

File Code: 4000
Date: November 1, 2022

Ben Wudtke, Executive Director BHFRA
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1800 Glenarm Place, Ste.500
Denver, CO 80202

Dear Mr. Holsinger and Mr. Wudtke:

This letter provides our determination in response to your Request for Reconsideration submitted on April 29th, 2022, to the U.S. Forest Service relating to:

Graham, Russell T.; Battaglia, Mike A.; Jain, Theresa B. 2021. *A scenario-based assessment to inform sustainable ponderosa pine timber harvest on the Black Hills National Forest*. Gen. Tech. Rep. **RMRS-GTR-422**. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 61 p. February 2021.

Your Request for Reconsideration was submitted on April 29th, 2022, in accordance with the Data Quality Act (DQA); Public Law 106-554-515 and the USDA Information Quality (IQ) Guidelines. According to USDA Information Quality Guidelines, the review of your Request for Reconsideration was based on the explanation and evidence you provided. For this Request for Reconsideration, the Forest Service Data Quality Official established an independent, four-person panel.

The panel was charged to determine whether the initial agency review of the Request for Correction was conducted with due diligence. The panel reviewed your request for conformity to both Office of Management and Budget (OMB) and USDA Information Quality Guidelines. Panelists examined the original request, response document, information provided by the USDA Forest Service and USDA Websites, and the information provided in your Request for Reconsideration. Panel members were comprised of three timber and statistical modeling experts from the Bureau of Land Management (BLM), and one research forester from the Forest Service (FS) in order to formulate an independent review.

The independent reconsideration panel carefully reviewed your request and found seven claims in your Reconsideration Request that fall within the scope of the Data Quality Act. Of those seven claims, the panel determined several claims were interconnected or related. Below you will find an outline of the claims (some combined for clarity), the panel reasoning for accepting or finding unsubstantiated the claims, and any corrective actions needed.

Of the 7 claims, the panel finds that claims 1, 2 and 7 were substantiated as not adequately addressed in the initial response.

Claims 1 and 2 (combined for clarity):

“In replying to what is labeled Correction Request 1.3...the (RMRS) Reply continues to miss critically important information regarding available acres and timber resources” (RFR, p. 4, para 2). In particular,



“... (the RMRS) Reply continues to look past the issue of timber resources available for harvest outside the suited base on acres not statutorily or otherwise withdrawn from harvest” (RFR, page 4, paragraph 3). AND “The reply to Correction Request 1.4 is also related to this issue (of not accounting for timber available for harvest outside the suitable base) and attempts to address concerns about disregarding the potential for the suited base to change in the current or future revision processes” (RFR, page 5, paragraph 2). “The Reply (to Correction Request 1.4) continues to disregard timber resources available for harvest outside the suited base and instead relies on a disclaimer to continue monitoring for mortality and growth rates instead of acknowledging other available timber resources or potential changes in suited base” (RFR, p. 6, paragraph 1).

The panel found that claims 1 and 2 were related and substantiated. Claims 1 and 2 were not adequately addressed in the request for correction reply. The panel submitted an information request to the Rocky Mountain Research Station (RMRS) seeking clarification and further information related to claims 1 and 2. In response to the Panel’s request, the RMRS authors replied to the panel with the following explanation for why they did not include timber resources outside the suitable base in their sustained yield calculations:

“The GTR-422 only considered suitable timberlands as defined by the FIA analysis.”

“Since the BHNF has not revised the Forest Plan developed in 1997 and amended in 2006, the 2012 Planning Rule and the ‘Sustained Yield Limit’ as is defined in the 2012 planning rule does not yet apply. Once the Forest Plan is officially revised and the decision is signed, then the Sustained Yield Limit will apply. Based on this, the authors utilized the ‘Allowable Sale Quantity (ASQ)’ definition of lands that may be used to count toward meeting ASQ. These lands include suitable and available timber lands (identified in Appendix G of the Black Hills Forest Plan). According to the Black Hills Forest Plan Phase II Amendment (page I-15; Objective 304.) “On lands not identified as suitable and available for timber harvest, timber volume may be offered as a by-product of other vegetation management objectives. This volume would be offered in addition to the ASQ.”

“Timber on the acres that are assumed to be unsuitable timberland were not used in the sustainable timber supply model and analysis in the GTR because by definition of the current Forest Plan it would not be appropriate to include volume from these lands to determine the Allowable Sale Quantity.”

The panel found that these responses are critical to understanding the information in the GTR because the authors did not clearly define their meaning of the term “sustainable harvest,” which is used in the title and throughout the GTR. Further, while the panel acknowledges that the land area definitions used in the GTR are included in the last two paragraphs of Appendix A, the authors did not include those definitions in the body of the GTR and did not describe methods used to define and identify suitable timberlands. In the view of the panel, the ambiguity of the terms “sustainable harvest” and “suitable timberland” is a significant source of confusion that reduces the GTR’s utility and clarity. The panel has determined that RMRS must make the following corrections in either a GTR revision or a public addendum:

1. The authors need to define what they mean by sustainable harvest of ponderosa pine and relate what they mean to the definitions of “sustainable forest management”, “sustained yield”, “long-term sustained yield”, and “sustained yield limit” which are described in Box 2 of the GTR. The authors need to state that the scope of the analysis is limited to sustained yield of ponderosa pine from suitable timberlands (similar to the definition of long term sustained yield in Box 2) rather than to sustainable forest management more broadly (Box 2) or the sustained yield limit as defined by the 2012 Planning Rule (Box 2). These corrections are necessary to ensure that readers clearly understand the scope of the analysis and applicability of the conclusions.
2. The authors need to state that the analysis only considered suitable timberlands as defined by the NRS-FIA analysis, which differs from estimates of suitable timberlands in the 1997 Forest Plan Revision Phase II and FS Veg Inventory estimates. Further, the authors need to include a table that accounts for all of the acres in the Black Hills National Forest, summarizing how they were categorized for this analysis to arrive at the current estimate of suitable timberlands. Because the analysis in the GTR evaluates a harvest level of 181,000 CCF/yr from the current BBNF Forest Plan, the authors need to explain the differences in assumptions (i.e., species, suitable timberland, standing live volume, timber harvest model) used in the GTR compared with corresponding assumptions used to calculate the 181,000 CCF/yr harvest level in the current BBNF Forest Plan.

The panel will leave the correction action and timeline to the discretion of the Forest Service Deputy Chief of Research and Development.

Claim 7 (Parts A-D)

- A. “...the (RMRS) Reply does not address issue number 5 in the Request (for correction),” (RFR, p. 14, paragraph 2). In the RFR, the specific text quoted from Issue number 5 raises concerns that: “the GTR only reviewed timber resources on approximately 60 percent of the acres used for the 1999 estimate” (Reference: RFR, p. 14, para. 3),

The panel found that Claim 7 Part A was substantiated. Claim 7 Part A was not addressed in the request for correction reply. The panel submitted an information request to the Rocky Mountain Research Station (RMRS) seeking clarification and further information related to claim 7. In response to the Panel’s request to the RMRS for further information, the RMRS authors replied to the panel with the following:

“In response to ‘the GTR only reviewed timber resources on approximately 60% of the acres used for the 1999 estimate’, the GTR authors made it clear in the footnote in table 4 for the 1999 data that ‘Estimates are for ponderosa pine on forest land within the Black Hills National Forest including South Dakota and Wyoming. These estimates included values from all forest lands administered by the Black Hills National Forest, including reserved lands, which make up 1% of the total land base. Area of total forest lands for the National Forest was 1,150,627 acres, but it was not clear which lands were classified as suitable timberland (DeBlander 2002).’ “

“In the GTR, comparisons of the 1999 standing live volume estimates of 15,353,000 CCF on 1,150,637 acres to the 2011 standing live volume estimates of 13,477,960 CCF on 1,150,627

acres are likely ‘apples to apples’. The GTR authors did report the standing live volume estimates for ponderosa pine >5+” d.b.h. of 9,050,031 CCF for 2017 and 7,958,314 CCF for 2019 for the suitable timberland acres of 765,733 acres, which as the BHFRA pointed out is not ‘apples to apples’. Additional analysis based on the BHFRA comment that would be ‘apples to apples’ would be to report standing live volume for all timberlands. These numbers for 2019 would be 11,544,243 CCF on 1,062,776 acres as shown in Table B below. ““On page 25 of the GTR-422, the last sentence in the paragraph reads, ‘*In 2017 and 2019, while mortality was at the highest levels and net growth was at its lowest levels in decades, harvesting exceeded net growth and resulted in net change of -2.87% and -3.08%, respectively, and a substantial decrease in merchantable standing live volume to 7,958,314 CCF of trees \geq 5 inches d.b.h. across the BHNF (table 4; fig.11)*’. **For better clarity, the authors could have either used the value 11,544,243 CCF or kept the 7,958,314 CCF value and added ‘on the suitable timberlands’ to the end of the sentence.** “

Table B: Merchantable volume of ponderosa pine trees (>5 inches d.b.h.), in CCF, on timberland of the Black Hills National Forest for 1999, 2011, and 2019a. Values for 2019b are for suitable timberland on the Black Hills National Forest.

Date	Standing live volume (CCF)	Acres	CCF/acre	% Decrease since 1999
1999	15,353,000	1,150,627	13.3	
2011	13,477,960	1,135,200	11.9	11.0
2019a	11,544,243	1,062,776	10.9	18.6
2019b	7,958,314	765,734	10.4	22.1

“The analysis in the GTR only covered the suitable timber base and had an assumption that all those acres were available. However, that assumption does not account for the amount of volume that cannot be harvested, even if on suitable timberlands due to other factors such as Forest Plan direction for habitat structural stage distribution objectives for the suitable base as described in the **Black Hills National Forest and Underhill (2021) Assessment of the National Forest Advisory Board Timber Program Recommendation**¹ on pages 7 to 9. “

“In that analysis, it was estimated that 40-50% of the Net Annual Growth is not available for harvest per the Forest Plan structural stage distribution objectives. So, the estimates within GTR-422 may underestimate the available volume harvest if the Forest Plan direction is incorporated. The Black Hills National Forest and Underhill (2021) assessment suggests based on their scenarios “*a realistic sustainable timber program level falls within a range of 65,000 - 93,500 CCF/year (not including additional volume sources).*” More information on those scenarios can be found on page 11 of that assessment under Section 7: Sustainable program calculations. “

¹ https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd949571.pdf

- B. “the GTR does not include the same footnotes for figure 11 which graphs the information in table 4” (Reference: RFR, p. 14, para. 4),

The panel found that Claim 7 Part B was substantiated. Claims 7 Part B was not addressed in the request for correction reply. In response to the Panel’s request to the RMRS for further information, the RMRS authors replied to the panel with the following:

“Figure 11 on page 32 of the GTR is a graphical representation of the information provided in tabular form in Table 4 on page 31. The caption for Figure 11, reproduced below with emphasis added (highlighted **in bold underline**), already references Table 4 of the GTR which were located on the previous page.”

“**Figure 11**—Gross growth, mortality, net growth, harvest, and standing inventory for trees > 5 inches d.b.h. (**table 4**) for several measurement periods from 1962 to 2019.”

- C. “the GTR does not include any substantive in-text discussion of the differences in land area or what impact they may have on proper interpretation or application of the information in [figure 11].” (Reference: RFR, pp. 14-15, para. 4), and

The panel found that Claim 7 Part C was substantiated. Claims 7 Part C was not addressed in the request for correction reply.

See the RMRS response in Claim 7 Part A

- D. “The authors failed to provide further means of interpreting the differences in standing timber between different acres of measure, despite recommendations from BHFRA and others to make comparisons ‘apples-to-apples’” (RFR, p. 15, para. 1).

The panel found that Claim 7 Part D was substantiated. Claims 7 Part D was not addressed in the request for correction reply.

See the RMRS response in Claim 7 Part A

The panel found that the Rocky Mountain Research Station did not provide any response to BHFRA addressing the issues outlined in Claim 7 in the initial reply. In its response to Claim 7 in the request for reconsideration, the RMRS provided the panel with additional information (summarized in letter A) and this information is critical to understand the information presented in the GTR. The panel has determined that RMRS must make the following correction:

3. The authors need to revise or replace GTR Table 4 and Figure 11 and associated in-text discussions to clearly communicate the different land areas (acres) that are used to calculate merchantable volume (CCF) of ponderosa pine trees (> 5 inches d.b.h.) on timberland of the Black Hills National Forest for several measurement periods from 1962 to 2019. Further, the authors need to discuss the relevance of those differences in land areas when interpreting standing

live inventory estimates from the different inventory dates.

The panel will leave the correction action and timeline to the discretion of the Forest Service Deputy Chief of Research and Development.

Of the 7 claims, the panel found that claims 3, 4, 5 and were adequately addressed in the initial response, but the panel is choosing to provide the following responses from Rocky Mountain Research Station for clarity. No additional action will be taken on these claims.

Claims 3 and 4 (combined for clarity):

“The issue raised by BHFRA in this instance was the GTR’s use of trees smaller than sawtimber to estimate sawtimber growth rates and that the use of those smaller trees results in growth rates lower than in sawtimber only trees.” (RFR, p. 6, paragraph 3). “...we find it unsettling the (RMRS) Reply supports use of those smaller trees by stating, ‘...the growth rates used in the scenarios still represented what was observed in the pre-2000 and post-2000 data.’ (RFR, p. 7, paragraph 1). “...actual sawtimber growth rates on the BBNF are higher than pre/post-2000 data of growth on trees less than sawtimber size.” (RFR, p. 7, paragraph 1) AND “...the authors excluded the most recent 19 years of actual sawtimber growth information available from FIA data” (RFR, p. 7, paragraph 1). "All growth rates used in the GTR were less than the FIA data shows for sawtimber growth rates on the suited base of the BBNF from 2000-2019" (RFR, p. 7, paragraph 2).

The panel found that the Rocky Mountain Research Station did respond to BHFRA with due diligence and did not receive any new information from RMRS when researching this claim. While the panel found that the information below was originally provided to the public it may have been unclear. The panel feels that by providing this paragraph, this claim is fully satisfied, and no further action will be taken.

“The information presented in the analysis and discussion in the section ‘Gross Growth Rates (pgs. 5 to 6)’ and ‘Supplemental Information, Document 4, Table 1a, p. 20’ in the **Black Hills National Forest and Underhill. 2021. Assessment of the National Forest Advisory Board Timber Program Recommendation**² also provides additional support for the authors' decision. In this assessment, it is argued that the growth rates suggested from the BHFRA consultant’s report that exceeded 3% should be considered an outlier because it only represented growth for a portion of a rotation. That rate was derived from a subset of the FIA data (2010-2016), an average of the periodic inventories for South Dakota (i.e., not including Wyoming data) and did not include the data from the 2017-2019 augmented inventory on suitable lands of both South Dakota and Wyoming. Information presented in ‘Supplemental Information, Document 4, Table 1a, p. 20’ of the assessment also reported gross growth rates for ponderosa pine sawtimber on timberland from 2002 to 2011, 2013-2019, and 2017-2019. The 2002 to 2011 gross growth values were derived from the EVALIDator output from the Northern Research Station FIA of 2.88%. The 2013 to 2019 gross growth values that were derived from the Public EVALIDator and was

² https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd949571.pdf

2.87%. Though the use of a 2.87% or 2.88% gross growth rate would slightly increase harvest levels, the primary findings of unsustainable harvesting at 181,000 CCF/yr would still be valid.”

Claim 5

“The RMRS Reply (to Correction Request 2.2) also included evidence for the inappropriateness of using online FIA data through an excerpt from an FIA report in response to the BHFRA Report, citing the FIA report with, ‘The augmented data and associated calculations (specific sample/stratification pairing) yields an unbiased estimate.’ In this instance, the (RMRS) Reply blatantly omitted the line immediately following in the FIA report. The omission reads, ‘The public [online] FIA data set uses a stratification with estimation units defined by FIA survey units and the BBNF boundary (actual ownership, not proclaimed) ... The expansion and adjustment factors were computed for this specific sample/stratification pairing, yielding an unbiased estimate.’” (RFR, p. 10, paragraph 2).

The panel found that this information was provided in the reply, but it may have been unclear. This claim does not have any substantial impact on the outcome of the GTR, but the panel felt it was important to provide the following clarifying response from RMRS. No further action will be taken.

“Although the RMRS response did mention that the ‘augmented data’ was unbiased as stated by NRS-FIA, the RMRS response did not state that the reason the on-line FIADB data was not used was because it was biased data. Rather, the RMRS response stated the on-line FIADB data wasn’t used because it 1) ignored the most recent observations and 2) did not include data from the Wyoming lands. It was not the RMRS intention to state the on-line FIADB data was biased by failing to note that the NRS-FIA also said that the public data used by the BHFRA also yielded an unbiased estimate.

The panel is also correct that FIA-NRS did not state the on-line public database (FIADB) is inappropriate for this analysis. However, the FIA-NRS response did raise some issues that gave the GTR authors concern. The italicized statement ‘*The use of the on-line public database (FIADB) is inappropriate for this analysis because*’ is from the RMRS response, not FIA-NRS.”

Claim 6:

“In writing the GTR and reply, lack of citing current FS health reports for the BBNF indicating mortality rates are low”

The panel found this claim to be unsubstantiated as it is inconsequential to the overall quality of the GTR.

Additional Recommendations by the Panel

In addition to the three required corrections listed for Claims 1&2 and Claim 7 above, the panel requests the following correction to improve the utility and clarity of the GTR:

4. The authors need to display in mathematical notation the structure and parameters of their sustained yield model and describe the model’s assumptions. The authors need to qualify their conclusions as holding within the model’s assumptions and parameter values that define the scenarios analyzed. Lastly, the authors need to explain how their sustained yield model differs from the sustained yield calculation done for the 1997 BBNF plan.

In conclusion, the independent, four-person panel carefully considered the information you provided. The panel found no compelling evidence to support your request to retract (withdraw) GTR-422, however, after full consideration and thorough review, the panel has referred the above corrective actions to the Forest Service Deputy Chief of Research and Development. The Forest Service will release an addendum, or GTR revision on the claims the panel found to be substantive. The panel thanks you for bringing your request to the Forest Service's attention.

Sincerely,

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WITNE NEIL
Acting Data Quality Official