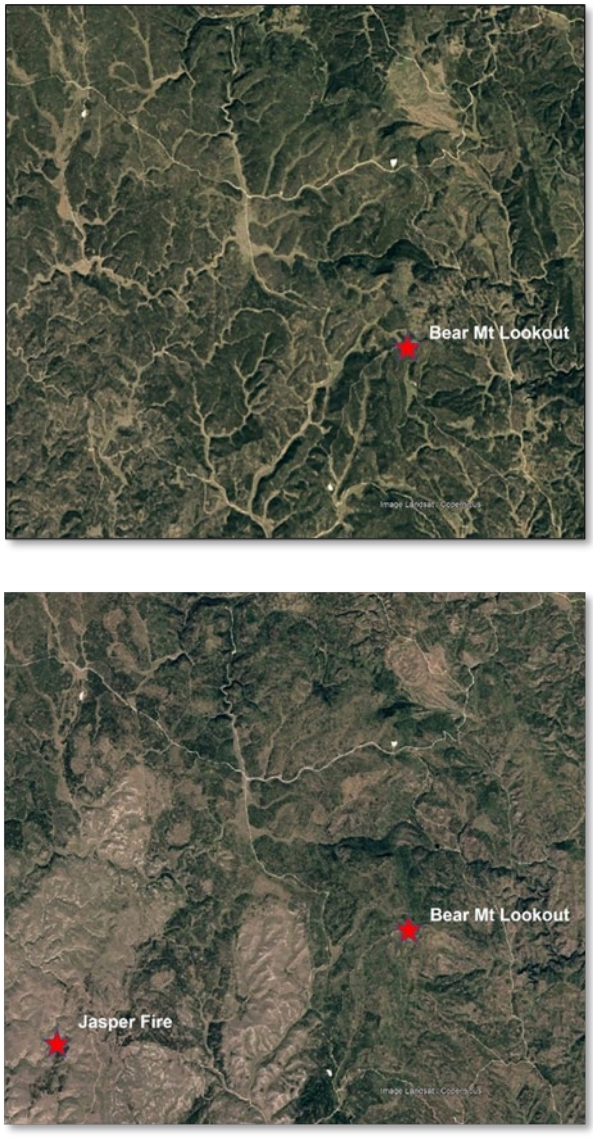
Timber

Comments and Responses on Draft Assessment



Forest conditions west of Custer (junction of Ditch Creek and Six Mile roads), 1997 (top) and 2020 (bottom).

Introduction: Assessment Response to Comments

The Black Hills National Forest received a variety of public comments on draft assessments published in June 2022. Some commenters have expressed support for the draft assessments, while others have expressed concerns.

Those who express concern about the draft assessments often state that they believe the assessments do not go far enough in addressing the challenges facing the Black Hills; do not address the needs of local communities; or do not utilize the best available scientific information. Those that support the draft assessments often state that they are pleased with the level of detail and analysis that went into the assessments. They believe it will provide a good foundation for the need to revise the land management plan.

The Forest Service has reviewed all public comment received on the draft assessments and used this feedback to revise assessments where appropriate. The table below is a detailed summary of public comment received related to timber as well as the agency's response to each item. Many responses indicate where the revised assessment has been modified to better explain each item, or incorporate new information as provided by cooperators or the public.

Each comment and response table is provided not as a matter of regulatory compliance, but as an effort to demonstrate the Black Hills National Forest's committment to transparency early in the plan revision process. Some comments below have been generalized or combined with similar comments to provide a more efficient response. No attempt has been made to retain a link between each comment and individual, organization, or entity that provided it.

Response to Comments

Comment	Responses
The Black Hills should describe treating stands by reducing density and susceptibility to infestation as "preventative thinning."	Assessment was updated to better reflect this in terms of "preventative thinning."
The Black Hills should better describe wood degradation.	Updated text by including "due to rapid wood deterioration".
The Forest should do more good thinning ahead of infestations to limit spread than trying to chase bugs around ineffectively salvaging.	This comment will be more appropriately considered during the plan development stage of the plan revision process. The assessment was updated to better reflect practices around sanitation logging and preventative thinning of live trees with the intent to reduce the spread and severity of beetle infestations.
The Black Hills should recognize that some treatments promote regeneration even when the intent was a thinning cut, rather than a regeneration treatment.	Thank you for your comment, text in the assessment was revised to better reflect natural regeneration in these circumstances.
The Black Hills should update text which currently indicates the average of 100 years to reach culmination of the mean annual increment (CMAI).	Assessment text was updated to show a range of CMAI between 100 to 120 years on the Black Hills National Forest.
Consider a better explanation of growth and mortality percentages that will be used in modeling.	A paragraph in the assessment was updated to better reflect this concern and make the point that the findings of Graham et al. 2021 indicate a positive net growth.
Refrain from offering outside opinions on harvest facts.	Thank you for your comment. One slight modification was made in the revised version to remove a sentence about lack of agreement on FIA data.
The Black Hills should clarify the relationship between Projected Timber Sale Quantity (PTSQ) and Projected Wood Sale Quantity (PWSQ) in terms of decadal averages.	The assessment was updated to reflect timber program estimates as annual averages for the decade.

Comment	Responses
The Black Hills should better describe fiscal constraints and caution against Sustained Yield Limit (SYL) constraint language.	The assessment was revised to better reflect SYL definitions from the Planning Rule and the fact that there are exceptions from that departure. Other constraints such as fiscal constraints and plan components are also considered in the assessment. The existing condition is also a key point with SYL even though annual fluctuations are likely.
PTSQ under the 2012 Rule should include volume from all lands but recognizing technological limits and potential damage to sensitive areas. 1982 Rule concepts in the assessment is causing some confusion.	Thank you for this information. It will be more appropriately considered during the next phase of the plan revision process, along with other timber concepts specific to the Planning Rule. For the assessment we updated text to better describe these lands in the table and added text about draft classifications. The comparison with the 2021 FSVeg classification has been labeled as draft acres which should indicate that these are not final classifications regardless of any policy changes between the 1982 and the 2012 planning rules.
The Black Hills should clarify that timber harvest was done in 1997-2021, which seems to have confusion with the suitable base.	Thank you for your comment. Text in the revised assessment has been updated on in relevant tables to better describe this.
Is firewood considered in these discussions?	Assessment was updated to better reflect firewood as a part of some tables.
The Black Hills should review net change and net growth and how they are used in the assessment.	Thank you for the comment, the assessment has been updated.
Caution against rounding for acres, such as timber suitability.	The revised assessment has been updated where appropriate and in context.

Comment	Responses
It will be important to describe how timber program rates may impact other resource objectives.	This will likely be an issue when we develop the plan in the next phase of the process. Some text was updated to describe how timber program levels may factor into other resource objectives.
Correct or clarify the number of plots for white spruce.	The assessment was updated to be more consistent with the Forested Ecosystem Assessment on number of plots in white spruce.
Structural classes should be added to the discussion around 3A and 4A.	Thank you for your comment. References to structural changes were updated to be habitat structural stages (HSS) throughout the document for consistency.
The plan is not being developed at this point, be cautious when the assessment seems to wade into plan language.	Text has been updated to suggest that desired conditions may be developed for regeneration, but that decision has not yet been made.
Will the public have the opportunity to comment on timber suitability and areas identified as uneconomical?	The public will have the opportunity to comment on the draft plan which will include timber suitability. The assessment was updated to reflect this.
Clarify the assessment in terms of diverse uneven-aged landscapes relative to even-aged landscapes.	The revised version has been updated to describe conditions associated with uneven-aged management and beneficial impacts to some species, but not ideal for other bird and animal species.
The draft assessment discusses a need to shift stands or stand characteristics. This is not appropriate in the assessment phase.	The assessment has been updated with language to better reflect a need for the Black Hills National Forest to treat smaller diameter stands based on changes from 1997 to 2021.
The map is confusing, especially the white areas and timber treatments.	The revised assessment updates the maps to better explain what is non-United States Forest Service (USFS) ownership.

Comment	Responses
The assessment inappropriately states that wood products from all timbered lands are required to achieve forest goals. New technology allows us to harvest timber on lands previously non-suitable.	USFS implements policy at FSH 1909.12-2015-1, Chapter 60. This requires the identification of lands not suited for timber production, lands that may be suited for timber production, and lands that are suited for timber production. The intent of the statement is to indicate that wood products (PTSQ and PWSQ) can be produced from all the land classes regarding timber suitability, but that majority of the estimated program levels will still be produced from suitable lands. This is a key point in the assessment that suitable timberlands (per the Forest Inventory and Analysis [FIA] comparison data) have been more heavily impacted than unsuitable lands.
I support the Forest Products Industry's Vision for Timber Harvest in the Black Hills Region! Industry comments should be the primary source for determining what the timber harvest should be.	Thank you for your comment. The local timber industry continues to be a great partner and our timber programs produce multiple natural resource benefits. We look forward to continuing to work with the public, industry, and other stakeholders throughout the plan revision process.
Ensure a sustained harvest occurs and the ASC is based on the best available science not politically driven.	The development of the Sustained Yield Limit, the Projected Timber Sale Quantity, and the Projected Wood Sale Quantity will be based on the best available science and are required under the 2012 Planning Rule. This will happen in detail during the upcoming plan revision stage. Please note that Allowable Sale Quantity (ASQ) is no longer a requirement under the 2012 Planning Rule.
The plan needs some language to ensure blowdown is not a common occurrence after harvest.	Thank you for your comment. Susceptibility of trees to blowdown following treatment is often addressed during the development of silvicultural prescriptions at the forest stand level.

Comment	Responses
Consider a major transition to uneven-aged management, this is a more natural way to manage ponderosa pine.	The revised assessment expands the discussion regarding increasing the level of uneven-aged silvicultural methods in the revised assessment.
We highly recommend continuing to proactively manage the Black Hills through harvesting and pre commercial thinning. It is important to focus on the forest holistically, managing areas outside of the suitable timber base, or finding areas that still need management within the suitable timber base to meet the needs of the forest and local timber industry. Areas that have not been treated in the last few decades need to be prioritized. We expect a high amount of merchantable timber to grow as a result of the recent management activities, and to lose critical timber industry infrastructure due the proposed reduction in timber production would result in not being able to meet the future management needs and impact forest health long-term.	The assessment phase of forest plan revision captures the current state of the resources. The upcoming forest plan development phase will evaluate the projected timber program in detail. Outside the plan revision process, the Forest is evaluating options to increase the annual output of timber stand improvement work via new funding opportunities such as the Bipartisan Infrastructure Law and the Inflation Reduction Act by increasing service work through Integrated Resource Service Contracts. District level project development and environmental analysis efforts are currently evaluating additional forest management opportunities within lands designated as suitable for timber production. Lands designated as unsuitable for timber production are also being evaluated for consistency with forest plan desired conditions and the potential for vegetation management. A forest level planning effort for the white spruce forest is also in progress. A monitoring discussion has been added to The Need for Change section of the assessment.

Comment	Responses
We ask the Black Hills to start thinking larger scale and agree that increasing diversity in forest management prescriptions can help benefit forest health long-term. Uneven-age ponderosa pine stand management is an applicable alternative for the Forest Plan revision to assess, but we recognize even-age management can also be an important management tool for ponderosa pine. We ask the Black Hills National Forest to consider creating flexible and diverse prescriptions to meet the forests' desired condition for forest health and fuels. These prescriptions should generate a variety of longstanding densities and age classes, while providing for more opportunities to further total managed acres within the National Forest. We believe the Black Hills National Forest needs to stay on top of managing younger stands as they continue to grow, and to prepare and plan to manage the amount of timber that will be realized in the future.	Thank you for your comments. Increasing the level of uneven-aged management from 5% of all implemented silvicultural methods would likely increase the vertical and horizontal diversity of forest stands. The discussion regarding the need to increase uneven-aged management has been expanded in the revised assessment. The desired levels of uneven-aged management and even-aged management have not yet been determined. Various management scenario will be developed and assessed during the development phase of forest plan revision. The forest evaluates all funding opportunities and program needs for timber stand improvement work on an annual basis.

Comment	Responses
The timber assessment heavily relies on the Graham's General Technical Report (GTR), as it is cited 13 times. We are very concerned with using the GTR to guide final decisions within the Black Hills Forest Plan revision. The GTR and analysis in the timber assessment inappropriately leaves out any data from Wyoming's forested lands, which are 17% of the forested lands in the National Forest. We believe Wyoming's side of the National Forest had less mountain pine beetle (MPB) epidemic impacts and if included would have shown a very different result. We also question the growth and harvest rates provided in the assessment, not only because it leaves out Wyoming's forests, but because the rates do not account for historical data, but rather only look at timeframes around the last MPB epidemic. We question the acres sited in the timber assessment that were removed from the suitable timber base. We ask the Black Hills to revisit these acres and assess their accessibility due to the new technology advancements that have been made since 1997. We believe this number would be greatly reduced because of those new mechanized advances.	Graham et al. 2021 (GTR-422) was cited several times because it is the most current peer reviewed science publications that summarizes trends for gross growth, mortality, and net growth for the Black Hills National Forest from 1962 to 2019. GTR-422 was cited 5 times for the growth and mortality discussion with 2 figures from GTR-422 added as supporting information. GTR-422 was also cited 2 twice regarding changes to wildfire behavior and impacts on natural regeneration. An FIA inventory comparison using repeat measurements for the entire forest has been added to the assessment per recent collaboration with the Rocky Mountain Research Station, Forest Inventory and Analysis, Forest Sciences Lab, FIA, Ogden, UT. This information was not available when the draft assessment was released to the public. Growth and harvest rate data and any corresponding discussion were forest-wide in the draft assessment except for the Choate and Spencer 1969 and the Collins and Green 1988 inventory reports which focused on South Dakota only. Both reports were included in the data presented from Graham et al. 2021 (GTR-422). Data and discussion for white spruce is only applicable to South Dakota as this forest type does not occur on the Black Hills National Forest in Wyoming. Lands designated as may be suitable and suitable for timber production will be evaluated during the development phase of forest plan revision including lands previously considered unfeasible per available equipment and technology.

Comment	Responses
The Forest Service is calling for a reduction in Allowable Sale Quantity (ASQ) of timber. The timber harvests must be balanced with the need to maintain the timber industry in the Black Hills so they can continue to play a role in maintaining forest health through harvest. If the mills are caused to shutter because of a lack of ASQ, 20-30 years from now we could easily have an overly populated forest which will adversely impact all the other uses on the forest, including grazing.	Thank you for your comments. Timber program levels as defined by the Sustained Yield Limit, Project Timber Sale Quantity, and Project Wood Sale Quantity will be based on the best available science. Information from the forest products industry, as well as any other stakeholder, will be considered during the forest plan revision process.
This reviewer finds it dismaying, discouraging, and dispiriting that the Black Hills National Forest ignores the historical record of a sustainable, ecosystem timber resource. Illingworth provided up to a hundred useful historically documented photographs of the "area" that became the Black Hills National Forest in its pre-settlement state. The Illingworth photos, using modern analysis techniques, can show a what a sustainable Black Hills ecosystem should comprise for timber, age class, open canopy, meadows, species mix.	The natural range of variation and corresponding disturbance regimes will be considered during forest plan revision to define desired future conditions and sustainable timber program levels. The Forested Ecosystems Assessment discusses historical conditions and ecosystem stressors and drivers. The assessment considered changed forest vegetation conditions during the implementation of the current forest plan that would affect timber program development and forest management practices for the revised forest plan. The prescribed assessment period was 1997 through 2021. It is the responsibility of the responsible official to manage the assessment such that it is an analysis and synthesis of the most important relevant information and to ensure that the report has concise finding useful to identifying the need to change the plan.

Comment	Responses
The timber assessment pole vaults over an analysis of the historical record of pre-settlement ecosystem sustainability, to "modern" silviculture (aka tree farming) to justify packing the Black Hills landscape with desirable (timber for the mills) species. This reviewer agrees with the five South Dakota County Commissions that the Black Hills is not using the best science available in this Timber assessment. A second Timber assessment should be written that incorporates historical, ecologically sustainable ecosystem, to include ranges of timber age class, spacing, and the Lidar-based timber assessments.	See the above response regarding the scope of the assessment. See the Forested Ecosystems Assessment for a discussion regarding historical forest vegetation conditions. The natural range of variation will be considered in conjunction with desired conditions during the development phase of forest plan revision. The acquisition of lidar data, collected at the appropriate quality level needed to assess the forest standing inventory and structure is currently being pursued by forest and regional leadership. A description of lidar data acquisition considerations and potential uses has been added to the assessment.
We agree that the recent timber harvest may be in excess of temporary natural replacement.	Thank you for this information. It will be more appropriately considered during the next phase of the forest plan revision process.
Some commenters suggest that harvest levels and disturbances are issues that require immediate remedy while others see more pressing issues and question the urgency of addressing these topics.	The draft timber assessment identifies the major changes to forest conditions caused by wildfire, mountain pine beetles, and timber harvest from 1997 to 2021, that would affect the sustainability of the forest timber program. The overriding premise is that the magnitude of these changes is not consistent with the assumptions incorporated into the 1997 Forest Plan timber program levels (Long Term Sustained Yield Capacity and the Allowable Sale Quantity). A re-evaluation is therefore needed to assess compliance with sustainable timber production regulations per the Multiple-Use Sustained Yield Act (MUSYA) of 1960 and the National Forest Management Act (NFMA) of 1976. The NFMA requires the Forest Service to revise forest plan at least every 15 years.

Comment	Responses
The Black Hills stockpiled biomass (timber) for decades, despite the well-documented tendency of this forest to burn.	Thank you for your comment. Forest conditions (densities and size class distributions) at the beginning of the period analyzed in the draft assessment, 1997 to 2021, may have been more susceptible to bark beetle attacks and large scale, severe wildfires than current conditions.
The natural, long-term sustainable carrying capacity of timber on this landscape, and the current dogma to prematurely, over-reach to reduce the timber harvest on the Black Hills National Forest, is setting up the forest for: 1) thinning demands it is historically unable to fund, resource, or manage; 2) creating future insect and disease nurseries; and 3) creating stockpiles of biomass for future burn events that will eventually damage human habitations.	Thinning forest stands to reduce insect and disease susceptibility, reduce hazardous fuels loads, and accelerate tree growth will continue. The opportunity for the commercial thinning of sawtimber sized material has declined due to an increase in more open forest conditions and an increase in younger stands forest wide. The assessment indicates that one of the priority needs during the implementation of the next forest plan will be to reduce stand densities in the pole and sapling size classes. Increased utilization by the forest products industry of smaller diameter material may increase cost efficiencies and support an increase in pre-commercial thinning program levels in addition to the potential to increase program funding.

Comment	Responses
The Forest, like most natural systems, must be managed in a band of excellence. Everything cannot be "peak" at all times. The band of excellence is an acceptable range - not an end point defining a "perfect Forest". The range defined in a band of excellence accounts for imperfect harvests, imperfect thinning (always the Black Hills National Forest case), insects, fire, tornadoes, blown contracts, etc. (See page 11, plow thorough the acronyms to capture the concept of a band of excellence: https://publications.armywarcollege.edu/pubs/3502.pdf .)	Management direction for forest structure and density should be flexible as opposed to static targets to allow for adjustments to changing conditions. Similarly, forest management levels and forest products outputs need to be adjusted to achieve sustainable levels per changing forest conditions. Federal laws, regulations, and agency policy direct national forests to assess forest products program levels on a decadal basis. Major forest ecosystem drivers and stressors such as wildfire, bark beetles, and timber harvest have combined to greatly change forest conditions since program levels for the 1997 Forest Plan were developed.
Please follow your own scientists' conclusions that the rate of timber harvest is unsustainable and lay your plans accordingly. Resist our politicians' attempts to make this about "timber jobs". The big party of the mountain pine beetle timber harvest is now over. We lost so many trees during the MPB epidemic, including many of our old-growth ponderosa. And yet we keep cutting at this unsustainable rate. I can't believe how small the trees are that I see coming out on logging trucks now. Nor what an absolute mess has been made in the clear-cut areas seven miles northwest of Custer. Unbelievably poor forest management there and someone really ought to be ashamed this was allowed to happen.	Thank you for your comments. Timber program levels as defined by the Sustained Yield Limit, Project Timber Sale Quantity, and Project Wood Sale Quantity will be determined in the plan revision process and based on the best available science and data.

Comment	Responses
The recent discussion about a need to log spruce trees in the Black Hills seems really misguided and merely an attempt to satisfy the sawmills' demand for larger logs. They are a beautiful tree in stands or by themselves and provide much more shelter for wildlife than the ponderosa generally does. From this layperson's view they may contain what little we have left of old-growth trees in the Black Hills.	Forest plan assessments are separate from any project to harvest spruce, or other timber. However, early forest inventories such as the Graves Report (1899) indicate that the distribution of white spruce across the forest at the beginning of the twentieth century was lower than the current extent of the spruce forest. Two white spruce habitat types occur on the forest. Pure spruce stands have always been dominated by spruce with varying, disturbance driven levels of ponderosa pine, aspen, and other hardwoods as minor components. These forest types occupy a small niche on the moister, northern aspects, and are dominant near riparian areas. The second type of white spruce forest is considered a mixed species type. These stands were dominated in the past by ponderosa pine that was maintained by a frequent, low to moderate severity fire regime. These types have succeeded to spruce in the absence of fire and in some cases due to the harvest of the mature ponderosa pine. The spruce in these mixed stands is generally less than 120 years of age and younger than the mature ponderosa pine still present. Forest management that is based on historical conditions for these mixed stands would favor the maintenance of species such as ponderosa pine and aspen over spruce.

Comment	Responses
Timber and grazing are what make the Black Hills National Forest sustainable. We must get back to reasonable timber harvests (180,000 board feet) to keep from having a pine beetle outbreak again. The "scientific" data research that was used recently (2 years ago) to cut board feet on the Black Hills National Forest from 180,000 to 120,000 had faulty data and bias. It appears everyone on the study was hired by the environmentalists. We must keep the Forest healthy by keeping the Forest from being overgrown.	The major forest ecosystem drivers and stressors (wildfire, the mountain pine beetle, and timber harvest) have combined to greatly change forest conditions and susceptibility to bark beetles and large, scale, severe wildfire since program levels for the 1997 Forest Plan were calculated. Forest size class and density distributions, associated inventory levels, the corresponding scale of timber program levels will be evaluated during the development phase of forest plan revision. Program levels for the 1997 Forest Plan were developed when the forest inventory was near a peak level per available inventories, 1962 to 2019. Graham et al. (GTR-422) was prepared by researchers from the Rocky Mountain Research Station and is the most current peer reviewed, scientific assessment for timber sustainability on the Black Hills NF.
Does the Revision Plan have a contingency for when we have wet years and exponential growth of trees and need to increase tree removal.	Sustainable timber program calculations such as the Sustained Yield Limit incorporate average growth and mortality rates over long term forest cycles. Projected Timber Sale Quantities and Projected Timber Sale Wood Quantities are annual averages by decade and should be based on existing conditions and shorter-term trends. It is at this level where adjustments can be made such as increased harvest to reduce susceptibility to disturbances such as bark beetles and wildfire or a reduction to allow for growth to meet forest plan objectives and desired conditions.

Comment	Responses
There is zero economic benefit to letting the pine beetles destroy the trees as opposed to healthy management of the Forest through timber harvest. Dead trees become fuel for fire or just die and release CO2 into the air one way or another.	Thank you for your comments. Maintaining forest conditions that are considered moderate to low susceptibility to large scale disturbance will likely be considered during the development phase of forest plan revision.

Comment	Responses
During the years after the pine beetle epidemic ended, stakeholders strongly disagreed about two factors influencing the timber program: the Allowable Sale Quantity (ASQ) and the standing sawtimber volume. While the ASQ will no longer be used under the 2012 Planning Rule and subsequent FIA data collection has resolved the questions over standing volume, commenters do not wish to see a similar series of events play out in the future. So that the SYL and PTSQ are not mistaken as binding obligations to harvest timber regardless of sustainability concerns, Black Hills National Forest should consider publishing – as part of the Forest Plan – hard limits on the minimum and maximum standing volume in the Forest, and commit to a plan of regular monitoring so that at any point in time the minimum average volume per acre should be indexed to a standing volume of trees that would: • Almost certainly produce, through their growth alone, a merchantable timber sale within the expected treatment interval such that if a sale were conducted at the end of the treatment interval, a commercial product could be created without dropping the standing volume below the initial number. • Allow for forest diversity, including various wildlife habitats and old growth stands. • A volume of trees that produces an intolerably high risk of severe wildfire or insect outbreak within the expected treatment interval with WUI, slope, aspect, and the species and conditions of surrounding stands/areas taken into account.	The Sustained Yield Limit (SYL) is not a target but is a limitation on harvest, except when the plan allows for a departure. The Projected Timber Sale Quantity (PTSQ) is the estimated quantity of timber meeting (annual average by decade) applicable utilization standards that is expected to be sold during the plan period. As a subset of the projected wood sale quantity (PWSQ), the projected timber sale quantity includes volume from timber harvest for any purpose from all lands in the plan area based on expected harvests that would be consistent with the plan components. The PTSQ is also based on the planning unit's fiscal capability and organizational capacity. PTSQ is not a target nor a limitation on harvest and is not an objective unless the responsible official chooses to make it an objective in the plan. (FSH 1909.12-2015-1, Chapter 60, Forest Vegetation Resource Management). The draft assessment indicates that a specific current forest plan objective for size class distribution and density such as the current structural stage objective for the ponderosa pine forest for management areas 4.1, 5.1, 5.4, 5.43, and 5.6 may not be practical to achieve and maintain and could limit adaptative management responses to changing conditions. A distribution range may be considered during the forest plan revision development phase. A desired structural stage range based on various resource considerations such as wildfire risk, insect and disease susceptibility, wildlife habitat, and carbon sequestration could be utilized to derive target inventory metrics to determine whether trends are consistent with forest plan direction or are indicative of a need for a program level adjustment.

Comment	Responses
In 2016, the Black Hills National Forest agreed to maintain its annual timber sale quantity pending an extensive data collection by FIA. After collecting data between 2017 and 2019, a draft analysis was published in 2020, and a final peer-reviewed analysis was published in 2021. A Data-Quality Act challenge was considered but eventually rejected in 2022. At the end of this process, it has become clear that the Black Hills National Forest's annual timber harvest will need to shrink for several years to allow the growing stock to replenish.	Thank you for your comment. The need to consider the monitoring of short-term and potentially long-term changes to the forest inventory in conjunction with a desired inventory range has been added to the need for change section of the assessment. Monitoring protocols to ensure prompt adaptive management decision making would help inform changes to program levels. The monitoring of inventory levels based on net growth and net change can be tracked on an annual basis and adjustments made based on apparent trends with forest conditions and inventory levels. Protocols for monitoring would potentially be developed through the forest plan revision process to ensure consistent, science-based application to timer program levels to ensure sustainable forest management. Graham et al. 2021 (GTR-422) recommend: "Continuous monitoring and flexibility to adjust harvest levels based on realized mortality rates is crucial if long-term timber sustainability is to continue. In addition, growth rates also need to be adjusted going into the future because there is uncertainty on how climate will specifically influence subsequent disturbance and growth rates." "Short-term monitoring can provide information on changing growth and mortality rates allowing for subsequent harvest levels to be adjusted. These adjustments may need to occur quickly, particularly if there are large stand-replacing wildfires."

Comment	Responses
Planning Consistency (See Also Integrity of Forested Ecosystems) The Black Hills Resilient Landscape project's (BHRL) proposed 187,000 acres of overstory removal was primarily justified on the need to meet Forest Plan structural objective by reducing 4A to levels set by the Phase II amendments to the 1997 Black Hills Forest Plan. However, during the period covered by BHRL, Black Hills National Forest also converted many acres of 4B and 4C into 4A with commercial thinning projects authorized under the earlier Mountain Pine Beetle Response Project (MPBR) 64. Project, additional extensive Categorical Exclusions, and even other aspects of the BHRL project itself. As of 2021 (as reported on p. 17 of the assessment), structural stage 4A is essentially unchanged since the inception of BHRL.	The comments are not within the scope of assessments for the forest plan revision. Many comments received are specific to existing projects with separate site-specific analyses. During the forthcoming EIS phase, analyses will consider impacts of past, present, and reasonably foreseeable, and connected actions.
The acreage of suitable base may need to be recalculated (reduced) further because of loss of acres due to non-productive landing/large pile burning areas, skid trails with degraded soils, and new roads.	Suitable lands for timber production will be assessed during the development phase of forest plan revision. The 2021 acres (FSVeg inventory data) presented are draft acres only.
Uneven-aged management and Intentional burning: Mosaic and diversity are important in our forest and cannot be achieved by maximizing dollar benefits – there is a legal basis for this in MUSYA, section 4. Where and when possible, there is a pressing need to change to uneven-aged management as it is better in terms of mitigating risk for insect outbreaks and wildfire and is also more favorable for regaining ecological integrity on the forest.	Thank you for your suggestion. The discussion regarding uneven-aged management has been expanded in the revised assessment. The recommendation for an increase in uneven-aged management in the draft assessment was based upon ecological considerations such as the natural range of variation per historic fire regimes, the scale and severity of disturbance associated with even-aged, two aged, and uneven-aged conditions, and management recommendations for quality northern goshawk habitat. Ponderosa pine is a fire adapted species and prescribed fire is an option for maintaining desired forest stand conditions.

Comment	Responses
Address loss of larger, older trees that make major contributions to habitat and ecological integrity. Place a moratorium on cutting trees larger than 14” for the duration of the plan.	Thank you for your comment, but recommended management restrictions are beyond the scope of the assessment phase. We look forward to working with the public to develop plan components during the revision phase.
The timber assessment relies heavily on the GTR, A Scenario-Based Assessment to inform Sustainable Ponderosa Pine Timber Harvest on the Black Hills National Forest, dated February 2021, which concluded that the current standing live sawtimber volume does not support the current harvest levels and that a significant reduction in sawtimber harvest levels was necessary. The assessment relies too much on the GTR report and uses it to guide pre-decisional statements to support its conclusions. This is inappropriate and goes beyond identifying current conditions and it is used as supporting documentation in Chapter 5, The Need for Change. While it is appropriate to cite the GTR it should not be used to establish targets in the assessment and is premature in its findings. The GTR and analysis in the timber assessment inappropriately leaves out any data from Arlo Ming's forested lands, which are 17 percent of the forested lands in the National Forest.	Thank you for your comment. The GTR referenced has not been used to establish forest timber program levels. Projected and sustainable timber levels will be determined during the plan revision process. We understand this is confusing and have revised the assessment to include an FIA inventory comparison using repeat measurements for the entire forest per recent collaboration with the Rocky Mountain Research Station, Forest Inventory and Analysis, Forest Sciences Lab, FIA, Ogden, UT. This information was not available when the draft assessment was released to the public.
The Forest Service states "MPB impacts were lower in Wyoming. Higher site productivity on the Bear Lodge Ranger District may have been a factor for increased tree resistance to MPB attacks.” This statement lacks any scientific references and is in contrast to other scientific research on the Black Hills which has found a direct correlation between forest density and MPB mortality.	Thank you for your comment. This statement has been removed from the revised assessment.
Commenters raised concerns with the statement that "...commercial timber production in these areas will be limited for the next two decades to primarily low yield thinning and uneven-aged practices that enhance late successional conditions in the mature, moderate closed (SS4B), and closed stands (SS4C)." This statement insinuates that the Black Hills has already determined their preferred alternative for the revision process early in the assessment phase. This statement should be removed or modified so as not to indicate a pre-decisional statement.	The assessment has been revised to better explain that this was referring to forest management levels based on the existing structural stage distribution following implementation of the Black Hills Resilient Landscape Project.

Comment	Responses
The Forest Service states that "The current level of uneven-aged management Forestwide (5% of all commercial silvicultural treatments implemented from 1997 to 2021) needs to increase to enhance forest resiliency to large-scale MPB epidemics and better meet other resource needs such as enhancing wildlife habitat for species that rely on forest conditions with complex, heterogenous structure such as the northern goshawk." This statement is concerning. Assessments reflect current conditions and are not the place to portray decisions about uneven-aged management. Even-aged management and reducing the potential for mountain pine beetle epidemics and stand-replacing fires are not mutually exclusive. This is another statement which seems to indicate the Black Hills has already reached a conclusion/decision on direction in the Plan revision process by stating this type of silvicultural system will increase in the future.	Thank you for your comment. The assessment has been revised to discuss uneven-aged management in more detail. Commenters correctly point out that assessments are designed to reflect current conditions and do not represent an agency decision.
Commenters appreciate the thorough assessment (Graham et al. 2021) conducted by the USFS to update the status of harvestable timber throughout the Black Hills. Given the importance of timber harvest for managing fuels and wildlife, they encourage creative solutions to maintain timber as a predominate factor in sustainable forest management.	Thank you for your comment.
How can lands be deducted from Suitable Lands based on whether timber harvest is compatible with the desired conditions as identified in a plan that is yet to be decided?	Timber program level calculations such as the Sustained Yield Limit, the Projected Timber Sale Quantity, and the Projected Wood Sale Quantity will be addressed during plan development.

Comment	Responses
Clarification is needed for paragraph 3 on page 6 "average annual cut levels, total by decade (table 4), exceed the amount of volume sold" How can there be more trees cut than sold? That would be a violation of the timber contract and if there was that many breaches in contract, then provide that information.	The pace of harvest can fluctuate above or below the total amount sold at a forest-wide scale until all contracts are closed. Additionally, the cut rate can exceed the total amount sold should cruise overrun totals exceed total underruns. Volume can also be added to contracts post award. Examples of add-on volume include additional needs to fell trees based on operational and safety considerations or the need for the sanitation or salvage of trees that were impacted by insects, disease, or other disturbance events such as wildfire that occurred after a contract was awarded.
We question the accuracy of the statement "recently killed trees or older mortality were infrequently salvaged" in paragraph 3 on page 6. Data from purchasers of the timber sales during this time period would likely dispute this statement. Review of the marking standards and marking contracts for the timber sales offered during the MPB outbreak from 2003-2017 should be conducted.	Thank you for your comment. The revised assessment has been modified to better explain this discussion point. Discussions with forest products industry representatives and agency entomologists during the mountain pine beetle epidemic resulted in agreement to defer the salvage of beetle killed trees. As a result, cut trees were defined in forest timber sale contracts as trees with green needles only that met utilization standards, regardless of the amount of live crown and infestation status.
Wildfire section page 8, paragraph 1: "Changes in the growing season, precipitation in the winter type due to warmer temperatures throughout the year may increase fire frequency, increase wildfire extents, and prolong the fire season." It should also include a statement regarding the impact of the current firefighting policy and its impact on wildfire risk and severity.	This assessment is focused on timber management, but we do acknowledge points made about fire-fighting policy. See Fire and Fuels assessment for more discussion.
We have concerns about White Spruce. Please refer to comments sent on March 23, 2022, for the Spruce Vegetation Management Project.	Comments regarding specific projects are considered during site-specific analysis. We look forward to working with the public to develop management direction for white spruce during the plan revision phase of this process.

Comment	Responses
The inventory & growth rates used in this assessment are based on the FIA program. This program was designed to provide an estimate of the forests of the US, nationwide. The coarse estimates contain a high level of error, with some values greater than 50% and even as high as 100%.	The sampling error for ponderosa pine sawtimber for the 2017-2019 Forest Inventory and Analysis (FIA) intensified inventory was 10.76% (95% Confidence Interval). This is an acceptable level of precision as we assess existing conditions. A forest assessment of more than 20,000 plots of common stand exam data in 2018 produced inventory results that were comparable to the results of the 2017-2019 intensified FIA inventory.
Photogrammetry is a much cheaper and very effective tool to assess large-area forest inventories, NAIP imagery can even be used if a higher quality aerial photo cannot be acquired. LiDAR is a much more expensive but much more reliable method for assessing large-area forest inventories. Outside of the lack of reliable inventory, where is the output from the FVS/SUPPOSE modeling runs?	The agency understands the importance of accurate data, particularly with public interest of inventory on the Black Hills National Forest. Lidar collection is being planned for the Black Hills to provide better information for plan revision. This information will likely be available for incorporation incorporated into analyses to help determine the existing condition and establish an environmental baseline. A description of lidar data acquisition considerations and potential uses has been added to the assessment. Orthophoto interpretation at a landscape scale is an imprecise inventory method without calibration via precise field sampling to support the classification of forest stands by size class, density, and species composition. Growth and yield modeling which supports the calculation of key timber program metrics, often accomplished in the Forest Vegetation Simulator, occurs during the development phase of forest plan revision.

Comment	Responses
Figure 1, Page 14: This table is copied from the General Technical Report on Timber Sustainability. There are numerous footnotes in the table that clarify how the data was collected, but not included in this document. Without these footnotes, the data is misleading on not comparing similar metrics.	Thank you for this suggestion. Footnotes for Graham et al. 2021 (GTR-422) have been added to the assessment.
We support the direction to enhance late successional conditions to meet the goal of 5% SS5. SS5 is severely lacking across the Forest and will be under threat from future large-scale disturbances.	Thank you for this information. It will be more appropriately considered during the next phase of the forest plan revision process.
Further research of uneven-aged management should be conducted to fill any data gaps, such as fire risk and MPB susceptibility versus even- and two-aged management. If done incorrectly, uneven-aged management has the potential to increase risk of MPB and wildfire.	The discussion regarding uneven-aged management has been expanded in the revised assessment.
We also encourage the use of Individual, Clump, and Opening (ICO) management on the Forest as another alternative to even- and two-aged management.	Silvicultural prescriptions that are intended to achieve variable tree spacing and sub-stand densities (including prescriptions that incorporate individuals, clumps, and groups into marking guides) have become common forest management practices for restoring ponderosa pine ecosystems in the western United States (Addington et al. 2018, Churchill et al 2013, Reynolds et al. 2013). Integration of this practice may be considered during the plan revision stage.
Areas that have burned and are unlikely to naturally regenerate should be considered for management area reclassification to 5.4 Big Game Winter Range Emphasis. This would alleviate the need for finding additional funding for artificial regeneration. Many of these areas are currently already used heavily for big game winter range and the species utilizing them will be negatively impacted by artificial regeneration.	Changes to management direction in the forest plan will be considered during the development phase of forest plan revision.

Comment	Responses
Redefining late successional conditions is ideal. This definition should be based on current, peer-reviewed science that incorporates not only current conditions on the Black Hills National Forest but historical and desired conditions for late successional stands.	Thank you for this information. It will be more appropriately considered during the next phase of the forest plan revision process.
See comments for the Westside Vegetation Management Project, Chimera Project, and other projects for further information and comments.	Comments submitted on specific projects are considered during the project level analysis of those projects. Assessments are designed to summarize the current conditions and trends forest wide.
The revised assessment should also develop an analysis based upon historical and forecasting data to determine a timber harvesting plan that will alleviate MPB infestations, catastrophic wildfire and promote a healthy forest.	Forest management program alternatives will be designed and assessed for wildfire risk and bark beetle susceptibility during the development phase of forest plan revision. The natural range of variation for forest vegetation will be considered for each alternative to help gauge the ecological integrity of each alternative.
We find it odd that the Black Hills National Forest failed to even mention the recommendations from the Black Hills Forest Advisory Board on what the sustainable timber harvest could be in response to the GTR. These numbers should be made available to the public.	Thank you for your comment. The assessment has been revised to reflect comments from the Black Hills National Forest Advisory Board.
As with the Forest Ecological Integrity DFA, the Timber DFA appears to be laying the groundwork for the agency to weaken the structural stage objectives of the current Forest Plan as a way to allow non-sustainable levels of logging to continue for a while longer.	The draft assessment indicates that the current structural stage system may have limitations that diminish its effectiveness as a planning and monitoring tool. These limitations are considered key concerns that will likely be re-evaluated during the development phase of forest plan revision.

Comment	Responses
The SS5 definition that has been in use for over 25 years is fine and is well understood by USFS employees, concerned citizens and non-governmental organizations. There is no scientifically justifiable reason to change this definition.	Thank you for your comment. The revised assessment has expanded the discussion regarding uneven-aged management. A concern with the current definition of late successional forest as derived from the 1992 Mehl definition, Interior Ponderosa Pine - SAF Cover Type 237 (Kaufmann et al.), pertains to the lack of criteria for understory and mid canopy vegetation. Multiple studies conclude ponderosa pine forest types in the dry western United States associated with a high frequency/low severity or mixed fire regimes are heterogenous ecosystems with multiple size classes, irregular tree spacing, and variable densities (Churchill et al. 2013, Reynolds et al. 2013, Addington et al. 2018).
I commend the agency for honestly acknowledging that the amounts of timber harvested from the Black Hills National Forest over the past 24 years were not sustainable. I was also relieved to see the DFA acknowledge the sustainable timber harvest level is limited by non-timber objectives. Unfortunately, this latter disclosure was relegated to footnote 7. Please relocate this important information to the body of the DFA where more people are likely to read it.	The revised assessment now includes the footnote regarding the context of the sustainable program levels, recommended by Graham et al. 2021 (GTR-422), into body of the assessment.
Because the Graham et al. study represents the best available information on the absolute upper limit on sustainable harvest levels, I am also asking the planning team to discuss the findings of this study in greater detail in both Chapter 1 and in Chapter 5 “The Need for Change.”	The primary goal of the timber assessment is to evaluate changes to the forest vegetation since the last forest plan revision in 1997. Impacts caused by the major ecosystem drivers and stressors, bark beetles, wildfire, and timber harvest indicate that a re-evaluation of the timber program is needed. Key findings by Graham et al. 2021 support this conclusion. An in-depth discussion regarding the findings of Graham et al. 2021 is beyond the scope of the assessment.

Comment	Responses
Reliance on SYL rather than LTSYL is in conflict with Section 13 of NFMA, 16 USC 1611(a) which imposes "Limitations on removal" of timber: The Secretary of Agriculture shall limit the sale of timber from each national forest to a quantity equal to or less than a quantity which can be removed from such forest annually in perpetuity on a sustained-yield basis: Provided, That, in order to meet overall multiple-use objectives, the Secretary may establish an allowable sale quantity for any decade which departs from the projected long-term average sale quantity that would otherwise be established: Provided further, That any such planned departure must be consistent with the multiple-use management objectives of the land management plan.(Emphasis in bold supplied.) This plain language indicates Congress intended that any sustained yield limit established in a forest plan "must be consistent" with non-timber multiple-use objectives in the plan. The SYL does not comport with this because it ignores multiple-use constraints on logging and therefore could never be achieved in practice without violating the law. Consequently, I am asking the agency to resume using the LTSYC for the new plan. The agency may elect to calculate SYL for the new plan, but it should not be given preference or priority over LTSYC which does account for multiple-use restrictions.	The revised forest plan will be developed consistent with requirements of the 2012 Planning Rule. The Sustained Yield Limit is the amount of timber, meeting applicable utilization standards, "which can be removed from [a] forest annually in perpetuity on a sustained yield basis" (NFMA at section 11, 16 USC 1611; 36 CFR 219.11(d)(6))). It is the volume that could be produced in perpetuity on lands that may be suitable for timber production. Calculation of the limit includes volume from lands that may be deemed not suitable for timber production after further analysis during the planning process. The calculation of the SYL is not limited by land management plan desired condition, other plan components, or the planning unit's fiscal capability and organizational capacity. The SYL is not a target but is a limitation on harvest, except when the plan allows for a departure. (FSH 1901.12-2015-1, Chapter 60, Forest Vegetation Resource Management) Limitations on timber production such as utilization standards, forest plan components, fiscal capacity, and organization capacity, are applied to the short term (annual averages by decade) sustainable timber program calculations (Projected Timber Sale Quantity and Project Wood Sale Quantity).

Comment	Responses
Please present the public and timber industry with a realistic estimate of the sustainable harvest level — accounting for all multiple-use objectives and other limitations on logging — so the timber industry and other interested parties are not misled into expecting a higher, unattainable level of logging from this overcut Forest.	The revised forest plan will be developed consistent with requirements of the 2012 Planning Rule. The agency considers constraints that prohibit timber harvest (i.e., lands that have been withdrawn from timber production; compatibility with land and resource management plan desired conditions and objectives; the feasibility of timber harvest to avoid irreversible damage to soils, slopes, and other watershed conditions; and reasonable assurance that lands on which timber harvest occurs can be adequately restocked within 5 years after final regeneration harvests).
CMAI should be added to the list of items in the "Need for Change" section of the Timber DFA. Pre-CMAI logging is occurring on the Forest, and it is certainly contributing to the sustained-yield problem and degradation of wildlife habitat. The final Timber Assessment should include the following data relevant to the CMAI restriction: • percentage of the non-salvage / non-thinning logging on the Black Hills National Forest over past 25 years has occurred on trees that were not yet at their CMAI? • percentage of stands within the suitable timber base on the Black Hills National Forest and otherwise available for harvest (accounting for all other logging restrictions and multiple-use objectives) have reached CMAI?	Thank you for your comment. A discussion regarding the management direction pertaining to CMAI, any implications of pre-CMAI timber harvesting, and age class trends has been added to the revised assessment. The forest does not track the percentage of regeneration harvests that are exempt from meeting CMAI requirements. The need for pre-CMAI regeneration treatments could be estimated in the environmental assessment phase of forest plan revision by comparing current inventory data (acres by age class, size class, density class, management area, timber suitability class, etc.) with desired future conditions. Compliance with CMAI is typically addressed at the project level in National Environmental Protection Act environmental assessment and decision documents. CMAI is also routinely considered at the stand level during the stand diagnosis/silvicultural prescription phase of project planning to ensure the consistency of prescriptions with federal laws, regulations, agency policy.

Comment	Responses
Pre-CMAI logging has contributed to the sustained-yield problem and habitat degradation throughout the Black Hills, I am asking that the next Revised Forest Plan not include a similar exception: If the USFS believes some kind of multiple-use exception to the CMAI restriction is needed in the new Revised Forest Plan (RFP), I am asking the agency to: (1) demonstrate with hard evidence that there is a clear and present need to allow trees to be logged before they have generally reached their CMAI; (2) delineate the specific and narrow circumstances under which the proposed exception would be applied; (3) show that the stated reasons for the exception could not be met in any other way besides logging pre-CMAI trees; and (4) demonstrate the benefits of pre-CMAI logging will definitely outweigh the various costs and lost revenues that result from declining to wait for the trees to reach CMAI.	A discussion regarding the management direction pertaining to CMAI and age class trends has been added to the revised assessment. The Black Hills National Forest looks forward to engaging on plan-specific recommendations during the upcoming plan revision stage of the process. Desired forest conditions such as prescribed size and density classes based on a range of multiple use considerations such as bark beetle and wildfire susceptibility and ideal levels of quality wildlife habitat would drive the need for pre-CMAI regeneration of forest stands.

Comment	Responses
This time around, it will not be enough for the agency to simply assert that pre-CMAI logging is justified under some unspecified "multiple-use objectives." Any such attempt to evade the NFMA requirement will be challenged. For any proposal to waive the CMAI restriction in the new RFP, I am also requesting that the Draft and Final EISs include the following information: (i) an assessment of how much acreage on the forest would be subject to pre-CMAI logging under the proposed exception, along with the estimated timber sale volume; (ii) a thorough evaluation of the impacts of applying the proposed exception, with estimates of how its use would reduce long-term sustained yield, reduce timber jobs, reduce timber sale revenues, alter structural stage distribution, and impact the forest in other ways; (iii) demonstrate how the sustainable harvest level and other impacts disclosed under item (ii) would vary with different levels of pre-CMAI logging. For instance, the EIS should compare yields based on no pre-CMAI logging allowed versus an assumption that 10% or 20% of trees sold as sawtimber would be harvested pre-CMAI. If the DEIS and FEIS include any alternative involving an exception to NFMA's CMAI restriction, I am requesting that these environmental impact studies also evaluate fully NFMA-compliant scenarios that would ensure stands are not be harvested before generally reaching CMAI.	The Black Hills National Forest is in the early assessment phase of plan revision and has not drafted a proposed plan nor an EIS. The agency will allow formal public comments on the draft EIS, including the draft forest plan, in the future. However, a discussion regarding the management direction pertaining to CMAI and age class trends has been added to the assessment.
USFS leadership may try to expand the suitable timber base as a way to keep logging levels high. If the next RFP will contain any expansion of the suitable timber base or tentatively suitable ("may be suitable") timber base established in the existing RFP, I am asking that the agency fully document and justify each departure. This will ensure the changes are truly necessary rather than a veiled scheme to keep the cut level at unacceptably high levels by allowing logging in areas previously determined to be unsuitable for logging.	The classification of national forest lands as unsuitable, may be suitable and suitable and available for timber production will be assessed during the plan development phase of plan revision process. We look forward to engaging more during plan development on these important topics.

Comment	Responses
The acreage listed as unsuitable for harvest because of "Low Productivity"and because of management "For other Multiple Uses" both decreased in the 2021 inventory compared to the 1997 inventory. The latter suggests the agency intends to allow logging in areas that were previously off limits to protect non-timber uses and values on the Forest.	The changes to the timber suitability classifications based on the 2021 forest inventory (FSVeg) are based on additional site-specific information, primarily field surveys and inventory data collected during the planning and implementation of vegetation management projects. These are considered draft classifications that will be evaluated and available for public comments during the development phase of forest plan revision.
There is evidence indicating the agency has been allowing logging on parts of the Black Hills National Forest which have failed to be restocked within 5 years of harvest. The difference between this item in the 1995 inventory and the 2021 inventory only amounts to around 200 acres. It is possible some or all of this difference can be attributed to the agency's removal of some of the 1995 lands from the suitable timber base for other reasons. The Westside timber sale scoping package states that some of its proposed treatment activities were needed because there are understocked areas generally devoid of native pine or having less than 150 seedlings and saplings per acre. This constitutes an admission the USFS has been violating the 5-year restocking requirement on the Black Hills. The final Timber Forest Assessment should carefully examine this issue and determine how many acres of forest logged since 1995 have not restocked within 5 years as required by NFMA.	Changes to the timber suitability classifications, 1997 to 2021, are based on additional site-specific information, primarily field surveys and inventory data collected during the planning and implementation of vegetation management projects. The 2021 acres (FSVeg) by suitability classification presented are draft only. The classification of national forest lands as "unsuitable", "may be suitable" and "suitable and available" for timber production will be assessed during the plan development phase of the plan revision process and documented. The statement regarding the understocked stands in the Westside project area is referring to areas that have been impacted by the mountain pine beetle epidemic, not active forest management which triggers the 5-year restocking requirement per the National Forest Management Act of 1976. The need for planting these areas is being evaluated through the Westside planning process.

Comment	Responses
The Lohr report cited previously stated that "additional volume" may be pursued by "Overcoming the many challenges associated with working on steep slopes." Some of these areas are not in the suitable timber base and cannot be logged without irreversible soil or slope damage.	Limitations on timber harvest will be evaluated during the plan revision stage. However, it is noted that timber harvest may occur on lands not suitable for timber production where irreversible resource damage can be avoided, to protect other multiple use values and for salvage, sanitation, public health or safety. (36 CFR 219.11(c).

Comment	Responses
When evaluating the draft timber assessment, we reference Forest Service guidance in FSH 1909.12, Chapter 10 – The Assessment, Section 13.33. From Chapter 13.33: Timber harvest and production can play an important role in attaining desired conditions for ecological sustainability and can contribute to social and economic sustainability. The assessment should identify and evaluate available information about how timber harvest and production contribute to social, economic, and ecological sustainability. The Interdisciplinary Team should identify and evaluate available information such as: 1. The current condition of forests in the plan area including standing inventory, age classes, growth, and mortality. 2. The current levels of timber harvest and production in the plan area, including the purposes of timber harvest, outcomes of harvest activity, and ways in which timber is harvested (such as timber sales, stewardship contracts, or harvest incidental to other uses). 3. The current levels timber harvest and production in the broader landscape. 4. The GIS data and other information relevant to identifying land that may be suitable for timber production. (See FSH 1909.12, ch. 60). 5. The ability of timber harvest to affect forest resistance and resilience to stressors such as fire, insects, and disease. 6. The ability of timber harvest to maintain or restore key ecosystem characteristics of ecological sustainability (sec. 12 of this Handbook). 7. The current capacity and trend for logging and restoration services and infrastructure for processing wood within the broader landscape. 8. Trends that drive the supply and demand for timber in the plan area. 9. The impacts of timber harvest on ecological integrity and species diversity. 10. Contribution of timber harvest and production in the plan area for ecological, social, and economic sustainability.	Thank you for your comment. The timber assessment has been revised based on public comment and meets the requirements as stated in FSH 1909. Please note that more specific social and economic information related to the timber program can be found in the Socioeconomics Assessment.

Comment	Responses
Regarding the evaluation of "current condition of forests in the plan area including standing inventory, age classes, growth, and mortality", we find the Black Hills National Forest has not satisfactorily addressed this. Data and information are missing for a more complete review of timber resources and inventory on all lands, and all timberlands. Although the assessment briefly discusses net growth on a limited set of acres, we again find that information for net growth separated by all Black Hills National Forest lands, and all Black Hills National Forest timberlands is missing. Further, there is no discussion regarding gross growth on Black Hills National Forest lands.	Gross growth, mortality, and net growth trends for available forest inventories, 1962 to 2019, for various areas such as forestland, timberlands, and land that are suitable for timber production are thoroughly discussed in Graham et al. 2021 (GTR-422). Key growth and mortality trends from 1997 to 2021 are highlighted in the draft assessment however readers should reference GTR-422 and the inventory reports for more detailed discussion and additional data. Gross growth, mortality, and net growth rates may be evaluated during the development phase of forest plan revision. We look forward to engaging in the upcoming phase.
The Black Hills National Forest has not met the requirements regarding the evaluation of "current levels of timber harvest and production in the plan area, including the purposes of timber harvest, outcomes of harvest activity, and ways in which timber is harvested (such as timber sales, stewardship contracts, or harvest incidental to other uses)". Although the Black Hills National Forest has described timber sales and harvest amounts under the current Forest Plan, we believe it would be beneficial for the Black Hills National Forest to also describe how those have changed, at least since passage of NFMA, from the 1977 Timber Management Plan to the current Plan; including allowable sale quantities. Discussion of the purpose of timber harvest and outcomes is lacking. Opportunities exist to reference the Black Hills Mountain Pine Beetle Strategy, the Black Hills Resilient Forest Strategy, and other USFS Forest Health Reports that exemplify the successes in reducing MPB mortality through timber harvest activities. Other opportunities to discuss outcomes of timber harvest abound in reference to the positive effect of reducing wildfire impacts. Importantly, the benefits of harvest should be couched with the understanding that forests are dynamic and the effectiveness of such treatments wanes with time as the forest continues to grow and the hazards return. Forest products companies and BHFRA can also assist the Black Hills National Forest in providing information relating to timber sale activity outside the Forest boundary.	Thank you for your comment. The timber assessment has been revised based on public comment and meets the requirements as stated in FSH 1909. The scale, scope, and timing of assessments is discretionary and is set by the responsible official. The scope of the draft timber assessment was for change in forest vegetation conditions during implementation of the 1997 Land and Resource Management Plan, 1997 through 2021, that would affect the sustainable timber program development and forest management practices. It is the responsibility of the responsible official to manage the assessment such that it is an analysis and synthesis of the most important relevant information and to ensure that the report has concise findings useful to identifying the need to change the plan. FSH 1909.12-2015-1, Chapter 10, Section 10.4. Strategic documents that guide future management direction regarding bark beetle susceptibility, wildfire risk, and other resource concerns will be considered during the development phase of forest plan revision.

Comment	Responses
Although the Black Hills National Forest provides a table comparing changes to the current suited base, the Black Hills National Forest does not provide any analysis tree or "GIS data and other information relevant to identifying land that may be suitable for timber production." (See FSH 1909.12, ch. 60) Providing GIS data that clearly identifies the total acres of "may be suitable" would be helpful for the assessment. As alternatives are developed, additional GIS data should be provided to help commenters, such as forest products companies, provide valuable feedback regarding operability, new technological advances or harvest systems available for use, and a more constructive dialogue on other reasons for reductions under each alternative.	The intent of the table, Suitability of National Forest Lands for Timber Production, Black Hills National Forest, 1997 and 2021, was to highlight changes to the classification of national forestlands for the suitability of timber production from 1997 (1995 RIS inventory) to 2021. Alternatives will be developed during the upcoming plan revision and NEPA phase of the process.
There is a wealth of science that has been conducted in the Black Hills regarding the use of timber harvest to reduce insect mortality, along with wildfire severity and scale. There is significant improvement needed in the timber assessment, among other assessments, to describe and detail "The ability of timber harvest to affect forest resistance and resilience to stressors such as fire, insects, and disease." We believe this type of analysis also addresses "The impacts of timber harvest on ecological integrity and species diversity."	Thank you for your comment. Please see the Fire and Fuels Assessment as well as the Insects and Disease Assessment for more specific information on these topics.
Significant improvement is needed in describing and detailing "The ability of timber harvest to maintain or restore key ecosystem characteristics of ecological sustainability." There is a substantial need to improve discussion regarding "The current capacity and trend for logging and restoration services and infrastructure for processing wood within the broader landscape." within this assessment. More analysis is also needed to improve analysis on "Trends that drive the supply and demand for timber in the plan area."	Thank you for your comment. We look forward to working with the timber industry and the general public to better consider key ecosystem characteristics and trends that drive timber supply and demand in the upcoming plan revision process.

Comment	Responses
FSH guidance indicates it is also relevant to discuss those socioeconomic contributions in the timber assessment. The most recent Forest Service analysis of economic contributions from the Black Hills National Forest shows that timber harvest is, by far, the greatest economic contributor from the Black Hills National Forest, although recreation, grazing, and other uses of the Black Hills National Forest remain important. We strongly recommend the Black Hills National Forest include the findings from the Forest Service report analyzing economic contributions from the Black Hills National Forest to local communities. Forest Service report found here: https://www.fs.fed.us/emc/economics/contributions/documents/at-a-glance/published/rockymountain/AtaGlance-BlackHills.pdf	A discussion regarding the economic contributions of the forest products industry in the Black Hill timber processing area are considered in the Socioeconomics Assessment.
By completing analysis of the above items, we believe the Black Hills National Forest would be better positioned to identify the "Contribution of timber harvest and production in the plan area for ecological, social, and economic sustainability.", although additional information and analysis will likely be required relating to social and economic contributions. BHFRA and our members would appreciate the opportunity to work with the Black Hills National Forest, and others, in completing this analysis.	Thank you for your comment. We look forward to working with you and your members as we move into the forthcoming plan development stage of the process. Specific socioeconomic information regarding timber harvest levels can be found in the Socioeconomics Assessment.
Factors listed (net growth, area of timberlands, standing inventory, forest structure) may play a role in calculations of sustainable timber program levels it is important for the Forest Service to also include any changes to future desired conditions such as reducing overall inventory to reduce wildfire hazards or pine beetle susceptibility.	Thank you for your comment. We look forward to working with the public to develop desired conditions and other plan components during the forthcoming plan development step of the process.

Comment	Responses
The Forest Service has overlooked numerous sources for data relating to timber inventory, growth, and forest/timberland area including numerous reports from Forest Inventory and Analysis. One example is: Walters, Brian F.; Woodall, Christopher W.; Piva, Ronald J.; Hatfield, Mark A.; Domke, Grant M.; Haugen, David E. 2013. Forests of the Black Hills National Forest 2011. Resour. Bull. NRS-83. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 36 p. https://doi.org/10.2737/NRS-RB-83. In addition to including helpful information about timber inventory on timberlands within the Black Hills National Forest, this report (and others) also includes other helpful information to help interpret the results including: • "Although the Black Hills National Forest is currently experiencing a MPB epidemic that is increasing tree mortality, abundant live growing-stock and sawtimber volume is still available." • "Harvesting of industrial roundwood on the Black Hills National Forest provides not only forest products, but also an economic means to thin dense stands that are susceptible to MPB and forest fires."	All available inventory sources for the Black Hills National Forest were evaluated for the potential to evaluate change to forest vegetation during the assessment period 1997 to 2021. The 2000 periodic inventory for Wyoming and the 2001-2005 annual inventory for South Dakota were determined to be the most appropriate inventories for the time 1 baseline regarding the timing of data collection and consistency for inventory protocols. The 2013 Walters report was not utilized because the inventory data assessed for South Dakota in this report was collected from 2007 to 2011. This inventory was considered too recent to be used as the time 1 baseline for assessing change to forest conditions across the Black Hills National Forest).
It is unclear why the Black Hills National Forest has chosen to only look at timberlands in South Dakota given the wealth of information available to the Black Hills National Forest – including the 2019 FIA timber inventory data for the entire Black Hills National Forest. The Black Hills National Forest describes only utilizing the South Dakota portion of data from the limited years with: "A comparison was made between the 2001-2005 and 2017-2019 Forest Inventory and Analysis (FIA) inventories for available timberlands in South Dakota."	Thank you for your comment. The revised assessment has been updated to better reflect data from Wyoming. Data for Wyoming was not included in the draft assessment because the 2000 periodic inventory data that is available for Wyoming required additional processing by Rocky Mountain Research Station, Forest Sciences Laboratory, FIA, Ogden, UT, before it could be incorporated into the assessment. The comparison of the 2001-2005 and 2017-2019 for timberlands in South Dakota that was incorporated into the draft assessment provided the most reliable comparison of change to stand inventory for growing stock per all available inventory data at the time the draft assessment was released.

Comment	Responses
It is also unclear why the Black Hills National Forest has only looked at data for the years 2001-2005 and 2017-2019 given the wealth of information available. Having a more complete display of how timber inventory has changed over time would benefit the Forest Service in the plan revision process. We recommend incorporating table 3-8a from the Phase II amendment and adding relevant information such as the 6.1 for 1999 includes all tree species including hardwoods.	The scope of the draft assessment was to identify change to forest vegetation conditions in the development of a sustainable timber program. The 1999 FIA inventory report (DeBlander 2002) provides volume and forest type area data for all forestlands including, reserved lands only, so comparisons with the 2017-2019 FIA forest inventory for timberlands or lands designated as suitable for timber production are not possible. This report also lacks tabular data for volume by species by size class, so these comparisons are also not possible.
Please include information from the Phase II FEIS found in table 3-7 to better understand reference conditions on the Black Hills historically.	The tables present a forest-wide comparison of size class distributions only (sawtimber, poles, saplings/seedlings, and non-stocked area/meadows) from 1875 to 1976. The focus of the structural stage discussion in the draft assessment is change to both size and density classes during the implementation of the 1997 forest plan in applicable management areas only.

Comment	Responses
Although we appreciate the Black Hills National Forest reaching out for additional information, not including the information for the public to comment makes it impossible to complete the comment process for this assessment. We encourage the Black Hills National Forest to complete compiling relevant data and then release this additional data for public comment. We appreciate the Black Hills National Forest looking for additional data sources. To be clear, the BHFRA has provided FIA data based on each year of repeated measurements since 2000 on suited lands within the Black Hills National Forest, including timber inventory and gross growth of sawtimber size trees. FIA has previously found this method satisfactory, describing it as "The expansion and adjustment factors were computed for this specific sample/stratification pairing, yielding an unbiased estimate." (FIA response to BHFRA consultant report) Although we have not previously provided the same information for growing stock, seedlings, etc, we will begin compiling this information in an effort to help the Black Hills National Forest in their assessment process. This information is already readily available for timberlands within the Black Hills National Forest and is available from 2000, when FIA permanentized the Black Hills National Forest plots, to 2020.	The information provided by the BHFRA is assumed to be the "Review of Black Hills National Forest 2017-2019 Augmented FIA Inventory Results" (prepared for the BHFRA by Scharosch, Huebschmann, and Montzka). This report was provided to the forest in July 2020. This report assesses FIA data starting with data collecting in 2006 for South Dakota and 2016 for Wyoming. The comparison requested from the Rocky Mountain Research Station provides estimates of change to forest conditions for a longer time period starting with data collected 2001 to 2005 in South Dakota and the 2000 periodic inventory for WY. The FIA response to the BHFRA report is available on the Black Hills National Forest public website under Managing the Land/Resource Management/Timber Sustainability on the Black Hills National Forest/Supporting Documents/"FIA Responses to "Review of the Black Hills National Forest 2017-2019 Augmented FIA Inventory Results" Report September 2, 2020".
P. 3, Limitations with the Standing Inventory Comparison "…since forest inventories were not stratified by suitable lands until the 2017-2019 FIA data collection effort and the most reliable data sets for Wyoming are not yet available." Although this statement is true in the sense that FIA has not previously provided this information in periodic, written reports it is false in the sense that this information can be attained through the same process used by BHFRA and verified by FIA.	This statement in the draft assessment refers to existing FIA protocols and was clarified in the revised assessment. Custom work (output that can't be produced via queries in the public Evalidator application), including stratification of data for an area such as land suitable for timber production, has always been performed by FIA analysts, as requested by the forest, to ensure accuracy and consistency with FIA protocols.

Comment	Responses
"Inventory changes on suitable lands where timber production has been concentrated are expected to be greater than the changes to timberlands." This statement does not have a citation or any supporting information other than speculation and should not remain in the final assessments without quantification. FIA has previously (August 2017) reported impacts to net growth, among other metrics, to the Black Hills National Forest comparing impacts on suited lands to all timberlands. The results suggest the statement in the assessment may be outright false. As an example, from the FIA presentation, FIA found that at least through the first 20 years of beetle epidemic net growth on suited lands had not turned negative as opposed to negative growth when including unsuited lands into the total. This suggests the impacts on the smaller set of unsuited timberlands are likely much greater than the suited base which has undergone management to reduce impacts of beetles and fire. The Black Hills National Forest should review additional data sources before including any speculative comments.	Thank you for your comment. The comparison inventory data provided by Rocky Mountain Research Station for the revised assessment indicates that changes to the standing inventory have been greater on lands that are suitable for timber production than changes on timberlands outside of lands designated as suitable for timber production.
"Timber production increased in response to the MPB epidemic starting in 2004." AND "Removals of sawtimber and products other than logs (POL) increased during the epidemic." These statements are misleading, at best. We note the mountain pine beetle epidemic began in 1997. The graph below is generated from Forest Service PTSAR and Cut and Sold reports. Although the timber sale program did increase in 2004, it had been near zero before and did not increase to the level of the Allowable Sale Quantity in the Forest Plan. Between FY 1997 and FY 2021, timber sales totaled more than 650,000 CCF less than the ASQ in the Forest Plan – or more than 3 years of timber sale ASQ not sold.	ASQ is an estimate of potential maximum commercial timber yield from suitable lands over a ten-year period and does not represent a commitment, duty, or contract. Average annual volume sold, all products, for the first decade of the 1997 forest plan, 1997 to 2006 was 126,104 CCF. The timber program level increased during the second decade, 2007 to 2016, to an average annual volume sold, all products, of 194,715 CCF. Majority of the forest management that resulted in this level of timber production was associated with treatments intended to reduce mountain pine beetle mortality.

Comment	Responses
Any references to changes to suited base should clearly reference those changes as only applicable to the current Plan and not to the revision process. Phrasing and use of future tense language imply these changed are in reference to potential suited acres in the revision process. It is unclear how the Black Hills National Forest would be able to establish a new suited base in the assessment phase, with reductions in categories such as “less remaining portions of areas managed for other multiple uses”, or “less late succession” before establishing new management direction through the revision process. Although the “may be suitable” acreage would not be expected to change by alternative, deductions for various categories would. It is also unclear how late succession acres have increased following the previous plan revision as the Black Hills National Forest describes a need to set aside additional acres going forward to compensate for losses of late succession forest. The doubling of acres considered uneconomical for timber harvest should be revisited in light of recent field trips to southern unsuited base lands and a strong request from forest products companies for more than five years to harvest additional steep slope ground.	The suitability classification comparisons present in the assessment states "These classifications are consistent with the 1982 Planning Rule to highlight key changes in land classes by planning factors but does not represent final classification per the 2012 Planning Rule that will support new forest plan direction." The 2021 suitability classifications presented in both tables (FSVeg) are draft classifications that will be evaluated during the development phase. The increase in the total late successional area in the forest inventory layer was based on new field survey and inventory information that is typically collected to support the planning and implementation of vegetation management projects. The total area of forest stands that meet late successional criteria has declined primarily due to mountain pine beetle mortality. Forest stands that are currently designated as late successional, additional forest stands that may currently meet late successional criteria, and forest stands that do not currently meet late successional criteria but that can be managed to promote late successional conditions in the short term will be assessed during the development phase. Areas that are currently designated as uneconomical for timber production, the purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use, will also be re-evaluated during the development phase.

Comment	Responses
We agree with the statement that "Many system drivers can be stressors if they are operating in atypical ways, outside of their natural range of variation." We believe the Black Hills National Forest should develop this idea further by examining changes to forest structure following settlement and relating those changes to increased wildfire hazards and pine beetle risk. Although portions of the Black Hills National Forest have been affected by pine beetle, wildfire, or improved through timber harvest operations, it is important to more finely quantify these affects. As example, in many wildfires, only a portion of the acres affected are done so through high severity impacts. Additionally, it is unclear whether the pine beetle impacted acres include the acres from early surveys that over-represent acres. It is also important to quantify impacts from pine beetles as most areas do have forest structure remaining following infestation, although various intensities of change to that structure will likely have different implications for forest planning.	Thank you for your comment. The revised assessment better explains this by adding a statement regarding the accuracy of forest health protection aerial detection surveys and how the survey protocol changed in 2010. The revised assessment also adds mountain pine beetle mortality acres. Alternative management scenarios will be prepared during the development phase of forest plan revision that consider a range of forest conditions and other resource considerations.
These statements imply that the Black Hills National Forest increased the timber sale program to levels not previously utilized. However, in the decades before the 1997 Plan, the Black Hills National Forest sold much more timber than under the current Plan regardless of the mountain pine beetle epidemic. We recommend the Black Hills National Forest amend these statements for relevance and better informing the planning process, to include total timber sold versus ASQ, and the reduction in timber sales under the current Forest Plan compared with the previous 20 years of timber sales.	The scope of the draft timber assessment was to evaluate change to forest vegetation conditions during implementation of the 1997 Land and Resource Management Plan, 1997 through 2021, that would affect timber program development and forest management practices. It is the responsibility of the responsible official to manage the assessment such that it is an analysis and synthesis of the most important relevant information and to ensure that the report has concise finding useful to identifying the need to change the plan. FSH 1909.12-2015-1, Chapter 10, Section 10.4

Comment	Responses
"Commercial timber production practices during this time [MPB Epidemic] emphasized the removal of live trees only. Recently killed or older mortality were infrequently salvaged." This statement is not accurate. According to the Forest Service Forest Health Report – Black Hills NF/R2, SPF & TR,FHP, RCSC-SR-01 (found at https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd721758.pdf, "During the period 2012-2017 partners non-commercially treated 1.3 million infested trees and sawmilled 1.4 million infested trees. Partners also created more resilient forests by commercial harvest (thinning) 188,000 acres and pre-commercial thinning 73,000 acres." 1.4 million infested, dead, or dying trees is not "infrequently" salvaged. Removing trees that had been killed by MPB, but still had beetles inside, also reduced the spread potential of new MPB infestation (Negron, 2017). Trees that had been infested and killed long enough ago to have lost their foliage were not generally harvested due to exceptional breakage during sawmilling.	Thank you for your comment. This discussion in the revised Timber Assessment has been expanded to better explain removal of live trees. Discussions with forest products industry representatives and agency entomologists during the mountain pine beetle epidemic resulted in agreement to defer the salvage of beetle killed trees. As a result, cut trees were defined in forest timber sale contracts as trees with green needles only that met utilization standards (regardless of the amount of live crown and infestation status).

Comment	Responses
The assessment states that "The highest level of MPB affected acres was detected in 2003 via Forest Health Protection Aerial Detection Surveys." According to the referenced table 16, there were 173,685 acres of pine beetle impact detected that year. The assessment then states that "MPB related mortality peaked in 2013, and MPB populations returned to endemic levels in 2016. Referencing table 16, there were 32,406 acres affected in 2013 – almost 5.5 times fewer acres than 2013. The assessment then states that "MPB impacts occurred on an estimated 412,500 acres of national forest lands." Although there are some missing details that could help clear up the apparent conflicting statements, we recommend the Black Hills National Forest remove table 16 and references to those acres. We also recommend the Black Hills National Forest include the table of MPB mortality acres recently presented by the Black Hills National Forest indicating 221,000 acres of mortality on the Black Hills National Forest. We are including a copy of the table in Appendix A. The assessment states that "MPB impacts were lower in Wyoming. Higher site productivity on the Bearlodge Ranger District may have been a factor for increased tree resistance to MPB attacks." This statement lacks any scientific references and is in contrast to other scientific research on the Black Hills which has found a direct correlation between forest density and MPB mortality. This statement also excludes that previous MPB epidemics have been centered in the Bearlodge portion of the Black Hills. We recommend the Black Hills National Forest provide strong scientific references when making statements such as this.	Thank you for your comment. The assessment has been revised to add information about the accuracy of the forest health protection aerial detection surveys and the change in protocol in 2010. The revised assessment also removes the statement about MPB impacts in Wyoming. Annual aerial detection surveys contain overlap from year-to-year regarding affected acres. For this reason, the estimate of 412,500 affected was derived from spatial overlay operations that eliminated overlapping acres. Mountain pine beetle mortality acres have also been added to the assessment. Estimated mortality acres are lower than affected acres. Mountain pine beetle mortality occurred on approximately 50% of affected acres (excluding overlap).

Comment	Responses
The assessment asserts that "A high level of even-aged and two-aged management creates a landscape that is more susceptible and less resilient to MPB mortality when [the] majority of the ponderosa pine forest is mature." This statement lacks any scientific notation and is against the bulk of other scientific studies that have been conducted in the Black Hills and other regions. Negron, et al (2017) found a significant reduction in MPB mortality in stands that had been commercially thinned during the MPB epidemic. Negron concluded that in the Black Hills, "Percent ponderosa pine basal area and tree density killed by MPB in unthinned stands were 38.2 and 34.4 % compared with 3.9 and 3.6 % in thinned stands, respectively. All stands were thinned within 2 years of exposure to MPB, suggesting a rapid effect from thinning treatments in mitigating tree mortality attributed to MPB. Stand density reductions through silviculture across a large geographical area can abate MPB-caused tree mortality." Negron notes that sampling was done in stands that "that had been commercially thinned…" Negron goes on to state "Thinned stands had larger QMD (Mean Diameter) for all species and for ponderosa pine." And that "Ponderosa pine mortality levels were higher in the unthinned stands as indicated by higher ponderosa pine basal area killed, ponderosa pine tree density killed, percentage of ponderosa pine basal area killed, and percentage of ponderosa pine tree density killed." Negron also concluded that "The thinning treatments examined in this study were implemented amid an extensive MPB epidemic and therefore were implemented under a worst-case scenario. Because bark beetles exhibit periodic eruptive outbreaks, the current thinking is that silvicultural management should be conducted between outbreaks when populations are at low levels and not implemented when insect populations are active (Fettig et al. 2007).	Thank you for your comment. The revised assessment includes an expanded discussion on uneven-aged management on the Black Hills National Forest.

Comment	Responses
(Continued from Previous Page) We note the Black Hills National Forest assessment states that "Forest silvicultural practices have been primarily even-aged and two-aged from 1997 to 2021 (95%)." These even-aged practices would be the exact treatments used in Negron's work. There is a multitude of other scientific studies done examining the reduction of MPB mortality following even-aged silvicultural treatments including: Sartwell and Stevens 1975, Negron and Popp 2004, Schmid and Mata 2005, Negron et al. 2008a, Sartwell and Dolph 1976, Schmid and Mata 2005, Egan et al. 2010, Graham et al. 2016. The assessment continues by discussing increased risk and effects from MPB in even-aged silvicultural systems but does not support any of those statements with a scientific notation. We, again, find these types of statements necessitate strong scientific citations. We recommend the Black Hills National Forest add in the findings of Negron and other publications regarding the reduction of MPB mortality through even-aged treatments and remove any statements counter to these findings without strong scientific support.	(Continued from Previous Page)

Comment	Responses
We agree that wildfires pose an outsized risk to the Black Hills National Forest and that some climate model projections suggest the potential for additional periods of drought that may increase the risk of wildfires. However, we do not agree with numerous statements regarding fire impacts and find it troubling that the assessment does not discuss proven effective silvicultural treatments implemented under the current Forest Plan that have successfully reduced fire severity and tree mortality during wildfires. The assessment assets that prolonged fire seasons "…may diminish the potential for forest regeneration and growing stock potential (Graham et al. 2021). This is only true if stand densities are high/hazardous and results in high severity fire effects on a landscape scale. The assessment is lacking any discussion on the ability to prevent these types of outcomes and is a critical oversight. The assessment uses the Jasper Fire as an example. Unfortunately, the wording seems to suggest the entire 83,511 acres of the Jasper Fire burned at high severity and is now a grassland. Statements such as "…burned 83,511 acres, primarily on the Hell Canyon Ranger District, have converted areas of high burn severity to grasslands for decades in not centuries and decreased the total area of ponderosa pine forest. This will have long-term impacts without management intervention on a scale comparable to the disturbance event. (emphasis added) This statement lacks context including the fact that only 27 percent of the Jasper Fire burned at high severity (Lentile 2006). We strongly recommend the Black Hills National Forest isolate the portion of the 172,000 acres of wildfire that burned at high severity and to also describe the Jasper Fire as 27 percent burned at high severity necessitating planting efforts.	Thank you for your comment. Please see the Fire and Fuels Assessment for more specific information on drought and increases to fire risk. See also the discussion on departure from historic fire regimes and recent changes in wildland fire behavior. The discussion regarding the impacts of wildfire is focused on the conversion of forest stands to grasslands (structural stage 1). Jasper is cited as one example of several wildfires since 1997 that have converted forestlands to grasslands and increased forest needs for planting. Only portions of the Jasper burn area were considered areas that would not regenerate to forest cover in the short-term without management intervention. The estimated change from forest cover to structural stage 1 from 1997 to 2021 totals 58,413 acres. This estimate accounts for all disturbances that would change the vegetation type during the period assessed.

Comment	Responses
The assessment uses NRS-83 to detail timber removals as higher than net growth during the height of the MPB epidemic. Although the 0.88 net growth to removal ratio is accurate, the assessment leaves out other information important for context. That information includes the findings in the report that "Ponderosa pine dominates the average annual net growth of growing stock across the Black Hills National Forest, exceeding 21 million cubic feet/year on timberland." And that NRS-83 states that "In 2009, 29.3 million cubic feet of industrial roundwood was harvested from the Black Hills National Forest and processed at nearby mills." Further, it is important for the assessment to acknowledge that the average volume cut (all products) (from Forest Service cut and sold reports) from 2008-2010 was 225,840 ccf with a maximum single year of 237,624 ccf in 2010. This is in contrast to the 293,000 ccf specified in NRS-83 which was estimated through a questionnaire and not obtained through actual timber harvest calculations. Also important from NRS-83, is the context of the findings in the report. Under "What this means", NRS-83 concludes that "Although the Black Hills National Forest is currently experiencing a MPB epidemic that is increasing tree mortality, abundant live growing stock and sawtimber volume is still available."	Thank you for your comment. The revised assessment now includes footnotes from Graham et al. 2021. The references to NRS-81 and NRS-83 were included in the discussion about net growth to establish a timeline for when the forest and key stakeholders recognized that net growth and net change may have been trending from positive to negative. Despite the inflated harvest removal total of 293,000 CCF that was applied to the 0.88 net growth to removal ratio in NRS-83, the actual annual average removals of 225,840 from 2008 to 2010 would have exceeded the average annual net growth reported in NRS-83 of 217,080 on forest ownership indicating the need for close monitoring during the mountain pine beetle epidemic. Annual NRS FIA reports for the Forest Resources of South Dakota for timberlands following the publication of NRS-83 in 2013 and prior to the public release of the 2017-2019 FIA inventory to the public in January 2020 indicate that mortality has increased annually, and net change has been consistently negative. The statement regarding the 0.88 net growth to removal ratio has been replaced with a statement regarding negative net change on timberlands per annual NRS FIA inventories, 2006-2020 for the forest in South Dakota (timberlands, public Evalidator 2.0). These inventories indicate that net growth for ponderosa pine sawtimber has been negative since the 2009-2014 measurements and net change has been negative since the earliest available measurement period 2006-2010.

Comment	Responses
(Continued from previous page) The assessment references Table 1 in discussing changes to growth and timber inventory on the Black Hills National Forest but excludes all footnotes and other exceptionally relevant details including acres, area included outside the Black Hills National Forest, which years have spruce, and which don't, etc. Those footnotes are found in Graham et al (2021) and MUST be included. Further, we also strongly recommend the Black Hills National Forest include an additional column of timber volume per acre to provide a better understanding of relative changes over time. This is exactly the concern we have raised from the beginning that these tables and graphs will be misconstrued and used out of context.	(Continued from previous page) Statements in NRS-83 regarding the sustainability of the forest timber program were based on gross growth, mortality, and net growth rates from two full cycle periodic inventories in Wyoming (2000 and 2005) and two full cycle annual inventories in South Dakota (2002-2006 and 2007-2011) that were not representative of rates from 2013 to 2019.

Comment	Responses
The assessment states that "Graham et al. (2021, p. 35) found that positive net growth and an increase in inventory would likely only occur over the next several decades at timber program levels of 90,500 and 72,400 CCF per year (ponderosa pine sawtimber). The assessment goes on to include the selected passage from the GTR. We find the use of this statement unconscionable and a statement which has no place in the assessment. We find this for the following reasons: ▪ The GTR only looks at 765,734 acres of the ~1.2 million acres of the Black Hills National Forest. Use of this reference assumes that timber sale activities will be limited to those 765,000 acres – which cannot be determined at this point in the assessments unless the Black Hills National Forest has already decided, before the NEPA phase, what acres may contribute to the timber sale program. ▪ Use of this reference is ignoring the tremendous amount of discussion within the GTR regarding the need for continuous monitoring to adjust the sale program higher/lower and that numerous other outcomes are possible with lower mortality, higher growth, management, etc. ▪ Use of this statement also does not move the assessment any closer to quantifying the broader timber resources found on the Black Hills National Forest in entirety.	Thank you for your comment. The revised assessment removes the quotation and now includes expanded discussion on the findings of Graham et al. It also includes more information on monitoring, as well as the FIA comparison data, discussing changes to the forest growing stock for both ponderosa pine and white spruce. One of the key findings in Graham et al. 2021 is that a sustainable timber program level or a net increase in the standing inventory would only occur with positive net growth and timber program level in the 72,400 to 126,700 CCCF range. Conclusions are based on an estimated 765,733 acres from the 2017-2019 intensified FIA inventory. This area represents 100% of the 2021 draft suitable lands and 77% of may be suitable lands (based on 994,207 acres) when non-stocked areas are deducted. The deduction of non-stocked areas adjustment is consistent with FIA protocol which, unlike forest inventory data, separates non-stocked areas from conifer and hardwood forest types. The 2021 acres by timber suitability classifications presented in the assessment represent draft classifications that will be evaluated during the development phase of forest plan revision and available for public comment. Both PTSQ and PWSQ estimates will consider volume outputs from all national forest lands, suitable, may be suitable, and unsuitable.

Comment	Responses
Figure 3 does not match the values in Table 17, which both describe the same changes in ponderosa pine timber stocking over the same years. We recommend updating the graph to match figure 17. In evaluating changes shown in figure 17, an interesting detail has arisen. The Black Hills National Forest appears to be using growing stock volumes for trees 5"-8.9" and using a separate sawtimber volume estimate for trees greater than 9" DBH. This appears to be different than historic FIA reports which reported sawtimber volumes, in board feet, separate from growing stock tables. Growing stock tables used growing stock volumes for all trees greater than 5" DBH. These differing methods introduce confusion when comparing to previous FIA reports and are a potential source for misinterpretation. As an example, we have included the growing stock volumes from the 2019 FI data to the Black Hills National Forest in Appendix B. This results in an additional more than 1 million ccf of volume. We recommend continuing the analysis methods used by FIA to reduce the potential for misinterpretation. We also recommend expanding this graph to show changes on the Black Hills National Forest since the late 1800s. This graph, and related discussion, seems to suggest the Black Hills National Forest is planning a program to return the timber stocking conditions to those found circa 2000 – the conditions which prompted the MPB epidemic and higher severity wildfires. If that is not the case, it would be helpful to see the changes over time from the late 1800s. As referenced earlier, these changes can be found in the Black Hills National Forest table from Phase II Amendment. We appreciate the details provided of timber inventory changes by POL and sawtimber.	Thank you for your comment and bringing to our attention the discrepancy in the table values. The revised assessment replaces that with the comparison data recently provided by the Rocky Mountain Research Station, Forest Sciences Laboratory, FIA, Ogden, UT. The scope of the draft timber assessment delegated to the forest plan revision team was changed to forest vegetation conditions during implementation of the 1997 Land and Resource Management Plan, 1997 through 2021, that would affect sustainable timber program development. It is the responsibility of the responsible official to manage the assessment such that it is an analysis and synthesis of the most important relevant information and to ensure that the report has concise findings useful to identifying the need to change the plan. FSH 1909.12-2015-1, Chapter 10, Section 10.4. The inventory comparison data was intended exclusively to identify the change in volume from time 1 to time 2 for growing stock diameter classes. There has not been any discussion to date regarding desired forest conditions and associated inventories levels by the forest plan revision team. This will not occur until the development phase of forest plan revision.

Comment	Responses
The assessment states that "The total area for lands designated as may be suitable and suitable for timber production has decreased…" and that "This decrease will reduce long-term volume yield estimates (SYL) and short-term program levels (PTSQ/PWSQ)." These statements appear to be in reference to upcoming plan revision and development of alternatives. If so, these statements are not appropriate for the assessment phase as there would be a suite of alternatives expected from plan revision, with varying acreages of suitable for timber production. If the assessment is referencing changes that are only relevant to the current Plan, then we recommend clearly stating that.	Thank you for your comment. The revised assessment has been clarified regarding comparable volume factors and the area applied.
The statement of "…an increase in areas designated as uneconomical or infeasible for timber production… will impact timber program levels…" is inaccurate and does not account for new harvest equipment and opportunities to treat these areas in an economic and environmentally friendly manner. The Black Hills National Forest should present GIS data for analysis to forest products companies of any areas deemed uneconomical or infeasible and meet with the companies to determine any changes.	Timber production is defined as the purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use (FSH 1909.12-2015-1). Timber production will occur on lands designated as suitable for this level of management and output and will be consistent with desired future conditions. Although logging on steep slopes without causing irreversible resource damage may be feasible it is undetermined if the removal of commercial forest products from these types of sites would occur through long-term, intensive forest management or would instead be associated with management intended primarily to meet multiple-use purposes (timber harvest) which can occur on lands designated as unsuitable for timber production when harvest is consistent with desired future conditions. The 2021 acres by timber suitability classifications presented in the assessment represent draft classifications that will be evaluated during the development phase of forest plan revision and available for public comment.

Comment	Responses
We disagree with the statement that "...commercial timber production in these areas will be limited for the next two decades to primarily low yield thinning and uneven-aged practices that enhance late successional conditions in the mature, moderate closed (SS4B), and closed stands (SS4C)." This indicates the Black Hills National Forest has already determined their preferred alternative for the revision process early in the assessment phase and excludes all public involvement in determining the course of plan revision and developing alternatives. This statement, and others of similar prejudice, have no place in an assessment and should be removed.	Thank you for your comment. References to structural changes were updated to be habitat structural stages (HSS) throughout the document for consistency. The assessment has been revised to clarify the statement regarding low yield thinning in moderately closed (HSS4B) and closed stands (HSS4C). This is referring to forest management levels based on the existing structural stage distribution following implementation of the 2018 Black Hills Resilient Landscape Project.
In the same sense of the previous recommendation, we recommend the Black Hills National Forest remove the statement that "Much of the net growth in the mature ponderosa pine forest will occur on trees that are reserved to meet multiple use objectives." This also seems to be referring to the Plan in the future tense and indicates the Black Hills National Forest has already determined the preferred alternative and direction and has no place in an assessment.	The statement regarding net growth is based on existing conditions, specifically the higher percentage of open, mature ponderosa pine stands, and lower inventory levels in comparison with conditions in 1997. A greater proportion of net growth will occur on trees that are retained to meet multiple use objectives when inventory levels are closer to levels associated with forest plan objectives and desired future conditions than when inventory levels are more departed from forest plan objectives and desired future conditions.
We disagree with the limited examples given with no discussion of deviation to reduce wildfire hazards or mountain pine beetle mortality. We recommend any discussion of deviation also include that the Black Hills National Forest may need to deviate from desired tree density/size to reduce MPB risk and wildfire hazards.	Forest management direction regarding density and size class distributions and associated bark beetle susceptibility and wildfire risk will be assessed during the development phase of forest plan revision. The brief discussion and examples provided in the assessment are intended only to suggest that a static distribution may limit the ability of managers to adapt management to conditions that were unforeseen during the development of the forest plan.

Comment	Responses
The statement that "The current level of uneven-aged management Forestwide needs to increase to enhance forest resiliency to large-scale MPB epidemics and better meet other resource needs such as enhancing wildlife habitat for species that rely on forest conditions with complex, heterogenous structure such as the northern goshawk." is problematic: Assessments are the first step in a long forest planning process and are not the place to portray decisions about uneven-aged management as having already been made. As stated earlier, even-aged management and reducing the potential for mountain pine beetle epidemics and stand-replacing fires are not mutually exclusive.	Thank you for your comment. The text regarding uneven-aged management has been expanded and clarified in the revised assessment. The forest plan revision team has not discussed desired ratios of even-aged to uneven-aged management. This intent of this section is to highlight the need to assess the various levels of uneven-aged management in conjunction with desired future conditions and multiple use objectives during the development phase of forest plan revision.
Even-aged management strategies for the Black Hills National Forest can, and should, be designed with lower stocking levels as necessary to achieve 1) desired conditions, 2) a lower risk of stand-replacing crown fires, 3) a lower risk of mountain pine beetle epidemics, and 4) a higher likelihood of forest resiliency and sustainability. Uneven-aged management is not without risks of fires and mountain pine beetles, and uneven-aged management is not nearly the sure-thing portrayed on page 5. This statement disregards the most recent research by Graham et al (2015) regarding goshawk in the Black Hills National Forest. Graham recommends an ideal stand condition that never exceeds 78 sq. ft. BA. (p78) in relatively single storied stands for goshawk in the Black Hills National Forest.	Thank you for your comment. The assessment has been revised to provide more information regarding uneven aged silvicultural prescriptions.

Comment	Responses
We agree that the Black Hills National Forest should increase volume sold and utilization of POL sized material. The following statement should not be in an assessment, and we recommend removing it: "Forest management needs on the Black Hills National Forest are shifting away from a program that emphasizes the management of mature ponderosa pine stands (SS4 classes) to the thinning of younger stands." As with several other components of the Need for Change, many of the statements in this paragraph appear premature and suggests the Black Hills National Forest has already selected a preferred alternative/direction for the Plan revision and effectively excludes the public from this process. This statement ignores the letter from South Dakota and Wyoming State Foresters, sent August 2021, which urged the Black Hills National Forest to reduce the acreage of dense SS4 stands on the Black Hills National Forest to better reduce wildfire hazards and MPB risk.	Thank you for your comment. The discussion in the "Product Mixes" section is based on increasing needs on the forest to treat smaller diameter material per changes to forest size classes and densities 1997 to 2021. The forest plan revision team will not develop management direction until the development phase of plan revision.
Sustainable Timber Program Levels – With 20/20 hindsight, for any number of reasons, the 1997 revised forest plan missed how continued increases in the standing inventory would set the stage for catastrophic fires and a devastating mountain pine beetle epidemic. As part of the new forest plan revision, it will be important to carefully consider a standing inventory and plan components that will be more sustainable over the long-term, even if that desired standing inventory is lower than the current standing inventory.	Management direction will be prepared during the development phase of plan revision that consider a range of forest conditions including insect and diseases susceptibility, wildfire risk, the enhancement and maintenance of quality wildlife habitat for a range of species, and other resource considerations.
Late Successional Stands – The highest priority for Late Successional Forest should be on the thousands of acres of unsuitable timberlands. Once stands are identified for Late Successional management objectives, those stands should be managed for Late Successional objectives permanently, regardless of fires or mountain pine beetles or other events. Not managing Late Successional stands to ensure their longevity, and then expecting to substitute for stands now in the Suitable and Available timber base if they experience mortality is not a satisfactory long-term approach.	Forest management that promotes and/or maintains late successional conditions is consistent with multiple-use management and can be considered on suitable, may be suitable, and unsuitable lands for timber production.

Comment	Responses
"Sustainable Timber Program Levels" should be amended to explain that the reason the revised forest plan harvest levels 'were not sustainable' was because high stocking levels in the Structural Stage Objectives were highly susceptible to attack by mountain pine beetles.	A statement regarding high mountain pine beetle susceptibility at the beginning of the assessment period has been added to the draft assessment under the "Mountain Pine Beetles" section, Chapter 3. This is not entirely due to the area of ponderosa pine forest in each structure stage class. It is important to consider, when assessing density and size class metrics, that classes have wide density ranges. Bark beetle susceptibility can be lowered in a mature ponderosa pine, moderately closed class (4B) for example without changing the structural stage class. Desired future condition alternatives, management scenarios, and associated size and density classes will be assessed during the development phase of forest plan revision for bark beetle susceptibility.
The "Structural Stage" discussion is premature for this stage of the forest planning process. There is no basis for the statements specifying types of treatments when no Desired Conditions have been developed for any of the to-be-developed alternatives.	References to structural changes were updated to be habitat structural stages (HSS) throughout the document for consistency. The discussion is an assessment of change to forest structure from 1995 (the forest inventory layer applied to the 1997 plan revision process) to 2021 using current management direction and forest inventory data only and does not include recommendations for desired future conditions or changes to management direction. Change to forest structure during the period assessed indicates a need to re-evaluate 1997 Forest Plan timber program levels.
There is nothing in the Uneven-aged Management section, or elsewhere in any of the assessments, to support the unfounded assumption that uneven-aged management is somehow intrinsically superior to even-aged management for Black Hills ponderosa pine.	Thank you for your comment. The discussion regarding uneven-aged management has been expanded in the revised assessment.

Comment	Responses
The entire Product Mixes section is premature, especially the statement that "Forest Management needs on the Black Hills National Forest are shifting away from a program that emphasizes the management of mature ponderosa pine forest stands (SS4 classes) to the thinning of younger stands".	The discussion in the Product Mixes section is based on increasing needs on the forest to treat smaller diameter material per changes to forest size classes and densities 1997 to 2021. These needs are assessed by the forest on an annual basis.
After a thorough review of the timber assessment, we don't believe the Black Hills National Forest has satisfied requirements of the 2012 Planning Rule or Forest Service guidance found in FSH 1909.12, Chapter 10, Section 13.33. This assessment also falls short of meeting the bar for best available scientific information (BASI) with a library of more than 100 years of valuable research conducted on the Black Hills National Forest that is almost entirely unaccounted for. Further, there are also numerous statements made in the assessment that 1) are not appropriate for the assessment phase and/or 2) have no scientific support listed and are in contrast to previous findings of multiple researchers. We strongly recommend the Black Hills National Forest complete, and release to the public for review and comment, a second draft of the assessments that more accurately portrays current forest resources, benefits of timber harvest in reducing susceptibility to pine beetles and wildfire hazards and captures the body of research available to the Black Hills National Forest regarding these components of the assessment.	All requirements of the Planning Rule were met. Assessments were released for public review and comment for 45 days and have been revised based on public review. The scale, scope, and timing of assessments is discretionary and is set by the responsible official, the forest supervisor, early in the process. The scope of the draft timber assessment was change to forest vegetation conditions during implementation of the 1997 Land and Resource Management Plan, 1997 through 2021. It is the responsibility of the responsible official to manage the assessment such that it is an analysis and synthesis of the most important relevant information and to ensure that the report has concise findings useful to identifying the need to change the plan. We look forward to engaging the public in the upcoming plan development stage of the process.

Comment	Responses
The counties of the Black Hills have long played a critical role in forest management to reduce the impacts of mountain pine beetles and wildfires. Along the way, numerous documents have been produced that detail the local strategies implemented, and successes found through them. Some of those documents include the Black Hills Mountain Pine Beetle Strategy, Actions Plans to implement the Pine Beetle Strategy, a Lessons Learned document following the pine beetle epidemic, and the Black Hills Resilient Forest Strategy, among others. These documents are housed on Forest Service websites but can also be provided. We recommend the Black Hills National Forest document the tremendous amount of collaborative efforts and incorporate the highly successful work from that process into the assessment as examples of opportunities to reduce threats from insect infestations and wildfires.	Thank you for your comment. See explanation above regarding the scope and scale of the assessments. We look forward to continuing the collaboration efforts mentioned in this and other comments with counties and other interested parties during plan revision.

Comment	Responses
We recommend the Black Hills National Forest review and incorporate timber inventory data beyond the years 2001-2005 and 2017-2019, given the wealth of information available. Having a more complete display of how timber inventory has changed over time would benefit the Forest Service in the plan revision process. Incorporating table 3-8a from the Phase II amendment and adding relevant information such as the 6.1 for 1999 included all tree species including hardwoods, would be a good start to better illustrating changes of time to timber inventory levels. The assessment makes numerous statements that are simply prejudicial and pre-decisional in nature. One example of such statements is "...commercial timber production in these areas will be limited for the next two decades to primarily low yield thinning and uneven-aged practices that enhance late successional conditions in the mature, moderate closed (SS4B), and closed stands (SS4C)." Similarly, the assessment contains statements of "Much of the net growth in the mature ponderosa pine forest will occur on trees that are reserved to meet multiple use objectives." and "Forest management needs on the Black Hills National Forest are shifting away from a program that emphasizes the management of mature ponderosa pine stands (SS4 classes) to the thinning of younger stands."	Thank you for your comments. Assessments are not Forest Service decisions, nor plan direction. We look forward to working with external partners during the plan development phase of the revision process. References to structural changes were updated to be habitat structural stages (HSS) throughout the document for consistency. The revised assessment has been modified to better clarify this. The discussion of moderately closed (HSS4B) and closed stands (HSS4C) is referring to forest management levels based on the expected structural stage distribution following implementation of the Black Hills Resilient Landscape Project. The draft assessment statement regarding net growth is based on existing conditions, specifically the higher percentage of open, mature ponderosa pine stands, and lower inventory levels in comparison with conditions in 1997. A greater proportion of net growth will generally occur on trees that are retained to meet multiple use objectives. The statement regarding future management needs is based on existing conditions and increasing needs on the forest to treat smaller diameter material per changes to forest size classes and densities 1997 to 2021. The forest assesses these needs on an annual basis.

Comment	Responses
The assessment inappropriately includes GTR tables which should include footnotes referencing the 2019 timber inventory is based on only about 60 percent of the acres used to establish the timber inventory in 1999. A roughly 50 percent reduction on 40 percent fewer acres is vastly different than stating timber resources have been reduced by 50 percent on the Black Hills National Forest. Other critical discussion in the GTR that highlights the necessity of monitoring growth and mortality, and making adjustments through time is also missing. Instead, the assessment pulls out a single passage that mischaracterizes the broader findings in the GTR.	The footnotes for Graham et al. 2021 (GTR-422) have been added to the assessment. Regarding the scale of the 2017-2019 FIA intensified inventory in Graham et al. 2021: One of the key findings in Graham et al. 2021 is that a sustainable timber program level or a net increase in the standing inventory would only occur with positive net growth and timber program level in the 72,400 to 126,700 CCCF range. The quotation has been deleted from the draft assessment and a clarifying paragraph inserted. An explanation regarding the scale of the findings of Graham et al. has also been added to the assessment. The 2021 acres by timber suitability classifications presented in the assessment represent draft classifications that will be evaluated during the development phase of forest plan revision and available for public comment. Both PTSQ and PWSQ estimates will consider volume outputs from all national forest lands, suitable, may be suitable, and unsuitable. A discussion regarding the need for the monitoring of gross growth, mortality rates, and net growth has been added to the assessment.