



P.O. Box 306
Charleston, WV 25321

January 3, 2021

Reviewing Officer
Attn: PAL-LSC Objections, Suite 700
USDA Forest Service, Eastern Region
626 E. Wisconsin Ave
Milwaukee, WI 53202
(submitted via email to: objections-eastern-region@usda.gov)

RE: Objection of the West Virginia Highlands Conservancy to the proposed Greenbrier Southeast project, Monongahela National Forest, Greenbrier Ranger District (Jack Tribble, District Ranger and Responsible Official)

Dear Reviewing Officer:

Pursuant to 36 C.F.R. Part 218, the West Virginia Highlands Conservancy (WVHC) hereby objects to the Draft Decision Notice and Finding of No Significant Impact for the Greenbrier Southeast Project (GSE). The proposed project is located in Pocahontas County, West Virginia, on the Greenbrier Ranger District of the Monongahela National Forest (MNF).

WVHC promotes, encourages and works for the conservation – including both preservation and wise management – and appreciation of the natural resources of West Virginia and the Nation. We focus primarily on the Highlands Region of West Virginia, but our work is for the cultural, social, educational, physical health, spiritual and economic benefit of present and future generations of residents and visitors alike.

The Forest Service's decision for the GSE is subject to the National Environmental Policy Act of 1969, 42 U.S.C. § 4321 *et seq.*, (NEPA). 36 C.F.R. § 220.4(a). NEPA directs Federal agencies to “use all practicable means and measures . . . to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.” 42 U.S.C. § 4331(a). In pursuit of that directive, NEPA requires Federal agencies to prepare an environmental impact statement (EIS) for “major Federal actions significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(2)(C). NEPA requires Federal agencies to examine the environmental effects

of their proposed actions and alternatives and any adverse environmental effects that cannot be avoided if the proposed action is implemented. 42 U.S.C. § 4332(2)(C).

An agency may prepare an Environmental Assessment to determine whether the effects of a proposed action are likely to be significant such that an EIS is required. 36 C.F.R. § 220.7(a). An EA “shall briefly describe the proposed action and alternative(s) that meet the need for action.” *Id.*, § 220.7(b)(2). In assessing the impacts of a proposed action, the EA “[s]hall briefly provide sufficient evidence and analysis, including the environmental impacts of the proposed action and alternative(s), to determine whether to prepare either an EIS,” and “[s]hall describe the impacts of the proposed action and any alternatives in terms of context and intensity.” *Id.*, § 220.7(b)(3)(i), (iii).

As we noted in our previous comments on the scoping notice and the Draft Environmental Assessment (Draft EA) for the GSE project, we think the types of activities proposed for the GSE project area can be appropriate for achieving the Forest Plan’s desired conditions for the area. We have worked with the Forest Service throughout the planning process, with a focus on ensuring that sensitive environmental resources are protected appropriately.

This objection is made necessary by significant deficiencies in the Final Environmental Assessment for the project. These deficiencies leave us in doubt about whether sensitive resources would be protected adequately, such that—without additional analyses and protections—the impacts of the GSE project are likely to be significant. The deficiencies fall into two broad categories:

- (1) Inattention to analysis requirements related to the endangered candy darter and its designated critical habitat.
- (2) Unsupported conclusions concerning project effects and incomplete development of proposed mitigations.

Although the categories overlap considerably, each of these review-process deficiencies are addressed in separate sections below. As described in both sections, the issues raised are connected to comments previously submitted to the Forest Service by the WVHC during the designated opportunity for comment on the Draft EA. Therefore, we have established standing to object on these issues. *See* 36 C.F.R. § 218.8(c).

As required for an objection, *id.* § 218.8(b), we provide copies of the only two documents we cite that were not cited by the Forest Service in the Final EA, included among citations listed in the project record, or otherwise excluded from the requirement to provide copies of cited documents. These two documents are the 2011 and 2021 monitoring program evaluation reports for the Monongahela National Forest.[1]

As also required for an objection, *id.* § 218.8(d)(5), we provide a recommendation for a remedy that could resolve our objection. We believe that an Environmental Impact Statement (EIS) is necessary for the GSE project as proposed, due to its significant impacts. Preparation of an EIS could provide an opportunity for consideration of the issues raised in our objection, including the general need for informed analysis of project effects and mitigation plans. With respect to the candy darter, preparation of an EIS could achieve compliance with NEPA and Endangered

Species Act (ESA) review requirements through evaluation of baseline habitat conditions, the cumulative effect of multiple National Forest projects, and the reliability of project design and mitigation measures. Preparation of an EIS should provide concerned National Forest stakeholders, including the WVHC, with the opportunity to participate in an open and transparent review process and to submit comments informed by access to critical project review documents.[2]

Candy Darter

In comments on the Draft EA for the GSE project, the WVHC objected to the lack of project specific analysis, supporting information, and rationale for the proposed conclusion that, “*For candy darter, the proposed action may affect, but is not likely to adversely affect the species or proposed critical habitat.*” The Final EA has not resolved these deficiencies.

The Forest Service has failed to meaningfully integrate needs and requirements for preservation and restoration of the candy darter and its critical habitat with project planning for the GSE. Here we describe three aspects of this failure, including the failure to conduct a baseline assessment, failure to conduct a cumulative effects analysis, and unfounded reliance on project design features and mitigation measures to reduce project impacts to insignificant levels.

Failure to conduct a baseline assessment

The establishment of the environmental baseline is critical to analyses under both NEPA and the Endangered Species Act. ESA Section 7(a)(2) requires the Fish and Wildlife Service 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).

And the Forest Service NEPA Handbook explains that an analysis of the cumulative impacts of past actions on the environment is necessary to understand the context of the impacts of the proposed action. FSH 1909.15_10 at 39 (“Consideration must be given to the incremental effects of the action when added to the past, present, and reasonably foreseeable related future actions of the Forest Service, as well as those of other agencies and individuals, that may have a measurable and meaningful impact on particular resources.”). As the Handbook explains, “Past actions and events also need to be analyzed to determine how the present situation has been affected by history, and to identify trends or patterns that may exist. The objective of doing this is to establish a baseline for assessing future events.” *Id.* at 40.

Forest Service NEPA regulations explain that agencies should:

look for present effects of past actions that are, in the judgment of the agency, relevant and useful because they have a significant cause-and-effect relationship with the direct and indirect effects of the proposal for agency action and its alternatives. ... Once the agency has identified those present effects of past actions that warrant consideration, the agency assesses the extent that the effects of the proposal for agency action or its alternatives will add to, modify, or mitigate those effects. ...Cataloging past actions and specific information about the direct and indirect effects of their design and implementation could in some contexts be useful to predict the cumulative effects of the proposal.

36 C.F.R. § 220.4(f). *See also* Council on Environmental Quality, “Guidance Memorandum on Consideration of Past Actions in Cumulative Effects Analysis” (June 2005) at 1 (“CEQ interprets NEPA and CEQ’s NEPA regulations on cumulative effects as requiring analysis and a concise description of the identifiable present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the agency proposal for action and its alternatives may have a continuing, additive and significant relationship to those effects.”); *id.* at 2 (“[E]xperience with and information about past direct and indirect effects of individual past actions may also be useful in illuminating or predicting the direct and indirect effects of a proposed action.”).

The Forest Service failed to prepare a detailed environmental baseline description and evaluation for streams in the GSE project area that are designated critical habitat or drain directly to critical habitat for the candy darter. As a result, the Forest Service failed to consider the best available scientific data, *see* 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(g)(8), and information in reaching the conclusion that the project would not adversely affect the candy darter and its critical habitat. The Forest Service also failed to provide an informed baseline assessment to the U.S Fish and Wildlife Service when seeking concurrence with this conclusion.

Among the most-relevant scientific information that the Forest Service failed to consider are the monitoring program evaluation reports periodically prepared by the MNF.

The current MNF report, *Fiscal Year 2011–2019 Monitoring Evaluation Report* (USDA 2021), was finalized March 2021, approximately eight months prior to the November 2021 release of the project Final EA and the Draft Decision Notice. The Forest Service had time to consider the findings of this, its own report, prior to publishing the Final EA and Draft Decision Notice.

Although the 2021 monitoring evaluation report has significant negative implications for the candy darter and the integrity of its critical habitat, the findings of the report were evidently not considered in the preparation of the Final EA or the Draft Decision Notice. Nor is there evidence that the findings of the report were considered in the Forest Service Biological Assessment for the project or the U.S. Fish and Wildlife Service Biological Opinion for the project.[3]

Analysis included in the report indicates that most of the streams in the MNF are degraded and trending negatively with respect to chronic sedimentation. The report compares fine-sediment data obtained between 2006-2019 for stream reaches throughout MNF with exceedance criteria for *particularly detrimental effects* to native coldwater fish.[4] Among the report findings:

- The 5% criterion for sediment size < 1 mm was exceeded at 83% of the sample reaches.
- The 25% criterion for sediment size < 4 mm. was exceeded at 58% of the sample reaches.
- The percentage of sediment size < 1 mm increased at about 73% of the sample reaches.
- The percentage of sediment size < 4 mm increased at about 80% of the sample reaches.

These elevated and increasing fine sediment values are important with respect to survival of the candy darter and the preservation and restoration of its critical habitat. The candy darter is intolerant of sedimentation, and sedimentation is among the primary habitat degradation factors responsible for loss of the candy darter from about 50 percent of its historical range (USFWS 2018).

At this point, the candy darter is dependent on Forest Service management of watershed areas that determine the condition of the remaining occupied candy darter habitat. As indicated in **Figure 1**, much of the designated critical habitat for the candy darter, which includes most of the occupied habitat, is in the National Forests, the MNF and the George Washington-Jefferson National Forest (GWJNF).[5] The MNF includes the most extensive and connected of the streams that comprise this habitat.

The continuing degradation of streams throughout the MNF due to sedimentation is a fundamental baseline condition that must be described and evaluated for MNF management projects, such as the GSE, that risk additional sedimentation of critical habitat.

The sedimentation data available for the GSE project area was collected at five locations (**Figure 2**). Between 2008 and 2018, percent fine sediment (both < 1 mm and < 4 mm particle size) in spawning gravel was determined three times for one location and two times for four locations. **Figure 3** shows the percent fine sediment values for the five locations in relation to detrimental effects criteria applied in the 2021 monitoring and evaluation report.

Percent fine sediment exceeded the criteria for detrimental effects to native coldwater fisheries at all the data collection locations, and percent fine sediment increased between the earlier and later data collection at most of the data collection locations.

Consistent with observations for streams throughout the MNF, the streams in the GSE project area, including streams designated as critical habitat for the candy darter and streams that drain directly to critical habitat for the candy darter, are degraded by chronic sedimentation, which is mostly getting worse.

The Final EA does not directly address this baseline condition and instead inexplicably describes stable trends in the percentage of fine sediment and trends toward improving watershed conditions.

Here is the statement on stable trends in the percentage of fine sediment:

The percentage of fine sediment is showing a relatively stable trend across the analysis streams. (Final EA, page 23)

This is not correct for three of the five fine-sediment data collection locations in the GSE project area.

Here is the statement about improving watershed conditions:

Despite an overall short-term increase in roads and skid trails, the treatment of skid trails post-harvest along with additional design features and mitigations to reduce potential adverse effects to watershed processes is expected to reduce effects and continue trends towards stable or improving watershed condition. (Final EA, page 26)

The Forest Service is relying on project design features and mitigations to *reduce* sediment production and delivery to streams associated with road construction and use for timber harvest in mountain terrain. Although project design and mitigation measures can reduce sedimentation effects, supporting research cited by the Forest Service in the Final EA also describes variable results and uncertainty (see discussion below). Moreover, in addition to questions about mitigation efficacy, we do not agree that a reduction in potential sedimentation associated with new actions can in any sense contribute to a reduction in existing sedimentation levels.

The Forest Service is largely ignoring the implications of chronic and increasing sedimentation impact on designated critical habitat for the candy darter. Until the sources, transport, and fate of this existing sedimentation are understood, any conclusions concerning potential additional sedimentation effects of the GSE project, or the degree of protection provided by project design features and mitigation measures, will remain highly uncertain.

Reliance on project design and mitigations to prevent stream sedimentation impact

The Forest Service is required to ensure that proposed action will not cause undue erosion and sedimentation. *See, e.g., Ecology Ctr. v. Austin*, 430 F.3d 1057, 1062 (9th Cir. 2005) (Among the “substantive requirements” of NFMA, “the Forest Service must maintain soil productivity. 16 U.S.C. § 1604(g)(3)(C).”), cert. denied sub. nom. *Mineral County v. Ecology Ctr., Inc.*, 549 U.S. 1111 (2007), overruled on other grounds by *Lands Council v. McNair*, 537 F.3d 981 (9th Cir. 2008); *Friends of the Columbia Gorge, Inc. v. Elicker*, 598 F. Supp. 2d 1136, 1155 (D. Or. 2007) (“NFMA also requires USFS to ensure . . . the productivity of the soil.”).

If the Service relies on the existence of mitigation measures to conclude that impacts will not be significant pursuant to NEPA, it must ensure that the measures are likely to be successful. *See National Parks Conservation Association v. Babbitt*, 241 F.3d 722, 734 (9th Cir. 2001) (“A perfunctory description, or mere listing of mitigation measures, without supporting analytical data, is insufficient to support a finding of no significant impact.”), abrogated on other grounds by *Monsanto Co. v. Geertson Seed Farms*, 561 U.S. 139, 157 (2010). *See also Ohio Valley Envtl. Coal. v. Hurst*, 604 F. Supp. at 901 (“[T]he Corps’ minimal cumulative impacts determination is also faulty under CWA because, like its NEPA cumulative impacts analysis, it is based on the success of a mitigation process whose success is not supported by the Corps’ analysis.”). An agency may not rely on general mitigation measures, without analyzing the efficacy of those measures on site-level impacts. *See Colorado Envtl. Coal. v. Dombeck*, 185 F.3d 1162, 1173 (10th Cir. 1999).

Likewise, under the ESA, proposed mitigation measures 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) (emphasis added).

As described above, chronic erosion and sedimentation is the baseline condition for many streams designated as critical habitat for the candy darter, including streams within the GSE project area. Aquatic ecosystem data collected by the Forest Service indicates that most streams in the MNF are degraded and trending negatively with respect to chronic sedimentation (USDA 2021).

It is routinely observed that roads are the predominant contributor to increased soil erosion and sediment delivery to MNF streams (USDA 2011). Research consistently shows that roads increase erosion and sedimentation more than any other practice associated with forest management (Edwards et al. 2016).

Although sedimentation is a primary cause for historic loss of candy darter populations (USFWS 2018), the Forest Service is proceeding with planning for multiple projects that will require extensive construction and use of roads for timber harvest in watersheds that drain to critical habitat for the candy darter.

In planning the GSE project, the Forest Service failed to examine the connection between existing roads and sedimentation impacts to critical habitat for the candy darter in the project area. Analysis of existing cause-and-effect relationships, which is critical for understanding, predicting, and avoiding sedimentation effects of the project, was not done. The FS concluded that, because of project design features and mitigation measures, sedimentation effects to candy darter individuals, populations or critical habitat would be discountable and insignificant.

The Forest Service has not, however, provided any estimate of change in chronic sedimentation of candy darter habitat that will result due to the project. It has also not identified any level of additional sediment delivery that would result in a non-discountable and significant effect to the candy darter and its habitat. Rather than reaching conclusions based on quantitative analysis, the Forest Service is simply relying on the efficacy of project design features and mitigations to achieve *reductions* in sediment transport and delivery to candy darter habitat.

Although citations are provided that confirm that sediment production and transport associated with timber harvest areas and associated roads can be reduced through project design and mitigation measures, many of the same citations also confirm unreliable and highly variable results. As indicated by many of the citations provided in the Final EA, there is substantial uncertainty concerning the efficacy of available sediment control measures and practices for timber harvest operations on steep slopes.

Reliance on Project Design

As described in the Final EA, the project was designed to limit both production of sediment and delivery of sediment to streams by locating ground-based timber units to avoid steeper slopes and sensitive soils and to maintain distance between the stream network and timber units and associated roads. The GSE project ground-based-timber-harvest units are thus mostly located on ridge tops or midslope positions.

Although distance is a factor, sediment is moved by surface water runoff, and the presence or absence of a hydrologic connection between sediment producing ground disturbance and the surface water drainage network is the primary determinant of sediment delivery to streams (Ramos-Scharrón and LaFevor 2018). For the GSE project ground-based timber units and the estimated 49.1 miles of temporary tractor roads to be constructed for log skidding, there is no intersection with the surface water drainage network as represented by National Hydrography Data. [6][7]

As described in the cited material, however, drainage networks are variable and can be extended both by heavy precipitation and by changes in runoff patterns due to flow concentration and diversion by roads and other disturbed ground (Gucinski et al. 2001; Ramos-Scharrón and LaFevor 2018). As also described in the cited material, most of the sediment transport associated with timber operations occurs during storm-flow events (Kochenderfer and Hornbeck 1999; Orndorf 2017), which is consistent with extension of the drainage network and connection with erodible sediment sources.

In discounting potential sediment delivery to surface waters and downstream candy darter habitat, the Forest Service has failed to account for sediment movement associated with extension of the surface water drainage network due to storm events and hydrologic alteration related to the project.

Reliance on Mitigations

As described in the Final EA, implementation of Best Management Practices (BMPs) during harvest operations is standard procedure for Forest Service timber management. The Forest Service will rely on application of standard BMPs to reduce sediment production and transport for much of the road use, construction, and restoration associated with the project, including for new skid trail decommissioning, for storage of multiple-entry skid trails, and for decommissioning and closure of temporary and reconstructed roads.[8]

Research literature cited in the Final EA indicates that application of BMPs for timber operations and associated roads can reduce sediment production and transport, especially when compared to operations without BMP application (Kochenderfer and Hornbeck 1999, Cristan et al. 2016, Orndorf 2017). As indicated in the cited material, however, BMP performance can vary widely. Edwards and Willard (2010), for example, reported BMP efficiencies ranging from 53 to 94% during harvest and for up to a year after harvest for three forested watersheds in West Virginia, Virginia, and Kentucky. The cited material also indicates that substantial increases in sediment production are unavoidable, even when the most cautious road-building methods are used (Reid and Dunne 1984; Gucinski 2001).

The cited material further indicates that while sediment production can occur throughout the lifespan of a road, it is greatest during road construction and in the first one to two years after construction (Gucinski et al, 2001; Wang et al. 2010; Orndorf 2017). This period of maximum sediment production coincides with road use for timber harvest. Active road use for timber harvest and transport precludes effective use of some of the more-important BMPs for controlling runoff, such as waterbar installation, outsloping, decompaction, mulching, and seeding. Therefore, while standard BMPs can be applied to reduce sediment production and

transport following post-harvest road closure or decommissioning, they have substantially limited utility during periods of road construction and use.

BMPs cannot be relied upon to prevent sediment production and transport during the period when sediment production associated with project roads is the greatest.[9]

Failure to conduct a cumulative effects analysis

Cumulative effects refers to environmental impact that results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Although the Council on Environmental Quality's (CEQ) definition of "cumulative impacts" was removed in the 2020 revisions to CEQ's NEPA regulations, the Forest Service nonetheless retains a duty to consider such impacts. First, that consideration is still required by the Forest Service's NEPA regulations, which have not been modified in response to the 2020 regulations. *See* 36 C.F.R. § 220.4(f). Second, the CEQ has published a revised regulation that reinstates the previous definition of "cumulative impacts," having acknowledged the inadequacy of the 2020 regulations. National Environmental Policy Act Implementing Regulations Revisions, 86 Fed. Reg. 55,757 (Oct. 7, 2021) ("The Council on Environmental Quality (CEQ) is proposing to modify certain aspects of its regulations for implementing the procedural provisions of the National Environmental Policy Act (NEPA) to generally restore regulatory provisions that were in effect for decades before being modified in 2020. CEQ proposes these changes in order to better align the provisions with CEQ's extensive experience implementing NEPA, in particular its perspective on how NEPA can best inform agency decision making, as well as longstanding Federal agency experience and practice, NEPA's statutory text and purpose, including making decisions informed by science, and case law interpreting NEPA's requirements."). Public comment on the proposed regulation ended on November 22, 2021 and the rule could become final at any time. *Id.* Finally, consideration of cumulative impacts is required by the NEPA statute, regardless of whether the term is defined in the CEQ's regulations.

As CEQ explained in its draft rule reinstating the 1978 definition of cumulative impacts:

The 2020 Rule's deletion of the definition of "cumulative impacts" did not exclude reasonably foreseeable effects from consideration merely because they could be categorized as cumulative effects. In responding to comments about potential effects on threatened and endangered species, the preamble to the 2020 Rule explains that "the final rule does not ignore cumulative effects on listed species." CEQ similarly explained in the Final Rule Response to Comments that the 2020 Rule did not automatically exclude from analysis effects falling within the deleted definition of "cumulative impacts."

Id. at 55,764 (footnotes omitted). Consideration of those effects is required because:

Decades of agency practice and CEQ guidance affirm the interpretation that NEPA requires analysis of cumulative effects. For example, in 1997 CEQ noted that cumulative effects analysis is "critical" for the purposes of evaluating project alternatives and developing appropriate mitigation strategies.

CEQ's proposal to reinstate the definition of "cumulative impacts" aligns with longstanding legal precedent interpreting NEPA to require agencies to consider cumulative effects. Even before CEQ issued regulations on cumulative effects, the U.S. Supreme Court had interpreted NEPA to include them. In 1976, the Court held that NEPA requires consideration of cumulative effects "when several proposals . . . that will have *cumulative* or synergistic environmental impact upon a region are pending concurrently before an agency, their environmental consequences must be considered together." *Kleppe v. Sierra Club*, 427 U.S. 390, 410 (1976) (emphasis added by CEQ).

Id. at 55,764–65. *See also id.* at 55,765 ("[C]onsideration of cumulative effects is important in order to fully inform agency decision makers before actions are taken, and effects analysis remains bound by the notion of reasonable foreseeability."). The Forest Service is thus required to consider the impacts of the GSE project cumulatively with the impacts of all past, present, and reasonably foreseeable future actions.

With respect to the candy darter, the appropriate scope for cumulative effects analysis is the geographic extent of designated critical habitat. All parts of the designated critical habitat have been determined to be essential for long-term survival of the species.

At a minimum, reasonably foreseeable future actions include planned Forest Service projects that involve timber harvest and associated road construction and use in watersheds that sustain populations of the candy darter. The Forest Service, however, has thus far failed to conduct a cumulative effects analysis for the GSE project or any of the other planned or proposed projects that may affect the candy darter or its critical habitat.

Figure 4 shows the locations of MNF projects in the pre implementation or implementation phase that may affect designated critical habitat for the candy darter. While these projects differ with respect to project review and ecological sensitivities, they share a common failure to address the issue of existing sedimentation impacts to candy darter habitat. Thus far, the review process for these projects has failed to include an analysis of existing sedimentation impact, has failed to determine what level of additional sedimentation would be significant, and has failed to provide any estimate of potential additional increments of sedimentation that may result due to the projects. These projects instead rely on project design and mitigation measures that, as described above, are unreliable for prevention of sediment production and delivery to streams.

Consideration of potential cumulative effects of multiple Forest Service projects, especially with respect to sedimentation control and continuing degradation of critical habitat, will raise questions concerning Forest Service management policies and the candy darter. Does the Forest Service have a coherent policy for reversing the current chronic sedimentation trend? How much additional sedimentation of candy darter habitat will be deemed acceptable? Preservation of candy darter critical habitat in the MNF will depend on how these and similar questions are addressed.

Citations for the candy darter section of his objection

Cristan, R., W.M. Aust, M.C. Bolding, S.M. Barrett, J.F. Munsell, and E. Schilling. 2016. Effectiveness of forestry best management practices in the United States: Literature review. *Forest Ecology and Management* 360: 133–151.

Edwards, P.J. and K.W.J. Williard. 2010. Efficiencies of Forestry Best Management Practices for Reducing Sediment and Nutrient Losses in the Eastern United States. *Journal of Forestry*. 108(5):245-249.

Edwards, P.J., F. Wood, and R.L. Quinlivan. 2016. Effectiveness of best management practices that have application to forest roads: a literature synthesis. Forest Service Northern Research Station; General Technical Report NRS-163. 180 pp.

Gucinski, H., M.J. Furniss, R.R. Ziemer, and M.H. Brookes. 2001. Forest roads: a synthesis of scientific information. Gen. Tech. Rep. PNWGTR- 509. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 103 pp.

Kochenderfer, J.N., and J.W. Hornbeck. 1999. Contrasting timber harvesting operations illustrate the value of BMPs. in Proc. of 12th Central hardwood forest conf., Stringer, J.W., and D.L. Loftis (eds.). US For. Serv. Gen. Tech. Rep. SRS-24. pp. 128-136.

Orndorff, A. 2017. Evaluating the Effects of Sedimentation from Forest Roads: A Review. Master's Thesis; University of Florida; Soil and Water Science Department. 38 pp.

Ramos-Scharrón, C.E. and M. C. LaFevor. 2018. Effects of forest roads on runoff initiation in low-order ephemeral streams. *Water Resources Research*, 54: 8613–8631.

Reid, L. M., and T. Dunne. 1984. Sediment production from road surfaces, *Water Resources Research*, 20, 1753– 1761.

USDA Forest Service. 2011. Monongahela National Forest Monitoring and Evaluation Report for FY 2010, Monongahela National Forest, Elkins, WV.

USDA Forest Service. 2021. Monongahela National Forest FY 2021-2019 Monitoring Evaluation Report, Monongahela National Forest, Elkins, WV.

U.S. Fish and Wildlife Service. 2018. Species Status Assessment Report for the Candy Darter (*Etheostoma osburni*), Version 1.5. March 2018. Hadley, MA.

Wang, J., P.J. Edwards, and W.A. Goff. 2010. Assessing Changes to In-Stream Turbidity Following Construction of a Forest Road in West Virginia. TMDL 2010 Watershed Management to Improve Water Quality CD-ROM Proceedings 14-17 November 2010, Baltimore, MD USA.

Note: the citations above were cited in the Final EA, except for the two USDA monitoring and evaluation reports.

[1] Cited in this objection as USDA 2011 and USDA 2021.

[2] This is a concern. Many of the important conclusions presented in the Draft EA were based on a Biological Assessment for the project that was not released to the public for more than a year after the close of the public comment period for the Draft EA. In comments on the Draft EA, the WVHC raised this concern and requested that the Forest Service schedule an official comment period to begin after release of the project Biological Assessment to the public. No additional comment period was provided. Commenters would have commented with greater specificity on this issue had the Biological Assessment been available for review prior to the deadline for those comments. Thus, to the extent that the issues identified herein were not raised previously with sufficient specificity, it is because they are partially “based on new information that arose after the opportunities for comment.” *See* 36 C.F.R. s 220.18(c), (d)(6).

[3] The findings of the 2021 monitoring and evaluation report were not described, discussed, or cited in these documents. The referenced-citations listings included as part of these documents or maintained in the Forest Service project record do not include this report.

[4] Fine sediment data were obtained through the MNF Aquatic Ecosystem Unit Inventory program, which obtains a range of physical and biological data on a periodic basis. Data for 136 sites were available for determination of percent fine sediment values. Data for 83 sites were available for determination of change in percent fine sediment values.

[5] Figures are provided in an attachment to this objection.

[6] These roads are correctly identified as *tractor roads*, given that construction will require excavation. Note that these roads are identified as *skid trails* in the Final EA.

[7] National Hydrography Dataset Plus High Resolution (NHD Plus HR).

[8] As identified in the FEA, these standard BMPs include *West Virginia and Forest Service Core BMPs*.

[9] The FS acknowledges that *skid trails* will result in increased soil erosion prior to restoration. (Final EA, page 31)

All Other Issues

This section contains numerous unrelated issues. For the sake of brevity and organization, the issues are presented in a three-column table. The first column contains the issue that we raised in our comments on the Draft EA. The second column contains the Forest Service's response to the issue. The third column contains our objection and our desired resolution. Only issues for which we have an objection are presented here. Other issues that have been resolved or have become moot since we filed our comments on the Draft EA have been omitted.

Original WVHC Comment	Forest Service Response/Changes Since Draft	WVHC Response/Objection Issue
The definitions given for temporary road and skid trail are not consistent with the definitions given in the Forest Service Handbook (FSH) and the Code of Federal Regulations (CFR). According to the FSH 2409.15, the term skid trail applies only to trails that are created by the act of dragging logs over the land surface (i.e., no cut-and-fill to create a travel surface). Skid routes that are created by excavation are defined by the FSH 2409.15 as tractor roads. And the definition of temporary road contained in 36 CFR 212.1 is broad enough that it includes both tractor roads and skid trails. Terms that are clearly defined in the regulations and the handbook cannot be re-defined at the project level. These definitions are important because the regulations and directives require temporary roads to be decommissioned to a watershed-neutral status upon	From response to comments: <i>"In order to provide consistency within the document for features with many different names, we provided definitions for skid trails, temp roads, and roads that would carry through the document and ensure all specialists and readers understood the feature being analyzed. A skid trail is defined in this EA as any route created by clearing and/or excavating to move/skid logs with a skidder/dozer or similar unregistered machine from a cut stump of tree to a timber landing. A temporary road is used by vehicular travel by licensed vehicles to haul timber from a landing to a specified road. A road is used for vehicular travel</i>	Our point still stands. The District Ranger does not have the authority to re-define terms at the project level when those terms already have established definitions in higher level regulations and directives. The official definitions should be used.

completion of use. Therefore, the definitions given in the EA should be revised to be consistent with the existing definitions in the higher level direction.	<i>by registered/licensed vehicles.”</i>	
Forest Plan direction requires a site-specific strategy for mitigating the spread of existing infestations (Standard VE22, Guideline VE24). The general statement about relying on the existing Forest-wide NNIS EA does not satisfy this plan direction. However, in informal communication with us, you said that the Forest Service has already identified the specific sites that need management to prevent the spread of infestations, and that the treatments are already occurring to reduce the infestations as much as possible prior to any disturbance associated with the proposed project. We applaud this approach, and we suggest that the EA be revised to disclose the locations and the treatments so that the project clearly demonstrates compliance with the Forest Plan direction.	From response to comments: <i>“The Forest-wide Nonnative Invasive Plant Management Project EA anticipated newly infested sites would be identified on an ongoing basis and the document established a process for approving treatment of those new sites without preparing a new or updated NEPA document. We have utilized this Review of New Information (RONI) process to add sites within the GSE project area in need of NNIS treatment to this preexisting NEPA document.”</i>	We are pleased that the Forest Service is being proactive in managing invasive plants in the project area. However, to comply with standard VE22 and guideline VE24, a coherent, site-specific management strategy must be presented in writing.
We agree with the measures that are proposed; however, the measures also need to include a stipulation that all equipment will be clean when it first arrives in the project area. This is critical for preventing new infestations due to propagules being brought in from other sites.	From the response to comments: <i>“Equipment would be cleaned prior to arriving at the project area in order to prevent new NNIS infestations.”</i> But the design features and mitigation measures do not include anything related to equipment cleaning. The vegetation section of the proposed action says that equipment would be cleaned after it is used in an infestation, but it says nothing about the	The design criteria and mitigation measures need to include a clearly worded requirement for all equipment to be clean when it shows up at the project site.

	equipment being clean when it shows up at the project site. The NNIS effects analysis assumes that equipment would be clean when it arrives, but nothing in the design features and mitigation measures would require that.	
The analysis of tractor roads and skid trails asserts that the risk of hydrologic impacts is low due to avoidance of the most sensitive areas of the landscape and the proposed post-harvest mitigations. But the rationale consists of just a sentence stating that assertion. No supporting rationale or documentation of the effectiveness of the mitigations is provided. Appendix C (assumptions for skid trail methodology) explains the proposed approach to decommissioning skid roads, but it does not provide any evidentiary support for that approach. The mitigation measures (Appendix B, GSE-1) require partial recontouring of skid roads on slopes >30%, but only decompaction and application of basic best management practices (BMPs) elsewhere. Past Forest Service monitoring has documented the failure of basic BMPs to prevent skid systems from adversely impacting watersheds. Several passages in the draft EA for the Big Rock project discuss this problem in detail (pp. 21, 43-48), and in particular speak to the need for recontouring in addition to	From the response to comments: <i>“Extensive pre-planning interdisciplinary discussions between soil scientists, watershed specialists and timber and engineering staff eliminated ground-based timber harvest from areas with sensitivities to soil and water impairment that could not be mitigated or addressed. The resulting proposed action is in compliance with all Forest Plan standards and guidelines. WV and USFS best management practices would be employed on all skid trails and temporary roads. In addition, the design feature GSE-1 developed by the interdisciplinary team provides for enhanced measures (recontouring) on ground disturbance over 30%, an action which has been employed in the Upper Greenbrier North project through stewardship work through Canaan Valley Institute work. Both formal and informal FS BMP</i>	The response is still just an assertion with no supporting information presented. Therefore, the conclusion of low risk of hydrologic impacts is not supported, and the EA potentially understates the adverse effects of tractor roads and skid trails. The Forest Service should revise the analysis using real-world data on the effectiveness of BMPs.

decompaction. Therefore, the proposed skid system treatments for the Greenbrier Southeast project must be supported by information that demonstrates their effectiveness, or they should be changed to include recontouring throughout the project. Given the presence of the endangered candy darter (and its proposed critical habitat) in the project area, it is especially important to make sure that the skid systems are decommissioned in a manner that renders them truly watershed-neutral for the long term.	<i>monitoring of the effects of road and trail mitigation treatments has documented the effectiveness of these actions to prevent adverse impacts and eliminate soil erosion and stream sedimentation.”</i>	
The discussion of road construction gives almost no project-specific assessment of impacts; it relies instead on broad statements about the effects of road construction in general. We are encouraged by the location of new roads in ridgetop locations, but the analysis still needs to disclose the expected impacts of these particular roads on the particular watersheds in which they are to be constructed.	From the response to comments: <i>“The analysis of effects from road construction used a real world “worst case” scenario to extrapolate the potential effects across the project area and applied that model within the context of slope, aspect, soil type, geology and proximity to stream channels. Rather than rely on conceptual models or broad scale data, evaluating the effects of existing roads in the project area provides a more accurate interpretation of the scope and scale of effects of new roads in the project area. The EA states ‘Existing system roads in the project area provide an opportunity to evaluate potential effects from new system roads within the context of conditions</i>	Again, we are encouraged by the attempt to locate roads away from problem areas and the one example given; however, the analysis needs to address the effects of all proposed road construction on a site-specific basis. Simply noting one case where the proposed construction is located on a better site than the existing portion of the road is not sufficient to establish a conclusion of little or no impact for all road construction sites.

	<i>specific to the area. For example, the proposed FR58 extension which heads north from Smoke Camp Knob, would be expected to present comparable conditions and effects to the existing FR58. A section of FR58 crosses very steep slopes approaching Smoke Camp Knob and is located on a northeast aspect, which is generally wetter. Despite these characteristics, increased evidence of erosion, flow concentration, or altered hydrology were not documented by LiDAR analysis and field visits. Therefore, the proposed extension, which follows much gentler slopes (0-20%) and maintains a western aspect, would be expected to present low risk of effects. These same patterns are observed across this project area in consideration of comparing existing system roads with proposed system roads.’ All new road locations were analyzed within this context relative to the fact that the existing section of FR58 represents a relatively steeper and wetter location than any proposed new road location.”</i>	
Pp. 27-29, Aquatic Regional Forester’s Sensitive Species. For most species the EA asserts that	From the response to comments: “ <i>Since aquatic RFSS in the analysis area</i>	The response still provides no evidentiary support for the conclusion that project

the project design features, BMPs, etc. will eliminate negative impacts. As noted previously, the document does not provide adequate evidentiary support for this assertion. For three species (New River shiner, Kanawha minnow, and Greenbrier River crayfish), The EA notes their occurrence in the project area but provides no discussion at all of potential project effects on the species.	<i>occupy overlapping habitats and impacts in the water are often similar and comprehensively affect all species, the analysis focused on the species with the greatest sensitivity (i.e., brook trout and candy darter) or where there was a variation in a species life history that may make it more susceptible to a specific impact. As indicated in the analysis the primary effects considered were sediment delivery to streams, altered hydrology, and altered stream temperature regimes. Aquatic species in the analysis area occur in consistent longitudinal patterns from the headwaters downstream (i.e., species richness increases as streams increase in size). Brook trout, the only aquatic Management Indicator Species on the Forest, occupy areas further upstream than any of the aquatic RFSS, are equally or more sensitive to sediment and temperature alterations than the RFSS, and would be more responsive to project effects given their closer proximity to the location of proposed actions. Altered hydrology would be expected to influence all aquatic RFSS in a</i>	design features, BMPs, etc. will eliminate negative impacts. The analyses for candy darter and brook trout are cited in the response, but these analyses also provide no evidentiary support for the contention that BMPs, etc. will eliminate impacts. Therefore, the conclusion of no impact to viability is not justified. The Forest Service must provide evidence that the BMPs, design features, and mitigations will prevent negative impacts.
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	<i>relatively comparable manner. A more extensive analysis is provided by the candy darter biological assessment and provides comparative supportive documentation for the effects determination of these three species and all aquatic RFSS found in the more downstream areas of the analysis area. The expected responses to various aquatic stressors related to the project are represented comprehensively by candy darter and brook trout, for which more extensive analyses were completed. No known information associated with New River shiner, Kanawha minnow, or Greenbrier River crayfish life histories indicates any additional sensitivities beyond these analyses. However, these conclusions are added to the determinations for these species in the EA. Due to thorough pre-planning and development of proposed actions by the interdisciplinary team, adherence to the Forest Plan standards and guidelines, and design features and mitigations, effects associated with sedimentation, hydrological alteration, and habitat modification are expected to be discountable and/or insignificant for the New</i>	
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	<i>River shiner, Kanawha minnow, and the Greenbrier River crayfish and are not likely to cause a trend toward federal listing or a loss of viability.”</i>	
The EA states that conventional harvest units (ground-based skidding) would avoid slopes over 50%. But Forest Plan standard SW07 requires special protections on slopes over 40%. With no discussion of activities on slopes over 40%, the EA cannot determine whether the project is in compliance with standard SW07. The clearest way to demonstrate compliance with SW07 is to avoid ground-based yarding on slopes over 40%. If any ground-based yarding is proposed on slopes over 40%, the EA must demonstrate that the methods of operation will maintain soil stability.	From the response to comments: <i>“During project development, the interdisciplinary team reviewed each potential timber for resource sensitivities or concerns. Timber units were eliminated if they had sensitivities that could not be mitigated or addressed. The remaining timber units were reviewed by the interdisciplinary team and found to have relatively low risk or sensitivities that could be mitigated with state BMPs and measures outlined in GSE-1. Some of the proposed timber units do have small, discontinuous areas where slopes are 40-50% or >50%. However, it was determined that these areas could be avoided during implementation. Existing features intersecting steep slopes may be used during project implementation, but application of GSE-1 would result in a long-term gain in soil productivity in those areas.”</i>	Avoidance of ground-based operations on slopes over 40% would demonstrate compliance with standard SW07. However, the project design features and mitigations contain no such commitment. The design features and mitigations section needs to state unequivocally that ground-based operations would be avoided on slopes over 40%.

The EA says, “[j]ust over 400 feet of proposed system road construction intersects slopes greater than 50%. Per Forest Plan Standard SW07, the interdisciplinary team reviewed this proposed activity, made recommendations for the layout and design of the road to minimize soil and water effects, and the line officer approved those recommendations.” The EA does not elaborate on these recommendations, nor are they included with the design features in Appendix B. They need to be made available to the public and included in the EA. The EA also needs to evaluate road construction on slopes over 40% to demonstrate compliance with SW07.	No response/no changes.	The issue remains unaddressed, and the project is not in compliance with standard SW07. The EA needs to evaluate road construction on slopes over 40% and provide documentation of appropriate and effective measures to maintain stability.
The EA states, “[t]he road reconstruction would result in approximately 6.8 acres of short-term detrimental disturbance in steeply sloping terrain.” The EA needs to address how compliance with SW07 will be maintained.	No response/no changes.	Issue remains unaddressed, and the project is not in compliance with standard SW07. The EA needs to evaluate road reconstruction on slopes over 40% and provide documentation of appropriate and effective measures to maintain stability.
The EA says, “[s]oils within the project area that have a higher level of rock fragment than was used to develop the SERA risk assessment models pose a greater risk for mobility than described in the SERA assessments.” This statement implies that impacts of herbicide use in the project area will be greater than the impacts projected by the SERA assessments, which would seem to negate the statement in the previous paragraph that “The risks	From the response to comments: “<i>SERA reports are the best available science. SERA reports acknowledge that risk of nontarget impacts cannot completely be eliminated. Disclosing the specific effects of each type of herbicide at every location proposed would require extensive soil sampling and</i>	The response does not resolve the issue we raised. Regardless of whether the SERA reports represent the best available science, the Forest Service has reason to suspect that the reports understate the true risk of adverse impacts in the project area. Yet the Forest Service still relies on the reports to conclude that adverse off-site impacts would not occur. This

of having herbicides leave the site prior to reaching their half-life and degrading is low according to the risk assessments developed by Syracuse Environmental Research Associates (SERA) for each herbicide (SERA, 2003; SERA, 2004; SERA, 2005; SERA, 2011).” This contradiction needs to be resolved by disclosing the actual expected effects of the herbicide use in the project area. The EA also says, “[t]he effects of herbicides on the soil resource are dependent upon soil properties and environmental conditions.” The actual effects expected on the soils present in the project area need to be disclosed.	<i>analysis that is not feasible. Following manufacturer’s guidelines for application would reduce the risk of nontarget impacts. Herbicide would not be applied to bare soil which would further reduce the risk of nontarget impacts.”</i>	represents a clear error in judgement. At best, the only reasonable conclusion that the Forest Service can reach without additional analysis is that the risk of the herbicides leaving the site and causing adverse impacts is unknown. Therefore, without additional analysis based on actual conditions in the project area, lack of a significant effect cannot be shown. The analysis needs to be updated to include a site-specific estimate of the true magnitude and likelihood of the impacts.
[t]he EA notes that riparian and aquatic habitat enhancement activities have the potential to adversely impact wet soils and soils that are prone to slippage. It then goes on to list several mitigation measures to limit these impacts, but the mitigation measures do not appear in Appendix B. They need to be added to Appendix B to ensure that they are implemented.	<i>From the response to comments: “USFS best management practices would be employed during implementation of the riparian and aquatic enhancement activities to control impacts to soils, which includes actions mentioned in the soils effects analysis (diverting or dewatering streams, using sediment control, timing implementation). As such, there is no need to include these best management practices as an additional mitigation.”</i>	The response does not address the full list of measures listed in the EA. The EA should be edited to clarify that all of these actions are standard mandatory BMPs. If they are not all standard mandatory BMPs, those that are not should appear in Appendix B.
The soils cumulative effects section talks about the impacts of activities on private lands, but it says nothing about the project’s contribution to the cumulative	From response to comments: “<i>On Forest Service lands within the GSE project area, land management and</i>	While the response acknowledges in a qualitative way that the project would contribute to the cumulative effects of

effects of past, present, and reasonably foreseeable future actions. The project's contribution is the <i>raison d'être</i> for the cumulative impacts analysis.	<i>practices have improved since the "big cut" of 1880-1930. Soil quality has been recovering on federal lands but legacy damage to the soil resource remains in some areas (for example, legacy skid roads created by previous land owners). Long-term negative effects of road and trail disturbances would add to the impacts from private lands. Proposed actions, design features, and mitigations included in the GSE project would have lasting beneficial effects into the future, and therefore, would continue to contribute to soil quality improvements within the subwatersheds. Consequently, implementation of proposed watershed restoration activities would help to improve soil quality and productivity in areas of soil disturbance."</i>	soil disturbance throughout the project area, it does not clarify the magnitude of the overall cumulative effect, nor the magnitude of the project's contribution to it. The analysis needs to be revised to remedy these deficiencies.
The only mention of the rusty-patched bumblebee is a line in Table 15, which says that the project would have no effect on the species. The rusty-patched bumblebee appears to have been inappropriately dismissed from the analysis. A maximum entropy-based habitat model has been prepared for this species in the Appalachians. This model suggests that the species has a	From the response to comments: <i>"Based on the most recent map from the USFWS..., the project area only provides historical habitat (5th Tier: Historical RPBB (1950-2000)) in the extreme northwest corner of the project area where no activities are being proposed. No other areas</i>	By neither incorporating nor refuting the study that we referenced, the Forest Service has not shown that they used the best available scientific information. The study needs to be either incorporated or refuted.

high probability of occurrence in the Greenbrier Southeast project area. See Figure 4, p. 16 in: Richardson, L. 2019. Rusty-patched bumble bee inventory, Virginia and West Virginia. Stone Environmental, 23 pp. (copy attached). Due to the high probability of occurrence, the BA and the EA must include an analysis of potential effects on the rusty-patched bumblebee.	<i>of suitable habitat, based on FWS mapping, is within the project area.”</i>	
The EA states, “[a]lthough transient bald eagles could frequent the project area, there are no documented instances of nesting.” The EA does not address whether adequate survey work has been done to establish the absence of nesting bald eagles in the project area.	From the response to comments: <i>“Monitoring of nesting bald eagles is conducted by the West Virginia Division of Natural Resources through coordination with the U.S. Fish and Wildlife Service. There are no known raptor nests in or near areas proposed for management.”</i>	The response does not address the issue of whether adequate survey work has been done to establish absence. Apparently no such surveys have been done, so the analysis must assume presence of nesting bald eagles where suitable habitat exists. Potential effects must be disclosed, and the viability determination must be based on those potential effects.
Tables 17, 18, and 19 present good summaries of potential impacts to sensitive species, but by themselves they are merely a series of conclusory statements. The statements need to be supported by citations and evidence, and the underlying analysis needs to be made available to the public.	From the response to comments: <i>“The summary tables represents a risk assessment as to how the proposed actions could impact the various RFSS. This information was then carried over to the cumulative effects analysis to ensure that the proposed action would not cause a loss of viability at the Forest level or lead to federal listing for any RFSS.”</i>	The response does not provide any supporting information for the conclusions in Tables 17, 18, and 19. Each conclusion needs to be supported by evidence and a logical rationale.
The cumulative effects section says, “[u]nder the action alternative, the potential for direct and indirect effects to wildlife	From the response to comments: <i>“The amount of potential habitat across the Forest was</i>	The response may suffice for justifying the estimate of the Forest-wide amount of habitat for each RFSS.

RFSS is so small it is considered discountable.” But the preceding analysis of direct and indirect effects did not provide any evidence to support this statement; it just made a series of conclusory statements. The cumulative effects section also says, “[w]ith a few minor exceptions that could improve habitat, no ongoing or reasonably foreseeable future Forest Service actions would impact known occurrences of the impacted RFSS.” The only support offered for this statement appears a few lines later: “In addition to potential habitat for the RFSS in the project area, all other species have potential habitat with known occurrences in locations scattered across the Forest (USFS unpublished data). None of these occurrences are expected to be impacted in the foreseeable future.” It appears that these are just conclusory statements, and that no attempt was made to determine the potential effects of the many ongoing and reasonably foreseeable Forest Service actions, not to mention the actions of other entities, within the MNF proclamation boundary. Without seeing the unpublished analysis that is referenced, it is difficult to believe that none of those actions have any potential to affect the sensitive species that are considered in this EA. “[t]he amount of NFS lands within the project area, regardless of habitat type and whether any activities are proposed, constitutes less than 5% of the available	<i>summarized for each RFSS analyzed for this project [link omitted] to determine the amount of habitat potentially affected by this project. The cumulative effects analysis for RFSS relied heavily upon the WVDNR State Wildlife Action Plan (SWAP). The WVDNR 2015 State Wildlife Action Plan and associated West Virginia Terrestrial Habitat Map were used where applicable to estimate the amount of potential habitat across the Monongahela National Forest for the various RFSS [link omitted]. This SWAP map is considered a broad-scale conceptual model for the entire state. Therefore, while helpful in quantifying potential habitat at the scale of the Monongahela National Forest, it is not an accurate tool in conducting an effects analysis at the project level.”</i>	However, the response presented no information to justify the unsupported conclusions regarding discountable direct and indirect effects at the project level. The response also provided no justification for the statement that ongoing and reasonably foreseeable actions on the Forest would not impact RFSS wildlife. Therefore, the conclusions regarding effects on RFSS wildlife remain unsupported. The analysis needs to present evidence to demonstrate the actual direct, indirect, and cumulative effects.
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habitat for all RFSS analyzed except for the Appalachian cottontail, southern bog lemming and the geometrid moth.” The analysis that determined the amount of available habitat for RFSS across the Forest needs to be made available to the public. The analysis relies on the fact that the project would affect small percentages of the total available habitat. However, it does not disclose the percentage that would be affected by other ongoing and proposed activities, or whether the cumulative effect of all these activities would have an appreciable effect on populations.		
The EA says, “[t]here is no documentation of WVNFS occupancy (especially females with young) in areas proposed for spruce commercial restoration.” The EA should address whether adequate survey work has been done to establish the absence of WVNFS occupancy in areas proposed for spruce commercial restoration.	From the response to comments: <i>“Mapping of suitable WVNFS habitat and the effects analysis followed the same principles used for previous projects on the Greenbrier Ranger District over the last ten years (i.e. Upper Greenbrier North, Mower, Beulah, etc.). The map of suitable habitat includes all areas where WVNFS have been documented, all habitat comparable and connected to known occupied habitat and all areas of potential habitat based upon the presence of red spruce and the adjacent northern hardwood forest. Our WVNFS mapping efforts and associated management activities were recognized as supporting recovery for</i>	The response does not address the issue of whether adequate survey work has been done to establish absence. All of the commercial spruce restoration would occur in suitable habitat, and the definition of suitable habitat includes the presumption that it is occupied. No information has been presented to support the conclusion that females with young would not be present. Therefore, the project should include mitigation measures to reduce the likelihood that females and their young would be impacted.

	<i>the WVNFS in the FWS' Post De-listing Monitoring (PDLM) 5 Year Report [link omitted].</i> <i>Additionally, the Forest is just finishing implementation of our first Stewardship Agreement with The Nature Conservancy (TNC) to implement commercial spruce restoration in the Upper Greenbrier North project area and is finalizing plans for a second Stewardship Agreement. Pages 19-21 of the FWS PDLM 5 Year Report provides a summary and supporting documentation that current (and future) efforts, similar to what is proposed for this project, supports recovery of this species. Additionally, design feature GSE-7 includes riparian treatments."</i>	
Pp. 49-50, Table 21 (design features for WVNFS). The footnote says that these measures have been incorporated into the either the proposed action or the list of design features and mitigation measures in Appendix B. However, they are not included as written in Table 21. Specific issues include: • The design feature for protection of WVNFS in commercial spruce restoration units does not appear in either the proposed action or Appendix B. Also, the	From the response to comments: <i>"Mapping of suitable WVNFS habitat and the effects analysis followed the same principles used for previous projects on the Greenbrier Ranger District over the last ten years (i.e. Upper Greenbrier North, Mower, Beulah, etc.). The map of suitable habitat includes all areas where WVNFS have been documented, all habitat comparable and connected to known</i>	Wording in the design features and proposed action section does not precisely match the wording in Table 21, which presents the potential for confusion, but the basic concepts are mostly covered. However, the issue of only including the research component "if funding and resources allow" remains. This arrangement does not comply with standard TE64. The Forest Service should

research component will only be done “if funding and resources allow.” This is not a firm commitment to do the research, and therefore it does not meet the research requirement specified in Forest Plan standard TE64. • The design feature for protection of WVNFS in riparian treatment areas does not appear in either the proposed action or Appendix B. To avoid confusion and contradiction, we strongly recommend that all design features and mitigation measures for all resource areas be collected in one place, preferably in a table that appears in the proposed action section of the EA.	<i>occupied habitat and all areas of potential habitat based upon the presence of red spruce and the adjacent northern hardwood forest. Our WVNFS mapping efforts and associated management activities were recognized as supporting recovery for the WVNFS in the FWS’ Post De-listing Monitoring (PDLM) 5 Year Report [link omitted]. Additionally, the Forest is just finishing implementation of our first Stewardship Agreement with The Nature Conservancy (TNC) to implement commercial spruce restoration in the Upper Greenbrier North project area and is finalizing plans for a second Stewardship Agreement. Pages 19-21 of the FWS PDLM 5 Year Report provides a summary and supporting documentation that current (and future) efforts, similar to what is proposed for this project, supports recovery of this species. Additionally, design feature GSE-7 includes riparian treatments.”</i>	make a firm commitment to the research.
The footnote on p. 51 says, “[a]lthough all areas proposed for soil restoration activities on legacy features and non-commercial mulching of young stands have not been surveyed,	From the response to comments: “<i>This contradiction in botany surveys has been corrected in the final EA design feature GSE-4.</i>	Although the issue of survey timing has been resolved, the issue of post-decisional design of protection measures has not been resolved. GSE-4 does

surveys would be conducted after issuance of a NEPA decision but prior to implementation. If any TES plants are found in post-decisional surveys, locations would be avoided.” This statement partially contradicts the design feature for postdecisional surveys that is included in Appendix B. The design feature in Appendix B says it would apply to timber units and road construction areas, which suggests that not all such areas of major disturbance have been surveyed. The footnote and text on p. 51 seem to indicate that all timber units have been surveyed. Also, the footnote appears to commit to total avoidance of impact, whereas the design feature in Appendix B allows for translocation, and appears to leave the protection measures very open-ended. Surveys of all areas of major disturbance (including timber units and road construction/reconstruction areas) need to be subject to pre-decisional surveys, because it is unlikely that such features would be re-designed to completely avoid sensitive plants. In the absence of such pre-decisional surveys, the NEPA analysis cannot disclose the true impacts to sensitive plants. For activities where complete avoidance is possible, post-decisional surveys could be done, but only if paired with a solid commitment to completely avoid adverse impacts. If they do not commit to complete avoidance, then the NEPA analysis is underestimating the impact. Based on a recent	<i>As of release of the final EA, all botany surveys have been completed. Botany survey transects in 2019 and 2020 totaled over 265 miles. Surveys covered representative habitats in all parts of the activity areas, with the goal of traversing 100 linear feet per acre of activity area on average. Additionally, past surveys and data from the West Virginia Division of Natural Resources’ Natural Heritage program were utilized. With the exception of the 2019 documented occurrence of running buffalo clover that is adequately addressed in the biological assessment, no federally-listed threatened or endangered plant species were identified in areas proposed for disturbance. 2020 botany surveys resulted in no new occurrences of federally-listed species and one new location of RFSS (Roan Mountain sedge). This new location of RMS is located in a unit proposed for soil restoration and would be avoided”</i>	not commit to total avoidance of impact, and it does not say how much impact would be allowed. Therefore, the NEPA analysis and the effect determinations for RFSS plants may be understating the true impacts. GSE-4 needs to be revised such that the amount of impact to be allowed is clear, and the effects analysis needs to be revised based on the amount of impact to be allowed.
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conversation with you, it appears that all areas proposed for major disturbance have been surveyed, and the post decisional surveys would apply only to some mulcher units and linear features that would be subject to soil restoration activities. Further, you suggested in the conversation that any new RFSS plant occurrences that are found by post-decisional surveys would be avoided. In that case, it appears that the design feature in Appendix B needs to be revised to conform with the language on p. 51.		
The EA says, “NNIS are likely to increase overall as a result of the proposed action; however, planned targeted treatments of NNIS in the project area through the NNIS ForestWide EA should help to reduce the impacts of NNIS proliferation and the possible impacts to TE plants.” As previously noted, Forest plan direction requires a project-specific/site-specific strategy for mapping and controlling NNIS that may be spread by project activities. Also as previously noted, it appears that such site-specific management has been planned and is already occurring, in which case the management just needs to be explained in the EA.	From response to comments: <i>“The Forest-wide Nonnative Invasive Plant Management Project EA anticipated newly infested sites would be identified on an ongoing basis and the document established a process for approving treatment of those new sites without preparing a new or updated NEPA document. We have utilized this Review of New Information (RONI) process to add sites within the GSE project area in need of NNIS treatment to this preexisting NEPA document.”</i>	To maintain compliance with Forest Plan Standard VE22 and Guideline VE24, the EA needs to include a project-specific/site-specific NNIS management strategy, and the Decision Notice needs to commit to implementing that strategy.
P. 54-55, Table 24, summary of effects on RFSS plants. This table presents a good summary of possible effects on the sensitive plants with isolated occurrences in activity areas. However, it is just a summary, and its conclusions are	From the response to comments: <i>“The following buffers would be implemented: 50 foot radius buffer of no activity around 2 occurrences of</i>	The response would appear to resolve the issue. However, the buffers specified in the response need to be incorporated into the design features and mitigation measures in

not supported by rationale and citations. Presumably the BE contains such rationale and citations, so it needs to be available to the public. Also, the avoidance measures described in this table are too general to be of any use in making determinations of minimal or no adverse impacts. We have no way of knowing what exactly will happen and whether it will be effective. Specific criteria (buffer distances, methods, etc.) need to be discussed, along with information demonstrating the effectiveness of the measures.	<i>butternut; 40 foot radius buffer of no activity around the occurrence of white alumroot; 40 foot radius buffer of no activity around 2 occurrences of Appalachian oak fern.”</i>	Appendix B to ensure that they are implemented.
P. 59-60, design features for NNIS. The EA says, “[t]he risks posed by commercial timber harvest would be reduced by project design features built into the proposed action, which include controlling existing infestations in and near activity areas before, during, and after harvest, control of new or expanded infestations, cleaning equipment off-site prior to use, and use of low-risk seed and mulch sources” The design features currently do not include any of these measures. The proposed action does include use of low-risk seed and mulch sources, but it does not include cleaning of equipment prior to arrival on site, and it does not include a strategy for identifying and controlling infestations before, during, and after harvest (as required by Forest Plan direction). All of these measures need to be included in a consolidated list of design criteria. The EA also says, “[s]ite preparation likely would not	From the response to comments: “<i>NNIS infestations throughout the project area are being addressed under the Forestwide NNIS NEPA analysis and associated Record of New Information (RONI) analyses. Furthermore, Forest Plan VE22 states that “Projects that may contribute to the spread or establishment of noxious weeds shall be designed to include measures to reduce the potential for spread and establishment of noxious weed infestations.” These measures have been incorporated into this project. Known NNIS infestations are already being treated within the project area, with priority given to areas proposed for management. Equipment would be cleaned prior to arriving</i>	Although the Forest Service asserts in its response that equipment would be cleaned prior to arrival, such a requirement is not currently included in the proposed action or the design features and mitigation measures. The equipment cleaning stipulation contained in the proposed action (page 9) is worded such that it only applies to equipment that is already in use on the site. To comply with VE22, either the proposed action or the design features and mitigation measures (or both) need to contain a clearly worded requirement that equipment would be clean when it first arrives on National Forest land.

completely eradicate existing infestations because it would not include follow-up monitoring and treatment. Site preparation activities also may present some risk of spreading invasive plants due to the use of spray vehicles for broadcast herbicide application. However, such vehicles are required by project design features to be clean when they arrive at the project site, therefore the risk is reduced.” Currently there is no such requirement included in the project design (but it should be included, of course).	<i>at the project area in order to prevent new NNIS infestations. Any future NNIS plant populations that occur within the project area would be handled under the Forest-wide NNIS EA.”</i>	
P. 66, assessment of compliance with Forest Plan Standard 6122. “[t]he Forest Plan provides in Standard 6122 that no more than 40% of forested NFS within each 6.1 MP area unit shall be harvested over a ten-year period. This project area is contained within a MP area unit that consists of 171,579 acres and runs southwest through the Marlinton and White Sulphur Springs Ranger Districts. This project proposes to harvest 1% of the acreage within the 6.1 MP unit.” This is an incorrect interpretation of standard 6122. The standard applies to “each 6.1 prescription area unit.” The Forest Plan glossary defines a prescription area unit as “A mapped block of NFS lands that has a single management prescription (MP). For example, each of the 5 wilderness areas on the Forest is a separate prescription area unit for MP 5.0.” The mapped block of MP 6.1 in the project area does not extend into the Marlinton-	From the response to comments: <i>“The definition of a ‘prescription area unit’ was clarified during the objection process for the Panther Ridge EA. A letter to the objectors of the Panther Ridge project dated November 21, 2019 from the Forest Supervisor, Shawn Cochran, provided instructions related to road density calculations in the correct prescription area unit. The prescription area unit that contains the GSE project area is one of 10 mapped MP 6.1 units on the Forest, and includes the MP 6.1 area to the south of GSE that extends into the Marlinton-White Sulphur Ranger District.”</i>	We are aware of the way the Forest Service handled this issue when it responded to the Panther Ridge objection. This issue has never been addressed in a court of law, so we consider it unsettled. We contend that the Forest Service is not following the plain language of the prescription area unit definition found in the Forest Plan glossary, which clearly refers to an individual map polygon, not a combination of polygons. To maintain compliance with standard 6122, the Forest Service must evaluate the total amount of harvest over a 10-year period in each MP 6.1 map polygon.

White Sulphur District. It is a small block that does not extend far beyond the project boundary. The calculation should be revised using the appropriate prescription area unit.		
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Thank you for your consideration of this objection. We hope that the issues we have raised can be resolved in a timely manner, and that an improved version of the project can move forward. Should you have questions concerning this objection, please do not hesitate to contact me.

Sincerely,



Larry V. Thomas, President
P. O. Box 194
Circleville, WV 26804-0194
larryvthomas@aol.com
304-567-2602

West Virginia Highlands Conservancy

Objection to Greenbrier Southeast Project: Figures

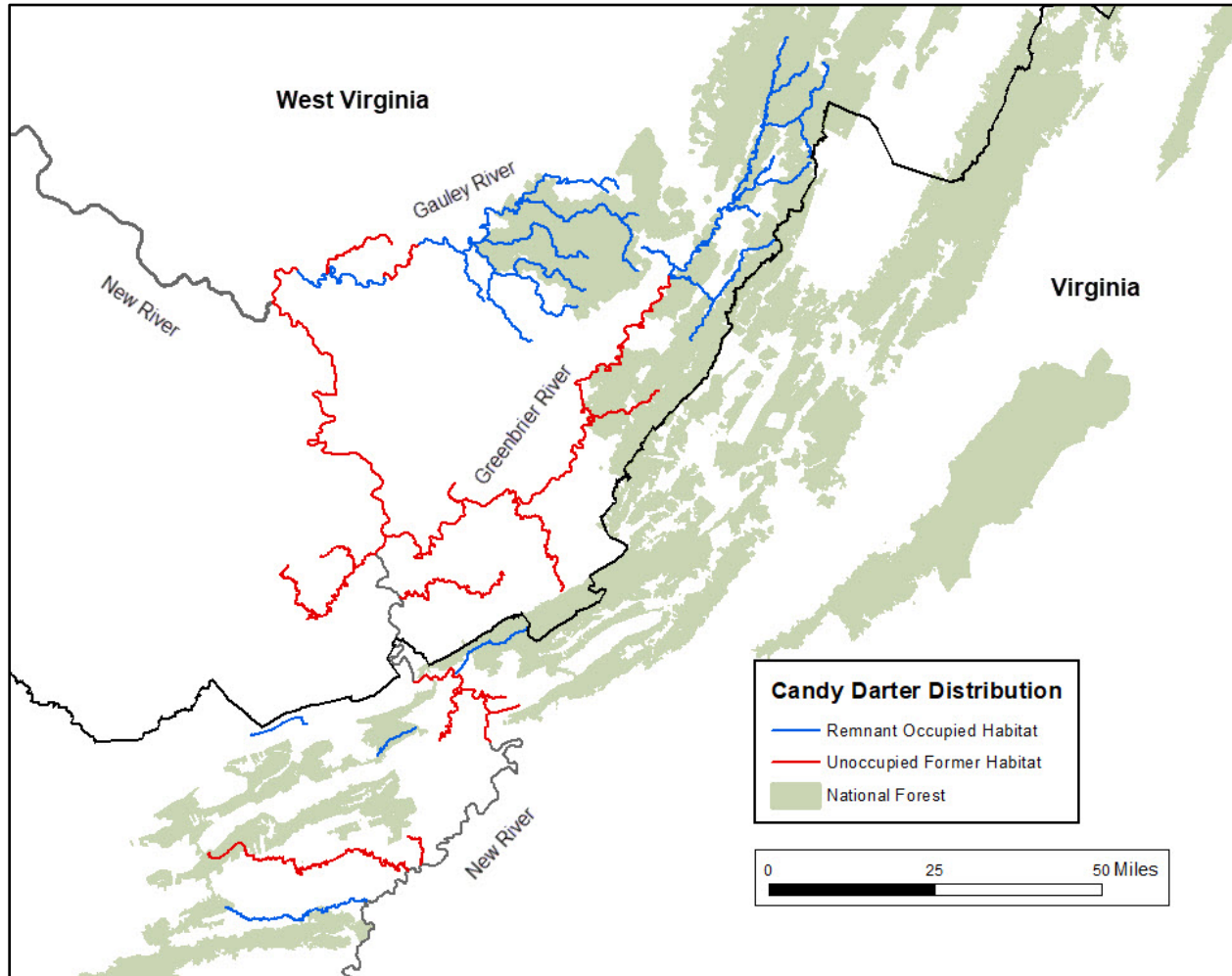


Figure 1- Historic and current distribution of the candy darter in relation to the Monongahela National Forest in West Virginia and the George Washington-Jefferson National Forest in Virginia.

Information source:

Candy Darter distribution data were obtained from the U.S. Fish and Wildlife Service, West Virginia Field Office, 7/13/20.

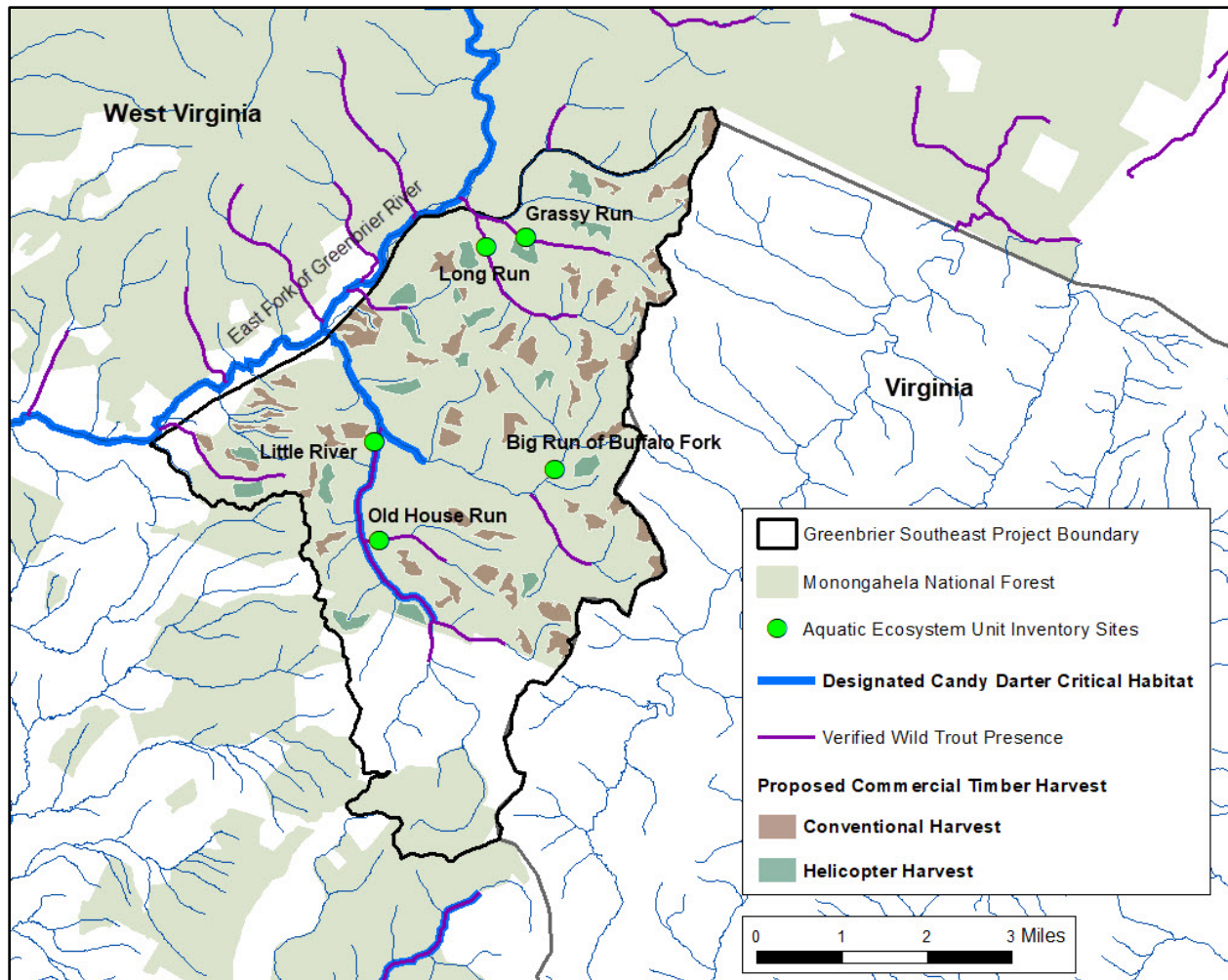


Figure 2 – Location of Aquatic Ecosystem Unit Inventory sites in the Greenbrier Southeast project area.

Information sources:

Project data were obtained from Monongahela National Forest Schedule of Proposed Actions, September 2021.

Candy Darter Critical Habitat data were obtained from U.S. Fish and Wildlife Service, West Virginia Field Office, 5/21/2021.

Wild trout presence data were obtained from West Virginia Department of Natural Resources, March 2020.

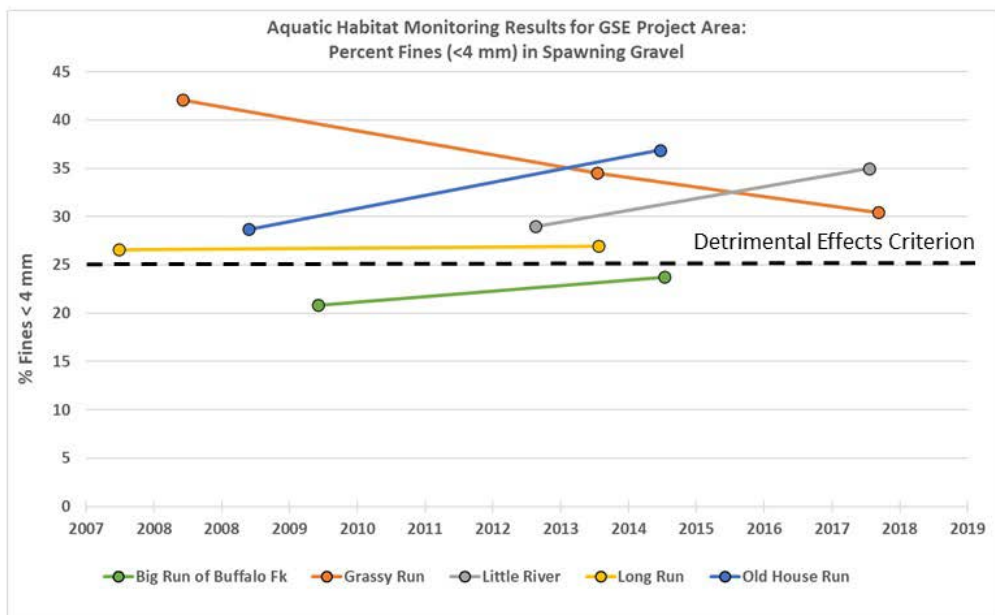
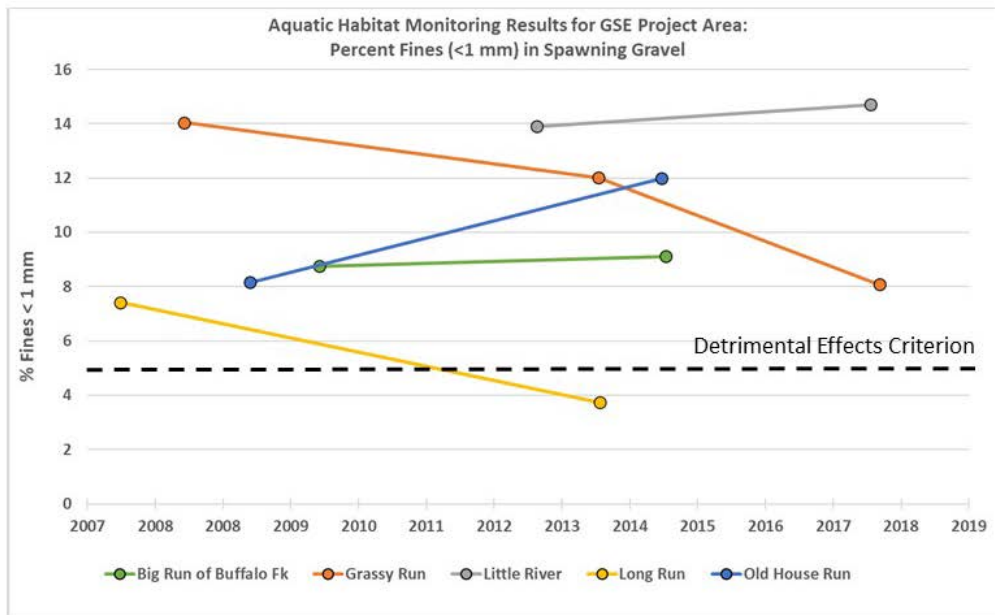


Figure 3 - Percent fine sediment values for Aquatic Ecosystem Unit Inventory (AEUI) program sites in the Greenbrier Southeast project area – shown in relation to detrimental effects criteria for coldwater fish.

Information sources:

AEUI data for the Greenbrier Southeast project area were obtained from the Monongahela National Forest, 10/13/21.

Detrimental effects criteria are based on analysis in the Monongahela National Forest Fiscal Year 2007-2019 Monitoring Evaluation Report (USDA, 2021).

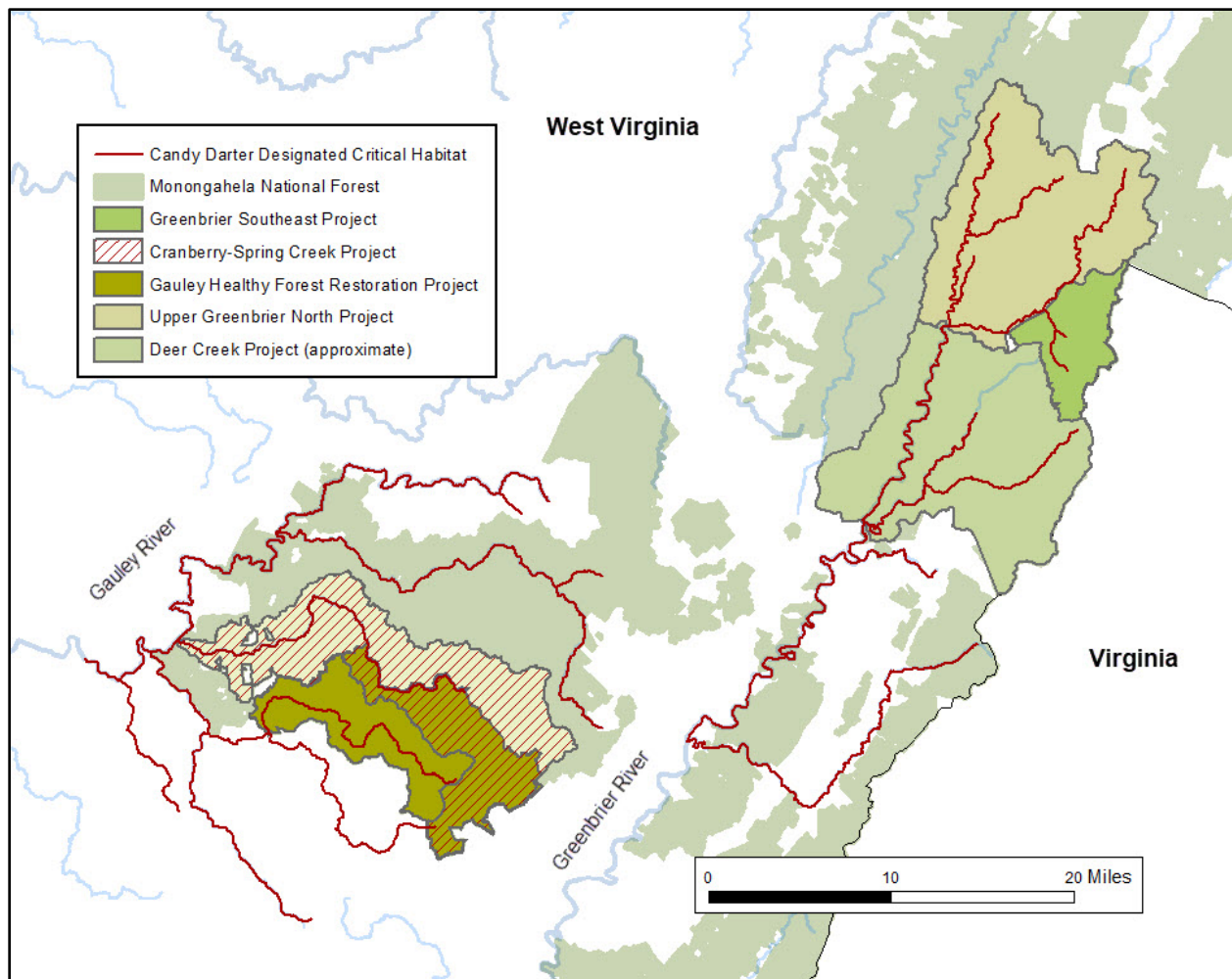


Figure 4 - Monongahela National Forest management projects including designated critical habitat for the candy darter.

Projects in the pre implementation phase include the Greenbrier Southeast, Gauley Healthy Forest Restoration, Cranberry-Spring Creek, and Deer Creek. One project is in the implementation phase, the Upper Greenbrier North. One additional project in the George Washington-Jefferson National Forest, not shown, is in the implementation phase, the Dismal Creek work area of the Great Eastern Divide Insect and Disease Control project.

Information sources:

Project boundary data were obtained from Monongahela National Forest Schedule of Proposed Actions, September 2021, and other National Forest sources.

Candy Darter Critical Habitat data were obtained from U.S. Fish and Wildlife Service, West Virginia Field Office, 5/21/2021.