



VIA Link: <https://www.fs.usda.gov/project/lolo/?project=66344>

July 16, 2024

Tyler's Kitchen Project Leader
Missoula Ranger District
24 Fort Missoula Road
Missoula, MT 59804

Dear Project Leader:

On behalf of the American Forest Resource Council (AFRC) and its members, thank you for the opportunity to comment on the Tylers Kitchen Fuels Reduction and Forest Health Project (Tyler's Kitchen).

AFRC is a regional trade association whose purpose is to advocate for sustained yield timber harvests on public timberlands throughout the West to enhance forest health and resistance to fire, insects, and disease. We do this by promoting active management to attain productive public forests, protect adjoining private forests, and assure community stability. We work to improve federal and state laws, regulations, policies, and decisions regarding access to and management of public forest lands and protection of all forest lands. Many of our members have their operations in communities within and adjacent to the Lolo National Forest and management on these lands ultimately dictates not only the viability of their businesses, but also the economic health of the communities themselves.

The Tyler's Kitchen Project is 33,440 acres of forested lands, southeast of the confluence of Rock Creek and the Clark Fork River starting about 20 miles east of Missoula. Current forest health conditions limit safe and effective fire suppression opportunities and are actively contributing to insect and disease outbreaks. AFRC staff and our members have visited the Project area twice with Forest Service personnel and have seen firsthand the forest health and heavy fuels conditions found in the area.

The pictures below are from our trip to the Project area in 2021 and highlight the poor forest health and the need for management on much of the Project area. Conditions in the area since that time have only worsened and treatment is imperative.

Dense Stands of Douglas-fir with mortality



Mixed species stands with dead spruce



Powerline in Project area under dense fuels.



Unhealthy lodgepole stands



AFRC supports the District's Need and Rational for treating the area which includes:

- Reduce forest fuels
- Restore vegetation conditional that are resilient to natural disturbances
- Provide wood products that contribute to local and regional economies
- Maintain a suitable transportation system to support long-term land management and public uses and reduce environmental effects.

While AFRC supports the Project being implemented quickly, we offer the following suggestions and support for the Project which we hope will improve and strengthen your planning document and Project record.

1. AFRC strongly supports this Project being planned using the Authorized Emergency Actions under section 40807 of the Infrastructure Investment and Jobs Act (PL 117-58) on National Forest System (NFS) lands. The Tyler's Kitchen Project is located in one of the 250 identified High Risk Fireheds associated with the agency's Wildfire Crisis Strategy. These Emergency Actions are taken to achieve relief from threats to public health and safety, critical infrastructure, and/or to mitigate threats to natural resources. The area exemplifies why Emergency Action is needed due to forest health issues, infrastructure impacts (power lines, private lands, and Interstate 90) and fuels reduction needs. As pointed out in the scoping document *"Overhead powerlines are the most at-risk critical infrastructure within the project area. Unplanned ignitions originating from powerlines have had negative outcomes to human life, property and the environment and instances of these events continue to increase."*
2. AFRC is very pleased to see that the District acknowledges that providing wood products contributes to local and regional economies and the sustainable supply of timber from NFS lands. This has always been a key need and factor in any forest management project from AFRC's perspective, but it has become a very acute need with the recent closure of two sawmills in Montana---Pyramid Mountain Lumber in Seeley Lake, and R-Y timber in Townsend.

AFRC would like to remind the Forest that supporting local industry and providing useful raw materials to maintain a robust manufacturing sector should be a principal objective to any project, including the Tyler's Kitchen Project. The Lolo Forest Plan allocates approximately 46 percent of the NFS land within the project area to Management Areas to be managed with an emphasis toward timber production. Another 19 percent is identified in the Forest Plan as suitable for timber harvest with objectives that include providing healthy stands of timber. AFRC has pointed out before that the "restoration" treatments that are desired on these lands cannot be implemented without a healthy forest products industry in place, both to complete the necessary work and to provide payments for the wood products generated to permit the service work to be completed.

Montana's forest products industry is one of the largest components of manufacturing in the state and employs roughly 7,000 workers earning about \$300 million annually. Without the raw material sold by the Forest Service, DNRC, and private lands these mills would be unable to produce the amount of wood products that the citizens of this country demand. Without this material, the industry would also be unable to run their mills at capacities that keep their employees working, which is crucial to the health of the communities that they operate in. These benefits can only be realized if the Forest Service sells their timber products through sales that are economically viable. This viability is tied to both the volume and type of timber products sold and the manner in which these products are permitted to be delivered from the forest to the mills.

3. AFRC is very pleased to see the suite of treatments proposed for the Tyler's Kitchen Project. Of the 33,400 acres in the area, the District is proposing treatments on 18,566 acres. The treatments are listed in the chart below:

Table 1. Proposed vegetation treatments

Treatment Type	Acres
Acquired Land Treatments	3,002
Intermediate Harvest	3,397
Prescribed Fire	7,496
Regeneration Harvest	2,300
Shaded Fuel Break	228
Small Tree Commercial Thinning	400
Non-Commercial Thinning	2741
Grand Total	18,566

However, there are only 6,097 acres planned for commercial timber harvest. We believe this acreage has been scaled back from what was discussed during our previous two site visits. AFRC believes this acreage could and should be increased considering the vast scale of the forest health issues found in the Project area. Also, the Forest is considering management in Silver King IRA lands which AFRC believes could add to the commercial treatment acres.

4. AFRC would like to see the District accurately describe the impacts of the No Action Alternative over the potential 20 years of the Project implementation timeline. Most of the Project area contains dense homogenous stands of Douglas-fir. Modeling shows over 90% of the Project area is dominated by Douglas-fir. This dominance of one species in an area, if not effectively managed, reduces the resilience of the landscape from disturbances such as insects and fire. The susceptibility risk to Douglas-fir beetle of an area is based on the tree density and diameter size of the trees. Within the project area, modeling shows roughly 50% of the area is at high risk of being attacked by Douglas-fir beetle. Numerous dead and dying pockets of Douglas-fir were observed throughout the project area due to expanded populations of Douglas-fir beetle. The Douglas-fir beetle prefers stressed Douglas-fir trees over 14" in diameter, and usually attack the largest trees available in the area. It is likely that the Sapphire Complex Fire in 2017 caused the expansion of these beetle populations. The fire provided the beetles with a large food source of fire-injured trees. Once the food source became scarce, the beetles expanded out from the fire area into areas that were weakened by the spruce budworm.

With this background of current conditions AFRC would like to see a realistic accounting of the wildfire risk and further insect and disease mortality described in the no-action alternative.

5. AFRC supports the proposed harvest methods outlined in the scoping notice. These include skyline, tethered or ground-based systems based on site-specific conditions. Log haul dust abatement and other requirements would be met in accordance with the road maintenance agreement with Granite and Missoula Counties. Road segments may need to be temporarily closed to the public during haul. As the District notes, *"Tethered logging systems utilize cable winch systems on harvesters, feller bunchers, forwarders, loaders,*

and skidders to stabilize and assist equipment operations on steep slopes. The cable system allows the equipment to operate on slopes that would normally be considered unsafe for equipment or damaging to soils. The use of tethered assistance enables enhanced equipment stability on steep or adverse soil conditions, while also enhancing traction on more gentle grades.”

AFRC always likes to remind the Forest Service that there are many ways to design a timber sale that allows a purchaser the ability to deliver logs to their mill in an efficient manner while also adhering to the necessary practices that are designed to protect the environmental resources present on Forest Service forestland. This is especially true with the Tyler’s Kitchen Superior North Project. The primary issues affecting the ability of our members to feasibly deliver logs to their mills are firm operating restrictions. As stated above, we understand that the Forest Service must take necessary precautions to protect their resources; however, we believe that in many cases there are conditions that exist on the ground that are not in step with many of the restrictions described in Forest Service EA’s and contracts (i.e. dry conditions during wet season, wet conditions during dry season).

We would like the Forest Service to shift their methods for protecting resources from that of firm prescriptive restrictions to one that focuses on descriptive end results; in other words, describe what you would like the end result to be rather than prescribing how to get there. There are a variety of operators that work in the Lolo National Forest market area with a variety of skills and equipment. Developing an EA contract that firmly prescribes how any given unit shall be logged may inherently limit the abilities of certain operators. For example, restricting certain types of ground-based equipment rather than describing what condition the soils should be at the end of the contract period unnecessarily limits the ability of certain operators to complete a sale in an appropriate manner with the proper and cautious use of their equipment. To address this issue, we would like to see flexibility in the EA contract to allow a variety of equipment to the sale areas. We feel that there are several ways to properly harvest any piece of ground, and certain restrictive language can limit some potential operators. Though some of the proposal area may be planned for cable harvest, there may be opportunities to use certain ground equipment such as fellerbunchers and processors in the units to make cable yarding more efficient. While we appreciate the language mentioning ground skidding flexibility, we would like the Forest to allow ground-based equipment to operate on slopes up to 45%. Allowing the use of processors and fellerbunchers throughout these units can increase its economic viability, and in some cases decrease disturbance by decreasing the amount of cable corridors, reduce damage to the residual stand and provide a more even distribution of woody debris following harvest. Tethered-assist equipment is also becoming a more viable, safe, and available option for felling and yarding on steep slopes. This equipment has been shown to contribute little additional ground disturbance when compared to traditional cable systems.

Finally, AFRC would like the Forest to examine the days that operations and haul are shut down due to hunting seasons and other outdoor recreation. The logging community

has limited operating time at best, and further reductions such as these only makes surviving in the logging business that much more difficult.

6. As mentioned above, AFRC supports conducting commercial work in the Silver King IRA. Proposed treatments are listed in the chart below:

Table 5. Vegetation management activities proposed in Silver King Inventoried Roadless Area

NEPA Unit	Treatment	Acres in IRA	Applicable IRA Exception
98, 99, 112	Regeneration Cut (Pine Beetle dead/dying Lodgepole)	97	(Substantially Altered) 36 CFR 294.13(b)(4)
58, 59, 77, 87A, 88, 89, 97	Intermediate Cut (Douglas fir Beetle, overstocking, reduce competition, increase fire resistant species stand composition)	147	(Ecosystem Composition) 36 CFR 294.13(b)(1)(ii)

Table 5. Road management activities proposed in Silver King Inventoried Roadless Area

Road Management Proposed in IRA	Miles
Road Maintenance	5
Decommission Non-Forest System Roads	3

The stands in the IRA need forest health and fuels reduction treatments as much as the stands outside of the IRA. This work can be conducted with no new road construction, only using existing roads and then decommissioning several miles of road. Also pointed out in the scoping notice is that *“Wildfires that originate in the IRA could prove difficult to access and contain when they are small. Many areas within the roadless area have dead and down trees that obstruct firefighter access and egress. Vegetation growth coupled with fire exclusion and insect activity has led to a buildup of continuous fuels. This fuel continuity provides conditions for wildfires to grow and spread over a long distance and burn for a long duration.”*

The scoping notice outlines the parameters in the existing regulations that must be adhered to when conducting timber harvest in IRAs. In particular, the Forest Service must explain in their NEPA documents how the proposed timber harvest will only target “generally small diameter timber” to meet objectives. The Roadless Rule does not provide a definition of “generally small diameter” because that determination is context specific. 66 Fed. Reg. 3,244, 3,257 (Jan. 12, 2001). The preamble explains that “[s]uch determinations are best made through project specific or land and resource management plan NEPA analyses, as guided by ecological considerations” *Id.* Thus, the Roadless Rule gives the Forest Service discretion in its size determination due to the “great variation in stand characteristics between vegetation types in different areas.” *Id.*

Recently, the Ninth Circuit upheld the Forest Service’s use of the “generally small diameter” timber exception for the removal of trees up to 21 inches diameter-at-breast

height (dbh). *Los Padres ForestWatch v. United States Forest Serv.*, No. 23-55054, 2024 WL 885130, at *1 (9th Cir. Mar. 1, 2024). In that case, the Plaintiff-Appellant challenged the Forest Service’s Tecuya Ridge Project on the Los Padres National Forest, where the agency determined that trees up to 21 inches dbh constitute “generally small diameter timber” because the dominant species in the project area, Jeffrey Pine, has a growth potential of 60–90 inches dbh. *Id.* Instead of relying on the average tree diameter for the stand, the Forest Service determined that growth potential approach was a better benchmark for tree size. *Id.* The Ninth Circuit determined that the Forest Service had adequately explained its rationale for what constitutes “generally small diameter timber” and upheld the project.

We urge the Lolo to consider this court decision and the approach taken by the Los Padres National Forest when analyzing commercial treatments in the Silver King IRA.

The scoping notice also indicates that the Forest will rely on the following exception from the Roadless Rule to permit the proposed regeneration harvest in the Silver King IRA: *Roadless characteristics have been substantially altered in a portion of an inventoried roadless area due to the construction of a classified road and subsequent timber harvest. Both the road construction and subsequent timber harvest must have occurred after the area was designated an inventoried roadless area and prior to January 12, 2001. Timber may be cut, sold, or removed only in the substantially altered portion of the inventoried roadless area.*

However, the scoping notice does not specify when the Silver King IRA was designated. In order for the Forest Service to rely on section 294.13(b)(4) to permit commercial timber harvest, the previous harvest and road building must have occurred after such designation.

7. Overall, the Project has a robust Road Management Plan which includes:

Table 4. Proposed road management activities

Road Management Activities	Miles
Road Maintenance	101
Add Existing Non-System Roads to National Forest System	Miles
Yearlong closure (administrative access only)	97
Seasonally Open	3
Decommission	Miles
National Forest System Road	4
Non-system Roads	59
Road Management Activities	Miles
New Construction	Miles
National Forest System Road (Multiple segments ranging from .36 to .9 miles in length)	3
Temporary	11

While we support the overall road work needed to manage your road system and protect resources at risk, we ask that you consider that a significant factor contributing to increased fire activity in the region is the decreasing road access to our federal lands. This is especially true when considering the proposed 63 miles of road decommissioning. This factor is often overshadowed by both climate change and fuels accumulation when the topic of wildfire is discussed in public forums. However, we believe that a deteriorating road infrastructure has also significantly contributed to recent spikes in wildfires. This deterioration has been a result of both reduced funding for road maintenance and the federal agency's subsequent direction to reduce their overall road networks to align with this reduced funding. The outcome is a forested landscape that is increasingly inaccessible to fire suppression agencies due to road decommissioning and/or road abandonment. This inaccessibility complicates and delays the ability of firefighters to attack nascent fires quickly and directly. On the other hand, an intact and well-maintained road system would facilitate a scenario where firefighters can rapidly access fires and initiate direct attack in a more safe and effective manner.

If the Forest proposes to decommission, abandon, or obliterate road segments from the Tyler's Kitchen Project area we would like to see the analysis consider potential adverse impacts to fire suppression efforts due to the reduced access caused by the reduction in the road network. We believe that this road network reduction would decrease access to wildland areas and hamper opportunities for firefighters to quickly respond and suppress fires. On the other hand, additional and improved roads will enable fire fighters quicker and safer access to suppress any fires that are ignited.

We would like the Forest to carefully consider the following three factors when deciding to decommission any road in the project area:

- Determination of any potential resource risk related to a road segment.
- Determination of the access value provided by a road segment.
- Determination of whether the resource risk outweighs the access value (for timber management and other resource needs).

We believe that only those road segments where resource risk outweighs access value should be considered for decommissioning.

Finally, we are including links to three studies by Brian Sugden relating to road maintenance and sedimentation, BMPs in Montana, and streamside management and impacts to water temperature that we believe can help inform the analysis related to aquatic resources.

<https://www.tandfonline.com/doi/abs/10.1080/14942119.2019.1571472?scroll=top&needAccess=true&journalCode=tife20>

<https://academic.oup.com/jof/article/110/6/328/4599544>

<https://www.tandfonline.com/doi/full/10.1080/14942119.2019.1571472?scroll=top&needAccess=true&>

8. AFRC supports the Forest asking the Region for approval to create openings larger than 40 acres. The proposed openings will range up to 278 acres, and average 116 acres. Regeneration treatments include shelterwoods, seedtree, and silvicultural clearcuts. Openings would have a variety of residual tree densities based on the quality of existing stands. Regeneration harvests were selected as the best treatment for each unit at the stand-level to meet Forest and project objectives based on existing conditions. Regeneration treatments at various patch sizes restore young forests to the landscape and create landscape diversity that would have existed historically. These treatments are needed to reestablish fire resistant species such as western larch and ponderosa pine.
9. The District is planning to use shaded fuel breaks in and along strategic areas and travel routes and would modify fuels to alter potential fire behavior allowing for controllability of wildland fire. AFRC supports the use of these fuel breaks, but we do not support the proposed treatment regimens which include: *“Treatments would thin from below, removing small diameter trees (typically less than 10” dbh) that act as ladder fuels while favoring larger trees of desired fire-tolerant species. Some midstory and overstory trees (typically less than 12” dbh) would be removed, where feasible, to increase crown spacing and sold as commercial products.”* AFRC strongly suggests not having a diameter limit in the shaded fuel breaks management areas. Such arbitrary limitations may hamper the effectiveness of the treatments proposed to mitigate fire risk and provide for safe suppression in the event of a fire. Trees over 10-inches may function as ladder fuels capable of enabling a crown fire.
10. Finally, in your Draft EA, AFRC encourages the Forest to conduct a detailed analysis on the Project’s impacts to climate change, carbon sequestration, and greenhouse gas emissions. Interim CEQ regulations pertaining to the analysis of this resource have recently been updated and the Forest Service must conduct its analysis on this Project accordingly. Specifically, those regulations require that greenhouse gas emissions be analyzed for all federal actions. Those regulations also encourage federal agencies to consider the context of short-term emissions as a result of actions that will improve long term sequestration and storage. We strongly believe that the minor, short-term emissions associated with timber harvest and other associated treatments are dwarfed by the long-term benefits associated with such treatments.

We urge the District to clearly outline how the proposed treatments, while possibly emitting carbon in the near term, would ultimately benefit climate change mitigation goals by 1.) reducing the likelihood of carbon emissions through wildfire; 2.) increasing the rate of carbon sequestration by reducing competition to residual trees; and 3.) storing carbon in long lasting wood products that would otherwise be at risk of loss through wildfire. Carbon loss through high intensity wildfire has become a leading cause of our national forests transitioning from carbon sinks to carbon sources. Active management to reduce such a transition would not only reduce carbon loss but accelerate carbon

sequestration. And ultimately, any timber products harvested to further these two objectives has been shown to have long lasting carbon storage potential.

Please consider the points below from a technical report by the Climate Change Vulnerability Assessment and Adaptation Project (SWOAP) in Southwest Oregon.

- Wood harvested from the forest, especially timber used for durable structures, can be reservoirs of long-term carbon storage (Bergman et al. 2014).
- Forests and their products embody a closed-loop system in which emissions associated with harvests and product use are eventually recovered as forests regrow.
- Although products may be retired in solid waste disposal sites, they decompose quite slowly, causing carbon to continue to be stored for many decades.
- Products derived from the harvest of timber from national forests reduce carbon emissions by substituting for more energy-intensive materials including concrete, steel, and plastics.

There is scientific support for the practice of regular harvests at an age where tree growth begins to slow, storage of that tree carbon in long-lasting wood products, and proactive reforestation. A failure to do so would hamper that acre's ability to maximize carbon sequestration through the replacement of slow growing large trees with fast growing small trees and the storage of those large trees in long-lasting wood products. Not storing that carbon in wood products also poses the risk of losing the carbon in standing trees from high intensity wildfire, which is becoming increasingly prevalent on public lands in western states. A 2022 study estimated that wildfires in California in 2020 emitted 127 million metric tons of carbon into the atmosphere, making the greenhouse gas (GHG) emissions from wildfires the second most important source in the state, after transportation. For context, the U.S. Forest Service recently disclosed that the agency only "commercially harvests one tenth of one percent of acres within the National Forest System each year. Harvests are designed to improve stand health and resilience by reducing forest density or removing trees damaged by insects or disease make up 86 percent of those acres. The remainder are final regeneration harvests that are designed to be followed by reforestation." There is an extraordinary opportunity to increase the practice of sustainable forest management on federal lands as an effective tool to sequester carbon.

Harvesting trees and transferring the stored carbon to wood products allows a land manager to "stack" the sequestration potential of that land. For example, assume an objective to maximize carbon sequestration on 100 acres over a 150-year period starting at year zero. Without active management and timber harvest, those trees would grow to 150 years and represent the only carbon sequestered on those 100 acres at the end of the 150-year cycle (assuming they don't burn in a wildfire). Alternatively, the trees could be harvested on a 50-year rotation and stored in wood products. After 150 years, there would be carbon stored in an existing 50-year-old stand, plus carbon stored in wood products from an additional two 50-year-old stands previously harvested. The figure below from

the IPCC (2007) illustrates the concept of stacking. **Please consider adopting this graph into the Tyler’s Kitchen project analysis.**

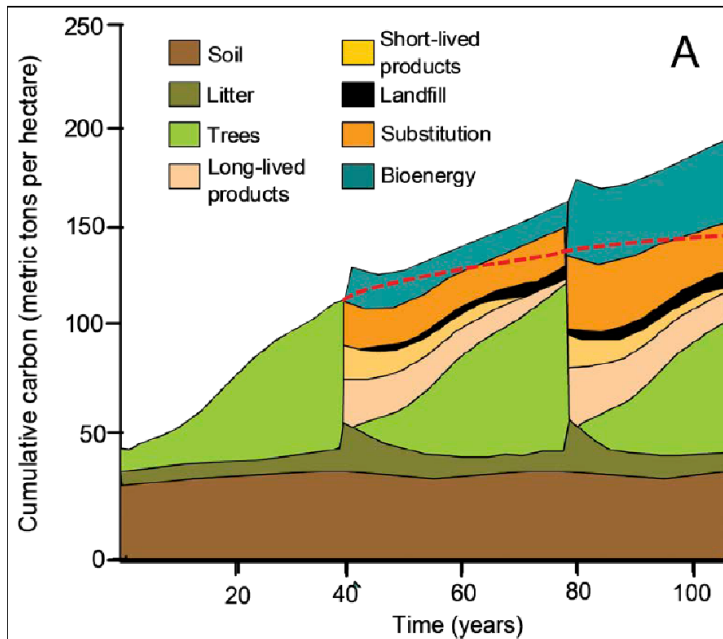


Figure 8.7—Carbon balance from a hypothetical forest management project in which the forest is harvested roughly every 40 years from land that started with low forest carbon stocks. This figure accounts for forest regrowth and carbon stored in wood products in use and landfills as well as the prevented release of fossil fuel carbon (also counted as stored carbon) via product substitution and biomass energy. It illustrates how forests can continue to accrue carbon over time with forest management. Figure is from McKinley et al. (2011) and adapted from IPCC (2007).

We believe that this graph encapsulates the forest management paradigm that would be most effective at maximizing carbon sequestration on a per-acre basis by “stacking” storage in wood products and regrowth of newly planted trees. A 2013 study from the Journal of Sustainable Forestry summarized these concepts well: *More CO₂ can be sequestered synergistically in the products or wood energy and landscape together than in the unharvested landscape. Harvesting sustainably at an optimum stand age will sequester more carbon in the combined products, wood energy, and forest than harvesting sustainably at other ages.*

We would like to encourage the Missoula District to consider several additional documents related to carbon sequestration related to forest management.

McCauley, Lisa A., Robles, Marcos D., Wooley, Travis, Marshall, Robert M., Kretchun, Alec, Gori, David F. 2019. Large-scale forest restoration stabilizes carbon under climate change in Southwest United States. *Ecological Applications*, 0(0), 2019, e01979.

Key points of the McCauley paper include:

- Modeling scenarios showed early decreases in ecosystem carbon due to initial thinning/prescribed fire treatments, but total ecosystem carbon increased by 9–18% when compared to no harvest by the end of the simulation.
- This modeled scenario of increased carbon storage equated to the removal of carbon emissions from 55,000 to 110,000 passenger vehicles per year until the end of the century.

- Results demonstrated that large-scale forest restoration can increase the potential for carbon storage and stability and those benefits could increase as the pace of restoration accelerates.

We believe that this study supports the notion that timber harvest and fuels reduction practices collectively increase the overall carbon sequestration capability of any given acre of forest land and, in the long term, generate net benefits toward climate change mitigation.

Gray, A. N., T. R. Whittier, and M. E. Harmon. 2016. Carbon stocks and accumulation rates in Pacific Northwest forests: role of stand age, plant community, and productivity. *Ecosphere* 7(1):e01224. 10.1002/ecs2.1224

Key points of the Gray paper include:

- Although large trees accumulated C at a faster rate than small trees on an individual basis, their contribution to C accumulation rates was smaller on an area basis, and their importance relative to small trees declined in older stands compared to younger stands.
- Old-growth and large trees are important C stocks, but they play a minor role in additional C accumulation.

We believe that this study supports the notion that, if the role of forests in the fight against climate change is to reduce global greenhouse gasses through maximizing the sequestration of carbon from atmospheric CO₂, then increasing the acreage of young, fast growing small trees is the most prudent management approach.

U.S. Department of Agriculture, Forest Service. 2023. Future of America's Forest and Rangelands: Forest Service 2020 Resources Planning Act Assessment. Gen. Tech. Rep. WO-102. Washington, DC. 348 p. <https://doi.org/10.2737/WO-GTR-102>.

To further support the concepts validated by Gray et al., the USDA recently published a Technical Report on the future of America's forests and rangelands.

Key points of the Report include:

- The projected decrease in young forests and increase in older forests will result in overall decreases in growth rates and carbon sequestration.
- The amount of carbon sequestered by forests is projected to decline between 2020 and 2070 under all scenarios, with the forest ecosystem projected to be a net source of carbon in 2070.
- Without active management, significant disturbance, and land use change, forests approach a steady state in terms of C stock change over time.
- Annual carbon sequestration is projected to decrease, indicating carbon saturation of U.S. forests, due in part to forest aging and senescence.

Gustavsson, L., Madlener, R., Hoen, H.-F., Jungmeier, G., Karjalainen, T., Klöhn, S., ... Spelter, H. (2006). The Role of Wood Material for Greenhouse Gas Mitigation. *Mitigation and Adaptation Strategies for Global Change*, 11(5–6), 1097–1127.

Lippke, B., Oneil, E., Harrison, R., Skog, K., Gustavsson, L., Sathre, R. 2011 Life cycle impacts of forest management and wood utilization on carbon mitigation: knowns and unknowns, Carbon Management, 2:3, 303-333.

McKinley, D.C., Ryan, M.G., Birdsey, R.A., Giardina, C.P., Harmon, M.E., Heath, L.S., Houghton, R.A., Jackson, R.B., Morrison, J.F., Murray, B.C., Pataki, D.E., Skog, K.E. 2011. A synthesis of current knowledge on forests and carbon storage in the United States. Ecological Applications. 21(6): 1902-1924.

Skog, K.E., McKinley, D.C., Birdsey, R.A., Hines, S.J., Woodall, C.W., Reinhardt, E.D., Vose, J.M. 2014. Chapter 7: Managing Carbon. In: Climate Change and United States Forests, Advances in Global Change Research 57 2014; pp. 151-182.

In the absence of commercial thinning, the forest where this proposed action would take place would thin naturally from mortality-inducing natural disturbances and other processes resulting in dead trees that would decay over time, emitting carbon to the atmosphere. Conversely, the wood and fiber removed from the forest in this proposed action would be transferred to the wood products sector for a variety of uses, each of which has different effects on carbon (Skog et al. 2014). Carbon can be stored in wood products for a variable length of time, depending on the commodity produced. It can also be burned to produce heat or electrical energy or converted to liquid transportation fuels and chemicals that would otherwise come from fossil fuels. In addition, a substitution effect occurs when wood products are used in place of other products that emit more GHGs in manufacturing, such as concrete and steel (Gustavsson et al. 2006, Lippke et al. 2011, and McKinley et al. 2011). In fact, removing carbon from forests for human use can result in a lower net contribution of GHGs to the atmosphere than if the forest were not managed (McKinley et al. 2011, Bergman et al. 2014, and Skog et al. 2014). The IPCC recognizes wood and fiber as a renewable resource that can provide lasting climate-related mitigation benefits that can increase over time with active management (IPCC 2000). Furthermore, by reducing stand density, the proposed action may also reduce the risk of more severe disturbances, such as insect and disease outbreak and severe wildfires, which may result in lower forest carbon stocks and greater GHG emissions.

Thank you for the opportunity to provide scoping comments on the Tyler's Kitchen Project, and I look forward to following the Project through implementation.

Sincerely,

A handwritten signature in dark ink, appearing to read "Tom Partin". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Tom Partin
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