Project: Telephone Gap Integrated Resource Project
Responsible Official and Forest/RangerDistrict: Christopher Mattrick, District Ranger, Rochester and Middlebury Ranger Districts, Green Mountain National Forest;

Objection to the USFS on Telephone Gap Integrated Resource Project

Cheryl Joy Lipton Letter 555

1. This comment was meant for the 45 day objection period. It began on a Friday, effectively reducing it by 3 days immediately (just like the scoping and comment period start dates.) The objection period also included 2 federal holidays and encompassed very busy holiday seasons ofChristmas, Hanukkah and New Year, also taking into consideration people needing to attend to other work, unlike the USFS whose work this is. Yes, it was within legal bounds, but it was unreasonable by being positioned in the most difficult time for others wanting to object to the project. Yes, it fully meets NEPA requirements, but is yet unattainable for many, due to the reasons listed above. My own responses will not be complete, and will be added to after the deadline, understanding that they will be accepted at the discretion of the USFS Responsible Official.
2. This answer is skirting the subject and also inaccurate. The 2006 Forest Plan is more than out of date, as is the 2011 publication referred to, because of, among other things, the accelerated rate of climate change and new data and research, current science, from the past several years. What is convenient for the forest service in terms of accounting for early successional habitat is irrelevant to the reality of actual ESH. GMNF resource specialists and field personnel are not ‘observing’ actual ESH, only counting ESH that is at unnaturally large sizes for northeastern forests, sizes that favor species that are popular game species, such as deer that are impeding forest regeneration, and others such as raccoon, opossum, cowbirds, etc that are damaging to interior forest species.
3.
4. The statement in your consideration response: “The project does not include any management activity within old growth forest” is not true and also, recognised is the need for more old growth forest. The proposed harvest treatments in late successional forest is contrary to increasing OG forest, also contrary to increasing both carbon sequestration and storage. There should be no harvest treatments, modified or deferred.
5. Act 59 calls out the need for protection and increase in the acreage of old growth forest to a minimum of 9% protected permanently. This project eliminates more than 800 acres of forest that is older than most, if not all of the forest in the state. The late successional mature and old forest that the USFS is planning for harvest, regardless of whether it is officially considered OG with whichever definition chosen to be used,is among the closest to old growth that exists, and the USFS should be proud of that fact, embrace it, and protect it, rather than destroy some of the oldest forest that we have. This is a federal forest, not state, so the state definition of conversion is irrelevant. The idea of “keeping forest as forest”(which you allude to here,) such that when you cut it down but not develop it with buildings, etc. is causing harm and not a true forest when harvested and the trees removed.

a. Many global environmental agendas, including halting biodiversity loss, reversing land degradation, and limiting climate change, depend upon retaining forests with high ecological integrity…Deforestation is a major environmental issue1, but far less attention has been given to the degree of anthropogenic modification of remaining forests, which reduces ecosystem integrity and diminishes many of the benefits that these forests provide2,3….Ecosystem integrity is foundational to all three of the Rio Conventions (UNFCCC, UNCCD, CBD)6. As defined by Parrish et al.7, it is essentially the degree to which a system is free from anthropogenic modification of its structure, composition, and function. Such modification causes the reduction of many ecosystem benefits, and is often also a precursor to outright deforestation8,9. Forests largely free of significant modification (i.e., forests having high ecosystem integrity), typically provide higher levels of many forest benefits than modified forests of the same type10, including; carbon sequestration and storage11, healthy watersheds12, traditional forest use13, contribution to local and regional climate processes14, and forest-dependent biodiversity15,16,17,18.
   Grantham, H.S., Duncan, A., Evans, T.D. et al.Anthropogenic modification of forests means only 40% of remaining forests have high ecosystem integrity. Nat Commun 11, 5978 (2020)

6. We have an overabundance of the ESH species named in the Final EA and so don't have a need for more ESH, which would increase even more the overrepresented species. The same is not true for species that favor mature, old, and interior forest habitats. Continued management and harvest of any type will decrease biodiversity and reflect negatively on species such as mycorrhizae, amphibians and other species within the soil layers, soil carbon, interior forest habitat species, etc. The forest that is considered old by the USFS in the TGIRP area is much less than what others consider old. The threshold levels of concern are lower than they should be. Any impacts on the already too small amount of recovering mature and old forest should be eliminated or at least minimized.
7. ..
8. The rate of carbon sequestration being higher in younger forests doesn't matter when compared to the total amount sequestered per area. The important number is carbon per acre sequestered and stored, not rate. Total carbon stored is higher in older forests, total carbon sequestered per area is higher in older forests. The rate is irrelevant.
   a. Carbon sequestered and stored in young versus old forests in the AdirondacksBy Robert T. Leverett - Cofounder, the Native Tree Society; Senior Advisor to American Forests Champion Tree Program; Coauthor, The Sierra Club Guide to Ancient Forests of the Northeast Chair; Forest Reserves Science Advisory Committee, MA Department of Conservation and RecreationWednesday, Feb. 15, 2023 ….Discussions about above ground losses often center on loss of forestlands to other uses, such as developments. However, loss also occurs in managed forests from the activity of logging. Above ground losses are visually obvious, but they occur below ground as well. This source of loss is frequently left unaddressed by those making arguments for more management……from a

study at the Forest Service's distinguished Hubbard Brook Research Station in New Hampshire, entitled Losses of mineral soil carbon largely offset biomass accumulation 15 years after whole-tree harvest in a northern hardwood forest. After sampling soils pre-harvest and in years three, eight and 15 following harvest, "The loss of mineral soil C offset two-thirds of the C accumulation in aboveground biomass over the same 15 years, leading to near-zero net C accumulation post-harvest, after also accounting for the decomposition of slash and roots. If this result is broadly representative, and the extent of forest harvesting is expanded to meet demand for bioenergy or to manage ecosystem carbon sequestration, then it will take substantially longer than previously assumed to offset harvest- or bioenergy-related carbon dioxide emissions with carbon uptake during forest regrowth."....An 8-foot tall pine sapling can easily put on up to two feet of height growth in the next year. This is a 25% increase - impressive. But in terms of the actual volume/biomass increase, it doesn't amount to much wood. The 8-foot tall pine holds about 5 lbs of above ground biomass (excluding foliage) as calculated on my FIACOLE volume-biomass model (See Appendix II). Adding a half inch of diameter and two feet of height in the next year leads to a total biomass of 6.2 lbs. The gain is 1.2 lbs, or 24%. High percentages such as these are often cited as proof of superior growth performance of young trees. How does the 1.2 lbs compare to biomass gain in a larger tree?A big tree can add much more volume of wood in a year (and therefore sequester more carbon), but we don't tend to notice it because the growth is spread over a far larger surface and volume. For instance, a 36-inch DBH, 120-foot tall white pine (about 120 years old) has 9,329 lbs of biomass, again on FIACOLE. A mere 1/8-inch increase in the radius along with a height increase of 0.67 feet leads to a total biomass of 9,511 lbs, for an increase of 182 lbs. It would take the annual growth of 152 saplings to match this annual increase.Let's look at the young pine when 20 years old. It may be up to 10 inches DBH and 40 feet tall. The corresponding total biomass is 250 lbs. Assuming next year's growth to be 0.5 inches in diameter and two feet in height, the total biomass increases to 289 lbs. The increase is 39 lbs. Now, it would take the annual growth of only 5 of these young pines to match the big pine's growth. Stated another way, the big pine is adding biomass at 5 times the rate of the 20-year old pine. These examples illustrate how fast young trees grow and also how much wood a single big tree can add in a single season with us not even noticing. Let's now add 20 years and look at the young pine when 40 years old. We'll hold the same diameter and height growth rates. The pine will hold 1,944 lbs of biomass. Continuing its fast growth at the same levels of diameter and height growth as when 20 years old, in year 41, the young pine will reach 2,092 lbs of biomass. The increase is 148 lbs. The annual growth of the young pine is catching up to the larger pine, but at this point, the big pine already holds 9,511 lbs of biomass. Its 41-year old counterpart holds 2,092 lbs. The big pine holds as much carbon as 4.5 younger, fast-growing pines at the 40-year point. At these sizes, the big pine is three times as old as the younger pines, but holds 4.5 times as much biomass. What drives these biomass increases? As the pine grows larger, its greater foliage area supports more photosynthesis, which in turn adds a greater volume of new wood. So, for a period of many years, as it grows larger, it increases its biomass faster in absolute terms, and consequently, outperforms itself when it was younger in terms of the actual amounts of sequestered carbon. Eventually, the efficiency of photosynthesis slows, and at some point, decay will overtake growth. When this takes place can be determined by constantly measuring the volume of the tree and converting volume to biomass, discounting the amount by any decay to arrive at the actual amount of carbon stored above ground. The larger the tree, the more carbon it holds regardless of losses in sequestration efficiency. Let's now look at an even larger pine than used in prior examples. The graph below shows the total lbs of biomass in 20-year intervals, except the last interval is at 40 years for a huge pine, now measuring 12.1 feet in circumference and 174.7 feet in height. This pine was climbed and tape-drop-measured by Will Blozan of the Native Tree Society (NTS) in 1998 and again in 2007. It grows in Mohawk Trail State Forest in western Massachusetts, and has been measured by different members of NTS, to include research forester Dr. Don Bragg of the U.S. Forest Service. Appendix I includes a table with the raw measurement data on the tree. Eventually, the pine's growth will slow down and plateau, but by then, a huge amount of biomass and carbon equivalent will have built up in its trunk, limbs, and roots. Note that the total above ground biomass is 22,308 lbs. Adding the below ground component, that amount increases to at least 25,650 lbs. While the pine appears very solid, provisions for advancing decay are included, as with the first chart. Though this pine is located in western Massachusetts, the growing conditions are similar enough to the large areas of the Adirondacks that I can safely use it as an example. Both the previous graph and the one below summarize the large white pine's growth in periods of 20 years, except the last period, which is 40 years. Period Total Biomass in red refers to the biomass calculated through measurement, without factoring in decay. The orange line is net period increase. The gray line tracks the period biomass loss to decay. Period Total Biomass in red refers to the biomass calculated through measurement, without factoring in decay. The orange line is net period increase. The gray line tracks the period biomass loss to decay. The lessons from this graph may be surprising. The big pine steadily gains carbon at an increasing rate up through 140 years. However, after that, between 141 and 160 years, the pine adds more carbon than it did between 41 and 60 by a factor of 1.5, even with advancing decay. Past 140 years, period gains start to drop, but at 200 years, the gain is only slightly under the gain from 61 to 80 years.

In this scenario, at 200 years, decay loss represents 13% of gross biomass. Increasing the decay to 17% of total gross accumulation, the 20-year increase from 140 to 160 years still slightly exceeds that from 80 to 100 years, which again is above all prior 20-year periods. What is evident from the graph is that 20-year biomass gains don't become significant until 40 to 60 years. Growth in early

years is rapid, percentage-wise, but it starts out from seed. The actual annual amount of carbon increase is small in the early years. It is easy to confuse percentage increases with absolute amounts. It is the latter that is important in climate mitigation.
I acknowledge that the above trends apply to a large pine. At the least, it supports the value of big trees.From Individual Trees to Stand Level

Young forest advocates are quick to point out that while a large, dominant tree may sequester more carbon than a younger tree, lots of thickly packed young trees can outperform a few widely spaced, larger ones. But the devil is in the details. There are two factors to consider: (1) how much carbon has already been stored at a point in time, (2) what is the rate of gain at that point. To see how the different variables interact with one another, I developed a stand growth model for white pine that utilized my experience with measuring white pines of all ages over a 30-year period. Six tree size classes were adopted and their growth was projected over ten 20-year periods. Stand density was based on how many pines of each size class and associated crown area projected to the ground would cover an acre. Large diameter trees have wider crowns. Annual radial and height growth were projected for each period for each size class. The distribution of size classes for each 20-year period called on observations and measurements made from many white pine sites.

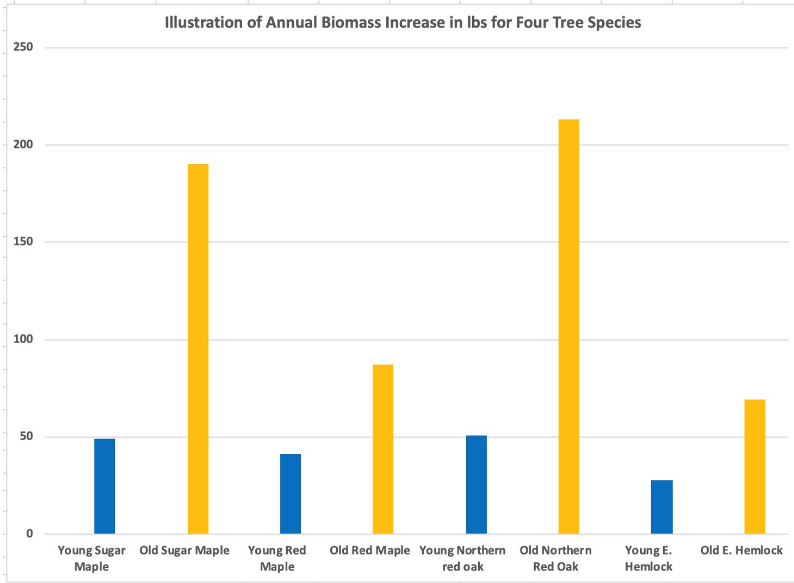
Applying this model, I concluded that at the stand level for white pine, the period of greatest live above ground biomass increase occurs between 40 and 80 years. I passed this range among forester friends here in the Northeast and got agreement. Also, a new paper out by scientists from the Woodwell Climate Research Center and elsewhere concluded that the greatest biomass increase at the stand level across many forest types averages from 35 to 75 years. These are not identical statistics, but point to the age interval when stand growth peaks.

However, on my white pine model, stand growth at 80 to 120 years outpaces 0 to 40, and 120 to 140 outpaces 0 to 20. These growth intervals do not include younger trees that begin to grow back as the stand gains age and self-thins. Growth of other species filling for white pines that have died increases with time. So, young trees are present in a redeveloping stand. However, after a complete harvest, the soils will bleed CO_2 for years. It will take 15 to 20 years before the carbon added from new growth will exceeds that still being lost from the logging operation. The continued loss of soil organic carbon was confirmed in the US Forest Service study conducted at their Hubbard Brook Research Station in New Hampshire previously mentioned. Furthermore, as time goes on, carbon on the forest floor and in the soils builds up. As a consequence, total carbon stocks in mature and older forests are at a maximum.The Best Strategy Going Forward

The mature and old-growth forests of the Adirondacks are carbon rich, both above and below ground. They are doing their job with respect to climate mitigation. However, there will always be voices advocating management of public forests to increase carbon sequestration. They typically embrace the arguments for young forests to replace older ones based on the belief that fast-growing, young trees sequester more carbon than older, more slowly growing ones. Using the volume-biomass model, FIACOLE, I evaluated annual growth for ten species of trees. I compared the annual growth of a 12-inch DBH, 40-50-foot tall tree with a tree of the same species at a DBH of 30 inches, and appropriate height for the species. I used an annual radial growth of 0.2 inches and a height gain of 0.5 feet for the young trees. The corresponding increases for the older trees are 0.09 inches radially and 0.25 feet. All species are easily capable of reaching these growth levels. The exception was white pine. It was given annual height increases of 1.5 feet when young, and 0.6 feet when older.

The analysis shows that across the ten species of trees, the annual biomass increase of the older trees averages 2.5 times that of their younger counterparts. The dimensions of the ten species of younger trees for the Adirondack growing environment represent an age of approximately 30 years. The older trees are around 100 years. See Appendix III for the data used. A graphical portrayal of the data for four species is shown on the next page.

Species are sugar maple, red maple, northern red oak, and eastern hemlock. The bars represent annual growth. As an example, the young sugar maple adds 49 lbs of biomass in year 31. It adds 190 lbs in year 101. Therefore, the sugar maple will add 8.8 times as much carbon in year 101 than in year 31. The older maple is 3.3 times the age of the younger maple. If the increase in annual biomass were constant, the amount added in year 101 would also be 3.3 times that added in year 31, but instead it is 8.8 times as much.



From this example, it is difficult to make the argument for substituting young trees for mature ones in terms of each's annual contribution to the carbon pool. Arguments to do that: 1. often invalidly employ percentage-based versus absolute growth 2. underestimate the continuing biomass contributions of older trees 3. assume thick stands of young, fast-growing trees add carbon in higher amounts than mature ones 4. discount on-site above and below-ground carbon losses during and after logging 5. over-estimate the amount of the whole tree that makes it into long term storage items such as buildings, furniture, etc., and, 6. do not properly account for the transfer of above ground live tree carbon into the other pools, e.g. dead wood, litter, and below ground sources.

14. The Responsible Official is remiss if not finding that there are significant impacts associated with the proposed action. The impacts are numerous and found within my previous comments, also in others comments, including but not limited to impacts to increased high intensity storms and degradation of the water infiltration capacity of the forest, carbon storage and sequestration, biodiversity of interior forest species and old forest species, and endangered species including recently listed Myotis septentrionalis, the Northern Long-eared Bat.

https://www.federalregister.gov/documents/2023/01/26/2023-01656/endangered-and-threatened-wildlife-and-plants-endangered-species-status-for-northern-long-eared-bat Over the last 3 years, we have completed consultation under section 7(a)(2) of the Act on 24,480 projects across the 37-State range for the northern long-eared bat. Many of these projects are not complete. Under the 4(d) rule, incidental take of the northern long-eared bat was not prohibited except in certain situations. With the final rule reclassifying the northern long-eared bat as endangered, incidental take of the species that is reasonably certain to occur as a result of some of these actions would now be prohibited, absent an incidental take statement (ITS) from the Service in accordance with section 7(o)(2) of the Act. Therefore, when the final rule becomes effective, numerous Federal agencies will need to reinitiate consultation with the

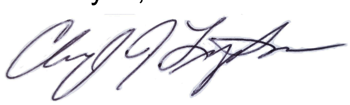
Service, and the Service must develop and provide biological opinions and incidental take statements with terms and conditions to ensure any taking of the northern long-eared bat that occurs as a result of each of the subject actions is not a prohibited taking

or likely to jeopardize the species. These projects would halt while the Service and the Federal action agency reinitiate consultation, which would affect projects covering the breadth of the species' 37-State range and nearly all aspects of the U.S. economy, including agriculture (i.e., crop production, animal feeding operations, grazing, irrigation), infrastructure (i.e., power generation and transmission, roads, bridges, communication towers, dams, levees, pipelines, wastewater treatment, water supply), residential and commercial development, forestry, military operations, and mining.

To date, we are aware of 3,095 projects for which we will need to provide an ITS when the November 30, 2022, reclassification rule goes into effect and the section 4(d) rule is nullified. These projects include road and bridge construction and maintenance projects across the 37-State range and forest management activities intended to prevent wildfires and sustain the health, diversity, and productivity of the Nation's forests, which also provide important northern long-eared bat habitat. This number does not include new projects or ongoing projects, of the 24,480 previously mentioned, that may be impacted by a lack of the conservation tools and guidance documents that are currently under development.

Objections regarding the rest of my points numbered 15 through 57 will be forthcoming.

Thank you,



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