

Candy darters primarily feed on small insects, including mayflies and caddisflies, and help other species in their life processes by helping transport mussel larvae.<sup>9</sup>

Candy darters are habitat specialists, most often associated with faster flowing stream segments with coarse bottom substrate and low levels of siltation.<sup>10</sup> Suitable habitat is characterized by low levels of siltation and stream bottom embeddedness (the degree to which gravel, cobble, and boulders are surrounded by, or covered with, fine sediment particles).<sup>11</sup> In these conditions, candy darters can occur throughout the stream in relatively high numbers.<sup>12</sup> Conversely, Chipps et al. (1993) found that excessive siltation characterized areas where the species had declined or

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<sup>3</sup> U.S. Fish and Wildlife Service. 2017. Candy Darter (*Etheostoma osburni*), available at [https://www.fws.gov/northeast/candydarter/PDF/Candy\\_Darter\\_FS.pdf](https://www.fws.gov/northeast/candydarter/PDF/Candy_Darter_FS.pdf).

<sup>4</sup> *Id.*

<sup>5</sup> *Id.*

<sup>6</sup> *Id.*

<sup>7</sup> U.S. Fish and Wildlife Service, Species Status Assessment Report for the Candy Darter (*Etheostoma osburni*) (Sep. 2017) at 1.

<sup>8</sup> U.S. Fish and Wildlife Service. 2017. Candy Darter (*Etheostoma osburni*), available at [https://www.fws.gov/northeast/candydarter/PDF/Candy\\_Darter\\_FS.pdf](https://www.fws.gov/northeast/candydarter/PDF/Candy_Darter_FS.pdf).

<sup>9</sup> *Id.*

<sup>10</sup> *Id.*; U.S. Fish and Wildlife Service, Species Status Assessment Report for the Candy Darter (*Etheostoma osburni*) (Sep. 2017), at 21.

<sup>11</sup> U.S. Fish and Wildlife Service. 2017. Candy Darter (*Etheostoma osburni*), available at [https://www.fws.gov/northeast/candydarter/PDF/Candy\\_Darter\\_FS.pdf](https://www.fws.gov/northeast/candydarter/PDF/Candy_Darter_FS.pdf); U.S. Fish and Wildlife Service, Species Status Assessment Report for the Candy Darter (*Etheostoma osburni*) (Sep. 2017), at 22.

<sup>12</sup> U.S. Fish and Wildlife Service. 2017. Candy Darter (*Etheostoma osburni*), available at [https://www.fws.gov/northeast/candydarter/PDF/Candy\\_Darter\\_FS.pdf](https://www.fws.gov/northeast/candydarter/PDF/Candy_Darter_FS.pdf); U.S. Fish and Wildlife Service, Species Status Assessment Report for the Candy Darter (*Etheostoma osburni*) (Sep. 2017), at 21.

was absent<sup>13</sup> and Dunn and Angermeier (2016) found that in general, individuals selected sites with less than 26-percent silt cover and substrate embeddedness.<sup>14</sup> They also noted that adult candy darters almost completely avoided areas where silt cover and embeddedness were greater than 25 percent.<sup>15</sup> They found that embeddedness was consistently the most important parameter determining individual candy darter microhabitat selection (regardless of life stage) and overall population robustness.<sup>16</sup>

The candy darter is considered a species of greatest conservation concern by the West Virginia Division of Natural Resources, and a Regional Forester Sensitive Species for the Monongahela National Forest. Nearly half of the 35 candy darter populations known when the species was first described have now gone extinct.<sup>17</sup> Threats to the species include, among others, excessive sedimentation, habitat fragmentation, increased water temperatures,<sup>18</sup> and hybridization with the variegate darter (*Etheostoma variatum*).<sup>19</sup>

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<sup>13</sup> U.S. Fish and Wildlife Service, Species Status Assessment Report for the Candy Darter (*Etheostoma osburni*) (Sep. 2017), at 23 (citing Chipps, S.R. and W.B. Perry. 1993. Status and distribution of *Phenacobius teretulus*, *Etheostoma osburni*, and *Rhinichthys bowseri* in the Monongahela National Forest, West Virginia. Va J Sci. 44(1):47-58).

<sup>14</sup> U.S. Fish and Wildlife Service. 2017. Candy Darter (*Etheostoma osburni*), available at [https://www.fws.gov/northeast/candydarter/PDF/Candy\\_Darter\\_FS.pdf](https://www.fws.gov/northeast/candydarter/PDF/Candy_Darter_FS.pdf); U.S. Fish and Wildlife Service, Species Status Assessment Report for the Candy Darter (*Etheostoma osburni*) (Sep. 2017), at 23 (citing Dunn, C.G. and Angermeier P.L. 2016. Development of habitat suitability indices for the candy darter, with cross-scale validation across representative populations. Trans Am Fish Soc.145(6):1266-81.).

<sup>15</sup> U.S. Fish and Wildlife Service. 2017. Candy Darter (*Etheostoma osburni*), available at [https://www.fws.gov/northeast/candydarter/PDF/Candy\\_Darter\\_FS.pdf](https://www.fws.gov/northeast/candydarter/PDF/Candy_Darter_FS.pdf); U.S. Fish and Wildlife Service, Species Status Assessment Report for the Candy Darter (*Etheostoma osburni*) (Sep. 2017), at 23 (citing Dunn, C.G. and Angermeier P.L. 2016. Development of habitat suitability indices for the candy darter, with cross-scale validation across representative populations. Trans Am Fish Soc. 145(6):1266-81).

<sup>16</sup> *Id.*

<sup>17</sup> U.S. Fish and Wildlife Service. 2017. Candy Darter (*Etheostoma osburni*), available at [https://www.fws.gov/northeast/candydarter/PDF/Candy\\_Darter\\_FS.pdf](https://www.fws.gov/northeast/candydarter/PDF/Candy_Darter_FS.pdf); U.S. Fish and Wildlife Service, Species Status Assessment Report for the Candy Darter (*Etheostoma osburni*) (Sep. 2017), at 4.

<sup>18</sup> Extensive forest clearing in the early 20<sup>th</sup> century likely led to widespread increases in water temperatures, which may have been a factor in the early decline of the species. Deforested areas (such as those resulting from timber harvests) likely continue to contribute to elevated water temperatures in some streams and rivers in the upper Kanawha. U.S. Fish and Wildlife Service, Species Status Assessment Report for the Candy Darter (*Etheostoma osburni*) (Sep. 2017), at 40.

<sup>19</sup> U.S. Fish and Wildlife Service. 2017. Candy Darter (*Etheostoma osburni*), available at [https://www.fws.gov/northeast/candydarter/PDF/Candy\\_Darter\\_FS.pdf](https://www.fws.gov/northeast/candydarter/PDF/Candy_Darter_FS.pdf); U.S. Fish and Wildlife Service, Species Status Assessment Report for the Candy Darter (*Etheostoma osburni*) (Sep. 2017).

In the most recent status assessment of the species in 2017, FWS assessed the candy darter's resiliency, redundancy, and representation across its range ("the three Rs").<sup>20</sup> Resiliency means "having sufficiently large populations for the species to withstand stochastic events (arising from random factors)."<sup>21</sup> Redundancy means "having a sufficient number of populations for the species to withstand catastrophic events (such as a rare destructive natural event or episode involving many populations)."<sup>22</sup> Representation means "having the breadth of genetic makeup of the species to adapt to changing environmental conditions."<sup>23</sup> The remaining 18 populations are considered to have moderate to low resiliency, redundancy, and representation.<sup>24</sup> In modeling several future condition scenarios, FWS concluded that given the ongoing hybridization with the variegate darter, several metapopulations are expected to continue to decline.<sup>25</sup>

## 2. The Impacts of Sedimentation

A significant threat to candy darters is excessive stream sedimentation or siltation that results from soil erosion.<sup>26</sup> Erosion can occur from forestry practices as well as road or pipeline construction.<sup>27</sup> Excessive sediments can cover the stream bottom and fill the spaces between sand, gravel, and cobbles, and in more extreme cases cause stream bottoms to become embedded.<sup>28</sup> In these cases, cobbles, rocks, and boulders are surrounded by, or even buried in, sediment.<sup>29</sup>

The impacts of sedimentation on candy darters can be quite significant and are well documented. Several studies have found that sedimentation can limit sheltering or breeding habitat and/or cause shifts in the benthic community structure that alters the prey base.<sup>30</sup>

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<sup>20</sup> U.S. Fish and Wildlife Service, Species Status Assessment Report for the Candy Darter (*Etheostoma osburni*) (Sep. 2017), at 3.

<sup>21</sup> *Id.*

<sup>22</sup> *Id.*

<sup>23</sup> *Id.*

<sup>24</sup> *Id.* at 4.

<sup>25</sup> *Id.* at 3-6.

<sup>26</sup> *Id.* at 38.

<sup>27</sup> *Id.*

<sup>28</sup> *Id.*

<sup>29</sup> *Id.*

<sup>30</sup> *Id.* (citing Berkman, H.E. and C.F. Rabeni, 1987. Effect of siltation on stream fish communities. *Env. Biol. Of Fishes* Vol. 18, No. 4; Chambers, D.B. and T. Messigner. 2001. Benthic invertebrate communities and their responses to selected environmental factors in the Kanawha River basin, West Virginia, Virginia, and North Carolina. Charleston, WV: U.S. Geological Survey. Water-Resources Investigations Report 01-4021; Sutherland, A.B., J.L. Meyer, and E.P. Gardiner. 2002. Effects of land cover on sediment regime and fish assemblage structure in four southern Appalachian streams. *Freshwater Biology* (2002) 47; McGinley, E.J., R.L. Raesly, and W.L. Seddon. 2013. The effects of embeddedness on the seasonal feeding of mottled sculpin. *The American Midland Naturalist*, Vol. 170. No. 2).

As FWS explained in their species status assessment (SSA) for the candy darter in 2017, several studies have pointed to the strong association candy darters have with clear streams with rocky bottoms.<sup>31</sup> The species relies on cobbles, rocks, and boulders on the stream bottom as shelter and rely on unembedded pebble and gravel bottom substrate for egg deposition.<sup>32</sup> Robust populations of candy darters is correlated with low levels of sedimentation and stream bottom embeddedness.<sup>33</sup>

Furthermore, despite the increased implementation of forestry and construction “best management practices,” sedimentation remains a problem in many streams within the range of the candy darter according to state water quality reports.<sup>34</sup> Only 35.3 percent of total stream miles in the Greenbrier River watershed were rated as “good,” while only 22.2 percent received a “good” rating in the Gauley and Lower New watersheds.<sup>35</sup> An overwhelming majority of streams in these watersheds have baseline conditions of either “poor” or “fair.”<sup>36</sup> Not surprisingly, the Forest Service has identified excess sedimentation as a continuing problem in portions of the upper Greenbrier River system and the Forest Service has been implementing a variety of stream restoration projects over the past decade to specifically reduce sedimentation in the Greenbrier watershed.<sup>37</sup>

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<sup>31</sup> *Id.* (citing Addair, J. 1944, The fishes of the Kanawha River System in West Virginia and some factors which influence their distribution. Doctoral dissertation. Columbus, Ohio: Ohio State University; Kuehne and Barbour, R.A. and R.W. Barbour. 2015. The American Darters. The University Press of Kentucky, Lexington; Jenkins, R.E. and N.M. Burkhead 1993. Freshwater fishes of Virginia: Bethesda, Maryland: American Fisheries Society. 823-30; Chipps et al. 1994. Patterns of microhabitat use among four species of darters in three Appalachian Streams. *Am Midl Nat.* 131(1): 175-80; Jenkins, R.E. and B.L. Kopia. 1995. Population status of the candy darter, *Etheostoma osburni*, in Virginia, 1994-95, with historical review. Department of Biology, Roanoke College, Salem, Virginia).

<sup>32</sup> *Id.* (citing Kuehne and Barbour, R.A. and R.W. Barbour. 2015. The American Darters. The University Press of Kentucky, Lexington; Jenkins, R.E. and B.L. Kopia. 1995. Population status of the candy darter, *Etheostoma osburni*, in Virginia, 1994-95, with historical review. Department of Biology, Roanoke College, Salem, Virginia; Leftwich, K.N., A. Dolloff, and M.K. Underwood. 1996. The candy darter (*Etheostoma osburni*) in Stony Creek, George Washington-Jefferson National Forest, Virginia-Trout predation, distribution, and habitat associations. Blacksburg, VA: USDA Forest Service Center for Aquatic Technology Transfer. Report.).

<sup>33</sup> *Id.* (citing Chipps, S.R. and W.B. Perry. 1993. Status and distribution of *Phenacobius teretulus*, *Etheostoma osburni*, and *Rhinichthys bowseri* in the Monongahela National Forest, West Virginia. *Va J Sci.* 44(1):47-58; Dunn, C.G. and Angermeier P.L. 2016. Development of habitat suitability indices for the candy darter, with cross-scale validation across representative populations. *Trans Am Fish Soc.* 145(6):1266-81).

<sup>34</sup> *Id.* at 39.

<sup>35</sup> *Id.*

<sup>36</sup> *Id.*

<sup>37</sup> *Id.* (citing USFS. 2011. FY 2011 Watershed Restoration Action Plan, Headwaters East Fork Greenbrier River. U.S. Dep’t of Agriculture, Monongahela National Forest; USFS. 2011. FY

An emerging threat to the candy darter is hybridization with the variegate darter, which may be exacerbated by degraded habitat conditions (including from sedimentation).<sup>38</sup> The variegate darter is native to the Kanawha River basin below the Kanawha Falls in Fayette County, West Virginia.<sup>39</sup> These falls serve as a natural barrier to fish dispersal from the lower Kanawha River basin upstream into the range of the candy darter in the upper Kanawha River basin.<sup>40</sup> The variegate darter was likely introduced into the upper Kanawha River basin through “bait bucket transfer” and the species has expanded within the range of the candy darter.<sup>41</sup> Where the two species overlap, they will hybridize, ultimately resulting in the complete replacement by variegate darters or hybrids.<sup>42</sup>

The Upper Gauley meta-population, are suspected to be genetically pure, although a few individual candy darters collected in the Upper Gauley had variegate darter alleles.<sup>43</sup> Candy darters are sensitive to sedimentation, which can change the quality of the stream bed to the point where it is no longer suitable for shelter or egg laying.<sup>44</sup> The variegate darter is tolerant of a wider range of habitat conditions than the candy darter, so negative habitat changes could selectively benefit the variegate darter and increase the rate at which the candy darter is extirpated.<sup>45</sup>

### 3. Canopy Loss Can Lead to Increased Water Temperatures.

Candy darters are habitat specialists that primarily occur in highly forested watersheds in links with cool stream temperatures and little embeddedness.<sup>46</sup> Dunn (2013) found that preferred habitat including cool stream temperatures and clean substrates were highly correlated with forested watersheds, which is a pattern frequently found in other studies.<sup>47</sup> Dunn and Angermeier

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2011. Watershed Restoration Action Plan, Headwaters West Fork Greenbrier River. U.S. Department of Agriculture, Monongahela National Forest).

<sup>38</sup> *Id.* at 2.

<sup>39</sup> *Id.*

<sup>40</sup> *Id.*

<sup>41</sup> *Id.*

<sup>42</sup> *Id.*

<sup>43</sup> Biological Assessment for Big Rock Project at 20.

<sup>44</sup> US Fish and Wildlife Service. 2017. Candy Darter (*Etheostoma osburni*), *available at* [https://www.fws.gov/northeast/candydarter/PDF/Candy\\_Darter\\_FS.pdf](https://www.fws.gov/northeast/candydarter/PDF/Candy_Darter_FS.pdf).

<sup>45</sup> U.S. Fish and Wildlife Service, Species Status Assessment Report for the Candy Darter (*Etheostoma osburni*) (Sep. 2017) at 65.

<sup>46</sup> Dunn, C. 2013. Comparison of habitat suitability among sites supporting strong, localized, and extirpated populations of candy darter (*Etheostoma osburni*), Technical Report, (December 2013).

<sup>47</sup> *Id.*

(2018) found refugium habitats for candy darters contained cooler temperatures and less fine sediment.<sup>48</sup>

In addition to sedimentation, warming waters resulting from loss of canopy cover and climate change pose an additional threat to the species.<sup>49</sup> Extensive forest clearing in the early 20<sup>th</sup> century likely led to widespread increases in water temperatures, which may have been a factor in the early decline of the species.<sup>50</sup> Deforested areas (such as those resulting from timber harvests) likely continue to contribute to elevated water temperatures in some streams and rivers in the upper Kanawha.<sup>51</sup> Timber projects that leave insufficient canopy cover along banks can result in higher temperatures that can adversely affect the species.<sup>52</sup>

#### 4. Listing Under the Endangered Species Act and Proposed Critical Habitat

In 2010, the Center for Biological Diversity petitioned the FWS to list the candy darter. On September 27, 2011 FWS published a 90-day finding that there was substantial scientific or commercial information indicating that listing may be warranted.<sup>53</sup> In 2015, the Center filed a complaint against FWS for failure to complete a 12-month finding for the candy darter within the statutory timeframe. After entering into a settlement agreement with the Center, FWS issued a 12-month finding on October 4, 2017 proposing to list the candy darter as a threatened species.<sup>54</sup> On November 21, 2018, FWS published a final rule listing the candy darter as endangered.<sup>55</sup> Also, on that day, FWS published a proposed rule to designate critical habitat for the species.<sup>56</sup>

In its proposed rule designating critical habitat, FWS identified five physical or biological features that are essential to the conservation of the candy darter. They are:

- (1) Ratios or densities of nonnative-species that allow for maintaining populations of candy darters.

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<sup>48</sup> Dunn, C.G. and Angermeier, P.L. 2018. Remaining populations of an upland stream fish persist in refugia defined by habitat features at multiple scales. *Diversity and Distributions*. 2018; 1-15.

<sup>49</sup> McBaine, K.E. and Angermeier, P.L., Natural history, threats, and current research related to Candy Darter in Virginia.

<sup>50</sup> Candy Darter SSA, at 40.

<sup>51</sup> *Id.*

<sup>52</sup> 83 Fed. Reg. 59241.

<sup>53</sup> USFWS, Endangered and Threatened Wildlife and Plants; Partial 90-Day Finding on a Petition to List 404 Species in the Southeastern United States as Endangered or Threatened with Critical Habitat, 76 Fed. Reg. 59835 (Sep. 27, 2011).

<sup>54</sup> USFWS, Endangered and Threatened Wildlife and Plants; Proposed Threatened Species Status for the Candy Darter, 82 Fed. Reg. 46197 (October 4, 2017).

<sup>55</sup> USFWS, Endangered and Threatened Wildlife and Plants; Endangered Species Status for the Candy Darter, 83 Fed. Reg. 58747 (Nov. 21, 2018).

<sup>56</sup> USFWS, Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Candy Darter, 83 Fed. Reg. 59232 (Nov. 21, 2018).

- (2) *A blend of unembedded gravel and cobble that allows for normal breeding, feeding, and sheltering behavior.*
- (3) Adequate water quality characterized by seasonally moderated temperatures and physical and chemical parameters (e.g., pH, dissolved oxygen levels, turbidity) that support normal behavior, growth, and viability of all life stages of the candy darter.
- (4) An abundant, diverse benthic macroinvertebrate community (e.g., mayfly nymphs, midge larvae, caddisfly larvae) that allows for normal feeding behavior.
- (5) Sufficient water quantity and velocities that support normal behavior, growth, and viability of all stages of the candy darter.<sup>57</sup>

FWS noted that the features essential to the conservation of the candy darter may require special management considerations or protections to reduce a number of threats, including among others, “excessive sedimentation and stream bottom embeddedness (the degree to which gravel, cobble, rocks, and boulders are surrounded by, or covered with, fine sediment particles).”<sup>58</sup>

The proposed critical habitat designation focuses on occupied streams within the historical range of the species that retain the necessary PBFs that allow for maintenance and expansion of populations. These streams include:

- In the Greenbrier River watershed of West Virginia-the East and West Forks of the Greenbrier River, Little River of the West Fork, Little River of the East Fork, the “Upper” Greenbrier River(between Knapps Creek and the confluences of East and West Forks), Deer Creek, North Fork Deer Creek, Sitlington Creek, and Knapp Creek;
- In the Middle New River watershed of Virginia-Dismal Creek, Stony Creek, and Laurel Creek;
- In the Lower Gauley River watershed of West Virginia-the “Lower” Gauley River;
- In the Upper New River watershed of Virginia-Cripple Creek; and
- In the Upper Gauley River watershed of West Virginia-the headwaters of the Gauley River, Straight Creek, “Upper” Gauley River, Panther Creek, Williams River, Tea Creek, Cranberry River, Cherry River, North and South Forks of the Cherry River, and Laurel Creek.<sup>59</sup>

FWS is also considering reestablishing populations within the candy darter’s historical range.<sup>60</sup> In all, FWS is proposing to designate approximately 596 stream kilometers (370 stream miles) in five units as critical habitat.<sup>61</sup>

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<sup>57</sup> 83 Fed. Reg. 59235.

<sup>58</sup> *Id.*

<sup>59</sup> *Id.*

<sup>60</sup> *Id.* at 59236.

<sup>61</sup> *Id.* at 59236-59237.

5. The Draft EA Fails to Analyze the Impacts of Sedimentation, Tree Canopy Loss, and Potential Hybridization.

The Greenbrier Southeast project covers approximately 16,888 acres and is within the Headwaters of the East Fork Greenbrier watershed.<sup>62</sup> The Forest Service recognizes that “some of the most robust populations of the endangered candy darter species are currently found in the Little River and East Fork Greenbrier.”<sup>63</sup> The Draft EA states that candy darter populations in the Greenbrier River watershed are at risk due to hybridization with variegate darter; however, recent collections within the analysis area have documented little to no genetic evidence of hybridization in the majority of individuals collected (Nathan Owens, Diversity Fish Biologist with the WV Division of Natural Resources pers. comm. 10/23/2019). Draft EA at 26. Proposed critical habitat within the analysis area includes 8.3 miles in the East Fork Greenbrier and 7.7 miles in the Little River. *Id.* Within these segments, candy darters have been collected throughout the East Fork segment, but only in the most downstream two miles of the Little River segment. *Id.* They may occur in some of the downstream segments of the larger tributaries of the Little River and East Fork, (e.g., Buffalo Fork, Long Run), but have not been documented. *Id.* Extensive sampling in the 1st and 2nd order streams in the project area have not collected candy darter, and suitable habitat in the tributaries occurs only near the confluences with the Little River and East Fork. *Id.* Candy darter are habitat specialists and do not occur uniformly in occupied stream segments, with multiple stream reaches often devoid of suitable habitat and, subsequently, presence. *Id.*<sup>64</sup>

Despite the relative genetic purity and presence of candy darters within in the project area and miles of designated critical habitat, the Draft EA provides no analysis of the project’s potential impacts to the species and its critical habitat. *See* Draft EA at 26-27. Aside from generalized statements about erosion and sedimentation, the Draft EA references a few “conservation measures” and summarily concludes that the project is not likely to affect the species or proposed critical habitat. This does not satisfy the requirements of NEPA.

“NEPA imposes procedural requirements designed to force agencies to take a ‘hard look’ at [the] environmental consequences” of their actions.<sup>65</sup> In comparing and analyzing potential alternatives, the draft EA must examine the direct, indirect, and cumulative impacts of the different alternatives, the conservation potential of those alternatives, and the means to mitigate environmental impacts.<sup>66</sup> A thorough analysis of the project’s impacts is essential for determining whether less environmentally damaging alternatives are available.

The Draft EA identifies 939 acres of commercial timber regeneration harvests (clear-cuts with reserves) and another 705 acres of commercial timber thinning harvests. There will be 34 harvest

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<sup>62</sup> Scoping Notice at 1.

<sup>63</sup> *Id.* at 4-5.

<sup>64</sup> The Forest Service also needs to provide citations for these statements.

<sup>65</sup> *Earth Island Inst. v. United States Forest Serv.*, 351 F.3d 1291, 1300 (9<sup>th</sup> Cir. 2003).

<sup>66</sup> *See* C.F.R. § 1508.16, 1502.25(c).

landings, 6 miles of new forest system roads, 1 mile of temporary road construction, 1.7 miles of road reconstruction, and 49.1 miles of skid trail construction. Draft EA at 7. These operations can have a wide range of impacts on upland and aquatic environments, from soil disturbance and compaction, to erosion, sedimentation, and stream acidification. Yet, there are no details concerning the size of these cuts, their location, and the proximity and intensity of logging near candy darter habitat. *See* Draft EA at 26-27. There is no site-specific information regarding the steepness of the slopes in the stands near candy darter habitat, how those areas will be logged (i.e. by helicopter or otherwise), and their location relative to existing and future permanent roads, skid roads, log landings, and other potential conveyances of sediment. Although the Draft EA does not contain any maps depicting candy darter populations and proposed critical habitat within the project area, it appears that based on the maps that are provided the vast majority of the proposed timber units and burn blocks are located adjacent to tributaries of the East Fork Greenbrier River and many units abut proposed candy darter critical habitat. *See* Draft EA, Appendix A at 2-6.

The Forest Service recognizes that timber projects can have significant erosion and sedimentation impacts. Pages 18-21 of the Draft EA discuss how road cuts and surfaces intercept groundwater and precipitation and compacted road surfaces and ditches concentrate flow and accelerate water movement downslope. This can lead to head-cutting, gully formation and surface erosion of the road surface, fill-slope loss, concentrated flow erosion at channel crossings, elevated water temperature from exposed groundwater, delivery of sediment to streams from the combined effects of concentrated flow and exposed soil, and reduced site productivity. *Id.* at 18. The Draft EA further states that the magnitude of effects to hydrology are primarily related to the amount of groundwater interception, road surface compaction, connection of road networks to stream channels and slope. *Id.* at 19. “Transport of sediment to stream channels is related to the distance between the source and the channel as well as road design.” *Id.* at 21.

It is therefore critical that the Forest Service identify the location of these roads in relationship to candy darter populations and designated critical habitat, explain how they will be designed, and analyze the potential impacts of sedimentation to the species. The Forest Service must thoroughly analyze the site-specific impacts.<sup>67</sup> Analyzing and disclosing site-specific impacts is critical because where and when and how close in geographic and temporal proximity activities occur on a landscape strongly determines the nature of the impact.<sup>68</sup> Generalized statements about logging practices, acreage figures, miles of roads, and potential mitigation measures are insufficient.<sup>69</sup> The Forest Service must assess each prescription in every unit and explain how that action will or will not adversely affect the species.

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<sup>67</sup> Site-specific decisions require site-specific analysis, before the decision is made. *See, e.g., Ilio ‘ulaokalani Coalition v. Rumsfeld*, 464 F.3d 1083 (9th Cir. 2006).

<sup>68</sup> *Richardson v. BLM*, 565 F.3d 683, 706 (10th Cir. 2009) (The actual “location of development greatly influences the likelihood and extent of impacts.”).

<sup>69</sup> *Id.* at 707 (explaining that “location, not merely total surface disturbance, affects habitat fragmentation,” and therefore location data is critical to the site-specific analysis NEPA

The Forest Service must also discuss the impacts of tree canopy loss on the species. The Draft EA makes no mention of this threat. Currently, “riparian zones are largely dominated by open herbaceous cover providing limited shading and future large woody material.”<sup>70</sup> Further, “numerous skid roads exist throughout the project area and are accelerating sediment delivery and warming water in streams.”<sup>71</sup> The Draft EA must examine how these degraded baseline conditions when added to the proposed project may further impact the species. The Forest Service must disclose the site-specific details of the activities that will occur in riparian habitats, their proximity to candy darter habitat, and what specific measures will be used to avoid, minimize, and mitigate impacts to the species. To the extent the Forest Service intends to rely on large woody material (LWM) to improve candy darter habitat, the agency must explain why these restoration efforts won’t otherwise be negated by the effects of additional canopy loss from logging in riparian areas near the species’ habitat.

More than half of the candy darter’s subpopulations have vanished, and its prospects are not encouraging, given continuing hybridization with the variegate darter. While the Little River and East Fork populations remain relatively pure, future habitat degradation caused by sedimentation, increased water temperatures from further tree canopy loss, and poorly designed and implemented restoration projects could result in hybridization with variegate darter. The cumulative effects of several timber projects and pipeline corridor projects within the species’ critical habitat could also impede its survival and recovery and spell doom for the species. We therefore urge the Forest Service to examine these cumulative effects and avoid logging where it would pose a threat to this species.

6. The Draft EA Must Consider the Cumulative Effects of the Action the Candy Darter

In addition to failing to discuss the direct and indirect impacts of the project on the candy darter, the draft EA also fails to discuss the cumulative effects on the species.

As we explained in our February 19<sup>th</sup> letter, in addition to the Greenbrier Southeast, there are other projects that threaten the candy darter. These projects include the Panther Ridge project that we understand has been the subject of formal consultation with FWS, as well as two proposed pipeline corridors may impact candy darters and their proposed critical habitat: The Mountain Valley Pipeline corridor, which will cross proposed critical habitat in the Gauley River in West Virginia and Stony Creek in Virginia, and the Atlantic Coast Pipeline corridor, which will cross proposed critical habitat in the Clover Creek/Greenbrier River area of West Virginia. The Forest Service must consider the cumulative effects of these projects under NEPA.

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requires”); *Klamath-Siskiyou Wildlands Ctr. v. BLM*, 387 F.3d 989, 995 (9th Cir. 2004)(holding numeration of logging acres and road miles insufficient to describe actual environmental effects). An agency may also not rely on general mitigation measures, without analyzing the efficacy of those measures on site-level impacts. *See Colorado Env’tl. Coal v. Dombek*, 185 F.3d 1162, 1173 (10th Cir. 1999).

<sup>70</sup> Scoping Notice at 5.

<sup>71</sup> *Id.*

FWS has previously expressed concern about the impacts of pipelines on candy darters, most recently in its 2018 SSA for the species. In reference to the Mountain Valley Pipeline, FWS remarked:

Future projects, such as a proposed large (107 cm (42 in) diameter) interstate natural gas pipeline, are expected to increase sediment loading in streams within the range of the candy darter (Federal Energy Regulatory Commission (FERC) 2016, pp. 4-108-4-115, 4-176-4-179). This proposed pipeline project will involve the clearing of a 23 to 38 m (75 to 125 ft) wide permanent right-of-way, trenching for the pipe, and will cross five current or historical candy darter streams (the upper Gauley River, lower Greenbrier River, Indian Creek, Stony Creek, and Sinking Creek)(FERC 2016, pp. 4-26-4-27). While project construction is not anticipated to cause direct “adverse impacts” to candy darters in Stony Creek (FERC 2016, pp. 4-187), the stream crossings and forest clearing associated with the permanent right-of-way are likely to increase sediment loading in the relevant watersheds, possibly degrading the habitat in streams potentially suitable for future candy darter reintroductions (if this is determined to be a feasible conservation tool).<sup>72</sup>

The Forest Service must consider the cumulative effects of these projects under NEPA, in view of their potential, adverse cumulative effect on the species and its proposed critical habitat.

#### 7. The Forest Service Should Prepare an Environmental Impact Statement

We also would expect the Forest Service to prepare an environmental impact statement for a project of this size and potential impact to several endangered species, including the candy darter and its proposed critical habitat.<sup>73</sup> Indeed, the current length of the EA (some 88 pages) strongly suggests that an EIS is needed.<sup>74</sup> In addition to the direct and indirect impacts to the candy darter

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<sup>72</sup> Candy Darter SSA at 39.

<sup>73</sup> Whether an action will have a “significant” impact on the environment, thus warranting the preparation of an EIS, requires considerations of both “context” and “intensity.” “Context” means that the significance of an action must be analyzed in several different contexts (i.e. national, regional, and local significance of the action). “Intensity” refers to the severity of the impact. The CEQ regulations set forth several factors for the action agency to consider when evaluating intensity. Factors include the degree to which the action may adversely affect an endangered or threatened species or its critical habitat. The presence of even just “one of these factors may be sufficient to require preparation of an EIS in appropriate circumstances.” See 40 C.F.R. § 1508.27.

<sup>74</sup> See 46 Fed. Reg. 18,026, 18,037 (1981) (“In most cases...a lengthy EA indicates that an EIS is needed.”). See also *Sierra Club v. Marsh*, 769 F.2d 868, 874 (1<sup>st</sup> Cir. 1985)(As now Justice Stephen Breyer once put, “To announce that these documents-despite their length and complexity-demonstrate no need for an EIS is rather like the mathematics teacher who, after filling three blackboards with equations, announces to the class “you see, it is obvious.”); *Evans v. Anderson*, 314 F.3d 1006, 1023 (9<sup>th</sup> Cir. 2002) (“No matter how thorough, an EA can never substitute for preparation of an EIS, if the proposed action could significantly affect the environment.”); *Puerto Rico Conservation Foundation v. Larson*, 797 F. Supp. 1066, 1069 n. 3

and other listed species, the EIS must also analyze the cumulative effects of other federal, state, and private actions occurring within and adjacent to the Monongahela National Forest,<sup>75</sup> which include the two proposed pipeline projects referenced above.

8. The Forest Service and U.S. Fish and Wildlife Service Must Initiate Formal Consultation under the Endangered Species Act.

The Forest Service's position that the project "may affect, but is not likely to adversely affect" the candy darter is not supported by the analysis contained in the Draft EA and the agency must initiate formal consultation with FWS to thoroughly analyze the impacts.<sup>76</sup> During this consultation FWS must rely on the best available science<sup>77</sup> and the action area must be defined broadly to include all areas that would be directly and indirectly impacted by this project.<sup>78</sup> This will likely include not just the East Fork Greenbrier River and the species' proposed critical habitat but all nearby tributaries in which the candy darter occurs and could be impacted by the project. The Biological Opinion must also establish an environmental baseline that considers the declining conditions and status of the species.<sup>79</sup> FWS' analysis should be informed by population studies of the species in the East Fork Greenbrier River and nearby tributaries. Prior environmental assessments for projects in the Monongahela (including those for the Big Rock and Panther Ridge projects) lacked critical information about the status of the species in these project areas. Moreover, if mitigation is contemplated, those measures must be explained in

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(D. Puerto Rico 1992)(enjoining road construction in national forest because agency relied on EA rather than preparing EIS).

<sup>75</sup> Cumulative impacts result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. 40 C.F.R. § 1508.7.

<sup>76</sup> FWS explained in its proposed critical habitat decision that activities that should result in consultation include, among others, "actions that would significantly increase water temperature or sedimentation and stream bottom embeddedness. Such activities could include, but are not limited to, land use changes that result in an increase in sedimentation, erosion, and bankside destruction or the loss of the protection of riparian corridors and leaving insufficient canopy cover along banks." 83 Fed. Reg. 59241.

<sup>77</sup> See 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(g)(8).

<sup>78</sup> The Act's implementing regulations define the "action area" as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." 50 C.F.R. § 402.02.

<sup>79</sup> Section 7(a)(2) requires FWS to "[e]valuate the effects of the action and cumulative effects on the listed species or critical habitat," 50 C.F.R. § 402.14(g)(3), by describing the environmental baseline which includes "the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area . . . and the impact of State or private actions which are contemporaneous with the consultation in progress." *Id*; *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 524 F.3d 917, 929-33 (9th Cir. 2007)(holding a biological opinion must incorporate a degraded baseline).

detail and they must be certain to occur.<sup>80</sup> The Biological Opinion must also consider the project's impacts in conjunction with other threats facing the species, including rising temperatures and changing precipitation and drought patterns caused by climate change.<sup>81</sup> When assessing whether the project could jeopardize the continued existence of the species or adversely modify its critical habitat, FWS must consider the impacts on both survival *and* recovery.<sup>82</sup>

## **B. The Draft EA Does Not Meaningfully Evaluate the Impacts to West Virginia Northern Flying Squirrel Habitat.**

Friends of Blackwater and Center for Biological Diversity remain concerned about the management of the West Virginia northern flying squirrel (WVNFS) on the Monongahela National Forest.

Page 47 of the Draft EA provides a table of “proposed actions in suitable WVNFS habitat.” The table identifies the total acreage of the proposed action, the total acres of suitable WVNFS habitat “affected” by the proposed action, and the percentage of suitable WVNFS habitat in the project area. The Table identifies non-commercial red spruce restoration that will affect 281 acres of suitable habitat and spruce commercial restoration that will affect 86 acres of suitable WVNFS habitat. *Id.* An additional 19 acres of what the Forest Service considers suitable habitat will be affected by mulcher work, 25 acres by chain saw and girdling, and 34 acres of prescribed fire. *Id.*

In analyzing the impacts of these activities, the Draft EA discounts the importance of hardwood stands to the species and fails to consider the loss of food sources resulting from the removal of hardwood tree species. To date, the Forest Service has also not conducted the necessary studies to determine what vegetation management activities are needed to maintain the persistence of the WVNFS.

The WVNFS is a management indicator species. Under the Forest Plan of 2006 and the delisting plan promulgated by the US Fish and Wildlife Service and implemented in 2013, protection of

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<sup>80</sup> Under the Endangered Species Act, mitigation must be “reasonably specific, certain to occur, and capable of implementation; they must be subject to deadlines or otherwise-enforceable obligations; and most important, they must address the threats to the species in a way that satisfies the jeopardy and adverse modification standards.” *See, e.g., Center for Biological Diversity v. Rumsfeld*, 198 F. Supp. 2d 1139, 1152 (D. Ariz. 2002).

<sup>81</sup> *See, e.g., NRDC v. Kempthorne*, 506 F. Supp. 2d 322, 369 (E.D. Cal. 2007)(biological opinion failed to discuss climate change effects on stream flows); *Pacific Coast Federation of Fishermen v. Gutierrez*, 606 F. Supp. 2d 1122, 1184 (E.D. Cal. 2008)(holding that agency failed to consider an important aspect of the problem by failing to “address, adequately explain, and analyze the effects of global climate change on the species”); *S. Yuba River Citizens League v. Nat'l Marine Fisheries Service*, 723 F. Supp. 2d 1247, 1274 (E.D. Cal. 2010)(agency failed to consider the impacts of climate change in biological opinion for dam projects).

<sup>82</sup> *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 524 F.3d 917, 931 (9th Cir. 2008)(noting survival and recovery are “intertwined needs that must both be considered in a jeopardy analysis”).

this rare mammal is the responsibility of the Forest Service. Suitable habitat for the WVNFS is defined in the Forest Plan:

*“SUITABLE HABITAT (for WV Northern Flying Squirrel) – Areas that have habitat characteristics required by WV northern flying squirrels as indicated by known capture locations. All suitable habitat is assumed to be potentially occupied by the WVNFS, even if no WVNFS have been captured in it (USFWS 2001). Generally, it includes forest habitat with red spruce and mixed red spruce/northern hardwood forest, Norway spruce plantations, mixed eastern hemlock/northern hardwoods, and overstory eastern hemlock or balsam fir with red spruce present in the understory. Suitable habitat also includes an 80-meter buffer around areas with the above-listed characteristics, as well as corridors to provide linkages for habitat areas and prevent barriers to movement.” V-16 Glossary.*

Appendix A Management Prescription 4.1 states: *On lands determined to be suitable habitat for the West Virginia northern flying squirrel, vegetation management **initially** would be limited to research or administrative studies to determine effective habitat enhancement techniques for the squirrel. After such studies have demonstrated effective techniques, vegetation management to enhance habitat for the squirrel or other TEP species could occur on a larger scale (see FW standard TE61).*

There have been no studies on the Monongahela National Forest to determine what vegetation management is beneficial to the WVNFS. This is clear from the recent publication of the Five-Year Review or Interim Report Evaluating Implementation of the Post-Delisting Monitoring Plan for the West Virginia Northern Flying Squirrel (*Glaucomys sabrinus fuscus*) prepared by the U.S. Fish and Wildlife Service, West Virginia Field Office, Elkins, West Virginia, November 2019. The report explains that monitoring squirrel impacts from Corridor H yielded no data, nest box monitoring programs for the WVNFS have been curtailed, and a project to study before and after logging effects on squirrel in the Upper Greenbrier was not completed. No population studies since de-listing have been performed. A small diet study using hair samples led to the discovery that WVNFS diet foods were found in older stands of trees, but the study did not relate to habitat management effects on the squirrel.

The Monongahela still appears to be in the initial stage of examining the impacts of timbering on flying squirrel habitat. Because of this, we believe that no logging should be conducted in flying squirrel habitat or the buffer that surrounds this habitat unless impact studies are planned, funded, completed, analyzed and explained to the public. In addition, connectivity between separated patches of WVNFS habitat should remain intact, with an emphasis on leaving older taller trees in these corridors, which aid the WVNFS in moving across the landscape as they efficiently glide from tree to tree avoiding predators and conserving energy.

The Greenbrier Southeast Project has extensive WVNFS habitat and capture sites particularly on the eastern side of the project area. The eastern edge of the project backs up to the Laurel Fork Special Management Area on the George Washington National Forest that protects rare boreal habitat and is home to the WVNFS.

Research on the rare northern flying squirrels of the Appalachians has taught us lessons about northern flying squirrel needs in the area of food requirements, shelter, and locomotion as they move across the forest landscape to find food and mates. As Dr. Peter Weigl, Professor Emeritus at Wake Forest University, explains:

In the Appalachians northern flying squirrels are commonly found in older forests of spruce (*Picea rubens*), fir (*Abies fraseri*), beech (*Fagus grandifolia*), sugar maple (*Acer saccharum*), and yellow birch (*Betula alleghaniensis*), especially in the ecotones between conifers and hardwoods...An array of studies have documented the squirrel's habitat diversity (Ford et al. 2004; Menzel et al. 2006; Payne et al. 1989; Stihler et al. 1987; United States Department of the Interior, Fish and Wildlife Service 2006; Urban 1988) pointing out the importance of hardwood and mixed forest habitats. *G. sabrinus* of West Virginia is more abundant and its populations more continuous than in most parts of the east. Many of the squirrels are caught in forests in which spruce is present, and this tree species supports one of the fungal genera (*Elaphomyces*) eaten by the squirrel (Loeb et al. 2000). Therefore, the United States Fish and Wildlife Service has decided that if forests containing spruce are protected in the national forests, the flying squirrel's preservation is insured, and it can be delisted, not to the "threatened" level but taken off the critical list entirely. The problems with this approach are many. First, it is not clear if there is any direct causality between the presence of flying squirrels and spruce. Both animal and plant may be responding independently to the same boreal conditions. Squirrels may nest in spruces occasionally and use them as one of many food sources, but there is no proof of any obligate relationship. Second, in more than 40 years of trapping and nestbox checking in various Appalachian habitats, I almost never captured animals in extensive, pure conifer stands, although telemetry revealed that they sporadically used them. Third, such a course of action fails to sufficiently protect the northern hardwood areas often used by *G. sabrinus*.<sup>83</sup>

Dr. John Pagels, Professor Emeritus at Virginia Commonwealth University, has also identified the importance of northern hardwoods for the WVNFS:

[Referring to the Recovery Plan Amendment for the WVNFS]. ...the amended guidelines note that preferred habitat is basically as stated in the Recovery Plan, with exceptions relating to elevation guidelines, the conifer component, and spatial distribution of the habitat components. The amendment notes that many of the captures of the squirrel occur in transitional zones between northern hardwood forests and montane boreal forests, that this zone occurs at elevations of ranging from approximately 2,600 to 4,600 feet, and is "typified by a mixed and highly variable overstory species composition of American beech, yellow birch, black cherry, sugar maple, red spruce and eastern hemlock."...However, the amended (VSFWS 2001) guidelines note that the relative

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<sup>83</sup> Weigl, P.D. 2007. The Northern Flying Squirrel (*Glaucomys Sabrinus*): A Conservation Challenge. *Journal of Mammalogy*, 88(4): 897-907.

abundance of the conifer component can be small, and in some cases confined to the understory.<sup>84</sup>

Trapp, et al. (2017) described the importance of northern hardwood forests when it comes to the diet and food availability of the WVNFS:

The stable isotope analysis revealed that hypogeous fungi, epigeous fungi, invertebrates, lichen, and beechnuts were dominant components of the diet of *G. s. fuscus*...

Epigeous fungi were most available in conifer habitat, and are more available in conifer, mixed conifer-hardwood, and hardwood habitats than in red spruce habitat, suggesting epigeous fungi may be available to dispersing *G. s. fuscus*. Although arboreal lichen was not encountered during our fieldwork, surveys of lichen abundance in New England found various species of lichen in both conifer and hardwood habitats, suggesting an availability of lichen across habitat types (Selva 1994). However, Selva (1994) found a strong connection between lichen abundance and forest age, with higher lichen availability in more mature forests. Furthermore, the importance value for American beech, which may correspond to the availability of beechnuts, was higher in hardwood and mixed conifer-hardwood habitats than in red spruce habitat. The beechnut crop corresponds with the dispersal season of *G. sabrinus* (Villa et al. 1999), potentially providing forage for dispersing individuals. However, *G. s. fuscus* may encounter high levels of competition for beechnuts from hard-mast specialists, such as *G. volans* and red squirrels (*Tamiasciurus hudsonicus*), and beechnuts are only available during a limited time period. Future research should focus on additional potential limiting factors, such as the behavioral exclusion of *G. s. fuscus* by *G. volans* in the habitat surrounding red spruce (Weigl 1978) and impacts of climate change on forest configuration and patch extent of red spruce (White and Cogbill 1992)...Furthermore, a greater understanding of dispersal behavior of *G. s. fuscus* may provide further insights regarding the energetic requirements of dispersing juveniles and whether dispersing juveniles forage for specific foods, or rely on energy stores while moving through the landscape (Zollner and Lima 2005).

Based on our results, management of the dispersal matrix for *G. s. fuscus* should consider prioritizing mature red spruce patches that may act as connections between larger areas of red spruce. These patches may provide hypogeous fungi truffles and lichen for dispersing *G. s. fuscus*, as well as other diet items identified through stable isotope analysis. However, regardless of forest type, mature stands typically had structural features and composition that afforded food resources, whereas younger stands did not. This suggests

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<sup>84</sup> Professor John Pagels, Virginia Commonwealth University, Richmond VA Testimony 2005 Highland Wind Project.

that managers should consider stand age and structure to a greater degree than forest type for management of habitat outside of red spruce stands for *G. s. fuscus*.<sup>85</sup>

Smith (2007) identified the need to protect WVNFS habitat in northern hardwoods from habitat degradation and fragmentation:

In the central Appalachians, nests were located within 100 m of the ecotone between pure conifer and mixed northern hardwood–conifer stands (Menzel et al. 2004). *G. sabrinus* invariably selected hardwoods, mostly beech (*Fagus*), birch (*Betula*), or maple (*Acer*), as nest trees in the southern Appalachians (Weigl and Osgood 1974) and as cavity trees in central Ontario (Holloway and Malcolm 2007). However, leaf nests are almost exclusively found in conifers (Holloway and Malcolm 2007; Weigl et al. 1999), high in the canopy (Stihler et al. 1987). Elevation, tree height, nest height, and mean diameter at breast height of overstory trees were all greater at leaf nest sites than at cavity sites in the central Appalachians (Menzel et al. 2004). Large hardwood snags are a common nesting structure in eastern forests (Gerrow 1996; Hackett and Pagels 2003; Holloway and Malcolm 2006, 2007), which likely is related to their higher decay rates and the preferences of primary excavators (Holloway 2006). Nest sites in eastern forests often occur on cooler, more mesic sites such as in spruce stands (Holloway and Malcolm 2007; Menzel et al. 2004; Weigl and Osgood 1974), on northern slopes (Menzel et al. 2004; Payne et al. 1989; but see Hackett and Pagels 2003), in “coves” (Payne et al. 1989), or in areas with large amounts of downed wood (Hackett and Pagels 2003), all of which are favorable conditions for higher decay rates and fungal growth (Loeb et al. 2000)...

Nevertheless, *G. sabrinus* cannot live in all forest habitats. In addition to the resources highlighted in this paper, there are essential elements of forest habitat that I did not consider, such as structural features of the overstory and midstory that facilitate gliding (see Scheibe et al. 2007). Because food resources frequently are clumped and ephemeral, relatively dense canopies, large tall trees, and open midstories are needed for individuals to move through their home range efficiently and safely (Scheibe et al. 2006; Vernes 2001). ...However, the most significant challenge is maintaining functional connectivity across landscapes. Many populations are fragmented and an increasing number of populations are becoming fragmented or more isolated throughout its range. Moreover, the relative importance of functional connectivity in sustaining viable and well-distributed populations of *G. sabrinus* increases as forests become increasingly altered, habitat suitability diminishes, and the uncertainty of persistence increases.<sup>86</sup>

Flaherty et al. (2010) identified the loss of food sources in managed habitats:

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<sup>85</sup> Trapp, S. E., Smith, W.P., Flaherty, E.A. 2017. Diet and food availability of the Virginia northern flying squirrel (*Glaucomys sabrinus fuscus*): implications for dispersal in a fragmented forest. *Journal of Mammalogy* 98(6): 1688-1696.

<sup>86</sup> Smith, W. P. Ecology of *Glaucomys sabrinus*: Habitat, Demography, and Community Relations. 2007. *Journal of Mammalogy* 88(4): 862-881.

Timber harvest changes the structure and microclimate of old-growth forests (Colgan 1997), removes the energy sources (trees) for fungi (Amaranthus et al. 1994; Colgan 1997), and damages the hyphal mat during logging operations (Carey et al. 2002). Thus, resulting clear-cuts, 2nd-growth, and thinned stands exhibit significantly lower fungal biomass and diversity than old-growth stands (Amaranthus et al. 1994; Carey et al. 2002; Waters et al. 1994), and little is known about the length of time required before fungi will reestablish colonies and begin to produce truffles (Amaranthus et al, 1994)...

Our results suggest low availability of potentially critical food items in managed habitats, which may constrain dispersal of *G. sabrinus* across clear-cut and 2nd-growth habitats. Conifer seeds, truffles, and *Vaccinium* spp. were all significantly more abundant in old-growth habitat. Furthermore, the hemlock and spruce cones we sampled in clear-cuts were likely remnants of the once present old-growth stand and consequently are likely only available for a short time postlogging. Similarly, although we encountered truffles in clear-cut plots, it is unclear how available this resource is in young regenerating stands, because we found truffles only where the roots of tree stumps had not completely died; we recorded no truffles in clear-cuts older than 2–3 years postharvest. Except for 1 sporocarp uncovered while digging a pitfall trap in a .40-year-old stand, we found no truffles in 2nd-growth habitat. Carey et al. (2002) suggested that harvest plans that leave legacy (i.e., old-growth trees) in managed stands will increase the persistence of truffles. Page 87.<sup>87</sup>

As you can gather from the selected quotes from WVNFS research, the squirrel is found in both northern hardwoods and conifers at high elevations, and depends heavily on a variety of underground fungus and lichens as well as beechnuts, which are mainly found in older growth forests. It requires larger trees to help it move safely across the landscape and creates nests in both conifers and hardwoods. The hyphal mats that produce truffles (a major food source for these squirrels) can be damaged by logging. We believe that this research argues against cutting hardwoods in and around flying squirrel habitat. We also believe that research shows that the truffles etc. eaten by squirrels require a moist forest floor and older tree stands. This food source would be negatively impacted if the WVNFS habitat and the buffer around it were to dry out or the soil become compacted due to logging. The Draft EA notes that soft and punky (pulpwood) trees would not be targeted for timber harvest (see Draft EA at 47-49), thereby reducing the risk of impacts to WVNFS nests. But by only focusing on the nesting value of pulpwood, the Forest Service discounts the importance of more commercially viable hardwoods to WVNFS. These trees and the surrounding forest floor provide valuable food sources for the species. The Draft EA, however, fails to address the loss of food sources from removing these trees from suitable WVNFS habitat and buffer areas. Additional impacts to food sources would also likely stem from herbicide application in these areas and again the Draft EA does not discuss these effects. See Draft EA at 49. Finally, from these research papers, which we will attach as an appendix, you can see that there is no evidence that “red spruce restoration” is in any fashion equivalent to

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<sup>87</sup> Flaherty, E.A., Ben-David, M. Smith, W.P. 2010. Diet and food availability: implications for foraging and dispersal of Prince of Wales northern flying squirrels across managed landscapes. *Journal of Mammalogy*. 91(1): 79-91.

WVNFS protection. The WVNFS requires northern hardwoods as well as red spruce and other conifers. Therefore, aspirational and actual red spruce restoration efforts, dependent on cutting associated northern hardwoods, will be a negative for West Virginia northern flying squirrel recovery.

Because impacts to food sources and locomotion were not considered by the Forest Service, it also appears that a significantly greater acreage of WVNFS habitat may be “affected” by spruce commercial restoration, non-commercial spruce restoration, temporary road construction, use, and deconstruction, mulcher work, temporary stand improvement, and stand restoration activities than what Table 20 depicts on page 47 of the Draft EA. The total acreage of these proposed actions is more than 1,500 acres. There are an additional 34 acres of habitat that may be negatively impacted by prescribed burns. Activities that destroy and fragment WVNFS habitat contradict the Forest Plan and should be taken out of the Greenbrier Southeast Project.

We encourage the Forest Service to follow its legal obligations and to conduct spruce restoration activities in a way that does not cause actual adverse impacts to the WVNFS. We strongly encourage the Forest Service to provide a detailed description of the process that was used to delineate suitable habitat in this proposed project.

**C. The Draft EA Does Not Explain Why the Rusty Patched Bumblebee (RPBB) Will Not Be Affected by the Proposed Project.**

The rusty-patched bumble bee (*Bombus affinis Cresson*) is listed as Endangered by the United States Fish and Wildlife Service. The species’ range across the eastern USA has declined by more than 90% and most remaining populations are now restricted to the northern Midwest. In listing the rusty-patched bumblebee as endangered, the U.S. Fish and Wildlife Service cited several threats including pathogens, pesticides and herbicides, habitat loss and degradation, climate change, and synergistic effects.<sup>88</sup> One of the only populations documented in the eastern USA in a decade is in the Appalachian Mountains of Virginia and West Virginia.

Based on RPBB observations/specimens from the southern Appalachian region, a species distribution model constructed by Stone Environmental predicts a broad swath of suitable habitat for RPBB in higher elevation areas along the VA/WV border.<sup>89</sup> In spite of the fact that the rusty patched bumblebee is named in the Greenbrier SE Draft EA and the project area is an area of likely occurrence for the RPBB as seen on the attached map, no surveys for this listed insect have been done on the project area. The Draft EA nevertheless concludes that actions of the Greenbrier SE project will have no impact on the bee. *See* Draft EA, Table 13, at 37..

It is entirely unclear from the Draft EA how this decision was reached. The RPBB is being stressed by climate change, bee diseases, land use changes and pesticides and faces extinction. Pesticides, especially the kind called neonicotinoids, are incredibly toxic to bees and butterflies,

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<sup>88</sup> 82 Fed. Reg. 3186-3209 (Jan. 11, 2017).

<sup>89</sup> *See* Stone Environmental, Rusty-Patched Bumblebee Inventory, Virginia and West Virginia (2019).

and they're one of the main reasons the rusty patched bumblebee is now endangered.<sup>90</sup> The bee is also threatened by the loss of nectar sources as a result of herbicide application.<sup>91</sup> The Draft EA does not discuss whether pesticides and herbicides will be used in rusty patched bumble bee habitat and if so, how that will impact the species. These potential impacts need to be addressed by the Forest Service.

#### **D. The Forest Service Does Not Disclose the Project's Impacts to Listed Bat Species.**

As we explained above in the context of the candy darter, NEPA implementing regulations provide: "To the fullest extent possible, agencies shall prepare draft environmental impact statements concurrently with and integrated with environmental impact analysis and related surveys and studies required by the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), the National Historic Preservation Act of 1966 (16 U.S.C. 470 et seq.), the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), and other environmental review laws and executive orders." 40 C.F.R. § 1502.25(a). The concurrency requirement for the NEPA and ESA process is essential for public involvement; since there is no opportunity for public comment on the development of a Biological Assessment or Biological Opinion, it is only through the NEPA process that the public may comment on the impacts to listed species.

We appreciate the Forest Service's acknowledgment that it will initiate Tier II consultation with the Fish and Wildlife Service regarding federally listed bats. However, that biological opinion is not available to the public and the Draft EA contains no analysis of the potential impacts to the Indiana bat and Northern Long Eared Bat (NLEB). Rather, the Draft EA contains cursory statements about how bat habitat will be affected by the proposed action alternative, including "temporary (up to 40 years) complete loss of potential roost trees and risk of direct harm to bats," "temporary reduction of potential trees and risk of direct harm to bats," and "total loss of habitat for foreseeable future and risk of direct harm to bats." Draft EA at 38. These statements reflect the potential for significant adverse impacts to a species already experiencing tremendous population declines due to white-nosed syndrome.

While many species of bats rely on snags for roosting, NLEBs also use live trees,<sup>92</sup> raising the possibility that timbering could bring down trees containing roosting bats. NLEBs are also at risk because of their habitat preferences, foraging in mature upland forest with a fairly closed canopy rather than forest openings. NLEB are tolerant of complex forest structure and some degree of "clutter" in the understory, with a small enough wingspan to be able to maneuver in forest interior areas. Similarly, studies indicate that NLEB regularly roost in trees located in or below the forest canopy, keeping to their forest interior niche.<sup>93</sup> NLEBs, like many other woodland

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<sup>90</sup> 82 Fed. Reg. 3190.

<sup>91</sup> *See id.* at 3186-3209.

<sup>92</sup> United States Fish and Wildlife Service. 2015. Northern Long-Eared Bat (*Myotis septentrionalis*) Fact Sheet. Accessed at <https://www.fws.gov/midwest/Endangered/mammals/nleb/nlebFactSheet.html>

<sup>93</sup> Menzel, M.A.; Owen, S.F.; Ford, W.M.; Edwards, J.W.; Wood, P.B.; Chapman, B.R.; Miller, K.V. 2002. Roost tree selection by northern long-eared bat (*Myotis septentrionalis*) maternity

bats, prefer to roost in larger diameter trees,<sup>94</sup> making it important to preserve mature forest. NLEBs are less likely to use large forest gaps and clear-cut areas than intact forest,<sup>95</sup> although research is mixed on the impacts of less severe timber treatments. NLEBs avoided roosting in areas that had been subject to a shelterwood harvest in Indiana, indicating that their avoidance of harvested areas is not just limited to clear-cuts.<sup>96</sup> An earlier study in Ontario indicated that the disruption to forest structure and truncated age classes that occur with timbering were detrimental to habitat for multiple species of bats, including NLEBs.<sup>97</sup>

Despite the threats posed by using clear-cuts with reserves and shelterwood harvests on more than 2,000 acres of bat habitat, there is no additional details provided to the public about how this project could directly, indirectly, and cumulatively impact the populations of these species (particularly in light of other pending projects on the forest such as the Panther Ridge project). General statements about possible effects and some risk to these species do not constitute a hard look absent a justification that more definitive information could not be provided.<sup>98</sup> Even if the Forest Service believes the disturbances would be short term (10 years) and reduce habitat over 37 % of the project area (*see* Draft EA at 39), the cumulative effects of habitat loss need to be examined as a 10-40 year timeline for recovery of roosting habitat could be too far into the future for species that are teetering on the brink of extinction. As with the candy darter, the impacts analysis needs to be made available to the public and we ask that the Forest Service provide an additional comment period once the biological opinion becomes available.

**E. The Draft EA Does Not Meaningfully Evaluate the Impacts to Aquatic Regional Forester Sensitive Species (RFSS).**

1. *The Draft EA Does Not Establish Baseline Conditions.*

The Forest Service is required to “describe the environment of the areas to be affected or created by the alternatives under consideration.”<sup>99</sup> This baseline data is to be “of high quality” with

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colonies in an industrial forest in the central Appalachian mountains. *Forest Ecology and Management* 155(1-3): 107-114.

<sup>94</sup> Silvis, A., Ford, W.M., Britzke, E.R. 2015. Day-roost tree selection by northern long-eared bats – What do non-roost tree comparisons and one year of data really tell us? *Global Ecology and Conservation* 3: 756-763.

<sup>95</sup> Patriquin, K.J. and Barclay, R.M. 2003. Foraging by bats in cleared, thinned and unharvested boreal forest. *Journal of Applied Ecology* 40: 646-657.

<sup>96</sup> Badin, H. 2014. Habitat selection and roosting ranges of northern long-eared bats (*Myotis septentrionalis*) in an experimental hardwood forest system. Master’s Thesis. Retrieved from [http://cardinalsolar.bsu.edu/bitstream/handle/123456789/198110/BadinH\\_2014-2\\_BODY.pdf;sequence=1](http://cardinalsolar.bsu.edu/bitstream/handle/123456789/198110/BadinH_2014-2_BODY.pdf;sequence=1)

<sup>97</sup> Jung, T.S.; Thompson, I.D.; Titman, R.D.; Applejohn, A.P. 1999. Habitat selection by forest bats in relation to mixed-wood stand types and structure in central Ontario. *The Journal of Wildlife Management* 63: 1306-1319.

<sup>98</sup> *Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372, 1380 (9th Cir. 1998).

<sup>99</sup> 40 C.F.R. § 1502.15.

“[a]ccurate scientific analysis.”<sup>100</sup> The establishment of the baseline conditions of the affected environment is a practical requirement of the NEPA process. “Without establishing baseline conditions there is simply no way to determine what effect [an action] will have on the environment, and consequently, no way to comply with NEPA.”<sup>101</sup> While detailed surveys and other important information has been provided for brook trout in the project area, other aquatic species do not get the same treatment.

The Draft EA fails to provide a complete environmental baseline against which the agency can compare the effects of the proposed project and other alternatives. The Draft EA contains only generalized statements about some species being present in the project area (Eastern hellbender, Greenbrier River crayfish), species likely to occur in the project area (elktoe and greenfloater) and species not being in the project area (green-faced clubtail). The Draft EA states that some species have been collected in the project area (tongue-tied minnow, New River Shiner, Kanawha minnow, Appalachia darter, rapids club tail) but the Draft EA provides no details regarding these surveys (such as population counts, specific locations, and trends). Without complete baseline information, which would include the specific locations these species occur, overall trends, and reasons for why the species is or is not persisting in the project area, the Forest Service cannot accurately conclude that the project’s effects “are expected to be discountable and/or insignificant.”

This is true even if the Forest Service intends to rely on project planning, design features, and mitigations, because as we previously explained in our comments on sedimentation and tree-canopy loss, the location of habitat altering activities (such road construction and operation) in relation to species habitat is a major factor in determining the impacts on these species. The Forest Service cannot know if BMPs will be effective if it does not know where it will build roads and log stands in relation to aquatic RFSS habitat. Without this site-specific information the Forest Service is not making informed decisions and the public has no assurances that the Forest Service took a hard look at the project and that the benefits of the proposed project justify its environmental costs.<sup>102</sup>

2. *The Draft EA Does Not Meaningfully Evaluate the Impacts of Runoff, Erosion, and Sedimentation.*

The Greenbrier Southeast Project is proposing the creation of 8.7 miles of road construction and reconstruction, 49.1 miles of skid roads, 34 log landing and 14 helicopter landings which create 28 acres of soil disturbance.

While these rare RSS aquatic species are all negatively impacted by sedimentation no special attention is paid to them in the Draft EA. Sedimentation is of concern for species such as the Eastern hellbender. This large salamander is found throughout the Monongahela National

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<sup>100</sup> *Half Moon Bay Fisherman’s Marketing Ass’n v. Carlucci*, 857 F.2d 505, 510 (9th Cir. 1988); 40 C.F.R. § 1500.1(b).

<sup>101</sup> *Half Moon Bay*, 857 F.2d at 510.

<sup>102</sup> *See Center for Biological Diversity v. Bureau of Land Management*, 422 F.Supp.2d 1115, 1163 (N.D. Cal. 2006).

Forest.<sup>103</sup> The species is globally vulnerable and many populations have declined or have been eliminated by dams, sedimentation, water pollution, and over-collecting.<sup>104</sup> The principal threat is degradation of habitat, since it is a habitat specialist with little tolerance of environmental change. It breathes primarily through the skin and depends on cool, well-oxygenated, flowing water.<sup>105</sup>

The Draft EA dismisses concern for the hellbender and other species by stating on page 29: “The potential for negative effects associated with sedimentation, hydrologic alteration, and habitat modification associated with the proposed actions are expected to be discountable and/or insignificant based on project planning, design features and mitigations, Forest Plan Standards and Guidelines, and USFS BMPs. For all aquatic RFSS, the proposed action may impact, but is not likely to cause a trend toward federal listing or a loss of viability.”

Much of the discussion about roads, skid roads and log landings is focused on post logging remediation measures that the Forest Service intends to use on the Greenbrier Southeast project. For example, Draft EA at 2 states: “New skid trail on slopes <30% would be treated following harvest, as weather and soil conditions allow, by decompacting the surface by deep ripping/subsoiling the surface a minimum of 12” and treating with West Virginia and USFS BMP requirements.”

BMPs are cited as a solution but their effectiveness changes with site conditions, they can be overwhelmed during storm events, and they are known to fail. The Forest Service does not provide any examples of past work in similar environments (e.g. steep slopes near aquatic resources) or the success and failure rates of adopting such measures on the Forest. In a summary of a Forest Service in-house audit of more than a hundred road evaluations, Carlson et al. (2015) found that almost half of the road BMPs were scored as either “marginally effective” or “not effective.”<sup>106</sup> Edwards et al. (2016) also found that while several studies have found some road BMPs are effective at reducing delivery of sediment to streams, the degree of each treatment has not been rigorously evaluated under a variety of conditions and much more research is needed to

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<sup>103</sup> See Keitzer, S. Conor. 2007. Habitat Preferences of the Eastern Hellbender in West Virginia. Dissertation, available at,

<https://mds.marshall.edu/cgi/viewcontent.cgi?article=1688&context=etd>.

<sup>104</sup> See NatureServe, *Cryptobranchus alleganiensis*, at <http://explorer.natureserve.org/servlet/NatureServe?searchName=Cryptobranchus%20alleganiensis>

<sup>105</sup> International Union for the Conservation of Nature (IUCN). 2004. Hellbender account.

<sup>106</sup> Carlson, J.P. Edwards, T. Ellsworth, and M. Eberle. 2015. National best management practices monitoring summary report. Program Phase-In Period Fiscal Years 2013-2014. USDA Forest Service. Washington, D.C.

determine the site-specific suitability of different BMPs.<sup>107</sup> BMPs may also not be up to the task to handle the effects of more-intense storm events driven by climate change.<sup>108</sup>

In many instances BMPs are not even fully implemented on national forests. Carlson et al. (2015) noted that only about one third of the road BMPs were found to be fully implemented in an evaluation of more than hundred road evaluations.<sup>109</sup> It is also not clear from the Draft EA if BMPs will be installed before logging units close and skid trails and temporary roads are no longer in use. If not, these BMPs would not mitigate adverse impacts incurred while timber units are open, which can last for several months. Further, Draft EA at 22 recognizes that “Soil restoration activities have the potential to accelerate short-term, localized sources of soil erosion and stream sedimentation.”

That is why it is extremely important that the Forest Service provide the missing baseline information for these species and *analyze* how the design and location of new roads, skid trails, and other potential conveyances of sediment would or would not impact each of these species. It must also identify the specific areas where riparian areas would be disturbed, the proximity of these areas to aquatic RFSS species, and the extent to which these activities would impact these species. The agency must further disclose relevant monitoring data indicating how effective its BMPs have been at mitigating impacts to aquatic habitats and where it has failed in the past, explain why this occurred and why it is confident that the BMPs used on the Greenbrier Southeast project will protect these vulnerable species.

#### **F. The Draft Environmental Assessment Does Not Include a Range of Reasonable Alternatives.**

NEPA requires a “detailed statement” of “alternatives to the proposed action.”<sup>110</sup> This is the “heart” of the environmental assessment.<sup>111</sup> The alternatives analysis should address “the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for the choice among options by the decisionmaker and the public.”<sup>112</sup> This analysis must “rigorously explore and objectively evaluate all reasonable alternatives.”<sup>113</sup> This requires a “thorough consideration of all

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<sup>107</sup> Edwards, P.J., F. Wood, and R.L. Quinlivan. 2016. Effectiveness of best management practices that have application to forest roads: a literature synthesis. General Technical Report NRS-163. Parsons, W.V.: U.S. Department of Agriculture, Forest Service, Northern Research Station. 171 p.

<sup>108</sup> *Id.*

<sup>109</sup> Carlson, et al. 2015.

<sup>110</sup> 42 U.S.C. § 4332(2)(c).

<sup>111</sup> 40 C.F.R. § 1502.14.

<sup>112</sup> *Id.*

<sup>113</sup> 40 C.F.R. § 1502.14(a).

appropriate methods of accomplishing the aim of the action” and an “intense consideration of other more ecologically sound courses of action.”<sup>114</sup>

The purpose of this section is “to insist that no major federal project should be undertaken without intense consideration of other more ecologically sound courses of action, including shelving the entire project, or of accomplishing the same result by entirely different means.”<sup>115</sup> While an agency is not obliged to consider every alternative to every aspect of a proposed action, an agency must “consider such alternatives to the proposed action as may partially or completely meet the proposals goal.”<sup>116</sup> Although an EA is less extensive than an EIS, an agency still must satisfy the same bedrock analytical procedures for EAs, including by examining a reasonable range of alternatives to the action.<sup>117</sup>

Reasonable alternatives must be analyzed for an EA even where a FONSI is issued because “nonsignificant impact does not equal no impact. Thus, if an even less harmful alternative is feasible, it ought to be considered.”<sup>118</sup> When an agency considers reasonable alternatives, it “ensures that it has considered all possible approaches to, and potential environmental impacts of, a particular project; as a result, NEPA ensures that the most intelligent, optimally beneficial decision will ultimately be made.”<sup>119</sup>

The Draft EA only considers the proposed project and offers the public no other less environmentally damaging alternative against which they can compare the proposed project. By considering in detail only one action alternative, the Draft EA does not place in sharp relief the trade-offs at stake in the project and therefore fails to “provid[e] a clear basis for choice among options by the decision maker and the public.”<sup>120</sup> While reference is made to specialists reviewing the project no specialists’ reports are available to the public. Courts have invalidated environmental reviews under NEPA that consider only one action alternative or put forth only substantially similar alternatives for consideration.<sup>121</sup>

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<sup>114</sup> *Environmental Defense Fund v. Corps of Engineers*, 492 F.2d 1123, 1135 (5th Cir. 1974).

<sup>115</sup> *Id.*

<sup>116</sup> *Natural Resources Defense Council, Inc. v. Callaway*, 524 F.2d 79, 93 (2d Cir. 1975).

<sup>117</sup> *See, e.g., Env'tl. Prot. Info. Ctr. v. Blackwell*, 389 F. Supp. 2d 1174, 1199 (N.D. Cal. 2004)(stating that “an EA must consider a reasonable range of alternatives”); *Or. Natural Desert Ass'n v. Singleton*, 47 F. Supp. 2d 1182 (D. Or. 1998) (“The requirement of considering a reasonable range of alternatives applies to an EA as well as an EIS” (citing 40 C.F.R. §1509.9(b)).

<sup>118</sup> *Ayers v. Espy*, 873 F. Supp. 455, 473 (D. Colo. 1994)(internal citations omitted).

<sup>119</sup> *Wilderness Soc'y v. Wisely*, 524 F. Supp. 2d 1285, 1309 (D. Colo. 2007)(quotations & citation omitted).

<sup>120</sup> 40 C.F.R. § 1502.14.

<sup>121</sup> *See Muckleshoot Indian Tribe v. U.S. Forest Service*, 177 F.3d 800, 813 (9th Cir. 1999); *Curry v. U.S. Forest Service*, 988 F.Supp. 541 (W.D. Penn. 1997). Courts reviewing EAs have consistently found them lacking where there existed feasible mid-range or reduced-impact alternative falling between the extremes of granting in full or denying in full the proposed action, but the agency opted not to analyze them in detail. *See, e.g., Western Watersheds Project v.*

Several reasonable alternatives clearly exist. The Forest Service could reduce the number of acres that will be clear cut, reduce the scope of hard wood crop-tree release, spruce release, and mulcher activities, and reduce the number of haul roads, skid trails, and landings called for in the proposed project. The project could eliminate all timbering on slopes over 40%. Further, alternatives that result in far less aggressive early successional habitat gains, provide greater scenic integrity,<sup>122</sup> minimize the spread of invasive plant species, call for less logging in areas at high risk for erosion and stream sedimentation, and result in far less drastic increases in stream flows could all be considered in the draft EA. Suitable West Virginia northern flying squirrel habitat could be removed from the logging project and the listed candy darter could be protected by removing all logging in catchment areas containing its critical habitat. Some of these alternatives or a combination thereof may very well achieve the stated purpose of the proposed project but accomplish it in a manner that is far less damaging than the approach being proposed.

The Draft EA did not examine any one of these measures, much less a combination of these approaches, to reduce the project's impacts to the watershed, plant and animal communities, and endangered and threatened species. Instead, the Forest Service considered only the proposed action. The Draft EA states, "In order to follow a more efficient process and produce one solid

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*Abbey*, 719 F.3d 1035, 1050 (9th Cir. 2013)(finding EA arbitrary and capricious where it failed to consider "reduced-grazing" alternatives); *Pac. Coast Fed'n of Fishermen's Ass'ns v. Dep't of Interior*, 655 F. App'x 595, 599 (9th Cir. 2016)(holding an agency's "decision [in EA] not to give full and meaningful consideration to the alternative of a reduction in maximum contract water quantities was an abuse of discretion, and the agency did not adequately explain why it eliminated this alternative from detailed study"); *Wild Fish Conservancy v. Nat'l Park Serv.*, 8 F. Supp. 3d 1289, 1300 (W.D. Wash. 2014)(finding agency's EA deficient because the "conclusion that there is not a meaningful difference, or viable alternative, between 0% and 90% [of fish survival] [was] suspect"), *aff'd*, 687 F. App'x 554 (9th Cir. 2017); *Native Fish Soc'y v. Nat'l Marine Fisheries Serv.*, 992 F. Supp. 2d 1095, 1110, (D. Or. 2014) (holding that agency "erred in failing to consider a reasonable range of alternatives" in EA, and finding that "[g]iven the obvious difference between the release of approximately 1,000,000 smolts and zero smolts, it is not clear why it would not be meaningful to analyze a number somewhere in the middle"); *cf. Colo. Off-Highway Vehicle Coal. v. U.S.*, 505 F. Supp. 2d 808, 817-18 (D. Colo. 2007)(finding that EA considered a reasonable range of alternatives where agency analyzed five alternatives including reduced-mileage alternatives).

<sup>122</sup> The Draft Environmental Assessment states that some timber harvest actions, herbicide application and prescribed burns may be visible from the Smoke Camp Knob Overlook (4237 ft) which has a 375-degree view of the surrounding area. Controlled burn operations to maintain the overlook vista may negatively affect overlook visitors, hikers, and nearby dispersed campers through temporary closure orders. Burning may occur in the fall or spring and may be a standalone treatment or in conjunction with herbicide or mechanical treatments. In addition, noise from timbering may be noticeable to visitors at Lake Buffalo. Lake Buffalo is popular with boaters, fishermen and photographers and it would be best to minimize the potential impacts on viewsheds and the visitor experience at Smoke Camp Knob and Lake Buffalo.

action alternative instead of analyzing multiple action alternatives .... We believe this integrated process of creating one Proposed Action Alternative through extensive scoping/collaboration and internal dialogue produces a more efficient planning process and thoughtful product.” Draft EA at 6. The Forest Service’s failure to consider a single action alternative to the proposed project appears designed to justify a pre-selected course of action. NEPA requires more than this “all or nothing” approach and the Draft EA must rigorously explore and objectively evaluate a full range of alternatives that have less damaging effects on the ecosystem.<sup>123</sup> The public must also be included in every phase of the NEPA process and must be permitted to meaningfully participate in the formulation of reasonable alternatives to the proposed action.

#### IV. CONCLUSION

As currently formulated, the proposed project will have unacceptable impacts to the local watershed, plant and animal communities, and federally listed species. We urge the Forest Service to abandon this proposed project and pursue an alternative that will have far less-damaging impacts to the candy darter and other listed and vulnerable species.

Thank you for the opportunity to comment on this proposal. Please make these comments and the attached documents part of the official record for this project. Also, please send us all future notices for this project.

Sincerely,



Jason Totoiu  
Senior Attorney  
Center for Biological Diversity



Judith Rodd  
Director  
Friends of Blackwater Canyon

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<sup>123</sup> See *Citizens Against Toxic Sprays, Inc. v. Bergland*, 428 F.Supp. 908, 933 (D. Or. 1977)(“The discussion of alternatives must be undertaken in good faith; it is not to be employed to justify a decision already reached.”).