

## STHA summary of public comments and DNR responses

### Contents

|  |    |
|--|----|
| STHA summary of public comments and DNR responses.....   | 1  |
| Sustainable Timber Harvest Analysis Raw Public Comments .....  | 10 |
| Public comments from the Public Comment Form, sorted by question .....   | 10 |
| What should be clarified, removed, expanded upon, etc.? Please include page numbers if your comments refer to specific parts of the report. ....         | 10 |
| What specific concerns do you have about the report’s accuracy? Please include page numbers if your comments refer to specific parts of the report. .... | 12 |
| Please tell us a little about the importance these forest-related values hold for you: .....   | 16 |
| What should be added? Please include page numbers if your comments refer to specific parts of the report. ....   | 29 |
| After reading the report, is there anything else you would like us to consider that was not covered above?.....  | 36 |
| Letters (Letters were broken up and sorted by themes).....   | 42 |
| Emails (Emails were broken up and sorted by themes).....   | 66 |

## Overview

On November 2, 2016, Governor Dayton directed DNR to conduct a new sustainable timber harvest analysis. In his directive, Governor Dayton called on DNR to:

- determine whether harvesting 1 million cords of timber annually off of state lands is sustainable;
- identify an alternative sustainable harvest level if 1 million cords is not sustainable

DNR contracted with the forest management consulting firm Mason, Bruce & Girard to perform an independent, third-party analysis of the DNR's timber harvest level. In addition, the DNR engaged a diverse advisory group representing timber, conservation, environmental, and public landowner interests to work with staff and provide input throughout the process.

From December 1, 2017 to January 8, 2018, the draft Sustainable Timber Harvest Analysis (SHTA) report was made available for public review and comment. A public comment link was available on the SHTA website. During that time we also received email to the general "stha.dnr@state.mn.us" email address as well as letters to our St. Paul office. Over 140 individuals and organizations responded to the analysis through the public comment form, email, or by letter. Organizations that provided comments included university, forest industry, and conservation or environmental organizations. The DNR appreciates the time spent by respondents and all views expressed through this process. Comments about the analysis have been considered and incorporated as best as possible in the following ways:

- Incorporated directly or indirectly into the final report
- Recognized as an important consideration, but was not incorporated into the final report due to time constraints, model limitations, or uncertain data sources

Comments expressing opinions and rationale about DNR's sustainable timber harvest level were communicated directly to DNR leadership for consideration in the decision.

## Summary of public comments about the analysis and DNR responses.

The following table summarizes the comments we received about the analysis. We also received many comments on a preferred DNR harvest level, which are not summarized in the table below. As noted above, these were communicated directly to DNR leadership for consideration in making the decision and are included in the "All Public Comments" section of this document.

| Comment theme   | DNR response   |
|---|--|
| <p><b>Public participation</b></p> <p>Not all interests were represented on the Stakeholder Advisory Group, and the public comment period for the draft report was too short.</p>   | <p>DNR strived for diversity and a breadth of perspectives on the Stakeholder Advisory Group (SAG). While it was not possible to include all stakeholder groups or interests directly on the SAG, many other perspectives were shared during the public comment period. Also, the public comment period was a month long and was extended for an additional week because it occurred during the holiday season. It was necessary to keep the extension minimal in order to keep on track to meet the March 1, 2018 deadline given to the DNR.</p>  |
| <p><b>Presentation of information</b></p> <p>Several reviewers noted places to clarify wording, to describe analytical approaches better, and to improve the presentation of information in the report.</p> <p>Some wanted more concise synthesis of the results, including summarizing impacts of different harvest level on the different values.</p> | <p>These comments were conveyed to the contractors, who attempted to address as many as possible in the final version of the report. In addition to the contractor’s report, the DNR project team produced other analyses and summaries of the modeling results to address the needs of decision makers. A difficult part of an analysis like this is presenting the results so that they can be understood by most. We always seek to improve clear communication and presentation of data.</p>   |
| <p><b>Strategic vs. Operational Planning</b></p> <p>The report did not address what the modeling scenarios would mean for on-the-ground management and how the sustainable timber harvest decision will be incorporated into the DNR’s Section Forest Resources Management Planning (SFRMP) processes.</p>  | <p>The contractors conducted a high-level, strategic assessment, which was not intended to account for all operational considerations. The analysis examined a number of factors that represented operational considerations in DNR forest management. These analysis results helped inform the DNR decision and will be considered as DNR begins the transition to implement the statewide analysis in SFRMP.</p> <p>The DNR project team summarized other operational-level issues, such as the marketability of different tree species, limitations of the inventory data, and the spatial arrangement of forest features, that were also considered by decision makers.</p> <p>DNR is planning a deliberate and focused transition to incorporate what was learned from this strategic</p> |

| Comment theme  | DNR response  |
|--|---|
|  | analysis and the sustainable timber harvest decision into the DNR SFRMP process.  |
| <p><b>Model elements</b></p> <p>Many assumptions inherent in the modeling were not identified, and their implications for the analysis and interpretation of results were not addressed. Examples included assumptions about the inventory data, yield tables, natural disturbances and invasive species, conversion of cover types, adequacy of habitat metrics, and the wildlife management regimes. Also, some requested additional scenarios, particularly to show 'intermediate' levels of harvest.</p>   | <p>The contractors conducted a “benchmarking” exercise for the yield tables and ran scenarios to investigate the impact of potential bias in the yield tables. The same was not done for all possible factors, though many factors identified by the SAG as critical were tested as part of this modeling effort</p> <p>The DNR project team developed a list of modeling assumptions identified in the report. The contractor discussed model inputs and outcomes with the project team throughout the process. They also advise readers on how to interpret the model results and understand how to apply the analysis (see section 5.1 Qualifications of the analysis report). Assumptions, uncertainty, and risk were all considered by decision makers.</p> <p>The analysis explored a range of harvest levels in this modeling effort which ranged from limited harvesting to the biological timber potential (i.e., including intermediate levels of harvest). The project team also developed additional scenarios to insure we explored the full range of harvest scenarios and metrics of various habitat components.</p> |
| <p><b>Biodiversity</b></p> <ul style="list-style-type: none"> <li>- All age classes are vital to sustaining viable and diverse forest ecosystems; the analysis did not give enough consideration to maintaining a diversity of age classes.</li> <li>- The analysis did not adequately address old-growth forest.</li> <li>- The model should not assume that northern white cedar stands can be successfully regenerated.</li> <li>- The analysis should include monetary valuation of ecosystem services in addition to timber.</li> <li>- Biodiversity, wildlife habitat and water quality is the foundation upon which local and regional</li> </ul> | <p>The contractor created several harvest scenarios in the final report to explore resource tradeoffs associated with different age class distribution goals. Some of these scenarios included large amounts of older forest.</p> <p>The analysis provides a strategic look at the biological potential for timber harvest across a spectrum of modeling scenarios. As identified in the analysis report, DNR considered a number of operational realities (including silvicultural, inventory and market limitations) at the conclusion of the strategic analysis in making a decision about near-term sustainable harvest levels. A full</p>  |

| Comment theme   | DNR response  |
|---|---|
| <p>economies depend, they must receive paramount consideration.</p>   | <p>economic assessment was beyond the scope of this project.</p>  |
| <p><b>Climate change and natural disturbances</b></p> <p>Wildfires, blowdowns, and insects affect forests and timber harvests but were not included in the modeling analysis. Also, climate change was not adequately incorporated, yet it could reduce forest area, change growth rates, affect disturbance factors (e.g., insects and disease, blowdowns, fires, drought), limit seasons of accessibility to wet areas, cause conversion of cover types, and require adaptation strategies that could reduce timber harvest (e.g., creating habitat corridors, promote more diversity in cover types and age classes).</p>  | <p>In general the analysis avoided factors that have an element of randomness, such as natural disturbance and climate change, because they are difficult to incorporate into the type of model DNR uses for forests harvest planning.</p> <p>The contractors used cover type conversion to modify the composition of the forest over the long term to address changing climate in a small way. Also, winter access was treated as an operational consideration and was deemed out of scope for the analysis.</p> <p>When a large scale disturbance does occur, the DNR may adjust the harvest volume target and management plans to account for substantially altered forest conditions.</p>   |
| <p><b>Minnesota forestland context</b></p> <ul style="list-style-type: none"> <li>- To make the analysis more useful to stakeholders, put changes in age class structure on DNR-managed lands in context with the rest of Minnesota’s forested landscape. Across all ownerships in MN, the amount of old forest has increased since 1977.</li> <li>- Federal and private lands in MN aren’t producing enough timber in comparison to state and county lands. Rather than compensate for this shortfall by shifting the burden to state lands, efforts should be made to encourage federal and private landowners to increase harvest.</li> <li>- There’s enough private land to support the forest industry; use public lands to prioritize biodiversity, wildlife habitat, and water quality.</li> <li>- Allow timber harvest on School Trust Lands only when it does not negatively impact biodiversity, wildlife habitat and water quality.</li> </ul> | <p>The scope of this analysis and decision was limited to DNR-administered forest lands.</p> <p>The DNR used age class structure across all MN forestlands (based on FIA data) as important context for making the sustainable harvest level decision for DNR-managed forest lands.</p> <p>The DNR has an active forest stewardship program which helps private land owners manage their land, and encourage management for a variety of forest objectives including harvest, and wildlife habitat. DNR has also entered into a Good Neighbor Authority agreement in 2016 with the USDA Forest Service with the intent of assisting the Forest Service in meeting their planned harvest goals.</p> <p>One of the primary purposes of the MN Forest Resources Council (MFRC) Landscape Program is to identify and address forest management objectives best accomplished through cross-ownership</p> |

| Comment theme   | DNR response  |
|---|---|
| <ul style="list-style-type: none"> <li>- Management of floodplain forests should occur at the landscape scale, which requires partnerships and careful planning across ownerships.</li> <li>- Many wildlife species have large home ranges across ownerships; habitat needs must be met repeatedly across landscapes to sustain populations.</li> </ul>   | <p>coordination. DNR participates on MFRC landscape committees.</p>   |
| <p><b>Forest health</b></p> <ul style="list-style-type: none"> <li>- The analysis does not account for impacts from forest insects and disease such as emerald ash borer, gypsy moth, and oak wilt.</li> <li>- The analysis does not account for non-native invasive plants. Increased timber harvest leads to more road and trail construction and more opportunities for invasive plants to establish and spread.</li> <li>- Salvage harvests occur annually and include lands beyond the 2.75 million acre harvest pool (e.g., state parks).</li> <li>- Forests over rotation age increase the risk of wildfire and insect and disease issues.</li> <li>- The study does not address effects of increased harvest on fragmentation.</li> </ul> | <p>In all harvest scenarios, the contractor included several species conversions to partly address insect and disease concerns. Ash, tamarack, and balsam fir all had species conversions included to other native plant community appropriate tree species. The same approach was taken to account for climate change.</p> <p>DNR also took into consideration limitations of our inventory due to insect and disease issues (e.g., not reflecting the extent of damage to tamarack from eastern larch beetle).</p> <p>Invasive species are a major concern, and while we did not model them explicitly, maintaining a diverse and healthy forest is seen as mitigating their impact. DNR also implements several operational mitigations to control the spread of invasive species.</p> <p>While DNR has harvested timber from state parks, it occurs infrequently and in small amounts. DNR forest lands within State Parks are generally not available for commercial timber harvest.</p> <p>DNR explored a range of options in terms of rotation ages, the impacts of which are addressed in the uncertainty and risks outlined by the contractor. These were considered in making the sustainable harvest level decision.</p> <p>Forest fragmentation is typically addressed at the operational level where stand and landscape-level decisions are made as part of the DNR forest management planning processes.</p> |

| Comment theme  | DNR response   |
|--|--|
| <p><b>Forest industry</b></p> <ul style="list-style-type: none"> <li>- This study should include an economic analysis of impacts to the Permanent School Fund and non-industrial private land owners. Increasing harvest volume from state land will drive stumpage prices down and result in less revenue for the trust and private landowners.</li> <li>- This study doesn't address accessibility. While wood is available, much of it is inaccessible because stands are too small, remote, steep or across wetlands.</li> <li>- This study doesn't account for utilization. Loss of OSB mills means more wood is left in the forest per harvest site. Increased utilization could increase the cords going to mills without increasing the harvest area.</li> <li>- We want a diversity of forest industries in the state. The report focuses on the pulp and paper industry and gives scant attention to oak and hardwood systems and sawmills. Lower rotation aspen is not good for sawmills providing cut stock and pallet lumber.</li> <li>- Model results are not relevant to current DNR management. Many scenarios produce old forest amounts that exceed the suspended Extended Rotation Forest policy, hinder regeneration, and increase financial costs to manage the land.</li> <li>- Aspen rotation age of 45 is suspect and should be higher on sites with clay/silty soils.</li> <li>- DNR has been offering younger aspen stands for sale, so where is the reported backlog of older aspen?</li> <li>- This analysis does not address marketability, which could set unrealistic expectations for harvest levels and force overharvesting of more accessible and marketable stands.</li> </ul> | <p>A full economic and market impact of DNR harvest targets on various land owners and investment funds was beyond the scope of this study.</p> <p>Accessibility as it concerns topographic aspects is addressed via operability in the model, with stands that are deemed inoperable not being included in the management pool. A full analysis of stand marketability (size, remoteness, and access) was beyond the scope of this analysis.</p> <p>Individual industry concerns and material needs were beyond the scope of this analysis. Maintaining a diversity of forest industries as well as utilization efficiency is a major consideration of the DNR. DNR Division of Forestry which has a dedicated Utilization and Marketing program, which actively promotes the breadth of the Minnesota timber resource.</p> <p>The DNR manages for a full suite of forest stakeholders and values. This modeling effort allowed us to explore potential trade-offs at various potential levels of harvest. Modeling a variety of management activities allows us to explore consequences and inform decision makers.</p> <p>Previous to 2017, there was an abundance of older-aged aspen on DNR-managed forest lands. DNR has worked purposefully over the past 20-30 years to adjust the amount and age of aspen on the landscape through harvest. As a result, we now have a more balanced age-class distribution of aspen.</p> <p>A full economic and marketability assessment was beyond the scope of the model, however, DNR considers potential harvest levels from the model in the context of our current operations.</p> |
| <p><b>Multiple-use management</b></p> <ul style="list-style-type: none"> <li>- State forests need to be managed for multiple resources; no one value should be maximized to</li> </ul>   | <p>Although recreation was not explicitly included in the harvest model, DNR indirectly incorporated this value through biodiversity metrics and assuming that harvest scenarios that maintain a diversity of species, age classes and patch sizes across DNR</p>  |

| Comment theme  | DNR response   |
|--|--|
| <p>the detriment of others. Timber harvest is one of many uses that benefit MN citizens.</p> <ul style="list-style-type: none"> <li>- This analysis falls short in its incorporation of non-timber values. Aesthetics and recreation are important forest resources values not addressed by this analysis. Old-growth forest provides both and was not addressed enough in this report.</li> <li>- Natural resource economies was too narrowly defined and should have included consideration of the large economic impact that tourism and recreation industries have in northern Minnesota.</li> </ul> | <p>lands will also support a diversity of recreational opportunities.</p> <p>Aesthetics were not explicitly included in the harvest model. DNR manages for aesthetics at a site-level through implementation of visual buffers, following MFRC site-level guidelines.</p>  |
| <p><b>Sustainability</b></p> <p>Many people expressed preferences for one value over another in their idea of sustainability. Some were concerned that the term “sustainable” was not used appropriately in the report.</p>  | <p>The contractors revised the final report to clarify language related to this topic. It was not their responsibility to define sustainability or what levels of different values would be sustainable. DNR provided the contractor with statutory policies that help define sustainability for DNR forest management. These include the state policy “to pursue the sustainable management, use, and protection of the state's forest resources” (M.S.89A.02); the policy to manage DNR state forest lands “according to the principles of multiple use and sustained yield” (M.S. 89.002) and the associated definitions for the terms multiple-use, sustained yield, forest resources, and sustainable contained in those statute chapters.</p> <p>The SAG identified six broad forest resource values to incorporate into the forest modeling and analysis effort. DNR and the contractor attempted to incorporate all these values into the analysis, allowing an assessment of the tradeoffs among different values.</p> <p>DNR considered tradeoffs among various forest values, as well as stakeholder and public comments, in making the sustainable harvest decision.</p> |
| <p><b>Water quality</b></p> <ul style="list-style-type: none"> <li>- The watershed metric is ineffective and needs refinement. The metric used was not sensitive enough to show meaningful differences in impacts</li> </ul>   | <p>The contractor incorporated site and watershed-scale water quality concerns into the model. Site-level concerns were addressed by delineating riparian management zones following MFRC site-</p>  |



| Comment theme  | DNR response   |
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| <p>to water quality between harvest scenarios. The Verry method is a crude approach to apply to all DNR lands and should incorporate all ownerships.</p> <ul style="list-style-type: none"> <li>- Water quality is not affected by timber harvest if MFRC site-level guidelines for water quality are implemented properly. To impose additional water quality constraints is overkill.</li> <li>- Higher harvest rates will increase erosion and temperature in streams/lakes.</li> </ul> | <p>level guidelines and limiting harvest within RMZ areas.</p> <p>MFRC site-level guidelines for water quality are designed to prevent sediment movement after a harvest, but not water movement. At a watershed-scale, increased water flow following harvest can scour streams and contribute to increased sedimentation to streams/lakes. The cumulative watershed impact metric was designed to assess hydrological function at a watershed scale. Cumulative watershed impacts were addressed by tracking the number of priority catchments where DNR lands had &gt;60% open land condition. This threshold was based on peer-reviewed research by Sandy Verry (2000).</p> <p>Model size restricted the number of catchments that could be included in this assessment, which is why this metric was limited to priority catchments with at least 5% DNR ownership and containing vulnerable or high quality water resources.</p> <p>DNR acknowledges that the metric used in this analysis did not result in substantial reductions in harvest when used as a goal, or show a large effect in any of the scenarios examined in the analysis. DNR will continue to investigate watershed impact metrics for future efforts.</p> |
| <p><b>Wildlife habitat</b></p> <p>There are wildlife species with needs that are not covered by the habitat metrics, and the spatial aspects of habitat other than assessing conditions in the hexagons (e.g., patch sizes, fragmentation) were not included.</p>  | <p>Accounting for wildlife habitat was one of the bigger challenges in this analysis. Given that not all landscape and site-level considerations for habitat for all wildlife species could be included in the model, we used the idea of GUILDS of wildlife species to define two habitat metrics that would account for the vast array of habitat needs. These guild criteria were applied within landscape habitat hexagons (of approximately 160,000 acres) to assess the extent to which habitat requirements need to be provided throughout planning areas and not just in one area.</p>   |

## All Public Comments

### Public Comment Form

Below is a complete list of the public comments received from the Public Comment Form, sorted by question.

*Question: What should be clarified, removed, expanded upon, etc.? Please include page numbers if your comments refer to specific parts of the report.*

- Funny thing about statistics you can make them look favorable for your argument.
- The executive summary could be much longer and clearer. This is a huge report. A summary of only a page seems a bit strange. The effect of climate change on harvest levels is pretty much ignored. Also some of the species mentioned in the larger harvest numbers are being affected by disease and dying off. If those species are removed from the model, what is the feasibility of such a large harvest?
- private timber's interest re markets are not explained.....state should not be supporting timber industry.....timber industry should react to available timber the public deems expendable
- Tables and summaries should include data showing the impacts (in numbers) to non-timber resources - and the goals for these non-timber resources should be more fully described (e.g. what do they represent, how do they compare to current conditions, etc.)
- The report is highly biased towards timber production, meeting timber industry's push for a 1 million cord harvest. Also does not reference the base for timber/forest resource management in Minnesota, the Sustainable Forest Resource Management Act of 1992.
- Parts are accurate, parts are not. Comments and suggestions will be sent to Jon Drimel, MN DNR
- The report was mainly focused on timber production. It did not seem to draw upon the subsection plans and MFRC landscape planning that has been in place for more than 20 years. Its very disturbing that all that effort from myself and many others is not taken into account. It seems as if it is very heavily weighted towards productivity and not all the potential impacts to the following resources. Such as old growth and restoration of old growth pine and other forest types, these issues would most all be lost if the proposal for 1 million acres would be employed. It is difficult to determine what or why this is even being proposed given all we know about the impacts. No discussion of fragmentation due to the intensity of road networks is discussed, no discussion of climate change, no discussion of retainage of large areas of unroaded landscapes. What sort of mitigation would be employed if such intensive logging is occurring. So the report is very detailed and does show and indicate that there are clearly many impacts that would not be warranted if you are interested in more than producing fiber from the landscape. If you want other values and truly look at the vast complexity and interests that Minnesotan's enjoy from its forests going to 1 million cords per year does not pass muster in any regard.
- There are many useful and medicinal plant of monitory value growing in the forests. These need to be harvested before the trees are cut.

- There are charts with numbers that are totally based on assumptions. Give me a map where year by year you planning to harvest trees. Give me a chart that will tell how many of each specie of tree will be taken.
- If you really want the citizens of Minnesota to be able to comment on this important report, you should have a summary document that clearly covers the important points and is understandable to the layperson. You will only be hearing from a certain sector of the public that has the time to read a 300+ page report. The forests belong to everyone, and the process should be more accessible.
- synthesize the implications of the model results more concisely
- Very detailed but hard to follow if you don't have a forestry degree. Some summarizing of some of the information would be helpful.
- The Executive Summary should be upfront and not require scrolling through the index to find it. It should be before the index. The summary should also explain in the first section that providing biodiversity and habitat for older forest dependent wildlife species would require an annual harvest level of 600,000 to 700,000 cords. This is now relegated to the 3rd section of the summary. Also the "Going Forward" summary on pages 122 to 124 should follow the Executive summary and not be buried deep in the report. this would make it much easier to understand and access for the public and elected officials.
- The executive summery should list and summarize in some detail the results of each modeled scenario and document the importance of the analysis data used in each scenario. Also, a statement from the DNR as to the purpose and objectives for this report.
- The report does not adequately identify model assumptions and limitations. It's important to remember that all models are WRONG (overly simplistic), but when properly parameterized they may be ONE useful tool in the decision-making toolkit. DNR's recommendation to the legislature must not rely too heavily on model results alone.
- I struggled to find a clear summary of the impacts of different levels of harvest on different forest values and objectives. The analysis should be redone to clearly lay out the impacts of different harvest levels on different forest values such as wildlife, water quality, biodiversity, old forests, recreation, etc.
- The many many figures need to state clearly the names of the model runs - in the figure - so that the results are easier to understand. I appreciate that color was used to distinguish the runs.
- My background is engineering and program management. I do not have a forestry management background. the details of the report was clearly intended for an audience of forest management expertise. the summary was helpful, but I would have benefited greatly from a scenario a thru X explanation, with a brief description of each scenario, followed by pros and cons.
- Report was typical of a complex analysis. It is very long with far too many tables, figures, etc. I hope concerned citizens will understand it.
- Most of the writing is clear, but much can be done to improve clarity, especially in providing better summary tables and graphics. We provide more details in a separate comment letter.
- There was no mention of the potential effect on Yellow-bellied Flycatchers, Boreal Chickadees, and Black-backed Woodpeckers. These species are especially vulnerable to any increase in the timber harvest.
- The impact on wildlife was under reported.

- On or about page 32, there is mention of endangered species and species of special concern and the fact that 99% and 99.5% of the harvests remain the same due to the little effect that was determined by your plan on these species. The wolf is a federally listed species and yet the wolf is not listed by the state of MN 's DNR as protected at all. So this analysis did not even consider the effects of timber harvest increases on the the wolf species by my read of this very complex draft plan.

*Question: What specific concerns do you have about the report's accuracy? Please include page numbers if your comments refer to specific parts of the report.*

- No mention is made of Climate Change nor the extreme weather and future changes that will accompany it. These changes have already been documented by conservation groups and no mention is made of this.
- The report did not give adequate consideration to climate change and the spread of invasive species (emerald ash borer). Both of these are expected to drastically reduce yields in decades to come.
- This report did not take into consideration the effects of climate change on Minnesota's forests. Also, most of the runs over-emphasized harvest and under-emphasized non-harvest values.
- climate change and its impact on forest resources is not adequately addressed
- I do not think that climate change and mining are considered in this report...it appears that it is going on current and pst data which is no longer applicable.
- global warming.
- A failure to consider future coming changes to our forests in the analysis due to things fire and climate change is mind boggling. Are you thinking this isn't going to happen???? Redo the analysis to consider how predicted changes are going to impact our forests and our ability to harvest timber from them and meet the other values Minnesota's citizens place on their forests.
- The report fails to adequately take into account the impact of climate change of site operability, particularly in lowland forest (BSL, T, WC, Ash, etc), and on uplands dependent solely on frozen ground access and operation (swamp islands, wet mesic soils, etc). With 40% of the wood on lowlands, and with winters rapidly warming (and no reason to believe the warming trend will abate within this planning period) the long term operability will on wet sites will continue to become shorter each winter, until in the not to distant future it will simply be impossible to access this wood using existing logging technology. Some wood will like be available over the next 2-3 decades, but beyond that point operability will be very challenging. Ideally, these lowland acres should be withdrawn from consideration, possibly tapering off over a 40 year period until no lowland wood is considered in the sustainable harvest plan.
- Long term projections based upon current climatic, biological and market pricing conditions are unrealistic. A review of the record of forest management over the past hundred years demonstrates how much forest harvesting practices and timber economics have varied from what a similar hypothetical report would have stated in 1918.
- We appreciate the work that has gone into creating this Report. We do have concerns regarding using to tools outlined in the Report to assess the forest impacts and possible harvest scenarios. This does not show sustainability. The model that was selected for this project took the form of a linear programming (LP) formulation. These types of models are well suited to

strategic/tactical forest management planning and can accommodate the analytical requirements of this project. But the solutions provided by LP models are always optimal, given the underlying assumptions and data. This is not an exact science and the complete lack of analysis regarding the changes to our forest systems from rising temperatures, and more extreme weather events call to question any assumptions contained here. Climate change is happening and must be correlated into any analysis of forest management decisions, especially regarding sustainability over the timeframe of 100 years. We also do not feel the list of mammal species used in the analysis is adequate as indicator species of concern that should be analyzed (Pileated Woodpecker, Fisher, American Martin, Red-Shouldered Hawk, Goshawk, Connecticut Warbler, Eagle). Also not adequately addressed is the fact that this analysis appears to be pushed upon our state agency purely for economics, and not for what is best for providing a healthy forest with a diversity of species, along with outdoor recreation opportunities. In conclusion: So many assumptions and variables were “optimized” and calculated on a theoretical basis that we are deeply concerned that the final results could show that 1 million cords appears sustainable – erring on the side of caution is extremely important when you are taking into consideration our public forest land health. These forests must be managed for the full range of citizens across the state. This is not an exact science – and we understand that assumptions had to be made to even model the data that has been presented to us in this Report – but we do not want to gamble with our forests, our wildlife species viability nor our diversity of species.

- Leaving out the impact of climate change to forest resources generates a model ripe for criticism due to results the many will see as unreliable forecasting. Minnesota’s bounty of public forest land presents as an untapped future resource if left standing. The modeling used by the hired consultants and their subsequent recommendations in the report almost completely neglect the biological impact and economic value of climate change on forest resources. Without considering issues related to climate change, such as the economic benefit of forests as carbon sinks or the problems posed to wildlife and biodiversity by increased levels of invasive species, the modeling has failed.
- Knowing there is inaccurate Forest Inventory data for some forest stands. Was this taken into account when modeling the projected sustainable harvest volumes? If this was taken into account. Question - I have is what % of the forest inventory is considered accurate? How would you determine accuracy levels, and how was this taken into consideration when determining harvest forecasts. I know the MN DNR Forestry is undertaking efforts at improving data to more real time accurate updates, to what is out there on the landscape, but there are a lot of stands out there that are still not being updated, due to the time element it takes and there are mistyped stands, as well. Example aspen - northern hardwood stands inventoried as lowland brush. There is error with some of the Contract Forest Inventory that has occurred in the last 7 or more years. If this was not taken into account then the modeling data maybe off?
- A rotation age of 45 for aspen is highly suspect. Well drained to excessively well drained aspen sites should be harvested at 45. However, very productive sites on clays, silts etc should have a higher rotation age as they hold their integrity longer. It has been my experience that many DNR Foresters and Techs do NOT take advantage of mixed stand management when doing a "conversion", rather they take the easy and convenient way out which has resulted in many sites, mixed aspen stands or otherwise, and eliminated the aspen (as well as other species) to

pine or spruce. I also have a hard time with the analysis stating the DNR Forestry division has a backlog of older aspen stands when I am seeing younger and younger aspen being put up for sale

- The timber industry seems to be pushing the DNR to increase the timber harvest to unsustainable levels. I oppose this.
- No mention of the effect of mining is made nor the type of timber harvesting. The latter often destroys the 'life' of the forest for years into the future. Most of the nutrients in a forest are tied up in its vegetation. Once removed, fertilizers alone have limited value.
- No specific page #. The DNR may be thinking too economically in considering the increase of its timber harvest.
- The analysis is weighed too heavily toward maximizing timber harvest at the expense of the other multiple-use values that the DNR is supposed to be providing through management of our state forests. The forest inventory data likely overstates the ability to harvest of much of the state's wood which is difficult to access due to wet soil conditions and other factors, or does not contain marketable quantities of wood. This problem is likely to be worse if the climate continues to warm reducing the length of time that forest soils are frozen hard enough to carry harvesting equipment. Some species, like white cedar, are included in the assessment which the DNR only harvests incidentally and others like tamarack which do not have dependable markets. These factors inflate the volume of available wood.
- Too much is made of the economics and not enough of the forest ecology - past, present and future.
- The report down plays the effects the would have on wildlife.
- Other resources besides timber and water quality are omitted.
- The report falls short in its incorporation of non-timber values into the analysis of sustainable timber harvest (e.g., rare species, water quality, outdoor recreation, hunting, etc.).
- My specific concerns have to do with the uses of woodland, there is an important use missing from the list and that is enjoyment, trail systems, skiing, walking, enjoying the chance to be surrounded by ancient woods, the sounds of wind through pines etc
- the 6 mission values are not mutually compatible. This is not a golf course. Biodiversity addresses many kinds of plant, animal and protozoa. You want to cut down senior trees which are vital as they age for nesting sites inside the trunk, and cutting them down will prevent their falling to the forest floor to provide harbors for a vast diversity of life. The only economic value is the profit that lumber companies will make when they sell their cut timber. They will leave behind deep wheel cuts where the tree harvesters have gone thru the forest to first cut, then drag out, the trees they have bought. It is a losing proposition for the forest, and the only win is the money that the timber companies make.
- Water quality doesn't seem to be a limiting factor over time and this just isn't true.
- Models are only as good as the information put into them. As a former DNR Forest Wildlife Coordinator and Area Wildlife Manager I strongly question the model assumption that there is 2 million cords of surplus timber out there. This should be mapped and error checked on the ground to see if and how much of this truly exists!!!!!!
- As a retired DNR professional with 40 ++ years experience, it is difficult to believe that this same conversation has been going on for at least 40 years. I thought the GEIS took care of this year's ago!! I recommend a sustainable harvest level of no more that 800,000 (preferably 700,000) be

the accepted level, and this would not be at the expense of sacrificing the already declining quality of our prairie landscapes, and in the forest area, our open-grass-brush landscapes.

- We are overharvesting our trees right now. We need to get down to 600,000, NOT increase.
  - We already are cutting down too many trees and destroying too much habitat. We have no idea what climate change effects will do to destroy even more northern woodlands on top of what loggers destroy. We need hemp for paper and to reduce our destruction of natural areas that are trying to heal from misuse.
  - The amount of timber proposed to be harvested is too high!
  - Perhaps the most important consideration is not how much can be harvested sustainably in the short term but what will happen in the Long term.
  - the long-term sustainability of harvesting 1 million cords annually is left too ambiguous
- 
- How am I suppose derermain that the analysis is accurate. These are models with high probability of inaccuracies.
  - There are no definitions for crucial values used in the modeling, especially "wildlife habitat" and "biodiversity". There is not a definition of "wildlife" given in statute nor from DNR rules or policies. There is a perceived assumption that "wildlife" means breeding terrestrial animals that are hunted or trapped. Or does it mean "wild mammals and birds" as in MN Statutes 97B.015, the only place in statute where there is an approximate definition of wildlife. There is, however, a statutory definition of "biodiversity" (MN Statutes 89A.01, Subd. 3; but it is not given as a definition in this report. Similarly, there is not a definition of "sustainable" so it is difficult to understand what is the purpose of all the modeling in this report
  - In general, we felt the analysis was accurate, but there we have concerns - especially relating to the use of the 'surplus' in the model scenarios. See comment letter submitted separately for more details
  - While modeling may be appropriate, there needs to be more on the ground verification of the assessment.
  - See attached report. Inadequate time to review and many important issues such as climate change, invasive species, and marketability of some tree species.
  - timber harvest must be both renewable And diverse.
  - The definition of sustainability in this report is inaccurate. Sustainability does not refer to the next 10 years, which at that time it will be lowered or reassessed. Sustainability in forestry should consider all current factors, not for the next decade but for the foreseeable future. Increasing the rate of timber harvest by 25% is clearly not sustainable when considering all the factors that contribute to timber stand declines, including deer browse-which this report fails to mention and actually uses deer as one reason to keep younger forests, invasive terrestrial species invasion after a timber harvest, loss of high quality plant communities that are not threatened species, and loss of recreational forest uses due to harvest of climax species that draw humans to the forests that will be replaced by aspen stands.
  - As stated above, not enough vulnerable wildlife species were taken in account for me to accept this report as accurate.
  - Monoculture renewal discourages wildlife

*Question 6: The DNR's mission is to work with citizens to conserve and manage the state's natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life. This requires us to consider and weigh a variety of values. The following forest values are important to this project.*

*a. Timber Productivity*

*b. Wildlife Habitat*

*c. Biodiversity*

*d. Water Quality and Water Quantity*

*e. Forest Community Health and Invasive Species*

*f. Economic Impact*

*Question: Please tell us a little about the importance these forest-related values hold for you:*

- Timber productivity - climate change will continue to impact both productivity and species availability, as external factors such as massive fires and drought, I&D outbreaks, windstorms, etc continue to impact and change our forests. If climate models are correct, and MN become the new Kansas, then retaining our forests over the next century may be extremely challenging. Wildlife - today I've had a dozen turkeys in my yard. This was unimaginable even 10-15 yrs ago. Moose are being stressed by direct and indirect impacts of climate change, and are likely to disappear during this planning period. Our wildlife are feeling the heat. Generalist may survive, as habitat specialist disappear. We need a plan that extends the status quo for as long as possible, to give fish and wildlife, and our vegetative ecosystem, an opportunity to adapt to the current and coming changes. Biodiversity is likely to plummet, as generalist and invasives move into newly created available niches, or crowd out those unable to adjust. Water quality/quantity will both suffer, as warming and human development continue to alter our waters, negatively impacting the aquatic biomes that live there. Public pressure for domestic water, industry and irrigation will quickly draw down our groundwater supplies, hampered by disappearing forests that no longer support recharge. Forest communities/invasives - Invasives will overwhelm our forests ability to successfully regenerate themselves naturally, impacting our wildlife and plant communities. Once invasives are established, its too late to close Pandora's box. Economic impacts - industry is adaptable to to the available forest resources, assuming our forests survive changing climate. When the WP era ended, the aspen (and other small trees) were used for pulpwood. As species become difficult or expensive to procure, industry adapts to utilize what is there or cheaper wood. This is the least of my worries.
- These forest resources are a major element in addressing climate change through carbon sequestration and they represent a potential for generation of substantial additional state revenue based on accurate monetization of this critical role that they serve in the carbon cycle.



- I love wood products, hardwood floors, wooden furniture, wood for recreation fires and real Christmas trees. I am a grouse hunter and know how grouse use different age classes of forest. I believe we need age diversity in the forest and need to protect biodiversity of the entire forest ecosystem. There seems to be swings in the forest industry that follow housing starts, and the economy in general. Maybe long term harvest at current levels make sense. I didn't see any consideration given to the effects of climate change or pest like the beetles killing trees from British Columbia to Colorado and showing up in Minnesota. How would they impact sustainable harvest? Thank you.
- I would even like to see fringe areas of the BWCA harvested to manage wildfire potential.
- Biodiversity and wildlife habitat are most important to me. For too long, timber extraction and other less renewable economic activities have held too much influence in forest management decision making. It is long past time to prioritize biodiversity, wildlife habitat, and water, while allowing timber harvest only when it does not negatively impact these values, and this should be no different on school trust lands.
- The natural environment and the legacy of the Minnesota wild and natural resources outweigh timber hands down. We do not want to destroy our environment and biological diversity and habitats just so some timber company cronies can make bucks, or to create jobs. Sorry but you don't create jobs doing destruction to what we value most. That would be really short sighted.
- State forests should be managed for a variety of uses, including timber harvest, but not at the expense of adversely affecting recreation, wildlife populations, etc. Harvest scenarios that violate existing statutes, guidelines, and jeopardize forest-dependent wildlife populations should not be considered viable, and should not be recommended to the legislature.
- economic impact should not be a factor in the decision.....the forest industry doesnt care about the timber stands longterm as shown by past actions.....and next below you want me to agree with your harvest levels.....mine are much lower than that
- Our forests are essential for wildlife habitat, biodiversity, water quality, forest health and invasive species and RECREATION!! Just looking at the dollars and cents of the money generated for timber does not take into consideration the loss of habitat, recreation and the degradation of water resources (i.e. especially lakes in the northern regions that benefit largely from forest land as a buffer). I value our forests as not only valuable habitat but recreational havens. To me, I value our forests just as much as our lakes. There is no benefits for this proposal except the jobs that the paper industry creates. There is a surplus in wood, why harvest timber now?
- All values are important, also air quality, soils, aesthetics, accessibility.
- I represent "Joe citizen" and my primary interest area is recreation of the state forest. I live 200 yards from a state forest and use and enjoy it year round.
- When people think of northern Minnesota, an image of a healthy mixed forest comes to mind - not an image of a recently cut area or acres upon acres of aspen saplings. The excellent water quality and biodiversity of the Arrowhead region is a huge driver of the tourism and recreational economy in the area. This economy is dependent wholly on healthy forests. The economic impact of tourism and recreation is difficult to quantify but in my opinion easily exceeds the economic impact of increasing the timber harvest by a few hundred thousand cords.
- These values are all of concern to me. The various forest values should all be balanced in pursuing a management strategy that is stable and consistent from year to year to promote a sustainable timber industry while protecting ecosystem health.

- I enjoy the recreational aspect the forest provides (hunting, camping fishing nature watching - mainly just being outside). c, d, e, & b are of primary importance to me. a & f should be a sustainable offshoot of a well managed forest as long as c, d, e, b are provided.
- If additional roads are needed to accommodate greater timber harvest, What is the impact? First and foremost is maintaining a healthy forest, from that point what is the available timber harvest?
- Minnesota's brand is dependent on an abundance of wild natural areas, wildlife and clean lakes. Most Minnesotans whom I know enjoy hiking or skiing in quiet forests with a diversity of flora and fauna, drinking clean water and swimming or fishing in clean lakes. This is why we've moved to Minnesota or stay in it. I am a member of the Sierra Club North Star Chapter, Minnesota Division of the Izaak Walton League and the Saint Paul Audubon Society.
- We care about all of these values, with particular emphasis on b, c, d, and e.
- In the report it indicated that the desire to over harvest was evident and I do not agree with over harvesting trees.
- All of these values are important and must be considered in forest management decisions. Too often timber harvest has been given preference over the other values. The DNR should first determine what the best age and species composition of the forest should be and then use timber harvest to manage toward that desired future forest condition. Wood volume should not be the primary driver of forest composition. This analysis seems to be driven by wood volume rather than what is the desired future forest composition that best meets the multiple use values of our forest lands.
- These values are all important. However, this analysis has a primary focus on harvest levels and the health of the forest products industry of Minnesota--that is also relevant to forest management capability for all of the values noted.
- As retired forester, these values are very important to me. However, economic impact (jobs and the almighty dollar) should never be a priority over proper natural resource management.
- our property borders a mn state forest. we are already surrounded by clear cuts on federal and private lands. we feel the need for biodiversity, habitat and impacts to water are much more important than increasing harvest. therefore we do not support increases.
- wildlife habitat and biodiversity are most important to any forest and these can only exist with water quality and forest health, timber productivity and economic impact are secondary factors
- Water quality ranks way up there, particularly with increasing threats to our waters from potato farming, mining, and runoff from agriculture and lawns. Forest community health is important as the climate changes, and that entails protecting biodiversity. You didn't mention recreation, but that's important to me, and important to the economy of northern Minnesota. I would go up north far less if the Boundary Waters and other natural areas were not in such good shape.
- I feel that the forests on our state lands need to be managed for wildlife and in a way that preserves biodiversity and protects our water resources. While I think that timber harvests are important for our economy, these other resource values should be the focus of our management of state lands.
- Water quality, Wildlife habitat, biodiversity, forest community health, timber productivity and economic impact in that order.

- I am most concerned about water quality of our lakes and streams and wildlife. The tourism and quality of life they represent far surpass the economic value of timber although we can have both if they are balanced more conservatively.
- Timber productivity is vitally important in keeping the logging community viable, and the Forest Industries, as well. Managing for healthy forests is important not just in having trees to harvest but the other aspects of healthy well managed forests is just as important. I feel water quality protection is very important, and sometimes this has been jeopardized as there is inadequate oversight in the field at times. This is an exception not a rule.
- Having participated in forest ecology research on the Superior NF for over 30 years, I am aware of the frequent problem of over mature pine-primarily jack pine, and their threat to the healthy forest in terms of wildfire hazard, build up of disease and insects. Careful analysis such as you suggest should indicate harvest to keep it healthy
- biodiversity and water quality First! Forest community health requires apex predator health too. Leave forests intact and they will have the best economic impact of all.
- I am a field biologist by schooling, and understand that the long term future for forests is not to be converted to a sterile area with a few trees still standing that will be cut down when they yield the most money.
- Timber harvests to create young forest wildlife habitat is important to me as I hunt grouse and whitetail deer. However, it needs to be balanced with mature and old growth forest for biodiversity considerations.
- I have lived nearly my entire life in northern Minnesota and highly value our outdoor heritage. While timber productivity and harvest are both important, more than that I value the biodiversity, the wildlife habitat, the water protection, and the quality of life our forested lands bring to the State. I am extremely concerned economic pressures will lead to increased harvest activity which I feel - especially after reading the report, is not wise nor sustainable.
- Wildlife habitat and the forest community health and invasive species should be the top priorities.
- The future of forest grown medicine is huge.
- Biodiversity and habitat, water cleanliness, long term health of economy depend on us reducing our destruction of natural areas. We have done enough damage already, considering increasing more for some corporate profit is not acceptable or responsible.
- Biodiversity is the most important value for me. A diverse forest is more resilient and provides more "services" for all involved.
- Conservation of biological diversity and all ages and structures of forest stands across the landscape are the most prudent means to safeguard our forests for future generations. All other values derive from this basic principle.
- Maintaining Wildlife habitat, and biodiversity, to me holds the greatest impact for our future well being. These two tend to ensure water quality, and forest health. Controlling invasive species requires vigilance, and is extremely important to maintaining our forests for the future.
- Wildlife habitat, and biodiversity are extremely important to all of us. Putting "all your eggs in one basket" is a dangerous principal for the environment, the resource (forest) that you claim is so important. Examples would be insect and disease issues, markets and demands changing, and volatility STILL in the paper market, for example UPM Blandin shutting down of its number one

machine. Climate change is occurring. What is DNR Forestry doing to plan, prepare, and implement these changes to our forest lands?

- Forest community health (that is, not the health of individual trees, but the overall community), biodiversity, wildlife habitat and water quality are all inextricably linked in that if you don't prioritize them, timber productivity and local and regional economies will ultimately suffer. The former are the foundation upon which the latter two depend, so they must receive paramount consideration.
- These are all important values of forests. Forests are a renewable natural resource that have many benefits to society. We personally know the most about wildlife habitat biodiversity, and water quality, but timber productivity, forest health, and economic impact are also very important.
- Biodiversity, water quality (water is life) and wildlife habitat are the most important values.
- The biodiversity and water quality asking with habitat are most important.
- I'm strongly in the Wildlife Habitat and Biodiversity categories since it reflects the forest values I want for a quality of life in MN. Timber management/productivity is very important, however I believe that any increase over the the previous 800,000 cord annual base is not sustainable and very detrimental to wildlife habitats.
- My family and I hold these same values and expect the DNR to uphold them to the highest standard. We have great reverence for our natural environment and use its resources in all seasons. Please consider the future of our state and thusly the entire planet. It turkey is our future and right now it desperately needs use. Too much destruction for profit.
- Comments on the DNR Sustainable Timber Harvest Analysis I have read through the recently released Sustainable Timber Harvest Analysis and offer the following comments. Further and in summary, my comments reflect that my values for Minnesota forests are consistent with the 1995 Sustainable Forest Resource Management Act: that forest resources are natural assets of forest lands including (and equally) timber and other forest crops, biological diversity, recreation, fish and wildlife habitat, wilderness, rare and distinctive flora and fauna, air, water, soil, climate, and educational, aesthetic and historic values. My sense from this report is that these important values, other than timber crops, have been under-valued and we require an improved analysis that takes these many values into more valued account. The model runs for the analysis appear to have over emphasized timber harvest. Most model runs that result in greater than about 600,000 cords will significantly reduce the acreage – and values as stated above – of old growth forest (distinctive flora and fauna), biodiversity, wilderness, fish and wildlife habitat, recreation, and certainly air, water, soil, and educational, aesthetic and historic values. The effects of climate change – that climate change is happening in Minnesota is well recognized by the scientific community – were not taken into account. This is a very important limitation of the study that demands revision. The health of forest trees and other plant species, as well as soil and water effects, and likely changing species composition are extremely important factors for such a study. I am greatly concerned about the effects of increased density of logging roads in our forests as well. While potentially opening up tracts for hunting and other trail recreation, this will greatly fragment the forests in general for wildlife and affect watershed flow processes, as well as soils, and may exacerbate the effects of climate change. As the Executive Summary shows (item 3), when all 6 major forest values – timber productivity, natural resource economies, biodiversity, water quality, wildlife habitat, and forest health – are

incorporated in the models, the recommended timber harvest level is greatly diminished to approximately 600,000 cords. The Key Observations also support this:

- Native Plant Communities – A set of NPC goals describes a desired age class distribution based on pre-settlement conditions and natural disturbance regimes. The current forest misses the desired distribution by some 855,000 acres. Scenario 1.2.4.3 seeks to minimize deviations from these targets by managing how acres age. By harvesting less, the model gets within about 300,000 acres of the desired distribution.
- Harvest levels for Run 1.2.4.3 averaged about 584,000 cords, and there is no near-term departure from even flow.
- Run 1.2.4.3 suggests a positive correlation between meeting the NPC goals and the old-forest guild goals. While our analysis was not designed to test the strength of the correlation, it is clear that the two objectives are at least somewhat complementary.
- Forest-Age Diversity – In this analysis, a forest-age diversity index is based on an objective of having an equal number of acres in each of four age groups. Scenarios 2.2.2 through 2.2.4 explore the impact of three different harvest levels on the forest-age diversity index. At harvest of 600,000 or 800,000 cords, the index is generally at the theoretical maximum. With harvest at 1 million cords, the index is very close to the theoretical maximum, suggesting that the age class structure never strays far from the desired range, regardless of harvest. Finally, the very last paragraph of the Key Observations state that increasing harvest above current levels of approximately 600,000 cords WILL negatively impact the many non-harvest goals for the states forests:
- However, maintaining current harvest levels, or increasing above current harvest levels, will impact the agency’s ability to move the forest toward goals for biodiversity and habitat for both young and old forest-dependent wildlife. This assessment should help MN DNR understand the opportunities for finding the right balance between these objectives. I will close by saying that I appreciate the opportunity to comment on this analysis. I urge the DNR and the Governor to consider that economic and human health benefits from our forests are derived, not just from selling cords of wood, but also from hunting, fishing, hiking, biking and other recreation, from air and water quality that forests provide to our watersheds, from an appreciation of our distinctive wildlife, from wilderness, and from the aesthetic majesty of our diverse forest landscape. These values are equally if not more important than timber harvest. Most people in Minnesota are aware and concerned about the effects of climate change on our forests. I urge you to seek additional predictions of climate change effects on forest harvest levels as part of this analysis. And I urge you to give greater weight to the non-harvest values that are part of the Sustainable Forest Resource Management Act.

- Forests provide many ecological benefits as stated above. Public forests are there for all citizens to enjoy. Economic impact is only one part of the picture
- I am concerned of all old growth forests becoming extinct
- Preserve old growth pine forests and would hope there will be more in future generations. This may be challenging with climate change. I spend time and money hunting in ruffed grouse habitat so I do appreciate young aspen/poplar forests. A healthy and diverse habitat is critical in my opinion.
- Members enjoy seeing large mature trees and have noticed that there are fewer deer ticks in these areas. Much better for hiking. Water quality is the main focus of our lake association and it is VERY important. Supporting a variety of wildlife is important. Economic impact holds nearly zero interest. Clear cuts are the worst.

- We need to back off on the harvest levels on state lands. I have worked with DNR Forestry in northcentral MN the past 14 years, and the field foresters are having a hard time finding wood to put up now at a 800,000 cord level. All of the additional wood is either species that no one wants such as ash and tamarack, or is located too far from a market. We need a portion of our economic species such as aspen and red pine to be allowed to grow to older age classes, particularly aspen for the wildlife species that depend on older forests such as fisher, wood duck, and wood peckers for the cavities these trees provide and older aspen allow balsam fir component to develop which provides winter cover for white-tailed deer. Winter cover for deer is in short supply in many parts of Northcentral MN. Older forests allow for a more diverse plant and animal community creating more Biodiversity. There is very little old forest around Grand Rapids. If there is, it is on private lands and they are holding out until the price rises. Putting up a million cords will keep the price down and the private wood will never get harvested.
- The states forests need to be managed for multiple resources. Enough to support a healthy forest industry yet allow for a variety of wildlife and biodiversut
- b,c,d,e are all important to me. I am a passionate outdoor user. I hunt, fish, trap, camp, bird watch and enjoy being outdoors any time of year. I had a 38 year career as natural resource professional striving to protect and enhance Minnesota's native habitats. I acknowledge that timber productivity is important but should not be the driver in setting harvest goals.
- public lands should not be used for timber productivity, they were set aside for other reasons -- conservation, beauty, b.- e. on your list
- I appreciate access to the public lands MN has to offer. I feel it is unique among the states. The lake access and acres of forest access our state has is astounding. I never want to see these go away. Public lands are our treasure. We need to keep and manage them appropriately for our states future.
- Timber productivity is important from an economic perspective but the other values listed here are more important. Especially the diversity of the forest. Monocultures of aspen are not in the best interest of wildlife and human use of public lands beyond economic use. Old growth forest is not addressed enough in this report.
- the state forests provide places to get with nature-hunting, bird watching,gathering berries etc.,
- It is long past time to prioritize biodiversity, wildlife habitat, and water, while allowing timber harvest only when it does not negatively impact these values, and this should be no different on school trust lands.
- Water quality is an up and coming issue that will hold great value as fresh water is becoming something that is hard to find.
- Water is fast becoming the defining resource for this century and beyond. Forests are critical for maintaining water quality and quantity in the forested regions of Minnesota and must be managed conservatively to ensure that water resources, wildlife, and biodiversity are maintained or preferably enhanced.
- I am a hunter and a citizen of Mn that cares for the condition of all of our land. Forests, prairie, etc. I feel it is our resonsibility to care for our lands and keep them as healthy as possible.
- pressing the forest regeneration limits to increase harvest achieves only temporary economic relief, not accounting for larger global economic factors, at the expense of ecological health
- Current levels of timber harvest are too high to guard the future of our natural resources and should be decreased.

- Items b. through e. are very important to me as a citizen concerned about providing wildlife with quality habitat. I want to see timber harvested at the lowest possible level consistent with maintaining quality habitat.
- The Sierra Club is a non-profit environmental organization with several thousand members in Minnesota. Our members enjoy our outdoors, and recreate on our state public lands. We participate in the administrative process to encourage environmental health and sustainability, long term wildlife and habitat protection and biodiversity goals. We are also concerned about the resiliency of our state forestland due to climate change. Minnesota should declare that a primary value of our forests is as a carbon sink and set a goal of managing Minnesota forests to optimize this value over at least the next 50 years, the critical timeframe to address climate change. Past analyses by MN DNR scientists indicated that 800,000 cords per year are a sustainable level of harvest, given MN DNR's current management objectives and practices. This is in keeping with the state's Sustainable Forest Resource Management act (MN statute 89A.) In this law "forest resources" are defined as "... those natural assets of forest lands, including timber and other forest crops; biological diversity; recreation; fish and wildlife habitat; wilderness; rare and distinctive flora and fauna; air; water; soil; climate; and educational, aesthetic, and historic values". We feel that even the 800,000 cords per year is too high of a cutting rate – and seeing the declining population levels of our mature, unfragmented forest dependent species could be an indicator of this. Maintaining current harvest levels, or increasing above current harvest levels, will impact the agency's ability to move the forest toward goals for biodiversity and habitat for both young and old forest-dependent wildlife. A harvest of 1 million cords per year would not be sustainable, despite best management practices, reduced harvest in riparian areas, etc. This volume of harvest would not be able to preserve water quality, increase forest-wide biodiversity, and protect important and sufficient wildlife habitat, especially in the forest areas and possibly also in the wildlife protected areas. Fish, a diversity of wildlife, clean water, aesthetics and forest recreation are the other multiple uses that should have equal value in our forests. The analysis concludes that "maintaining current harvest levels, or increasing above current harvest levels, will impact the agency's ability to move the forest toward goals for biodiversity and habitat for both young and old forest dependent wildlife" (p.119). Of the six forest management values (timber productivity, natural resource economies, biodiversity, water quality, wildlife habitat, and forest health), the Sierra Club is most concerned with enhancing the biodiversity and overall forest health of our state forests – which in turn will assure healthy functioning ecosystems that can support wildlife, native plants, and superb water and soil resources into the future. The Sierra Club supports prioritizing "incorporating spatial distribution goals to provide biodiversity and habitat for older forest dependent wildlife species (p.2)". The existence of mature and older forest acres forest acres provide opportunities to move more quickly toward achieving some non-timber objectives than if the forest was regulated to current rotation ages. The Sierra Club believes that Scenario's 1.2.4.2 (Old Forest Guilds) and 1.2.4.3 (Native Plant Communities) are especially relevant because they underscore the unique opportunity we now have to move more forest into an old growth, mature-forest condition and towards an age class distribution based on pre-settlement conditions. Valuing old growth and native vegetation communities will benefit many animal species, promote healthy water and soil conditions, and improve overall forest health and biodiversity which will contribute to climate change resilience. Moving it up to 900,000 or

1,000,000 cords would definitely move the needle to a point that seriously risks many other forest values.

- In Scenario 2, several options were evaluated for how to conserve the "non-timber values" of Minnesota forests at current, higher, or lower levels of "timber productivity." The evaluation of Scenario 2, both in the draft report and in my own analysis, leads to the obvious conclusion that increasing the state's timber harvest would be incompatible with the conservation of "non-timber values." My perspective on this issue comes from a deep, personal appreciation of all of the following values: the economic importance of the logging industry, the benefits of responsible forestry for "non-timber values," and the many ways in which old-growth forests are important to the wildlife, the economy, and the people of our state. Considering all of these priorities together, I'm opposed to an increase in the state's timber harvest. Depending on the economic need for the state's timber harvest (from all perspectives, including those of the logging, tourism, and outdoor-recreation industries), I would support either the continuation of the MN DNR goal of 800,000 cords per year, or a reduction of that goal (for example a reduction to 600,000 cords per year).
- I live near grand rapids, have been a hunter and woodsman all my life. I think all aspects and forest values are important and one should not be compromised for another; we should not compromise water quality in an effort to improve wildlife habitat or increase timber production at the expense of biodiversity, etc. Northern communities rely heavily on forest products for their economies, Blandin, etc. However, increasing timber harvest does not mean a thriving economy, that is dependent on the market. Blandin just shut down one of it's lines and laid off a bunch of employees. After reading the report, it is clear a 1 million cord annual harvest level is not long term sustainable. And with the short term market it also does not appear that there is a great demand for more timber. It seems more risky and irresponsible to increase harvest by 25%. I support current harvest levels up to 900,000 as was suggested by the analysis.
- I would like to see responsible harvest of our timber in all areas of the state.
- All these values are important a - f. Economic impact is most influential short term. When it is gone it is gone is most impactful long term. Climate change will affect all these, but regeneration and forest species is the most unknown. As a Wisconsin tree farmer I understand the nuances for this discussion.
- While they're all important to me, I feel we should manage each site for what it's best capable of producing or providing, and let the utilization/appreciation follow; we should not try to custom-manage the resource for any one user.
- All these values are important to me, but in my view biodiversity is paramount. That's what past generations have given to us and it's what we must pass on to the future. Forest biodiversity includes wildlife species that benefit from old or young forest. Whatever timber we can harvest without impacting our biodiversity (or other values) is a bonus that can help sustain rural economies. I like model scenarios 1.2.4.2 and 1.2.4.3. They show that emphasizing Old Forest Guilds and Native Plant Communities in forest management would still allow 600,000-700,000 cords per year (pages 122-123). These scenarios also maximize habitat for young forest wildlife species (page 73). Minnesota forests 150 years ago were much grander than what we have today, or in the language of scientists, they had a far, far greater volume of standing biomass. If people with fire and hand axes were able to manage and maintain such tremendous trees, surely with modern science and technology we could do the same. As the final section of the



report states (page 124): “maintaining current harvest levels, or increasing above current harvest levels, will impact the agency’s ability to move the forest toward goals for biodiversity and habitat for both young and old forest-dependent wildlife.” Taking 800,000 cords per year from state land keeps much of it covered with pitiful, spindly aspen. We know it has the potential to grow much more.

- I am a year-round resident and lakeshore property owner in an area with a large quantity of state forest. I utilize the forested areas for year-round recreation including hiking, biking, skiing, foraging, photography, hunting, fishing and paddling. I also do part-time milling and woodworking with local wood with plans to do this full time in the near future.
- RGS/AWS promotes sustaining healthy forests to maintain abundant wildlife and support sporting traditions. Ruffed grouse, American woodcock, and other young forest dependent wildlife are a primary interest of our organization, but in the absence of extensive sources of natural disturbance in modern times, conservation and management of these species requires a productive and economically viable forest products industry. Furthermore, a healthy forest cannot be comprised exclusively of young forest habitat any more than entirely of old growth. No single forest type offers the sustainability a forest ecosystem gains from a range of species and age classes of trees, which ultimately provides diverse forest structure and composition to sustain diverse wildlife populations. Finally, forests that provide ecosystem services support healthy human communities, thus providing public incentive for conservation of these resources. RGS/AWS therefore focuses much of our own programs on producing components of wildlife habitat that are provided by a sustainable rotation of young forest, but we recognize the importance of all of the above noted forest values.
- I think all of these values except invasive species are important. Regarding invasives, unfortunately, I think we mostly have to learn to live with them. We should not try to spend much money trying to undo or prevent an inevitable outcome, except maybe on some biological control methods. However, public education on prevention and slowing spread is worthwhile.
- By extending rotation ages in WMA's, you will be diminishing the usefulness not only of the timber, but also the usefulness to the public by providing less habitat to game species, such as the white tail deer and ruffed grouse and decrease production of game. The primary purpose of WMA's is to provide hunting opportunities to the public and management should be directed towards this goal. Also, extending forest species past typical rotation ages would also hinder the usefulness of the species to users and the ability of the stand to regenerate. Extending rotations will also have additional costs to the DNR for marketing the wood and maintaining an acceptable stocking level after harvest.
- All of these values are important to me, but I think we can be more creative in balancing and achieving all of the values. There are more ways to support the economy than only traditional timber harvesting such as recreation and tourism and alternate forest products. There are more ways to keep the forest community healthy such as prescribed burns and re-establishing natural processes on the landscape. I believe the state has a special role in preserving Minnesota's heritage, including old growth pine, perhaps more so than private landowners.
- All are important values for the DNR to consider but my main concern is ( f ) economic impact that pumping additional wood into a market that is already thin and the impact that will have on Private landowners stumpage prices. It is evident to me that the DNR currently sets base stumpage rates too low compared to what transaction evidence over the last few years shows.

If a % of sales currently go unsold and the DNR increases available stumpage it will most definitely drive prices down. As a manager of the largest single private land owner in the State we depend on timber revenue as our major source of income and will not be able to continue to manage our lands long-term if stumpage prices continue to decline. I do agree it is important to harvest enough timber off of State land that is sustainable but if I am looking at all the information in the report correctly it appears an increased harvest of some major commercial species( Aspen & Spruce) would not be sustainable long -term. If new wood industry should move into MN in the near future an increase in available stumpage now may lead to a decline in future volume and a huge run up in price. If we choose not to enroll in the new SFIA program at the current base Aspen prices we would need to cut our entire annual Aspen harvest amount just to pay our tax bill. That said, If private landowners are not enrolled in this program there is little incentive monetarily at today's base DNR prices for them to make harvesting worth while. Just food for thought.

- economic impact
- In order of greatest to lowest importance: Wildlife Habitat, Biodiversity, Water Quality and Water Quantity, Forest Community Health and Invasive Species, Timber Productivity, and Economic Impact.
- In order of highest to lowest priority: Wildlife Habitat, Biodiversity, Water Quality and Quantity, Forest Community health and Invasive Species, Timber Productivity and Economic Impact
- See comment letter submitted separately for additional discussion of values MHAS feels are important and how they are handled in the report
- Timber productivity is not important to me. There is enough private land, if sustainably managed, can support the private industry of logging. The other aspects of public lands, b, c, d, and e, are much more important especially with the increased pressure on all land.
- I make a living from our forests and plant communities as a plant ecologist and restorationist. I also recreate in our beautiful northern forests, preferring old growth stands of yellow birch, maples, and pines to find peace. I also harvest wild edibles from the lands including leeks, fiddle heads, mushrooms, fish, and berries. I create artwork from invasive buckthorn and garner inspiration for drawings I sell while out in nature. I also heat my house with birch in the winters.
- I know how important the logging industry is, but we need to leave some forests alone for wildlife habitat, and for people to enjoy. The timber harvest of 800,000 cords/year does a good job balancing these things. It shouldn't be increased. Thank you.
- I think it'd be great to generate money from the timber lands which in turn saves money that's being spent fighting wildfires and also having a young/health renewable natural resource that is carbon neutral for my kids and there kids to enjoy for many decades.
- All are important. Young forests are healthy forests and sequester more carbon. I believe harvests can increase and still support all the values listed.
- 1 to 10 scale: timber harvesting 1. / wildlife habitat 10. / biodiversity 10. / Water Quality and Water Quantity 10. / Forest Community Health and Invasive Species 10. / Economic Impact 1.
- Timber productivity is important to me because I work in the timber industry, I want to see State lands producing high quality trees with abundance. Wildlife habitat is important to me because I enjoy hunting and fishing, and I also enjoy seeing Non-game wildlife as well. Forest Biodiversity is important to me, and I believe this can be best achieved through proper forest management techniques. Water quality and quantity are important to me because the water I consume

comes directly from the area around me. The study states that increased harvest levels has virtually no impact on water quality. Forest community health and invasive species are important points of discussion. I believe that these things go hand in hand with young healthy forests. It would be very difficult to address forest health issues on State land without a viable timber industry. Economic impacts of increasing the annual timber harvest on State land is extremely positive in the rural communities. I live in one of these areas, and without this industry, there would be very few decent paying jobs to support the families that live here.

- i currently own and operate a Logging business that sells to the Amish and smaller mills that are often not counted as a market. we cut 20,000 cords per year of mostly hardwood and need more hardwood stumpage offered on larger tracts
- Forest management is wildlife management. The amount, method, and timing of timber harvesting determines which forest wildlife species gain or lose habitat quantity and quality. That said, forest economics is critical to maintaining the infrastructure necessary to managing our forests. The forest products industry involves global investments in infrastructure. Minnesota is currently one mill closure away from having a significant number of timber sales going unsold, particularly the low volume, low value, difficult to access stands that are currently available. We must demonstrate a commitment to providing a steady stream of quality raw materials without undue regulatory burdens so that Minnesota remains competitive in the global market.
- A vigorously growing forest can provide all the benefits listed above. To keep the forest growing vigorously requires management at an increased level above the current level.
- Timber harvest is good for forest health, small town economies , and provides needed revenue to school districts
- Sustainable environment and preservation.
- As a lifelong Minnesotan, I value our states rich natural resources, wildlife, biodiversity, and clean air and water. As a graduate from the University of Minnesota with a degree in wildlife management I believe sustainability should be our states highest priority. After reading the harvest analysis, I believe that we should not increase our timber harvest. According to this report, harvesting one million cords of timber would reduce our future harvest levels each year. This report shows that increasing our timber harvest by 25% is unsustainable. Do to the finding in this report, the correct action would be to keep our timber harvest levels the same as we they have been.
- My main interest in forests is the recreational, biodiversity, water quality, and aesthetic values that our forests provide. I have lived my life exploring these forest only to see the landscape fragmented and more and more spread with exotic species. We still act like this is not happening and do not have restoration plans for the forests that have been so heavily impacted.
- a. through e. are most important to me as a User of forest lands. f. is a meaningless measure given the Minnesota Income tax levels and how tight spending measures often results in a State budget surplus.
- Wildlife habitat, biodiversity, water quality and quantity, forrest community health and invasive species
- b through e above are the most important to me. Timber productivity and economic impact are less important to me. Forests are living things and provide spaces we need - not just for commercial benefit.

- Conservation should outweigh harvest.
- Our forests are truly a gift from God, to enjoy, and it is up to each generation to keep them for future generations. I am pleased the State of Minnesota holds them in high regard.
- All values must be considered. Some weight should be applied to timber Productivity, since yield will provide economic ability to manage for many other values.
- Wildlife habitat is the most important to me, because it is like a pyramid. We can remove some of the base, but we do not know at what point it will collapse.
- I believe wildlife habitat must be carefully considered along with biodiversity. Reforestation with the same variety of trees in alternating rows and underlying vegetation destroyed not only looks unnatural and unappealing, but limits the cover and food sources of wildlife.
- Wildlife Habitat - specifically ruffed grouse and woodcock forest management.
- Biodiversity is always important. The creatures and plants that inhabit the forest have a right to life. Wildlife habitat is very important, it is their home.
- Wildlife habitat goes hand in hand with timber harvest. The impact of invasive species such as beetles is alarming and should be considered.
- Our mission is to conserve and restore natural ecosystems, focusing on birds and their habitats, for the benefit of humanity and the earth's biological diversity (including forest values b,c,& d from above). We deliver conservation results by applying science, education, and advocacy.
- For me, forest wildlife habitat at both ends of the successional scale; i.e. Open grass landscapes (sharp-tailed grouse, Sandhill cranes etc.) and old forests (spruce grouse, pine martens, etc) could be further sacrificed and species lost.
- I am an avian ecologist so obviously birds and their habitats are important. The Minnesota Breeding Bird Atlas ([mnbirdatlas.org](http://mnbirdatlas.org)) and the DNR's County Biological Survey (Minnesota Breeding Bird Map List) have both documented about 250 regular breeding birds in the state of which 100 are forest dependent. Each one has different habitat requirements necessary for reproduction. Therefore, the forest diversity of age, composition, amount and spatial distribution are crucial for their populations' survival.
- They are all important especially the wildlife habitat, bio diversity and water.
- They are all important especially the wildlife habitat, bio diversity and water.
- Habitat
- wildlife habitat is priority, next water quality.... as in this current administration it appears we cannot rely on the federal government to make sound decisions.
- Today the forest provides great habitat for many animals and birds. The increase in timber harvest of pines will decrease areas of shelter for these animals and birds. If the plan to for a prairie restoration will see a decrease of many of these animals and birds and an increase of other species. Birds and animals listed are deer, grouse and bald eagle. There is a very, very small number of grouse. What is missing is the larger species of wild turkey, ducks, geese, mourning doves, squirrels, song birds, and woodcock.
- Wildlife habitat biodiversity and water quality are very important to me and to the organization Howling For Wolves' supporters.
- These values represent a good diversity of priorities which are all important. However, my primary focus and concern is on wildlife habitat and biodiversity when it comes to the timber harvest issue. I hunt and fish often across the northern region of our state, and work hard to

introduce new people to these experiences in "wild places". While I support responsible timber harvest I also see the potential for significant and negative impacts with a 25% increase in the annual harvest targets. Younger forests can be very good for grouse and deer habitat, but hunters (and especially new hunters) also place priority on the basic experience of getting into "wild forests" which don't have trails cut this way and that through the middle of them. The people I take out already experience the impacts of current harvest levels every time we're out in the woods up north. I do not support an increase to the current harvest levels.

- Wildlife habitat quantity and quality which is a function of high bio-diversity and healthy, invasive free forests.
- .b Wildlife habitat is the most important thing to me. This plan to increase cords benefits and lines the pockets of the state. I hunting deer in st Louis country since 1976. In 1980 the started cutting timber in our area. That first cut has gone from beautiful mix forest to mainly aspen poplar. good for nothing. They say cutting timber benefits wildlife - tell that to the pine martin, fisher and Canadian jay. I'm not against the timber industry, I'm against any increase.
- I would put wildlife habitat,biodiversity,water quality and water quantity,and forest community health and invasive species ahead of timber productivity and economic impact. Certainly we need to maintain our forest industry but not at the expense of the resource and the creatures that live there. We now focus too much on Deer and Ruffed Grouse and need to consider the species that require a more balnce older forest. Aspen forests with a 40 year rotation and pine plantations lack the natural characteritics of a well balanced forest. a harvest level over 800,000 cords results in this. Give all the wildlife species a place to live. 40 year aspen rotation provides little nesting options for cavity dwellers.
- It is ABCs goal to promote collaborative conservation, outreach, and research programs that focus on adaptive management strategies at multiple scales (from local to landscape) and cross jurisdictional and ownership boundaries to maintain, enhance, and/or restore Minnesota wildlife habitat for the benefit of avian species. Presently, ABC is working with public and private lands partners to implement early successional habitat treatments using science-based best management practices to MN SGCN species such as the golden-winged warbler and American woodcock. ABC continues to work with partners throughout the state to identify additional collaborative projects for future implementation.
- In order of highest to lowest priority: Wildlife Habitat, Biodiversity, Water Quality and Quantity, Forest Community health and Invasive Species, Timber Productivity and Economic Impact

*Question: What should be added? Please include page numbers if your comments refer to specific parts of the report.*

- What about a model run with no restraints?
- As stated above, what about the integration with subsection plans, what about climate change, what about forest fragmentation, old growth, restoration of native pine habitats, integration with other forest planning from other agencies. This analysis is purely a modeling exercise from Oregon that does not include the varied level of expertise from Minnesota and the validation of model results like what does the landscape that results in 1 million cords look like. It is much more roaded, much more full of exotic species, and will have impacts on species that specialize

in older growth forests. To ask me where to add this in the page numbers of a 300 page modeling analysis is not fair and these comments mostly were not handled in the report.

- Comments on MN Forest Sustainable Timber Harvest Analysis 1. Overall this is a very difficult report to read and comprehend in a relatively short period. One would need several days to adequately review it. Given that it is the holiday season, there has not been insufficient time to digest it, but we have read through it and Niemi was a participant in the original GEIS in the 1990s. This document pales in comparison to the GEIS even though we are aware that there was a short deadline for the MNDNR staff and the consultants. 2. We are concerned with the qualifications of the major authors of the report with respect to wildlife, biodiversity, or their knowledge of Minnesota forests. 3. The wildlife and biodiversity aspects are only given superficial treatment. For example, the species listed for old-growth or for young forests are abbreviated and do not cover the breadth of wildlife diversity in these types. The analysis is vague on how habitat or landscape needs were incorporated in the scenario modeling. 4. It is hard to imagine how this analysis could be completed without consideration of climate change. Climate change effects could reduce the amount of forest area by land conversions to other types such as agriculture or residential development. Climate change affects may also have major disturbance effects such as forest fires, insect disturbances (e.g., tamarack), and wind damage. The uncertainty of climate change needs to be explicitly considered. 5. Increased harvesting of tamarack, white cedar, and black ash need more scrutiny. 1) Insect damage from the eastern larch beetle and the future availability of tamarack needs to be seriously considered. For instance, over 400,000 acres of tamarack have been affected by the eastern larch beetle. 2) Any increase in the use of white cedar to meet increased demands seems logically flawed. What is the market for white cedar? There are current problems in regenerating white cedar in the state. 3) An increased use of black ash also needs to be re-evaluated in light of the presence of the invasive emerald ash borer. There appeared to be no consideration of insects, invasive species, or diseases in the availability of forest resources. Furthermore, the salvage logging of these disturbed areas do not seem to be realistic assumptions. 6. The report is difficult to read with so many acronyms and requires constant referral back to previous sections. 7. The amount of old-growth forests in the state are still below historical averages and it appears that increasing harvest levels may slow objectives to achieve the desired goals. 8. Numerous statements made in the document should be supported by references but they are nearly non-existent. This brings in questions on how credible the science is behind the report. 9. In conclusion, forest harvest levels have declined in Minnesota in recent years, so there may be the opportunity to increase harvest levels in the state as a whole to what they were in the 1990s. There was support for potentially sustainable harvest levels of around 4 million cords per year and higher in the GEIS as long as certain mitigations were incorporated in harvest plans. It would certainly be desirable to know whether the state could increase its harvest levels to accommodate an expansion of harvest. Unfortunately, we believe this analysis is unsatisfactory to answer this question for many of the reasons stated above.
- A complete analysis of the monetization potential for carbon sequestration that these forests represent should be added to this report. Has the analysis carefully considered whether there is a potential to create greater value for the citizens of the State of Minnesota by marketing the sustainable annual revenues for the carbon sequestration capacity present in these forestlands

versus the traditional method of creating single income generation from timber harvests that require a generation to reproduce value?

- I don't think the affect of climate change was addressed in the report. Forest habitat seems to be changing. Now is not the time to harvest more timber when the landscape is changing.
- climate change, water pollution, wildlife habitat after these are taken into account.
- The general consensus is that our planet will warm in the next hundred years and our forests will change to a more deciduous nature. I did not find that variable anywhere in the report.
- Impacts to significant forest values such as wildlife are not adequately addressed and consideration of predicted changes due to climate change, wildfire, invasive species, disease and insect outbreaks appear not to have been considered at all. We aren't going to be able to safely harvest wood on wet soils if the winter period keeps getting shorter.
- What is the impact of climate change , how will it effect our forests, and the level of timber harvest?
- This report is incomplete until the impact of climate change and invasive species is analyzed. How can we increase harvests in a time when forests are expected to decline dramatically? It seems irresponsible at best.
- Effects of climate change, and all of the non-harvest values: Wildlife habitat, biodiversity, water quality and quantity, forest community health and invasive species, and economic impact to non-harvest economies (hunting, fishing, hiking, biking, bird watching, etc)
- Climate change, effects of present and future invasive species and diseases, difficulties when regenerating stands (i.e. northern white cedar), inability to predict future market needs and uses for wood products. In other words, a conservative harvest goal would be the most responsible choice in order to retain flexibility to meet future needs and environmental conditions.
- The effects of climate change on all the listed values were not adequately considered.
- lands designated with specific non-timber priorities such as WMAs, SNAs, SRAs should not even be included in the harvest pool. this is part of providing for diverse use of forest resources- not every acre of forested land can be managed and achieve this alleged goal
- The quality of diversity as it relates to human and wildlife use and aesthetics of the forest ecosystems. This should be prioritized over timber harvest.
- From a wildlife habitat perspective it would have been very informative to see this analysis include a handful of scenarios that were not attempting to 'optimize' or 'maximize' a particular variable, but rather attempted to incorporate multiple objectives (perhaps at slightly less than optimal levels). Public agencies must manage timber resources to ensure that the timber industry remains robust. As such, they will never manage forest communities to optimize or maximize variables that do not yield a quantifiable economic return such as wildlife benefits, forest diversity, old growth, or cumulative watershed impacts. This analysis is therefore relatively uninformative as it pertains to evaluating those variables when they are incorporated into certain harvest scenarios. It would have been useful to somehow incorporate those variables at various degrees of management intensity relative to timber harvest in order to better evaluate how best to strike a balance between timber and non-timber forest management priorities. I fully understand that it is very difficult to create model parameters that would allow this type of analysis, but an all or nothing approach is also not ideal when attempting to weigh the impact of nontimber forest management considerations.

- The report is incomplete in that it doesn't adequately address the full range of goals that the DNR claims to be important, including maintaining and increasing old growth and forest diversity, minimizing forest fragmentation and erosion, and providing a full range of benefits.
- The effect of increased harvest levels on economic impact is not adequately discussed. My opinion is that an intensively managed forest negatively affects other forest uses, which in turn adversely affects the tourism businesses, property values and associated rural development. I strongly believe that maximizing harvest will significantly decrease aesthetics of the forested areas and result in declining numbers of forest users. Also, the increased offerings of timber would decrease stumpage prices. Other forest owners wanting to sell timber would therefore be negatively impacted.
- I felt this report, and the entire Sustainable Timber Harvest Analysis initiative, has weighed too heavily toward increasing the annual harvest. It seems this is almost a foregone conclusion. There goes not appear to be serious consideration of maintaining the present harvest level and almost no thought of lowering the annual harvest. This should have been a more holistic assessment of the current level (status quo) vs. both higher and lower annual rates without the underlying premise that the goal is to only assess if raising the total is sustainable. This stacks the deck against the status quo or a lower annual limit.
- See above statements on water quality in streams and lakes. The high amount of harvest proposed will greatly increase erosion and temperatures in streams and ultimately lakes. This is counter to the Gov. buffer law. I don't get why he is pushing for more timber harvest except for the politics behind it from the timber industry, look at the economics I discussed earlier!
- I do not think that the biodiversity and health of species that depend on forest and old growth forest was given enough consideration.
- Trail systems on public lands make Minnesotans health and happy and allow our air to be cleaner and our water cleaner...
- I believe an additional forest value relating to the human impact/perspective of harvest needs to be considered. Let us not forget the outrage of the public when harvest levels increased dramatically across all ownership in the late 1980's and 90's. This is an impact on non timber values that has not been addressed.
- Allow bids from those who would pay to forever block the harvest. You still make the same money, but the trees survive.
- lower harvest levels and quit propping up private interests.....there will always be buyers of the timber .....hire non-foresters to write the report and analyze the data.....does an Oregon firm with much different timber stands that far away realize different factors here ????
- See comments above. Start by determining the forest composition that best meets all multiple use values and then determine how much wood you can harvest and still provide those values.
- The report should have detailed activities in the Anoka Sandplain, Hardwood Hills, Blufflands/Rochester Plateau and MN & NE IA Moraines. These areas contain significant hardwood assets that are valuable for people and wildlife. Proper management would ensure that they remain in oak coverts, while improper management would lead to transition to less valuable hardwoods. Oak rotation age should be much older than the economic rotation. The study should have included an economic analysis of impacts to the School Trust and to NIPF landowners. In short, increasing output from state lands would impact supply-side economics and drive down stumpage rates, resulting in less revenue for the trust. Also, private landowners



will be less likely to manage forests if prices go down. The net result may be an overall reduction of fiber available for mills! The report gives scant attention to the accessibility of remaining wood on state lands. While there is certainly mature wood available, a significant proportion has not been harvested due to its inaccessibility because the stands are too small, too remote, across wetlands, or too steep to warrant building a road for harvesting. If such roads are built they would take more timberlands out of production, increase water quality impacts, and drive the sale cost so high the stands don't sell. The study does not take into account utilization. Some mills (e.g., Blandin) insist on high-quality aspen with no rot. 15 years ago wood was sorted at the landing and this low quality wood went to OSB mills. Since their closure much of that is left in the forest to meet coarse woody debris standards. Increased utilization would result in more cords going to mills without actually increasing harvest. Why was less emphasis placed on young forests than on old forests? The Young Forest Guild Metric should have been included as a scenario objective (page 66). According to the analysis young forests will decline from 9% currently to 4% under Forestry Objectives and 7% under Wildlife and Forestry objectives (page 114). Given the nationwide declines in young forest associated wildlife, and drastic reductions in young forests across the country, we feel that a scenario that maintains or increases young forest habitat for a wide array of wildlife and timber values is warranted. At a minimum young forests should be given equal consideration as old forests. Young forests and the aspen cover type are critically important to many game species that Minnesotans hold dear - grouse, woodcock, deer, turkeys, bear, etc. We can't understand why the DNR continues to build in a 1,000 acre/year conversion factor from aspen to other cover types. Furthermore, why is there less emphasis on these on wildlife lands? Wildlife management areas were often purchased with hunter dollars, and should be managed to maximize game populations, not maximize forest diversity. By the same token, why are there no partial harvests of oak and hardwoods on Forestry lands? This management prescription is often appropriate as an intermediate treatment to meet stand objectives.

- The report examines the feasibility of possible timber harvest levels and constraints. However, it lacks consideration of how report findings might be considered in decision-making involving trade-off analyses and implementation capability. The latter includes numerous operational factors.
- More analysis of operability of sites and possible impacts of climate change would be helpful.
- Public Safety - Increasing the amount of harvest will mean more trucks hauling. This will only lead to someone getting hurt or killed. If you don't believe me try following one of these trucks as it travels the FR roads next season. Twice I was run off of the road. No one cares!
- pictures of how crappy the habitat looks like after the clear cut.
- I understand intent of modelers to list wildlife habitat and biodiversity as constraints, but this is a flie in the face of our state sustainable forest resource management act. My pet concern is the impact our every increasing forest road and trail system has on wildlife habitats, a sense of wildness in our forest lands, and non-motorized/motorized user conflicts that come with increased timber harvest levels.
- You are asking for public input, but asking the public to read and study a 300 plus page report is unrealistic. We in Minnesota value our forests and want more protection, not less or for our forest to be controlled by the timber industry or county commissioners who quite often only

consider the economic benefits. I am sure the report was well done, but for the general to fully understand it is in my opinion not possible.

- There should be more than just the 45-year harvest age designation for aspen. I've seen some really nice 50-60 year old aspen stands that were still in good shape and putting on good growth, and some 30-40 year old stands that were already in decline.
- I think the primary consideration should be for the health of the forests and their inhabitants, and conserving/protecting/sustaining it. When woodlands are considered a source of revenue rather than as homes for wild lives critical to supporting our food web, then the analysis is skewed.
- I think it is a foregone conclusion that a larger harvest is possible in the short term. But is it really sustainable and at what costs? As the report notes, "The potential ability to harvest at a higher level is due to the large supply of mature and older wood currently on state lands. Some of this older forest is the result of conscious decisions to manage for certain habitat values, while some is the result of market conditions (e.g., undesirable species, distance from mills, etc.)." Will this be clearly and honestly explained to the governor and the public? Climate change, the big elephant in the room, is not adequately addressed. I am also concerned with the conclusion that "We found that the long-term harvest level that utilizes all of the acres available under current legal and regulatory restrictions could be between 880,000 and 910,000 cords per year." Is a bit disingenuous as it notes that marketability and wildlife considerations are not included in this large harvest model. Those two items are huge considerations and should not be devalued. I am also concerned about the devaluing of older, mature forests - "The potential ability to harvest at a higher level is due to the large supply of mature and older wood currently on state lands. Some of this older forest is the result of conscious decisions to manage for certain habitat values, while some is the result of market conditions (e.g., undesirable species, distance from mills, etc.)." I have been at a talk where a state employee said that the way the MNDNR sees it, they should be able to cut all the mature and older forests that they want and leave the management and retention of the forests to other agencies and individuals." This is appalling. Converting all of NE MN forests into aspen is not healthy for the forest or desired by all residents. Other concern - sure you can log at a high level for 20 years. This is a short term boom for loggers. But what happens after 20 years when they have purchased all the equipment needed to ramp up their activities and hired accordingly? Meanwhile we have less diverse and healthy forests on our state lands and unhappy loggers again at the end of 20 years. The state's priority should be healthy, diverse forests which includes diverse wildlife populations, not a get the harvest out mentality.
- There is too much focus on financial return, and not enough on the more intangible values that forest provide, water quantity/quality, fish and wildlife and their value to a tourism based economy, aesthetics, spiritual connection to our forests, recreation, etc. what should happen is to conduct a study that looks at the values of ecosystem services provided by the forests as they protect and enhance our environment and benefit the citizens of MN, and compare that with the economic values gained and lost by adjusting the sustainable harvest level.
- Further assessment should be conducted on how plant communities will suffer if we focus our increased harvest to these stands that have matured over the years the DNR has been doing a better job of sustainably harvesting our forests. Club mosses, orchids, and many ferns take decades to establish and are very sensitive to drying out from too much sun exposure as well as

heavy equipment driving over them. That isn't to say we shouldn't harvest any timber. The goal of sustainable timber harvest should be to maintain old and uneven aged forests to a higher degree so timber harvest of them will some day be considered sustainable.

- My experience of 34 years with DNR Forestry is that so many Foresters and Techs value themselves as "how many cords" they put up. DNR Forestry whether intentional or not, feeds that by saying these values or those values are important, learn ECs, etc etc and then toss all of it out the window when wood is needed. If "farming" of our forests through lower rotation ages, such as trust fund land pine, for example, then diversity is a moot point.
- Medicinal plant values, and futures.
- Hiring a company from seriously devastated oregon makes no sense. They've destroyed the forests there and they just care about money.
- I think water quality impacts of high harvest levels could be addressed more. Page 123 states that watersheds were not addressed in the report. Numerous studies have shown nutrient loading increases from forest activities in the Riparian Zones. E.G. Marcel forest research studies and studies along trout streams on Blandin UPM lands in the Sugar Hills Area approximate to Smith Creek south of Grand Rapids Mn.
- The effect on bird species was not considered to its full extent.
- Why is it assumed that forestry lands would be managed differently than wildlife lands? Shouldn't all state lands be managed to preserve and enhance the wildlife species in the state?
- Comments given above address a more complete analysis for sustainable forest management that truly considers all wildlife and biodiversity ecologically, as well as other important forest values like recreation, rare and distinctive flora and fauna; air, water, soil climate and educational, aesthetic and historic values (Minnesota Statutes 89.001 Subd. 8). Scenario 2.3 can be considered a surrogate for some of these values but the use of terms like "non-timber values" and "constraints" on harvest does not give one much confidence that the outcome is really meaningful for sustainable management .
- How this will impact the wildlife whose homes would be demolished.
- Does not adequately incorporate impacts to forest-dependent plant and wildlife species; some of the recommended harvest levels are unattainable given existing rules and regulations (e.g., state/federal Endangered Species Act, Bald and Golden Eagle Protection Act).
- The report states early on that impacts to wildlife species that are dependent on older forest increase as timber harvest levels increase (pg. 2): "As the six values listed above are incorporated, the timber harvest levels generally decrease. In particular, incorporating spatial distribution goals to provide biodiversity and habitat for older, forest dependent wildlife species has the greatest impact on potential timber harvest volumes. Prioritizing these goals has the potential to reduce timber volumes by as much as 40-50% over the next 20 years (25-35% over the long term). This would amount to an annual harvest level of roughly 600,000 to 700,000 cords." Thus the authors make clear that any increase in harvest levels is short-sighted because increased harvest levels can only come at the cost of the other values described and defined in both state statute and reaffirmed by the stakeholder group. If the DNR adopts higher harvest levels from current levels, they will appear to prioritize the economic interests of the forest products industry over the wildlife and recreational values held by many citizens of this state. Such a policy action sends the message that the concerns of a wide swath of Minnesotans are less important to the Minnesota Department of Natural Resources and the current

Administration than those of the struggling rural communities who have lost some of their industry to a global market. Indeed, increasing timber harvest levels is simply an expedient solution to a complex problem and benefits a small number of loggers and producers living within communities that would be better served by thoughtful and fully-funded social-fabric policies, such as stronger state-funded technical training programs and a statewide minimum wage increase.

*Question: After reading the report, is there anything else you would like us to consider that was not covered above?*

- Climate change is a very real threat to human health and leaving our forests intact is a valuable asset to mitigate against it. While this report may have considered this to some extent, it is not clear to me that you gave the benefits of severely limiting timber harvests to mitigate climate change enough consideration.
- Impacts of climate change and pests like the beetles moving across the continent on sustainable harvest.
- The analysis does not consider climate change nor the impacts of major insect and disease outbreaks such as emerald ash borer, larch bark beetle or an outbreak of pine bark beetles
- The climate of Minnesota is expected to look like that of Kansas in a few decades. How can we, as Minnesotans, commit to harvesting more trees when much of the State's biome is shifting over to prairie or grassland? We should be reducing the harvest in the face of climate change, not increasing it. Please do not submit to lobbying pressure from special interests in the timber industry. Thank you for the public service work you do.
- Further consideration should be given to the effect climate change will have on future harvest levels. Further consideration in the analysis should also focus on the impact of increasing populations of invasive species (especially forest insect pests). The impact of increased harvest levels on watershed health was not considered except in one scenario and should receive more attention. Openlands/brushland management should be given some consideration in forest management planning such as this.
- Insure that all forest users and values are being given equal consideration when analyzing available timber harvest volumes. The timber industry should not be allowed to drive these decisions alone. This kind of an analysis should be done every few years as condition and needs of our forest lands, climate conditions and the timber industry are always changing.
- Again, so who is going protect these non-economic values in forests. I hope that the DNR is on board with protecting these other values. I fear that the industry driven forces are too much for the agency to resist. After all with climate change and all the other forces acting on our forests we should be looking more at a restoration focus, introducing fire, controlling exotic species, reducing fragmentation, road density, restoring more old growth, restoration of the great pine forests that are all but gone. This report and the proposal to increase harvesting from an already unsustainable rate does none of that.
- An economy that relies on outdoor recreation as well as resource extraction is vital to Minnesota's future. Timber harvest is only one of many uses that benefit us all.
- Diversity also includes small sawmills and loggers, not just the forest. Lower rotation ages for aspen could mean sawmills that provide cut stock and pallet lumber are thrown under the bus

- I've lived in the forested areas of mn my entire life. Sustainability needs to come before economic gains. Mn forests are being harvested faster than they can regrow. I do not support the increase timber harvest plan.
- Preserving large specimen trees. What I see happening now in Becker county is that they cut nearly everything and we are left with a few scraggly trees and an impenetrable maze of little aspen trees after a couple years. YUK. Area is managed by the county not DNR. Recently they cut several large oaks that had nesting cavities and were of no commercial value. They left them in a big pile to rot away doing no good to anyone. Selective harvest would be a much better method than clear cutting.
- I read and studied the report the best I could, but feel the other benefits our forests provide - wildlife habitat, maintaining biodiversity, watershed protection, and esthetic beauty enhancing tourism - were largely overlooked. Trees are renewable; old growth timber is not.
- See comment letter submitted separately for additional discussion. It is not possible to provide DNR with an informed answer to the question above regarding levels of timber harvest MHAS would support until further assessment of non-timber impacts is provided.
- The report should not include harvest levels that violate state statute, existing forestry guidelines, etc. These are not realistic options, nor will the public tolerate this level of impact on MN forest resources.
- Humans need to be able to be outside and public lands is the best place for our nature Fix!
- As I mentioned, recreation doesn't get much treatment. The word 'recreation' seems to occur twice in the document.
- The value of recreational usage. Perhaps that is embedded in the criteria mentioned. However to this "joe citizen" it was not obvious.
- I am most concerned with the proposed 2500% increase in harvest of northern white cedar. How can these stands be successfully regenerated given current deer populations, greatly altered hydrology of the stands, and climate change?
- Largely ignored were both ends of the successional spectrum that are vital to sustaining a viable and diverse forest ecosystems. A forest should not dominated by harvestable-age marketable trees!
- They need to address if there are any water ways involved and the animal species habitats that need to be preserved
- Report was deficient in the quality of mapping - zone maps showed no identifiable features such as highways or townships etc.
- if the impetus to increase harvest is to alleviate economic pressure on the timber/wood industry, larger scale forces need to be considered and addressed. simply increasing harvest at the expense of sound long-term forest health is only a temporary fix and will lead to future crises when wood supply especially of older forests and larger timber are rendered scarce as a
- We appreciate the effort the Minnesota Department of Natural Resources (DNR) has invested in this Sustainable Timber Harvest Analysis (STHA) project and report, and the opportunity to serve alongside so many other dedicated representatives on the Stakeholder Advisory Group. In truth, the STHA scenarios and sub-scenarios capture a great deal more important nuance and context regarding the values and tradeoffs of forest management approaches than can be expressed in the indication of support for one or more of the above levels of timber harvest. We have indicated support for the 750-900 thousand cords or 900-1050 thousand cords, in recognition

that many stand ages are currently beyond rotation age, and that these levels span a range from volumes somewhat less than DNR has offered for sale in recent years up to volumes increased from these levels to allow for harvest of additional current inventory. However, we wish to urge caution against a myopic focus on a target number of cords to the potential detriment of supporting a dynamic, scientifically sound approach to management of Minnesota's forest resources. There are two significant sources of concern prompting this caution. First, the modeled scenarios do suggest that harvest at the higher of these intervals is feasible. However, the additional standing inventory is eventually depleted, and most scenarios (particularly those that include provisions to sustain a wide variety of forest values, such as retaining wildlife management regimes and enforcing leave tree requirements, watershed constraints, and other current restrictions) must then decrease to the lower interval. Therefore, committing to consistently sustaining the highest annual harvest level could enhance economic impact over what may seem like a relatively long decade of time, but such a period hardly constitutes meaningfully sustained prosperity without further extending harvest at this level to the detriment of sustaining other forest values. We would instead encourage remaining open to increased annual harvest levels but not establishing a long-term fixed goal at the highest level. A second significant concern is that modeled scenarios considered distribution of harvest across all species, including those in lower demand. If there is not a willingness to accept that annual harvest might not reach higher target levels when there is not sufficient demand for some of these species, there could be a tendency to shift stand selection towards higher demand species such as aspen, which could quickly translate to unsustainable harvest levels and simplification of stand ages and structures. We would therefore insist on consideration of the overall target as composed of sustainable wood volumes across a variety of species.

- Note that we provisionally support 600-800,000 cords, with numerous caveats presented in our comment letter. We sincerely appreciate the opportunity to participate in the process.
- The GEIS studied this issue in equal or greater detail, and out of that grew the 800,000 cord harvest target. We seem to be reinventing the wheel, for the benefit of industry. As a landowner with timber to potentially sell, I resent the fact that industry is attempting to drive down the price of stumpage, negatively impacting my potential revenue. Industry has largely sold off their extensive landholdings in MN over the past 30 years, and now they want the public to subsidize low prices for stumpage by flooding the market. This is a terrible precedent, and one that citizens should object strongly too, both out of self-interest and on the grounds that it could jeopardize the very integrity of our State's forest ecosystem. Already, sacrifices have been made to appease industry, by eliminating extended rotation forest, shortening rotation ages (some like NP and WS far shorted that any other public land management agency). I urge you to not only not adopt higher harvest levels, but to lengthen rotations, restore extended rotation forests and REDUCE harvest levels to 700,000 cords for the next 30 years, and 600,000 cords thereafter.
- 900 thousand cords OR MORE is crazy. We citizens and stewards need to open our eyes with a broad view and consider the future impact of these resources. The philosophy of "God put these trees here and dad gum we're gonna take 'em down" ain't no way to respect the woods. Harvest 750 thousand cords Maximum.
- It seems the governor has decided to dictate forest management based simply on politics. Shame on him! It seems we have entered an era where it's been decided to mine out our

natural resources for the benefit of the current generation without regard for our children's children. Shame on us!

- The lower number must be used. With the sell off of Blandin paper renewable first areas foot corn production, it is even more critical to save our state forests for biodiversity, water quality and nature via wildlife habitat. These forest lands can't be replaced in a generation. Oing e it's gone it's gone forever.
- Determining sustainable harvest relies on good data, growth and yield assumptions. It seems the consultant addressed this well, but seemed hesitant to say the data was good. I feel that in no way does this analysis suggest that DNR managed land can sustain annual one million cord harvest for the long term.
- Yes that the report stated even art the minimum request kennel bio diversity could be harmed.
- Yes that the report stated even art the minimum request kennel bio diversity could be harmed.
- To support water quality and bio diversity we must use the lower number.
- The conclusion offered by the Consultant demonstatres that increases to 1million cords is short sighted. 6.4 Going Forward This assessment of the capabilities and opportunities of MN DNR's commercial forest land suggests that the MN DNR could contemplate increasing timber harvest levels in the short term, without falling below sustainable harvest levels in the long term. However, maintaining current harvest levels, or increasing above current harvest levels, will impact the agency's ability to move the forest toward goals for biodiversity and habitat for both young and old forest-dependent wildlife. This assessment should help MN DNR understand the opportunities for finding the right balance between these objectives
- The report shows that there would be impacts to increasing timber harvest and those impacts do not lead to a sustainable harvest, especially in the long run. A longer term vision is needed.
- While the report considered the annual 1000 thousand cords harvest level, the conclusion is apparent that it is not sustainable, 15-20 years is not a sustainable time frame. After 15-20 years harvest would have to be reduced to not impact future health of our forest system. A cyclical harvest regime does not promote a consistent and stable timber industry.
- After enjoying our forests for over 50 years to sight see in them, hunt in them, hike in them, snowmobile in them, gather my fuel in them, gather berries in them, to mention a few things, it is truly a gift to have them. To manage them makes a lot of sense, if we don't, mother nature will and it will be devastating to many when she does....Look at many western states and the state of California when you don't.
- The cost to MN tax payers and the school trust revenue should more timber be pushed into the market even short term.
- offer more hardwood timber sales
- This report focuses on production for the pulp and paper industry and gives scant attention to oak and hardwood systems and sawmills. And while it is designed for state lands, those lands do not exist in a vacuum. The outcome will have economic and conservation impacts on private, industrial, federal, and county forest management decisions. There should be a section discussing the big picture ramifications of any change in state timber production. That said, we support a short-term increase in harvest to capture stands before they degrade into unmerchantability, followed by a reduction to a long-term sustainable harvest.
- Use the State's influence to increase timber outputs on the State's national forest lands as well.

- There was no/little mention of how the current SFRMP planning process works and how a new/higher harvest level would be incorporated into that process. Are we going only to a top down planning process that keeps the timber industry happy, or are we still keeping a vibrant SFRMP process. Also, what is the impact to private land timber stumpage if we flood the market with excess state timber.
- The Comment Period for the draft report on increasing the sale of Timber harvest is too short! The deadline is way too short especially during this time of year for the public to digest the over 300 page draft report and to make a decent comment! This strikes me as purposefully sabotaging the ability of the public to make a reasoned input! This is harmful to the process and you need to increase the time for comments!! Maureen Hackett, MD
- Consider that initially giving the public one month over the holiday season to read, digest and comment on a 300+ page technical report gives a very strong impression the DNR has their mind made up about the conclusions they want to reach and our public input is largely for show. Giving the public a whooping one week extension to make comments is still insufficient. Harvesting 800,000 cords of wood already is having negative impacts on older forests and wildlife habitat values and the level needs to be reduced.
- To answer the questions posed adequately, additional time, money, and expertise would need to be included in the analysis. We do not believe these questions are substantially more complicated than this analysis has provided.
- Yes, rural communities should have representation on the board that will make the final decisions.
- I thank all involved with this process at MN DNR and MB&G and for their thoughtful analysis and review of the issues.
- I did not answer the accuracy question. You should have offered another option or two instead of just yes or no. That seems like a question that should be answered by scientists and not placed in a survey that can be answered by anyone. I get the sense that if the majority of the answers say "yes" then the state will use this to say that the study is accurate. I also feel this study has been rushed and the public is not adequately aware of it. Has there been any public outreach, besides to insiders? I realize it takes time to explain forest management to the public, but it can be time well spent.
- In my lifetime I have observed a change in methods of harvest from clear cutting to uneven aged growth and leaving habitat trees. Efforts have been made to re-establish the mature forests our state was once known for, and now is not the time to see our forests on the decline yet again. Thank you for allowing the public to comment on this valuable issue.
- A few comments with specific regards to the Woodstock modeling constraints used in the analysis: 4.4.5.2.2 Species Harvest Volume With regards to the 30% "departure" used at the species-level, is this a good value to use for all species? Would it not be more applicable to use levels of departure specific to the species, depending on the management objectives? 4.4.5.2.4 Aspen Conversion Why are these acreages hard-wired? Woodstock has the ability to constrain based on percentages of outputs (assuming that the output has been created). Using fixed values seems awfully binding and unnecessary. 4.4.5.2.6 Catchments Unclear as to how the goals are "essentially 10 times more important than stumpage revenue". Is stumpage revenue included as a goal somewhere? Or is this a reference to the objective function value? If it is the latter, why would this be \$900/acre and not \$900?



- A report regarding the effects projects like this have had in other areas.
- Management on an acreage basis not a cord basis seems much more practical.
- A better rationale for why this analysis was undertaken.
- I tried reading the report but it is asking a lot for citizens to read this extremely lengthy thing and understand all of it. I base my comments on what I am already familiar with and my values regardless of the report.
- If increased harvest can be done sustainably, and with minimal impact to wildlife and biodiversity I support it
- Harvest more timber, especially in the Arrowhead. We need more moose habitat.
- When will you decide we have caused enough harm? We need hemp and recycling and alternatives to deforestation.
- Yes. The vulnerable bird species that nest or migrate through Minnesota.
- The people don't want land clearcut for any reason. DNR is scratching their heads wondering why our moose are in decline, its habitat and deforesting.
- The impact on the wildlife, as where I come from I have seen the deer move in where logging took place and less moose....also this affects all the wildlife that includes the wolf ...more dense poplar and less accessibility for these animals to get around.
- Migration of population towards intact forests, and away from clear cut disaster zones.
- It would have been valuable to see a Young Forest Guild that incorporated Minnesota Species in Greatest Conservation Need, not just the habitat requirements of ruffed grouse and white-tailed deer, which are valuable game species, but species generalists that are not listed SGCN species in the state of MN. This analysis also seems to assume that all young forest species are satisfied through the use of the MN Voluntary Site level Forest Management Guidelines, which is also not necessarily accurate. Those guidelines are minimum requirements not best management practices for early successional habitat and it is not appropriate to assume that all young forest species benefit to the same degree from their implementation. Many young forest species utilize a diverse array of habitat types throughout their life cycle. This is not meant to be a harsh criticism, rather meant to highlight that this analysis may not fully reflect the habitat needs of young forest species when evaluating timber harvest.
- Impacts of current practices on Goshawk nesting sites and habitat requirements plus the Canadian Lynx.
- It would be interesting to see some harvest scenarios with longer rotation ages, especially for aspen. I'd like to have the aspen rotation at 50-55 years. Increasing it would provide more wildlife habitat and diversity to those species and features that benefit in older forests.
- January 8, 2018 As a resident of Lake County Minnesota interested in environmental issues I thank you for bringing this issue to my attention. The information to follow is based in part on discussions from the recently formed Soil Health Institute (SHI) and the Coalition on Agricultural Greenhouse Gases (C-AGG). <https://soilhealthinstitute.org/about-us/> <https://www.c-agg.org/> These two organizations are working to improve soil health with an implicit goal of carbon sequestration to create a Climate Solution (SHI); and to develop monetization policies, and improve the economics, of environmentally beneficial soil health and carbon sequestration policies (C-AGG). I have no expertise in forest land management, but I do have serious concerns about Climate Change as the single most important issue that humanity faces, including the residents of Minnesota. The policies and practices that our local, state and national government

adopt will all affect climate change outcomes, and this is particularly true of MN DNR policies with respect to forest land management. I have watched the DNR video and read the executive summary of the Sustainable Timber Harvest Analysis (STHA); I have not read the entire report. I know that this project is being conducted in a thoughtful manner with the goal of balancing the needs and priorities of the many players involved with forest harvest goals. The executive summary states: "The Stakeholder Advisory Group (SAG) (12-member panel representing a wide range of stakeholders in the forest), in consultation with the MN DNR, identified six broad forest management values to consider in the sustainable harvest analysis. These are timber productivity, natural resource economies, biodiversity, water quality, wildlife habitat, and forest health. Fundamentally, the model allows MN DNR and stakeholders to explore various ways of balancing these different values." However, I was very disappointed to not see a critically important forest management objective, the monetization of these forest lands for climate change mitigation purposes, mentioned in the video or the executive summary. None of the values, or objectives, stated in the executive summary included the utilization of these forest lands as a monetizable carbon sequestration resource. There is a tremendous opportunity to utilize the forest resources of Minnesota for a variety of purposes, but in this report the unrecognized elephant in the room is the capacity of this resource to produce carbon sequestration as a cost-effective and monetizable Climate Solution. If the monetary value of this carbon sequestration activity is accurately incorporated into the models that were developed, and reflected in the economic productivity of these forests, it might substantially alter the proposed harvest goals. There may be a potential for greater economic value for the citizens of the State of Minnesota by marketing the sustainable annual revenues for the carbon sequestration capacity present in these forestlands versus the traditional method of creating single income generation from timber harvests that require a generation to reproduce value. For more information about monetization of soil health (including forest carbon sequestration) please view this 30 minute video on Monetizing Soil Health by Ms. Debbie Reed of the Coalition on Agricultural Greenhouse Gases at the Soil Health Institute 2nd Annual Meeting St. Louis, MO July 13,2107: [redacted link to email] I appreciate your work, and the work of all involved with your organization, to accurately value and protect the forest and other natural resources of our state. Sincerely, [redacted name and address]

## Letters

Letters received were broken up into separate comments and sorted by themes.

- It seems certain that the DNR will undertake an analysis similar to this one in the next twenty years as further revisions to sustainable harvest levels are developed.
- The need for experimentation with forest management and interdisciplinary participation (in a level playing field) should be a department priority if looking for long term sustainability of all values.
- MNTWS recommends monitoring, evaluation, adaptive management program in the analysis for incorporation in the selected harvest level and subsequent management.

- The models should be revised when environmental and social conditions change, and monitoring results demonstrate a need for a course correction.
- Management that sustains all Minnesota's native forest wildlife resources, and distribution of forest age/successional patches across landscapes to meet wildlife habitat and biodiversity needs to sustain wildlife populations, including openlands/brushlands dependent wildlife populations. Openlands/brushlands habitats are imbedded and intermingled in the greater forest matrix, home to many species in greatest conservation need, game and non-game species, and must be considered in DNR strategic and long range planning to increase management effectiveness and efficiency of both forests and openlands/brushlands.
- MFI has repeatedly asked the project team to put changes in age class structure on DNR-managed land in context with the entire forested landscape of Minnesota. According to FIA data the amount of timberland acres greater than 100 years old has increased three hundred percent since 1977, therefore, reports on spatial distribution of young and old forest guilds would yield different results by considering stand ages of surrounding landowners. Not having DNR-managed land in context across the landscape makes the analysis less useful to stakeholders.
- floodplain forests should be considered at a landscape scale when making restoration and management decisions, including harvest, and not exclusively at the site or individual ownership scale. To harvest or leave older-age sites requires a delicate balance and careful planning. It seems this would be an important topic for the larger partnership to address.
- While MDHA does not support a one million cord per year harvest level from DNR-administered lands, MDHA does strongly support an overall increase in timber harvest in Minnesota. Simply stated, Federal and private forest lands in Minnesota are not producing enough timber in comparison to state and county-administered lands. Rather than compensating for this shortfall by shifting the burden of the timber harvest from these Federal and private lands to state lands (and, thus, affecting the ability of state managers to adequately consider wildlife and non-commercial values), continuing efforts should be made to encourage Federal managers and private landowners to increase timber harvest on their lands.
- MNTWS supports coordination of DNR with other forest landowners/administrators in landscape level planning to manage forest resources, such as older forest and its distribution, across ownerships. Many wildlife have large home ranges, and habitat needs must be met repeatedly across landscapes to sustain populations. Active participation in MFRC landscape committees is one effective avenue for this coordination.
- The state harvests a disproportional amount of wood compared with federal, private, tribal or industry managed forests. The proportion of timber harvested as a percent of its land base from state lands is 111% greater than federal lands and 99% greater than on private including industrial timber lands. The timber industry, although maybe not completely satisfied with this harvest level, could rely and plan on 800,000 cords as an annual, sustainable expectation. These harvest levels while not ideal for older forest wildlife would not be as detrimental to older forests than an annual million cord harvest target.
- The loss of wildlife habitat (including old forest habitat) to urban and rural sprawl is distressing. Up to 1 million acres of habitat could be lost within five years just within the seven county Metro Area. Such areas are important to resident wildlife and even more important to migratory wildlife especially songbirds. Similar deforestation is occurring in other urban areas such as

Duluth, Moorhead, Rochester, Saint Cloud, Brainerd and other areas. The STHA needs to account for this loss as part of a cumulative effects analysis.

- Spatial scope. Lands belonging to the State of Minnesota do not exist in a vacuum; conditions and activities on neighboring lands can and will have impacts on the State's forests.
- The executive summary paragraph on three primary questions lacks a statement of assumptions about the current and prospective levels of management assumed for the subsequent questions. This qualification is appropriate since the report itself essentially focuses on past to present management practice with little mention of the potential of investing in and enhancing the level of management. For many readers, the implication will be that there is only one form of management and one set of results. In reality, there are many investment options for forest management with an associated wide range of outputs.
- Page 48. 4.4.4.2 Clear cut constraints for species of special concern or best practices. But missing is a discussion of any negative economic or ecological impacts from these steps. Perhaps that is for a follow up effort? See also comments on pages 68-127 below.
- Page 48. 4.4.4.2 Clear cut constraints for species of special concern or best practices: But missing is a discussion of any negative economic or ecological impacts from these steps. Perhaps that is for a follow up effort? See also comments on pages 68-127 below.
- Many important components were not adequately addressed in the modeling. STHA models need to better address assumptions and implications. Selected assumptions by topic or section that should be addressed or revisited include:
  - 4.2.1 FIM Data
    - Stands inventoried long ago are the same cover type
    - Stand age is accurately identified
    - Assumes no natural disturbance (i.e., blowdown, wildfires), insect or disease (I&D), or invasive plant issues have occurred since the last inventory.
  - 4.3.1 Yield Tables
    - Assumes all stands of the same cover type and age class have the same timber volume.
    - No consideration given to climate change impacts on yields going into the future
  - 4.4.3 Actions and Transitions
    - Assumes no natural disturbance, wildlife damage, or I&D issues occur.
    - Assumes that all stands make viable sales
    - Assumes that forest over rotation age is available for harvest. No consideration for uneven distribution, cover type changes, age-class changes, operational constraints, I&D issues, or current low market demand for older ash, tamarack and cedar.
  - 4.4.5 Objectives and Constraints
    - Assumes the old and young forest habitat guild analyses adequately describe the habitat needs of wildlife species.
    - Assumes the analysis for protecting endangered, threatened, and special concern species is adequate and there will be no future locations of endangered, threatened, and special concern species discovered.
- Other Values/Issues That Should be Addressed in the Model
  - Lowland Conifer Old Growth – not evaluated because final designations have not been completed.

- • Habitat fragmentation and interior forest – these are important factors for wildlife, but they were not evaluated because the model is not able to do spatial analyses.
- The information presented in the draft project is tilted towards Forest Timber Extraction without an equal treatment of other values. Much of the effort in providing qualitative or quantitative data and details are mostly relative to the extractive aspect of Forestry. There are no equivalent details on habitat for wildlife, watershed management, and alternative economic analysis. It is likely that the assessment falls short on representing a balanced or realistic assessment for values other than the extractive timber value. This bias can be shown in the explicit assumption that all other forest values can be mostly if not entirely met by the non-merchantable portion of the forest in the statement: “The other 48% was allowed to contribute to various other objectives (e.g., watershed, older forest habitat goals). In the remainder of this section, we consider in detail the fraction of merchantable inventory acres.”. For example, low site index old lowland conifers do not provide the same habitat as high site index old lowland conifers. The former function more like recently clear cut. See NRRI report on bird study in Agassiz Lowlands.
- Consideration should also be given to lack of information on many aspects of forest ecology. Assuming sustainability when there is a lot of information missing on biodiversity, natural processes, carbon storage and so on would be unfortunate over the long run.
- The primary driver for the STHA is timber harvest volume. Other non-commodity resources such as rare features, biodiversity, wildlife habitat and watershed values are viewed as constraints and incorporated into the analysis to comply with established statutes, policies and directives. There are sub-scenario alternatives in the STHA that place greater emphasis on non-commodity resources, but these are displayed against the proposed action of 1 million cords for comparative purposes. It would have been more beneficial if collectively the goals and desired conditions outlined within approved SFRMP’s and pending SFRMP’s (Northern Superior Uplands and Northern Minnesota & Ontario Peatlands) would have been summarized and used as the starting point to build the STHA. In fact, there are by far more non-timber goals & desired conditions than timber goals in SFRMP. They are not considered lesser value than commercial timber harvest. The public would have been better served if wildlife habitat, rare species and other resources were given equal weight with timber volume in this analysis.
- The analysis does not consider the carbon sequestration potential of forests, nor compare that potential across scenarios. Include carbon dioxide sequestration as a model output, using standardized formulas that convert species inventory volume to carbon. This can be done now with existing model outputs, if forest inventory volume by species was estimated in model runs.
- the Draft Report should reduce the use of “periods” in graphs and instead shift to years. The public may confuse how long the increased harvest is sustainable, for example, someone may think harvests in excess of one million cords is only sustainable for four years and not four periods
- Page 4. Paragraph 2 mentions “MN DNR’s current management objectives and practices.” It will help reviewers if these objectives and practices are briefly identified. This would help with the questions raised on page 2.
- Page 8. Last paragraph: “Commercial” is not defined. Consider relating these calculations or results to FIA data, i.e., forestland, timberland, unproductive, etc. This may take some checking,

adjustment and explanation as FIA timberland acreage for the DNR is much higher than 2.75 million acres. See also comments on page 38.

- Page 68-127. These sections indicate results for the various runs and numerous constraints. But where do we see the specific economic or ecological rationale for the various constraints. What is the sought after positive response and/or negative impact? E.g., impact for a species, or economic results such as jobs? Is this to come from a post analysis examination of some kind? Lacking detail, some of the constraints seem rather arbitrary. In reality, planning models analyses like this are a place to test the utility of constraints...often leading to their refinement or rejection.
- page 4. Paragraphs 5-7 imply the report is more of a MN DNR study than a truly independent effort. Similar wording appears on pages 26-28 and perhaps elsewhere. Make sure this wording in the report is both appropriate and consistent.
- Page 6. Paragraph 3 line 5 change “along” to “among” or “with”
- Page 8. Paragraph 1 and 1st sentence. Rewording suggestion: The FIM data is a non-statistical map and field data based forest inventory used for management purposes and consists of
- summarized stand level data only. The original individual field plot data from stands is not readily available. See the Cooperative Stand Assessment (CSA) manual...citation needed.
- Page 8. Last paragraph: Define “RSA” better so the reader can understand it.
- Figure 2 cited on page 8 should read “Figure 1.”
- Page 10-12. The figures 3-5 would be much more instructive if broken out at least by hardwoods, softwoods and aspen covertypes. Aggregated as they are in this draft, they are pretty useless for serious analysis. A number of the figures also lack a description of the x axis.
- The footnote on page 11 strongly suggests redoing figures 3-5 with actual ages.
- Page 13. Text notes 8 covertypes, but then Table 1 on page 14 lists 10. Clarify. Additionally, reword the sentence in the last paragraph “Thus, with only eight cover type and planning area combinations, we can anticipate major consequences for management outcomes from the forest planning model.”
- Page 14. Figure 7 will give readers a headache. Redraft as a simple table with columns. The latter will aid interpretation detail. Same for figure 8 on page 15 and a number of others like this. Cute, but pretty useless. Much of that is already understood. Suggest they be dropped or simplified.
- Page 15-22. My copy of the pdf seems to be out of alignment in terms of formatting beginning near the top...after “Aspen covertype...” and for text related to figure titles, etc.
- Page 24-25. Footnote 3 is likely expressed in error. The citation should read: Ek, Alan R. 1971. A formula for white spruce site index curves. St. Paul, MN: Univ. of Minnesota Dept. of Forest Resources, Minnesota Forestry Research Note No. 161. 2p. That is the source of the model and application. However, I believe the model parameters actually come from fitting the model to a number of species and reported as: Carmean, W. H., J. T. Hahn and R. D. Jacobs. 1989. Site index curves for forest tree species in the Eastern United States. St. Paul, MN: USDA Forest Service NCFES, GTR NC-128. 43p. Other footnotes may be corrected and refined accordingly.
- Page 24-25. Model fits: Aside from the text, for credibility and further review and agency and other usage, you may want to include the parameters for the model fits in an appendix. That might be an important part of credibility and further utility. On the ZEOs model statement “The

MN DNR used manager experience to govern the timing and magnitude of decline,” you will want to include the chosen ZEO parameters.

- Page 26-28. Text citation of Ek and Brodie should be dated “1975.”
- Page 51. No management bullet first line...change “feel” to “fell”
- Page 54. Reword the sentence “It was however noted that the MN DNR forest lands are currently overstocked in terms of merchantable timber.” After “timber” add “near and beyond the rotation age.”
- Page 61. Table 21...help the reader, and add these scenario names and description to the subsequent output beginning with Appendix H Scenario 1.1.1. I.e., repeat the info shown on page 66 on Appendix H for each corresponding scenario. This is then one of the most instructive appendices in terms of results.
- Page 62. Where is figure 18? It should be on page 59 or maybe page 64? Is it labeled? I assume it is the table at the end of section 5.2. Perhaps place the term “below” just after 18. The figure also needs a title.
- Page 64. Last line needs reformatting
- Page 67. Which scenario from Phase 1 was actually selected for inclusion? Help the reader find that item.
- Page 129. 6.2 yield projections. Last sentence...can you elaborate? What was a “reasonable range of adjustment.” Just state the ranges considered, let the reader or further analysis decide. Otherwise drop the last sentence.
- Add a subtitle or footnotes to provide some explanation of the purpose and actual use of this table. Help the reader. Enhance the connection back to the text. And help the reader understand the extra planning area designation.
- Provide a subtitle or some explanation of the purpose and actual use of this table. Help the reader.
- why are some planning areas omitted?
- This section needs page numbers and a list of headings by scenario. This should include the “description” of the Scenario such as on page 66 of the text.
- 1.1.1 - It appears the planning area legend for NMOP is mistyped as MNOP.
- The last two paragraphs are instructive as to choices in modeling. However, most of that might fit better in the text under model justification. At a minimum, the last sentence should reference Appendix K.
- Font sizes in the three footnotes could use standardization.
- Needs a link from Appendix J as noted above.
- Needs footnote or subtitle defining / reminding the reader of the abbreviations for administrator.
- Consider clarifying by adding the word “Assumed” in the title after the word Volumes.
- Needs footnote or subtitle defining / reminding the reader of the abbreviations for administrator.
- Needs footnote defining / reminding the reader of the abbreviations for AP, BRP and All Other...
- The map is important to early reader understanding. Should it appear in the text as a numbered figure or as a difficult to find appendix page?
- change charts and graphs from periods to years

- Include a short description of why forest lands are considered overstocked. (restricted cutting due to regulations, to protect habitat and biodiversity, or because of merchantability?)
- The report should present an unbiased look at how results for harvest scenarios impact all of the values DNR specified for the project.
- Since a suite of specific goals were laid out for this project, they need to be addressed explicitly in the summary documents of the report.
- Prepare one or more tables that show key variables and how they differ across scenarios. At a minimum, this should include stumpage revenue, average annual harvest volume, average annual acres of species conversions, average amount of old forest in the inventory, and average amount of young forest in the inventory.
- Climate Change. Accounting for aspen decline in the amount of 0.5% of aspen cover type each year adequately represents the possible decline in this species. With the large degree of uncertainty related to decline amounts, the consultants took a conservative approach to simulate this potential shift if species compositions within the state. The type of model used for this analysis does not allow for stochastic risk to be incorporated, therefore effects of climate change will be impossible to be added in a meaningful way within a deterministic model. The uncertainty around climate change has not been quantified in relation to future timber harvests; therefore, it is acceptable for MB&G to use the best available data for this analysis as it has. Research shows there may be the opportunity for some tree species to achieve higher growth rates (CO2 fertilization, longer growing season, constant/increase precip). Any cover type that is expected to decline due to climate change should be harvested sooner. A declining cover type will experience increased rates of conversion and volume decline due to stress; therefore, by harvesting these stands sooner the DNR has the opportunity to maximize revenue before the forest further degenerates.
- climate impacts appear to receive a cursory acknowledgement in these scenarios, yet within the 100-year timeframe of this analysis, climate change is an increasing threat to our northern forest habitats. Climate models should be an added criterion and included as an additional harvest scenario to assess the potential cumulative impacts.
- Adaptation measures are actions aimed at avoiding or coping with harmful impacts and taking advantage of new opportunities presented by new climatic and environmental conditions (Karl [et al.] 2009; FWS 2009). Following are some adaptation strategies that should be considered in the STHA from the Minnesota Forest Ecosystem Vulnerability Assessment.
  - Maintain and create habitat corridors, riparian areas through reforestation or restoration.
  - Establish and expand reserves and reserve networks to link habitats and protect key communities.
  - Reduce fragmentation and enhance connectivity.
  - Favor or restore native species that are expected to be better adapted to future conditions.
  - Maintain, enhance, or restore diversity of native forest species following disturbance.
  - Promote diverse age classes.
  - Alter forest structure or composition to reduce risk or severity of fire and susceptibility to pests/disease, and invasive species.
- the potential impacts of climate change on growth rates should be addressed given the timeframe of the study.



- Mention of implications of climate change seems warranted since they may have a profound effect on sustainable harvest. Also, it is important to include other ecological and stochastic events such as fire and wind storms.
- Potential overestimate of timber volumes from sites requiring winter harvest. A contingency factor reflecting potential impact of temperature warming on winter harvest operability should be used on projected harvest levels for each scenario
- Include a narrative describing how climate change could impact major forest variables of interest (cords harvested, species mix, age-class distributions, watershed values, carbon sequestration, fire and windthrow, insect outbreaks). Also, sketch a preliminary plan for how future versions of the model could consider these issues. This would likely include a sensitivity analysis of differing correction factors for yield tables based on expected responses to climate change, analysis of accessibility and harvests that require frozen ground, and more thorough analysis of species conversion.
- Page 46. Aspen conversion. Aspen conversion is already occurring at the rate of many thousands of acres every decade. Rethink this scenario, perhaps with a focus on retention.
- Concern about converting away from white spruce. Blandin managers land for all species thus it is important that other landowners do the same.. It was hard to tell what species stands were being converted to in the aspen conversion. How will the amount of white spruce that is being lost through plantation conversion be made up elsewhere? This is a major concern for Blandin.
- Facilitating a transition to species that will be more tolerant of future climates is an important step towards climate adaptation; however, the report fails to address how the conversion will take place. What steps will the DNR take to ensure desired species become established in these converted stands?
- DNR should describe historical deviations between planned and actual harvest volume, the causes of those deviations, and how improved inventory or other approaches could increase alignment between planned and actual results. Until such corrections are implemented, future model runs should include a sensitivity analysis of this issue, and if possible DNR should devise an appropriate correction factor. An alternative would be to choose a harvest level that increases planning latitude (essentially, lower harvest levels increase planning latitude).
- DNR should produce a summary table of how harvest levels proposed in the current analysis compare to those in the major GEIS scenarios. Another table should compare wildlife and biodiversity measures in the current analysis with the mitigations in the GEIS.
- For each of the scenarios, present a table or chart that compares a baseline of recent harvest volume by species (e.g., average over past 5 years) compared to future projections.
- The report does a good job of explaining the limitations of the data and yield tables. Revamping the forest inventory system, to a plot sampling system with tree level data will help solve some of the data issues as well as keep the inventory up to date.
- We are also concerned with the age of much of the data used in the analysis.
- No accounting for known inaccuracies in the inventory data used in the model runs. DNR should apply a 'buffer' to account for inventory inaccuracy in its final recommendation to the legislature for a target harvest level (e.g. reduce modeled harvest volume outputs by 25-30% to allow for inventory error).

- Page 129. 6.3 discount rates. Likely contributing to the lack of impact among discount rates is the yield modeling that constrained returns from silvicultural improvements and the shortening of rotation lengths.
- Poor wording...delete the last sentence.
- 1.1.1 - Given the initial diversity across the landscape, it is perhaps not surprising that the biodiversity index is essentially unchanged by the course of management.
- The tables of Forest-age Diversity Goals needs only 3 columns since all four of the acreage columns are equal. Simplify the table yet remind the reader of the age classes.
- The Age-diversity index does not appear to be a viable measure for assessing how age-class distributions change over time. The index is highly insensitive to substantial changes age-class distributions. In report revisions, DNR should use age-class distribution charts for major forest covertypes instead of the index.
- A true economic assessment should be undertaken rather than presenting a figure on jobs without much detail as to where the figure of 64,000 jobs comes from. Industry generated figures are usually inflated. What about alternative jobs that could be better sustained into the future? What about an economic assessment of the other forest derived values such as real estate, tourism, scientific research and alternative products from the forest? Over the long term, ecological and recreational tourism, real estate values, alternative products could bring local communities far more revenue than timber harvest that is going to producing fiber from very slow growing forest of lowland conifer types. Consider also the value of carbon storage in forested peatlands. In an economic assessment consideration should be given to how much of the dollars generated actually remain in the local community vs going to dividends to people living outside of the community and perhaps outside of MN. A real assessment should be undertaken to see how much economic activity is generated from the current timber harvest economy vs other potential more diversified economies that might lift many locals from subsistence level existence or a boom and bust economy. Economic return to the local communities needs more expert assessments by unaffiliated professional economists rather than just statements from the Timber Industry.
- Forest operations such as road and skid trail construction, tree harvest, landing construction, skidding of logs, and movement of machinery would create favorable conditions and opportunities for NNIP establishment and spread. As discussed under motorized recreation, an accelerated timber program of 1 million cords will promote a more extensive transportation network resulting to further proliferation of NNIP and degradation of forest wildlife habitats. The STHA needs to account for this loss as part of a cumulative effects analysis.
- Obviously, a long term sustainable harvest program requires sustainable healthy forests. In the event forest I&D occurrences expand and diminish the quantity and quality of healthy forests, long term sustainable harvest will also decline. If desired or planned timber outcomes (targets) are not reduced despite forest I&D losses, there will be increased pressure to harvest additional healthy older forest to meet targets, further decreasing old forest habitats and dependent wildlife populations. We encourage the DNR to develop scenarios that account for FI&D mortality whereby adjustments in harvest levels occurs when forest mortality reaches prescribed thresholds.
- We were surprised to see no mention of DNR's commitment to maintaining high conservation values on DNR lands as part of FSC Certification. Most of these are not off-limits to harvesting,

but in many cases different approaches to harvesting may be necessary to maintain or enhance the high conservation values present. Describe assumptions about how High Conservation Value Forests will be managed.

- While these models are set up in order to focus on [old forest, NPC] goals, rather than timber output, the results are not relevant to current DNR management. For example, the Old Forests model pushes forest stands past the economic rotation age similar to the previous management regime of Extended Rotation Forestry, which has been suspended. This highlights how unrealistic it would be for the DNR Commissioner to fully adopt this scenario. The Native Plant Community model is much like the Old Forests where an emphasis is placed on older age classes and therefore should not be utilized as an on the ground management approach. Extending forest species past typical rotation ages would also hinder the usefulness of the species to users and the ability of the stand to regenerate (decreased aspen root suckers). These scenarios would have additional costs for the DNR to market the wood and maintain an acceptable stocking level after harvest. Not only would extended rotations create financial costs in the form of planting, extended rotations would increase forest health issues (pests). As a strategic goal the DNR must manage forests to minimize the impacts of forest health issues, further highlighting the unrealistic approach of placing emphasis on Old Forests.
- Believe there is the opportunity for the Department of Natural Resources to substantially increase harvested timber for two decades. The clear conclusion of the draft report is that timber harvest on DNR administered forestlands can be increased to 1.1 – 1.2 million cords annually for a period of twenty years.
- agrees with the summary statement of this analysis: “increasing above current harvest levels, will impact the agency’s ability to move the forest toward goals for biodiversity and habitat for both young and old forest-dependent wildlife”. Therefore, we would not support harvesting above the current rate of 800,000 cords/year and recommend additional harvest model scenarios to be taken into account.
- The Band doesn't feel that raising harvest to 1,000,000 cords/yr from state-managed lands is sustainable from either a traditional ecological knowledge standpoint or when employing modern scientific standards. The Band favors either the wildlife or native plant community scenarios and timber harvest levels because they provide for a wider range of stand ages and growth stages. The Band urges that the state emphasize the values of forest community diversity and place a greater emphasis on the retention of older trees.
- MDHA is supportive of a short term increase in timber harvest to reduce the inventory of acres that are beyond the minimum rotation age, but believes that a long term harvest level of one million cords per year is not sustainable. Model scenarios that would produce a one million cord long term harvest level do not afford sufficient consideration of wildlife and non-commercial values. A prime example of a wildlife consideration for MDHA is the protection of winter deer yards which provide important shelter and food for Minnesota’s deer herd. Harvesting one million cords or more for the long term would hamper DNR’s ability to provide habitat for the full range of wildlife species. Instead, MDHA supports a long term harvest objective that is closer to the current harvest level of approximately 800,000 cords.
- I am greatly concerned with the MNDNR increasing the level of timber harvest or even staying with the current level.

- MNTWS supports scenarios 2.2, 2.3, 1.2.4.2. They're the most beneficial to wildlife habitat and provision of older forest. A DNR policy to annually harvest above 800,000 cords per year of timber from DNR-administered forest lands is counter to MNTWS policies and not supported.
- MNTWS supports the statement that "maintaining current harvest levels, or increasing above current harvest levels (800,000 cords per year), would impact the agency's ability to move the forest toward goals for biodiversity and habitat for both young and old forest dependent wildlife".
- supports the rationale of increasing harvest and suggests that evaluation may be made at interim periods to better understand how Minnesota's forestlands respond
- supports the school trust lands analysis that maximizes sustainable revenue while still achieving regulatory requirements and BMPs
- supports MFI and TPA assessment
- We believe the MB&G analysis clearly demonstrates the opportunity for a sustainable harvest level on DNR administered forestlands of 1.1-1.2 million cords annually for a period of twenty years.
- Given the results indicating that higher harvest rates are at odds with native plant communities and old forests, the Friends strongly oppose any increase in harvest levels and would support annual timber harvests of no more than 600,000 – 700,000 cords. The forests of Minnesota are much more than the timber they contain, providing a wide range of ecosystem services, recreational opportunities, and cultural values. No increase of timber harvesting should occur if such an act would impact these values or degrade our forests.
- we support a minimal timber harvest of 600-750 thousand cords, with a preference towards scenarios 2.2, 2.3 and 1.2.4.2. The W.J. McCabe Chapter supports the conclusions found in the STHA, "maintaining current harvest levels, or increasing above current levels (800,000 cords per year), would impact the agency's ability to move the forest towards goals for biodiversity and habitat for both young and old forest-dependent wildlife," and therefore believes it is necessary to cut back current timber harvest levels in order to ensure our State has a healthy forest system for the next 100 years.
- The STHA should be re-evaluated every couple years as we better understand and assess the impacts of climate change and other emerging factors related to the level of forest harvest.
- Model results very clearly show that harvesting, even temporarily 1,000,000 cords would be done at the expense of ecological values including old forest, wildlife habitat, and native plant community diversity. However, managing ecologically with native plant community goals as targets, allows all values to be addressed, while providing DNR a diverse array of management options into the future, which are not available under harvesting scenarios in which more volume is harvested each year.
- We fully support the specific technical comments MFI has provided.
- The draft report clearly shows that the lands managed by the Minnesota DNR have the inventory and the growth to support one million cords of harvest for at least the next 20 years. We ask that the Commissioner recommend to the Governor that the DNR will increase the timber program to the one million cord plus level.
- Packaging Corporation of America is in full agreement with the comments made by the Minnesota Forest Industries and Minnesota Timber Producers Association.

- Consideration of a sustainable timber harvest goal below the current harvest goal of 800,000 cords. MSGS does not support increasing the harvest level.
- Modeled STHA harvest levels provide minimal wildlife habitat and biodiversity improvement.
- Let us be certain that this work does not end up resulting in one universally accepted number that potentially overshoots what can be harvested in a sustainable manner (due to inconsistencies with data and unpredictability of climate change) for the foreseeable future.
- After review of the results of the current analysis it does appear that the most sustainable long term harvest rate remains around 800,000 cords. As modeled, an increase to the amount of 1 million cords, and beyond, is unsustainable and would require an adjustment to reduce harvest after several years. This short term gain comes at the risk of future harvest rates and the decline in the ability of the state forest lands to provide healthy forests for the full range of wildlife species as well as other non-commercial forest values.
- The 800,000 cord harvest level has allowed relatively appropriate species and age class diversity that benefits the full suite of forest wildlife species.
- Until a more complete analysis is done, we strongly prefer a harvest level on the low to mid-range of the values considered (600-800,000 cords per year). This range allows more operational flexibility to address the many uncertainties described above, while giving greater attention to long-term diversity and resilience. Harvest amounts that approach maximum levels are inconsistent with multiple use-sustained yield principles and bring many risks, much like a non-diversified investment strategy that aims to bring the highest possible returns.
- Page 8. The FIA data is current, but much of the DNR inventory is not up to date. And simply updating stand data may introduce error that is difficult to identify—especially since significant acreage of data (per page 10) predates 2004. As background, FIA has shown a slight increase in forest area and timberland area with each cycle in recent decades, notably for lowlands. The reason appears due in part to changing protocols and partly to underestimates of growth potentials.
- A fourth question then, as important as the three primary questions, is “what are the opportunities for the MN DNR to increase the level of management to provide (1) a greater timber supply and (2) also address some of the non-timber value interests. Given the current modeling limitations, this investment analysis is an important step for following up on the STHA.
- page 130 6.4. The second sentence reaches a conclusion without consideration of investment potentials in forest management. It further does so in spite of the sensitivity analysis described in 6.2...that a change in (per acre) yields resulted in a proportionate change in projected harvest. Given the very modest level of management today, surely there is room for investment in improving yields! Silviculturalists could surely suggest some possibilities. Additionally, the goals for biodiversity and habitat and associated metrics might well be the subject of research and validation before blanket acceptance.
- Page 8. Associated with the specified 2.75 million acres, it would seem that any impacts of forest practices be examined in the context of ALL DNR forest lands. Why, because the practices or lack thereof on roughly half of those lands also have positive and negative impacts for the various values considered in the study. Trying to understand forest management impacts without including those acres is a major limitation of this study, especially since the study acres and restricted use acreages are often intermixed on the landscape. Looking at all forest acreage was an important aspect of the GEIS.

- Page 8. Finally, what happened since the phase 1 report and the original 2.76 million acres? It seems to have been reduced by 10,000 in the current report.
- Page 38. Note Table 5 does not seem to match well with FIA timberland acreage on state lands. FIA shows more timberland (i.e., merchantable forest area. Something to check out as DNR and FIA each have their own definitions, but that may not explain all of the difference. Does the agency really know its acreage in such detail?
- Page 68-127. Consider that roughly half of the DNR acreage lines beyond the forest management area. Yet further constraints on the already constrained forest managed area are under consideration. But there is little discussion or examination developed for new constraints, notably their specific objectives, impact and effectiveness with respect to the forest management area. This begs the question of whether existing constraints beyond the forest management area have likewise had their effectiveness considered. Such expanded analysis seems appropriate.
- Page 38. Merchantable forest acreage: The results in Table 5 are a significant constraint. It is unfortunate that it was specified in such detail before preliminary runs were undertaken as various other acres are often available in the course of management by one division or another or for salvage or other vegetation management.
- WMAs. By extending rotation ages in these WMAs, the DNR would diminish the usefulness to the public by providing less habitat acres for species dependent on early successional forests, such as moose, white tail deer, turkeys, and ruffed grouse, and will decrease production of such game. Young, vigorous growth of aspen and maple provide necessary sustenance to these species and extending rotation ages makes the intense growth less frequent and reduces growth of residual trees. Extending rotations and reducing the total volume harvested, by imposing partial cuts, will decrease the amount of revenue to manage Wildlife administered lands. This reduction of revenue will have a negative impact on financials in WMAs since revenue from forestry operations allows wildlife managers to perform other functions for wildlife benefit within the WMAs.
- Page 55. The wildlife management constraints or regimes would seem to have a substantial and negative impact on ruffed grouse, deer and moose populations. Given that, what were the underlying wildlife species objectives?
- MNTWS supports management of WMAs that is driven by wildlife habitat needs, as well as hunting, trapping, fishing, and wildlife watching.
- "Partial Harvest" is rather ambiguous and does not refer to a recognized silviculture system. This brings in to question how these sites will perform in the future and how predictions of forest growth can be made in those instances. Empirical yield information should be created for this regime if it is to become a prevalent practice.
- The inclusion of only commercial management activities in the model is another area of concern to the Friends; noncommercial management activities will likely be important to maintain health and resiliency in the forests
- Modeled scenarios include an unrealistic volume of 'surplus inventory' (primarily mature and older forest acres) to maintain levels above 1 million cords for the next 15 – 20 years. However, analysis we've reviewed shows that to utilize this mature and older forest 'surplus' would require unrealistic and undesirable increases in harvest levels of several species. Increased utilization of some of these timber species is questionable. DNR should reduce the annual

volumes it estimates are available from current mature and older forests to something more realistic – or demonstrate that modeled harvest level changes for these species are feasible and sustainable.

- It should be considered that some of the less commercially desirable species like Ash and Tamarack contribute to volume estimates. Increased cordage may not necessarily translate in to an increase in the species that is desired like Aspen or Spruce.
- model assumptions about access and marketability may inflate the sustainable harvest level to an unknown degree. This could set unrealistic expectations for harvest levels, and possibly force overharvesting of other more accessible, marketable stands. Recommendation: fully acknowledge this limitation in the report revision. Before DNR can accurately determine a sustainable harvest number, it must thoroughly evaluate the impact of access and marketability issues, especially for species that typically have poor markets and difficult access.
- Exploratory drilling and mining operations have the potential to adversely impact old forest habitats. Currently over 6,600 acres of mature boreal forest will be developed for mining facilities. An anticipated 50%+ increase in the local population will promote housing developments and increased motorized recreation which will reduce the quantity and quality of forested wildlife habitats. Since the distribution of rare species and rare features is disproportionately important within proposed mining areas, the effects on these unique wildlife species will be disproportionately adverse. Remaining unaltered older forest will become even more important. Implementing a 1 million cord harvest strategy will exacerbate the decline of older forest habitat within this distinctive area. The STHA needs to account for this loss as part of a cumulative effects analysis.
- Page 67. Re scenario 1.2.4.3. A caution in taking NPC goals too seriously. The NPCs are a human construct—a snapshot of the forest. They were not developed in a way that would provide precise response to treatment insight. Thus it seems a stretch to use them to constrain change, especially by age class.
- This level of detail and age ranges, especially those for the oldest ages assumes an almost “gardening” capability rather than realistic forest management for several million acres. In reality, the fact is that management typically touches but 1 to 1.5 percent of the forest acreage each year.
- The Friends were disappointed that very little attention in this report was paid to natural disturbances and their role in forest ecosystems.
- Fully acknowledge how natural disturbance may affect wood supply and age-class distributions in the report. Suggest an appropriate interval for re-running the models based on real inventory data that will account for natural disturbance events, and consider how climate change would likely change the frequency of natural disturbance events. In the long-run, fully incorporate natural disturbance into the modeling approach, as methods for doing this are developed (this is an active area of forest modeling research, citations available upon request).
- Page 68-127. Among the considerations in forest management is the vulnerability / risk of wildfire. Minnesota’s forests have grown back from early harvesting and land clearing and now contain nearly four times the biomass of the 1930s. That plus numerous standing dead trees and the accumulation of fine and course woody debris places Minnesota back in a high fuel load / higher risk category for wildfire. So far this risk, amenable to management, has been ignored. This should not be the case in a study of state land management alternatives. The change in our

forests since the 1930s is described in: M. H. Flanary, B. D. Anderson, D. C. Wilson and A. R. Ek. 2016. Restoration of the 1936 statewide forest survey of Minnesota: Data description and comparisons with 2014 forest conditions. Staff Paper Series No. 241, St. Paul, MN: Dept. of Forest Resources, Univ. of Minnesota. 28p plus appendices.

- 1.1.1. ---Notable in the acreage by age class distribution figures is the unlikely accumulation of very old forest...will it actually last that long and be there?
- The analysis shows most of the harvest scenarios do very poorly in meeting goals for old forest guild species, young forest guild species, and native plant communities. Under most modeled scenarios less than 5% of wildlife hexagons meet old forest goals and deviation from native plant community goals is greater than 1 million acres. DNR's final report should summarize impacts to wildlife and biodiversity better, and recommended a harvest level that improves outcomes for non-timber resources.
- The hexagon-based approach to identifying old-forest complexes needs substantial refinement. The report gives insufficient information on projected composition, age-class structure, and spatial arrangement of forests within and across the hexagons. Such information is needed to determine benefits to wildlife.
- Model results show a high correlation between amount of old forest and amount of young forest in the hexagon analysis. This doesn't make sense, and needs to be investigated. DNR or contractors should explain why the error occurred, and provide corrected data in the revised report.
- Page 46. The various suggested constraints are numerous and detailed and suggest a belief that the DNR has an "engineering" or "gardening" capability with respect to forests. Realistically, forest management for several million acres is complicated and management activity is typically able to touch only 1 to 1.5 percent of the acreage annually. Comments on this capability may aid the less familiar reader.
- there must be the flexibility to apply a strategic plan in operation. For example, there should be adaptability to include stands for harvest not selected by a model or remove stands incorporated in a model if harvest compromises wildlife values.
- We recognize that the STHA is intended to be a strategic planning and analysis process. However, it important that the following recommendations be referenced in the main STHA decision narrative or placed in decision appendix to ensure there is continuity and considered in smaller scale planning and decision documents. 1) A robust monitoring and evaluation program in the analysis and subsequent selected decision.2) Adaptive Management Strategies in the analysis and subsequent selected decision. 3) Retention of adequate residual or leave trees during harvest is crucial. 4) Effective closures/obliteration of temporary roads post-harvest is crucial.
- the impact of increased access (i.e. increased infrastructure development and improvement) to increase harvest in currently inaccessible or inoperable areas degrades the less tangible values of our state forests such as "wildness".
- Estimate the extent of new road development needed for scenarios that increase harvest above recent levels. Describe assumptions about how impacts to water quality, wildlife, biodiversity, and recreational interests would be mitigated.
- Page 6. Paragraph 4. Practically speaking, emphasizing results at age ages 20 and 40 or 50 will likely be most instructive to readers. Given the rapidity of covertime change in our short-lived



forests, 100 year results are really stretching credibility. As drafted, many readers will likely view the tabled acres of various cover types at advanced ages as quite feasible. In reality, most stands won't live that long. Realistic lifespans for surviving older stands are suggested in the following report: Wilson, David C. and Alan R. Ek. 2017. Evaluating old age for forests in Minnesota. Minnesota Forestry Research Notes No. 303. St. Paul, MN: Dept. of Forest Resources, Univ. of Minnesota. 5p.

- Page 5. Paragraph 2 and Appendix Q indicates 7 planning areas. The number of planning units considered is often an important constraint on results in planning. Was this constraint ever relaxed to provide a truly unconstrained run? If so, what were the results. More mention of planning units occurs on page 12.
- DNR should provide a public comment period on the actual harvest-level decision and the rationale behind it.
- The availability of public lands in terms of public land acres per person has declined 35% during the past 50+ years. The opportunity for the public to enjoy public lands and associated resources such as older forests have dropped substantially. The STHA proposal to increase timber harvest will only lessen the public's opportunity to enjoy and appreciate the state's dwindling old forest habitats and dependent wildlife species.
- Minnesotans appreciate their wildlife. A recent survey indicates that 86 percent of wildlife management area users support ongoing acquisition of public lands that provide wildlife habitat and access to hunters, wildlife watchers and countless others. A 2011 Survey found that 2.5 million Minnesota residents and nonresidents fished, hunted, or wildlife watched in Minnesota. Of the total number of participants, 1.6 million fished, 477 thousand hunted, and 1.6 million participated in wildlife-watching activities, which includes observing, feeding, and photographing wildlife. Wildlife watching entails interest in species that depend on older forest. Subsequently it is critical that the STHA analysis capture this sentiment and ensuing decision reflect it.
- We found the six values chosen for the analysis to be incomplete and narrowly defined. We were struck by the omission of recreation as a forest value. 'Natural resource economies' was too narrowly defined and should have included industries such as non-timber forest products (e.g. maple syrup) and outdoor recreation.
- Our hope is that over time we can maintain or increase total forest cover, fill in gaps, and provide a diversity of tree species, sizes, and ages across the larger landscape. This will benefit a variety of species of birds and other wildlife long-term, as well as, create an adaptable forest that can withstand pressures from invasive species and a changing climate.
- MNTWS supports incorporation of effective roads-trails closure/obliteration practices on temporary roads following harvest to minimize negative impacts to wildlife, prevent road creep and maintain wildness.
- Implementing an annual 1 million cord harvest goal would be a 25% increase from current harvest levels (800,000 cords). This will place additional pressure on remaining mature forest that has been maintained for various reasons including non-motorized opportunities. It is likely that the extent of accompanying temporary haul roads and trails would also increase up to 25% to access the timber. Such an increase of roads and trails would lead to increased motorized recreation that would further diminish the amount and quality of forest wildlife habitat unless

stringent post-harvest road closures and reclamation practices were enacted. The STHA needs to account for this loss as part of a cumulative effects analysis.

- extending rotation ages in WMAs could be counter-productive to habitat goals. Management that enhances wildlife habitat via shorter rotations at the plan level, while identifying at the stand level where pockets of extended rotations are warranted
- Page 8. You will want to mention the salvage harvests that occur almost annually and what they may contribute beyond your suggested 2.75 million acres. Some of that salvage may come from the “other 48%”. Additionally, there are occasional harvests for vegetation management in state parks and possibly other areas, say as part of the noted 48%. More on this issue appears on page 38.
- an annual harvest volume in all sub-scenarios should include timber harvested because of large salvage blowdown events, and special initiatives such as red pine and summer access aspen.
- MNTWS supports development of additional scenarios that give greater consideration to old forest, current management, and climate change.
- we suggest the STHA consider developing these additional scenarios:
  - Older forest scenario. Consider developing a scenario similar to the previous extended rotation forest (ERF) policy (manage for 10-15% over rotation age for even-aged cover types).
  - Current Management Scenario. This scenario would be based on current management. The model would not include cedar harvest, clear-cutting of northern hardwoods and ash/lowland hardwoods and increase the species conversion rate to be closer to the SFRMP goals etc. It should also capture actual results from state MFRC Site Level Guidelines and project monitoring.
  - Climate change scenario. Climate change was only minimally addressed in the models. This model would predict changes in cover types and associated predicted changes in volume over time.
- At least several new model scenarios are needed that provide intermediate amounts of old forest. Most scenarios provide an insufficient amount of old forest to meet biodiversity and wildlife goals. A complete continuum of old forest should be projected in different scenarios, from low to high amounts. Run at least several of new scenarios that provide intermediate amounts of old forest. This would be relatively easy to accomplish by varying the multiplier used to specify the old forest goal (9999 was used in scenario 1.2.4.2; why not 2500, 5000, 7500?).
- we were curious as to why lands not currently forested or forested lands without growth and yield estimates were not included in the model
- Page 4. Paragraph 6 referencing stakeholder involvement appears complete, but in reality it seemed sporadic, incomplete and lacked timeliness. Importantly, the Advisory group included some interested parties, but no members familiar with the critical technical aspects of such planning model implementation.
- MNTWS supports an analysis that fully considers the context of current and expected stressors on DNR admin forest lands, such as conversion, development such as roads and urban sprawl, fragmentation, insects and disease, invasive species and climate change.
- MNTWS supports consideration of the cumulative impact of these stressors on DNR admin forests. If not monitored and kept in check, old forest habitat will continue to be eroded and rare wildlife populations and features continue to decline. Increased harvest would exacerbate decline of old forest dependent species. Listing of wildlife species on state and federal

protection lists would be hastened, ironically limiting timber harvest within forest designated Critical Habitat.

- To minimize impacts of accelerated timber harvest on important wildlife habitat and to best achieve wildlife management direction and expectations, it is essential the STHA analysis be considered by the planning team and decision makers in the context of other important issues or criteria. Topics that would provide context include changing conditions, cumulative effects, and existing and emerging resource threats.
- 'Forest Timber Harvest Sustainability' is very different than 'Ecological Sustainability' or 'Long Term Economic Sustainability for the Local Communities'.
- MNTWS supports an analysis that places equal importance on non-timber values and all forest ecosystem services, as strived for in DNR SFRMPs and National Forest Resource Plans (i.e., a Sustainable Forest Resource Management Analysis"), rather than an analysis driven by timber harvest volume.
- An actual and measureable definition of sustainability, including time frame and relative importance of these values, needs to be provided in the report so that anyone reading it can compare the results to that definition and come to a solid conclusion about whether a scenario is sustainable.
- We believe it is important to place the forest-related values of wildlife habitat, biodiversity, water quality (and water quantity), forest community health, invasive species and economic impact, over that of the forest-related value of timber productivity.
- The STHA should include a consideration of the monetary value of ecosystem services rendered by forest lands and how they relate to timber harvest levels, e.g. monetary value of carbon sequestration provided by forest lands.
- Open Watershed Goals. The implementation of the priority catchments into model scenarios produces meaningless results because the metric is not sensitive enough to show a meaningful change between model scenarios. Not only does the use of the metric need work to improve efficacy but the Verry method, utilized to determine which acres can be harvested, is a crude approach to apply to all DNR managed land. A large failure of the Verry method is the inability to incorporate the surrounding landowners. By not including the management decisions of the surrounding landowners, the entire burden of minimizing "open land" falls to the DNR and thus limits available timber.
- The catchment portion is disconcerting as there are numerous studies that show if the MN BMP guidelines are implemented properly that water quality is not affected by timber harvest especially after 5 years. To impose additional constraints is overkill.
- we have worked to designate 57 Important Bird Areas statewide; encompassing over 12 million acres, including federal, state and county managed forests, many of which overlap the top four planning regions considered in this analysis. Over one-half of the School Trust Lands fall within designated Important Bird Areas.
- We would like to see an analysis that integrates additional habitat and wildlife information, beyond threatened, endangered and Species of Greatest Conservation Need presence/absence data, in order to create a more comprehensive analysis scenario that considers dispersal needs and migratory habitats of birds and wildlife.

- the MWA would like the STHA to consider maintaining some old growth timber habitat specifically for cavity nesting waterfowl, such as Wood Ducks, Hooded Mergansers, Bufflehead and Goldeneyes.
- Polygon information from the Natural Heritage database which was used to integrate wildlife needs into the draft timber assessment is usually not sufficient to assess wildlife or biodiversity needs. Have results from various studies on rare species (not just locations) been incorporated into the analysis? Some important considerations are how natural processes vs timber management change the spatial configurations of habitats, the structure of vegetation within stands and the temporal pattern of habitat availability for species that are associated with very specific habitats. The consideration of northern goshawk, Connecticut warbler and Red-shouldered hawk for nongame species while being a good selection omits consideration of many other species that also need to be incorporated. Details need to be considered as to when old growth characteristics important for many species start to appear. For the northern goshawk the species has a marked preference for aspen stands > 50 years of age and best for stands over 60 years of age. How much of this forest type is available within the area of a territory is important for territory sustainability. The MNDNR has commissioned many studies on Northern Goshawk. The MNDNR has undertaken many specific studies on many different species and detailed information from these studies should be incorporated into this assessment of Forest Sustainability for all forest values..
- In NMOP, concerned if timber harvest is maintained as is, and worse if it is increased in this Ecological Section of Minnesota. The first 'Agassiz Lowlands Subsection Forest Plan' that was never completed had concluded that the harvest level at that time was not sustainable and that the next plan would take this into account'. Landscape level changes in forest composition can affect significant changes in animal communities. These have already started to be documented for bird communities within boreal forest (see Drapeau et al. 2000). For landscapes in which timber management is not following natural disturbance processes, habitat generalists and early successional species become dominant at the expense of habitat specialists associated with older forest. In NMOP, the stagnant forest and a greatly reduced productive older lowland conifer would not be sufficient to maintain the full complement of boreal species within the Agassiz Lowland Subsection. [ See boreal bird study report to MNDNR by NRRI]
- In NMOP, the large peatland complexes are unique to Minnesota within the USA. Because many boreal species are experiencing declines, native wildlife species unique to these landscapes should be prioritized. The fact that NMOP is given an Important Bird Area Designation by the MN Audubon Society should reflect its potential for ecological tourism.
- Spatial configuration of habitat is important to many habitat-specific rare species. In a dynamic system assessing how these patches change is a complex assessment and cannot simply be assessed based on timber volume and age and site index distribution.
- MNTWS supports retention of adequate residual or leave trees during harvest, as recommended in MFRC site level guidelines and required on DNR admin forests.
- There are many statutes, policy orders and guidelines that direct the DNR in protecting, maintaining or enhancing wildlife habitat particularly rare wildlife habitat. To adequately assess the effects of harvest levels on wildlife habitat, it is necessary to understand state management direction regarding wildlife habitat. Such direction provides a reference for assessing conformance with the agencies management action's in protecting habitat. Following are

several pertinent wildlife statutes, goals, policies and objectives. See MN Wildlife Action Plan, state and federal threatened and endangered species law (including northern long eared bat), Sustainable Forest Resources Act, High biodiversity management plans, internal interdisciplinary forest management coordination framework.

- The executive summary would benefit from a clear description of model results and brief description of each scenario.
- the yield tables that DNR utilizes drastically under-estimate the amount of harvested wood from the forest. yield tables are consistently low. All the instances where DNR yields are greater than published data are during the “late” stand age, in aspen these late stand ages are past rotation age (>60 years). Considering aspen is the majority of the forest types in the state, highlighting this yield table will have the most pronounced effect on the model results. Of the 2.75 million acres available for management and productive forest, the average site index at base age 50 is 52.65 feet; the average site index for aspen is 65.2 feet in tree height. Using the yield table for NMOP, since it represents the largest portion of the managed acres, this would equate to 14.6 cords per acre on a 40 year rotation. This is much lower than is typically harvested, showing that the modeled sustainable harvest of 900,000 is a substantial underestimate of the real potential harvest level.
- Page 24. This section could use some mention of the yield table volumes compared and used. Some yield tables noted are based on gross volume in cubic feet (converted to cords) from a 1 ft stump to a 4 inch top diameter inside bark (approximately) or larger top diameter inside bark... or other limit of merchantability. Perhaps note the DNR standard field tally sheet (page 17 of CSA manual) is drawn from Table 6 of Gevorkiantz and Olsen 1955 USDA Technical Bulletin 1104. Nearly all of the tree volume and yield tables in the Lake States follow Gevorkiantz and Olsen. The MN DNR volumes are likely gross or a hybrid of gross, as the CSA manual (page 12) suggests. The Manual also suggests cull trees be tallied but identified as such. However, it is not clear that CSA protocols are consistently applied by all field crews.
- Figures 12 and 13 and text suggest that more yield comparisons and research using the full DNR and/or FIA datasets would be instructive, especially for the MDLP area.
- Page 26-28. Yield tables: Since the yield tables, the core of the study, came from the MN DNR, the study results seem in large part due to the MN DNR...with planning model runs developed and conducted by the contractor.
- Page 32-34. This is a helpful start on yield comparisons and adjustments. Hopefully this can be developed in more detail for future analyses.
- The repetitive development of yield tables also leads to some odd graphs, e.g., for a number of species where site index 90 is an unlikely possibility...see for example MDLP Black Spruce producing more than 100 cords; also some odd peaks in graphs for AP Aspen and Black Spruce. Consider some cleanup. These figures also suggest future refinement of these model fits would be helpful.
- Two references are far from MN...consider some more relevant local ones.
- Youn forest guilds for wildlife is limited to game species. An all age forest distribution is much more conducive to wildlife than being heavy to either extremes, young and old
- Development and implementation of an “Open Lands/Bushlands Conservation Plan” that would comprehensively and strategically target these habitats identified through DNR Section Forest

Resource Mgt. Planning (DNR Priority Open Landscapes/Management Opportunity Areas) for improved management.

- Timber harvest within these targeted openlands/brushlands habitats of shorter rotations, much larger patch sizes, and with fewer leave trees, to not only more successfully attain the frequent and extensive disturbance they need, but to also very importantly help meet current DNR timber harvest goals while relieving harvest pressure in forest landscapes which lack the older forest needed to meet wildlife habitat needs.
- Management techniques, such as the “rolling barrens” method implemented in the Northwest Sands of Wisconsin, in DNR Priority Open Landscapes/Management Opportunity Areas.
- Validation of modeled outcomes can only be achieved through monitoring and evaluation at multiple scales. The models should be revised when environmental or social conditions change, and/or monitoring results demonstrate a need for change.
- Regardless of the sub-scenario selected, incorporate a robust monitoring and evaluation program in the analysis and subsequent selected decision. Suggested components to monitor include:
  - • Ensure all state wildlife related statutes, policy and guidelines are being adhered to.
  - • Monitor and evaluate if model predicted outcomes are reliable.
  - • Ensure objectives and purposes outlined in the STHA are being achieved.
  - • Ensure site level monitoring occurs to evaluate compliance with MFRC harvest guidelines.
- Regardless of the sub-scenario selected, incorporate Adaptive Management Strategies in the analysis and subsequent selected decision. Suggested questions to address:
  - • Are assumptions being validated, or is there new information that may suggest a need to change assumptions?
  - • Are areas of uncertainty being reduced?
  - • Are there changed conditions (extensive F, I& D outbreaks, climate change, new listed plant and wildlife species, more accurate inventories, public expectations etc.)
  - • Is there progress towards achieving desired conditions? Information gleaned from monitoring should be extensively evaluated every three years. If evaluation results indicate that assumptions are not being validated or there are substantial changed conditions or progress is not being made in achieving desired conditions or uncertainty is not being reduced, the analysis and subsequent decision needs to be revised.
- State harvest and older forest in the context of other land owners: The proportion of timber harvested as a percent of its land base from state lands is 111% greater than federal lands and 99% greater than on private including industrial timber lands. To arbitrarily increase timber harvest by 25% would decrease the ratio of percent of state timberlands: percent of state harvest volume from .81 to .656 (table 3). The proportion of timber harvested as a percent of its land base from state lands would now be 160% greater than for federal lands and 145% greater than on private lands. Within the Northern Superior Uplands (NSU) the percent of forest older than 50 years old for DNR timberlands (as expressed in mature, old and old growth age classes) is again 43% compared to 65% for the Superior National Forest (SNF.2014 data from Forest Service database)
- Changes in Urbanization. The loss of wildlife habitat (including old forest habitat) to urban and rural sprawl is disturbing. Up to 230,000 acres of habitat could be lost within five years just

within the seven county Metro Area. Such areas are important to resident wildlife and even more important to migratory wildlife especially songbirds. Similar deforestation is occurring in other urban areas such as Duluth, Moorhead, Rochester, Saint Cloud, Brainerd and other areas. The STHA need so account for this loss as part of a cumulative effects analysis.

- 4.2.1 FIM data. Address the following assumptions: Assumes Stands inventoried long ago are the same cover type, Assumes Stand age is accurately identified, Assumes no natural disturbance (I.E. blowdown, wildfires) or I&D or invasive plant issues have occurred since the last inventory.
- 4.3.1 Yield Tables. Address the following assumptions: ● Assumes all stands of the same cover type and age class have the same timber volume. ● No consideration given to climate change impacts on yields going into the future
- 4.4.3 Actions and Transitions. Address the following assumptions: ● Assumes no natural disturbance, wildlife damage, or I&D issues occur. ● Assumes that all stands make viable sales. ● Assumes that forest over rotation age is available for harvest. No consideration for uneven distribution, cover type changes, age-class changes, operational constraints, I&D issues, or current low market demand for older ash, tamarack and cedar.
- 4.4.5 Objectives and Constraints. ● Assumes the old and young forest habitat guild analyses adequately describe the habitat needs of wildlife species. ● Assumes the analysis for protecting endangered, threatened, and special concern species is adequate and there will be no future locations of endangered, threatened, and special concern species discovered.
- Most of the desired conditions and goals outlined within five approved state SFRMPs appear to grant equal weight amongst timber production, bio-diversity, rare feature (i.e. old growth), game and non-game wildlife habitat, watershed protection etc. They are not portrayed as subservient to commercial timber harvest. This contrasts with the approach proposed in the STHA. The primary driver for the STHA is timber harvest volume whereby other non-commodity resources such as rare features, bio-diversity, wildlife habitat and watershed values are viewed as constraints and are incorporated into the analysis to comply with established statutes, policies and directives. There are STHA sub-scenarios that place greater emphasis on non-commodity resources, but these are displayed against the proposed action of 1 million cords for comparative purposes. It would have been more beneficial if collectively the goals and desired conditions outlined within approved and pending SFRMP's would have been the starting point to build the STHA. The public would have been better served if wildlife habitat, rare species and other resources are given equal weight or parity with timber volume in this analysis.
- Climate change. Following are some adaption strategies that should be considered in the STHA from the Minnesota Forest Ecosystem Vulnerability Assessment.
  - ● Maintain and create habitat corridors, riparian areas through reforestation or restoration.
  - ● Establish and expand reserves and reserve networks to link habitats and protect key communities.
  - ● Reduce fragmentation and enhance connectivity.
  - ● Favor or restore native species that are expected to be better adapted to future conditions.
  - ● Maintain, enhance, or restore diversity of native forest species following disturbance.
  - ● Promote diverse age classes.
  - ● Alter forest structure or composition to reduce risk or severity of fire and susceptibility to pests/disease, and invasive species.

- Invasive plants. Forest operations such as road and skid trail construction, tree harvest, landing construction, skidding of logs, and movement of machinery would create favorable conditions and opportunities for NNIP establishment and spread. As discussed under motorized recreation, an accelerated timber program of 1 million cords will promote a more extensive transportation network resulting to further proliferation of NNIP and degradation of forest habitats.
- Forest insects and disease. Potentially up to 1,447,000, 9,594,000 and 1,495,000 acres of the state are at risk to EAB, gypsy moth and oak wilt respectively (table 7). If these invasive tree disease/insects were to reach their full potential, 11 million acres of forest in the state could be permanently altered. The impacts to forest wildlife habitat and dependent populations would be significant.
- I believe that executing a policy to annually harvest 1 million cords from DNR forest lands does not achieve a balance between harvest and retaining sufficient structured residual cover (leave trees) for wildlife.
- sub-scenarios 2.3, 2.2 and 1.2.4.2 are the least harmful alternatives in terms of impacts to wildlife habitat particularly older forest habitat. recognizing that an alternative less than 800,000 cords is unlikely I feel sub-scenario 2.2 strikes more of a balance or compromise between harvest volume and older forest habitat.
- Address Lowland Conifer Old Growth – not evaluated because final designations have not been completed.
- Residual Cover. Regardless of the sub-scenario selected it is crucial that adequate residual or leave trees be retained post logging. The abundance, arrangement of scattered or clumped leave trees and size of leave trees following timber harvest is important to numerous wildlife species including resident and migratory songbirds, game such as deer and bear and furbearers such as pine marten and fisher. Suggested questions to address:
  - Retain more than 5% and/or 12 trees per acre within clear cuts and maintain conifers as significant structural component.
- Meeting or exceeding leave tree guidelines has been documented and as such is achievable without detracting from expected volume outcomes. I monitored nearly fifty timber sales during 2014 and 2015 within the Cloquet Wildlife Area to assess MFRC leave tree compliance. This monitoring revealed that an average of 15 trees per acre or greater retained in 55% of the stands. Subsequently such similar retention levels could feasibly be attained under most of the STHA sub-scenarios.
- Sulfide mining. Exploratory drilling and mining operations have the potential to adversely impact old forest habitats. Currently over 6,600 acres of mature boreal forest will be developed for mining facilities. An anticipated 50%+ increase in the local population will promote housing developments and increased motorized recreation which will reduce the quantity and quality of forested habitats (Power, T.M (2007). Since the distribution of rare species and rare features is disproportionately important within proposed mining areas, the effects on these unique wildlife species will be disproportionately adverse (MN DNR Rare Species Guide). Remaining unaltered older forest will become all the more important. Implementing a 1 million cord harvest strategy will only exacerbate the decline of older forest habitat within this distinctive area.
- There must be the flexibility to apply a strategic plan in an operational sense. For example, there should be adaptability to include stands for harvest not selected by a model or remove stands incorporated in a model if harvest compromises wildlife values.



- Address Habitat fragmentation and interior forest – these are important factors for wildlife, but they were not evaluated because the model is not able to do spatial analyses.
- Changes in rare wildlife, plant species, and rare features. Rare wildlife numbers and their habitats continue to decline. There are now over 346 wildlife species identified as SGCNs compared to 292 SGCN species in 2005; a 18% increase in number of listings. Long term monitoring of birds on the Chippewa and Superior National Forests revealed that 10 older forest bird species have and continue to decline (Grinde et.al. 2015). During this time the amount of timber harvested on state lands increased 11% (from 734 cords to 816 cords). Moreover, the State Wildlife Action Plan (SWAP) identified 36 Conservation Focus Areas (CFA's) to represent locations with Species in Greatest Conservation Need (SGCN) and habitat resources that need attention and have the opportunity, to address those needs over the next 10 years. Twenty-seven of the CFA's are partially or entirely forested. To implement a 1 million cord harvest regime would constitute a 36% increase in harvest compared to 2005. It's unfortunate that despite the significant decline in older forest SGCN's, the state proposes to significantly increase harvest.
- The aforementioned disturbance factors are cumulatively eroding old forest habitat at the same time rare wildlife populations and rare features are declining. Increasing harvest on State Forest lands will only exacerbate the decline of dependent old forest species. Ironically as these collective impacts accelerate they will hasten the listing of more wildlife species onto state and federal protection lists. This in turn will curtail timber harvest within Designated Recovery Areas that otherwise would be open and suitable for harvest. The question needing to be addressed is that is this necessary.
- The availability of public lands in terms of public land acres per person has declined 35% during the past 50+ years (table 6). The opportunity for the public to enjoy public lands and associated resources such as older forests have dropped substantially. The STHA proposal to increase timber harvest will only lessen the public's opportunity to enjoy and appreciate the state's dwindling old forest habitats and dependent wildlife species.
- Changes in motorized recreation. Implementing an annual 1 million cord harvest goal would be a 25% increase from current harvest levels. It is likely that the extent of accompanying temporary haul roads and trails would also increase up to 25% to access the timber. Such an increase of roads and trails would lead to increased motorized recreation that would further diminish the amount and quality of forest wildlife habitat unless stringent post-harvest road closures and reclamation practices are enacted. The STHA need so account for this loss as part of a cumulative effects analysis
- Post-Harvest Transportation Management. Regardless of the sub-scenario selected it is crucial that effective road closures/obliteration occur post logging temporary roads. Following harvest, it's very important to effectively rehabilitate newly constructed roads and skid trails to restrict or prohibit motorized travel to minimize effects to wildlife habitat security and to retain the primitive character of the area.
- The following MFRC Guidelines ("Forest Roads"-page 48) should be incorporated.
  - If temporary closure: (1) "Control access to minimize maintenance requirements." (2) "Install appropriate drainage structures as necessary and maintain in working order." (3) "Place a barrier to traffic, and post "Road Closed" signs at the beginning of the road when closing roads.
  - If permanent closure: (1) "Place a barrier to traffic, such as a berm, and post "Road Closed"

- signs at the beginning of the road when closing roads.” (2) “Place water bars where necessary. (3) “Reshape stream crossings to approximate original channel contour when removing water crossing structures, and stabilize the structure site.”
- an annual harvest of 800,000 cords should include timber harvested because of large salvage blowdown events, special initiatives such as red pine and summer access aspen.
- consider developing one of these new scenarios:
  - Older forest scenario. Consider developing a scenario similar to the previous ERF policy (manage for 10-15% over rotation age for even-aged cover types).
  - Current Management Scenario, This scenario would be based on current management. The model would not include cedar harvest, clear-cutting of northern hardwoods and ash/lowland hardwoods and increase the species conversion rate to be closer to the SFRMP goals etc. It should also capture actual results from state MFRC Site Level Guidelines and project monitoring.
  - Climate change scenario, Climate change was only minimally addressed in the models. This model would predict changes in cover types and associated predicted changes in volume over time.

## Emails

Emails received were broken up into separate comments and sorted by themes.

- I talked to a sappi company (cloquet) rep a few times and he said mn could sustainably harvest twice the trees it does now. Ruffed grouse, woodcock, golden winged warblers, deer, bear and much more need early successional habitat. I say ramp up the harvest, especially in the driftless zone which has little young forest habitat left.
- it appears that the forests could produce 880,000 to 910,000 cords per year. However, in order to protect the habitat as well as water quality and other important environmental factors I am requesting that you only allow an annual harvest level of roughly 600,000 to 700,000 cords.
- I believe that 600 thousand cords would be more than adequate, considering the level of habitat destruction we already experience from housing developments etc.
- Please help keep our forests and animal populations healthy. Make sustainable decisions that will preserve our wildlife for next generations.
- As a tree farm owner who has a large investment in my 200+ acres, and who pays several thousand dollars in real estate taxes every year, I am concerned about competing with my own government in selling timber.
- I have a sale going on right now, getting \$35/ cord or about one cent per pound.
- I would get even less if the state increased its cut.
- Where the state can help is in developing MARKETS for timber. Too many mills have closed or cut back operations. My last sale had to be hauled all the way to Wisconsin.
- I think the science is behind the increase the the forest could easily handle the increase. Especially the aspen and soft hardwood species.
- But I don't support the increase and here is why; as a consultant I directly compete with the DNR for marketing my private landowner timber. I buy and sell timber using 4-6 large logging company's and it's a supply and demand issue with me. The more wood the DNR puts up, the less private wood is bought by loggers. Also, the lower the stumpage price goes. We need to increase our wood consumers in the

state. By offering tax incentives and deregulating wood consuming facilities we could increase available markets for the abundant resource we are blessed with in this great state.

- If the acres of mortality are reduced by a large enough amount, it would reduce the volume available for harvest and affect the age distribution. I have not seen any evidence that the mortality of tamarack is slowing down and will continue to reduce the operable available tamarack stands.
- The dormant Schroeder Minnesota Power plant could be used to burn biomass from the Arrowhead region providing power, employment (at the plant and logging), and help remove overly mature forest and help promote desirable new growth. The IRRRB might be a partner in this along with the state itself, possibly thru the Legacy Fund in order to get the economics in place.
- I am a Northern Itasca County recreational property owner. I believe clear cut in Minnesota forest lands, although profitable for the timber and lumber industry, inflicts serious damage both to aesthetics and the overall economy in affected areas. Looking at tourism in Minnesota alone, it is a \$14.4 billion dollar contributor (that's almost \$40 million dollars a day), and employs nearly 260,000 people.
- A real-world example of the impact of ignoring aesthetic impacts: My family would not have purchased our cabin in Northern Itasca County, nor invested the \$100k or so in improvements to the property if the timber surrounding it had been clear cut. Please do not ignore aesthetic impacts in your analysis of Minnesota sustainable timber harvest.
- Although difficult to put a price tag on the aesthetics of old growth timber it should be apparent to see their value in regards to real estate, tourism, and wildlife habitat. Just as vacated lots in city neighborhoods reduce community pride, aesthetics, property values, and business prospects in Minnesota cities; cutting old growth timber destroys an ecosystem that may not be renewable for several hundred years, as well as affect property values, tax revenue from real estate, the settling of future residents, the building of summer homes, and the recreational activities and businesses dependent on the splendor and aesthetics of Minnesota's rural forested areas. Some trees are meant for harvest but if history tells us anything once those old growth forests are gone we have lost a biological treasure.
- For Aspen, Balm and faster maturing timber species, the rotation should be when the forest is at prime. After that point, leaving it stand will result in self-destruction, and it will become lost for economic value to society.
- I am firmly opposed to the destruction of our forest for corporate profit.... another 200k of trees being sold and destroyed would only make it worst.
- Our forests are pathetic....we could do so much better....
- My experience living in the north woods of MN is that the DNR is over-logging and logging areas that shouldn't be logged such as on lakes and in areas where people are living and/or using for recreation. They are not valuing the trees for what they contribute to the people of Minnesota alive, but chop them down for money as if that is the only consideration.
- I read somewhere that the DNR is putting millions into projects to promote clean water in some lakes including 10 Mile Lake which is designated a star lake, deep and home to ciscoes. Trees around a lake are great at helping to keep the water clean. We should value the trees around a lake and not cut them down!
- Please keep in mind the benefits of trees: oxygen, CO2 absorption, habitats (mammals and birds), food for those animals, soil erosion, cooling tool for environment. You can not mimic nature nor replace it. It knows best. Do not fall for some other story by timber companies of these not being needed or underestimated.

- Management of our state forest' in MN should, as has historically been intended, serve broad and sustainable values intended to serve multiple purposes. We must continue to apply a long term diversified vision that is adequately supported in MN State budgeting. We must continue to stress the word "public" in all forest policy decisions.
- The negative effects from soil compaction on the landing sites and haul roads, the increase in illegal ATV trails spinning off from logged areas and the increased runoff creating more turbidity in flowing water and more reason to not increase the amount of logging.
- We are told there are not many moose in northwest Minnesota, but for those of us who walk lightly and stay outside late this is not true. It is readily apparent that we need MORE protected forest land that is truly protected versus being utilized.
- P.S. I own hunting land in Carlton County and did an EQIP harvest four years ago (the swcd did my mgmt plan). Great results for habitat and wildlife. My land is also enrolled in the state Sustainable Forest Initiative.....great program, keep it going.