FOREST MANAGEMENT PROJECT COMMENTS AND RESPONSES – Calendar Year 2021 Proposals
The Department of Conservation (DCR) – Bureau of Forestry (BOF) requests comments about the specific proposals brought forth each year. The DCR considers all comments received and endeavors to respond to those comments that focus on the specific projects and the intent of the projects, in contrast to comments about forest management in general. Comments and questions that are general in nature are noted and responded to as is warranted in the context of the projects. This document is organized so that comments received during the Virtual Public Meetings appear first and are grouped by theme. Comments and letters received by email during the official public comment period are included later in this document in the temporal order in which they were received.
Comments or questions that were outside the scope of the public meeting, or were of a personal nature, have been removed from the transcript. Items have been posted as received; there may be minor grammatical and/or copy editing errors. Phone numbers not obviously associated with a business or organization were removed.

Comments received during the Virtual Public Meetings through the chat function

Pests and invasives

Given that hemlock looper is a native defoliating caterpillar, is it safe to say that our changing climate presents even more threats to standing trees as it throws ecological processes out of balance? Would it be accurate to assume that other native insects and pathogens could become more serious pests too?

Current thinking in the conservation field is climate change can bring additional stressors to trees, thus potentially having a negative impact when faced with native pests. However, native tree species have evolved to live with native pests. The greater threat to native trees comes from non-native pests. Insects such as emerald ash borer, Asian longhorned beetle, and others appear to be a greater threat.

What is the likelihood of hemlocks surviving woolly adelgid? On what basis do you know this?

The Management Forestry Program tries to use the best available research to make its management decisions. The following link will provide you with some information from the US Forest Service that is an example of the type of information and research the Program tries to incorporate in its decision-making process.

https://www.nrs.fs.fed.us/disturbance/invasive_species/hwa/risk_detection_spread/potential_range/

Mostly a comment - The thinning of hemlock to enhance resistance to HWA is analogous to thinning of pitch pine in Eastern MA pine barrens to enhance resistance to southern pine beetle. This is great to see. Hemlock are so important for wildlife cover.

Thank you for your comment. We agree, the program strives to manage to keep our native species viable into the future. Our thoughts are to keep some individual trees healthy by thinning to allow them

to capture more resources. Another way we look to help with species survival is through regeneration efforts.

If the Department decided to take a passive approach to ash mortality, what vegetation would fill that niche (be it canopy position or understory interference) over the next 15, 50, and 100 years? Is that conclusion derived from vegetation present in the under/midstory currently? What steps must forest management take to establish the desirable species mix?

This would be site specific and depend on the density of ash in an area as it relates to the degree which the canopy is opened. Our concern is firstly the presence of invasive species. These species tend to be aggressive and may out-compete native trees or vegetation. The speculation of which tree species will fill the void would mostly likely be one that is in the surrounding stand and is "shade tolerant", if the canopy opening is small.

What methods are used for invasive species management?

The Forest Management Program employs several types of treatments for invasive plant control. They range from mechanical control to herbicides. Each project is looked at individually. We use the advice from our ecology and forest health professionals as well as private consultants to determine the best course of action to a specific project.

Aren't those harmful for pollinators?

Herbicides do not have a direct effect on pollinators as do Insecticides. Insecticides such as Dinotefuran based products, and imidacloprid, are classified as a neonicotinoid. Currently there is research to determine if neonicotinoids are a concern for pollinator health. Habitat loss is also being looked at for potential causation of pollinator decline.

Aren't invasive species harmful to our native ecosystem?

The concern with invasive plant species is the aggressiveness in which they can outcompete native species. A greater concern is invasive insects or pathogens which can be detrimental to species in the same way that American Chestnut blight or Dutch Elm disease altered forest composition and structure.

But they affect the native species that the pollinators need.

Pollinators need nectar from the flower of the tree or plant. The Forest Management Program strives to see they get it from native plants.

Will invasive species management/ monitoring be continued in future years after the forestry is complete?

Invasive species monitoring and control will be an ongoing component of our forest management program. The Forest Management Program works with our Ecology Program and others to find ways to

control invasives. Eradication of all invasives is close to an impossible task. Our efforts will be to control them to levels that will allow for native species to thrive.

Regarding the declining stands in the Otter River State Forest and the Lawton State Forest, is this due to disease?

There are declining plantations at both Lawton State Forest and Otter River State Forest. Red pine is in the worst condition at both sites, as they are currently infested with red pine scale. The remaining plantations are declining mostly because of growth stagnation and lack of management since planting. In addition, the white pine at Otter River State Forest has had issues with native fungal diseases that are affecting needle growth.

Does DCR have a plan to deal with the presence of Red Pine scale statewide? The recent infestation seems to be posing a significant threat to these plantations and recent studies seem to suggest that the scale is gaining steam as climate changes. Could you comment generally, regarding DCR's mgt strategies to deal with infestations of other pest and pathogens, due to climate change.

Yes, the Forest Management Program in concert with the Forest Health Program monitors insects and pathogens and develops the appropriate response. The best form of control will be removing the red pine (and other species) in the planted stands. The program follows the guidance laid out in the document *Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines* (March 2012, https://www.mass.gov/doc/landscape-designations/download; also called the Landscape Designation Document). Larger openings may be appropriate and would help with reducing stressors of climate change while improving forest resiliency.

How do you spray the trees, and do you use Neonicitinoid pesticides?

Trees within the DCR's Woodland landscape designation are usually not sprayed. Forest stands are thinned to improve growing conditions for residual trees or removed to regenerate the stand. Within the Parkland and Reserve designations large significant hemlocks (with hemlock wooly adelgid) or white ash may be treated with imidacloprid. Imidacloprid is classified as a neonicotinoid. The Forest Health Program considers all types of control to save significant stands of hemlock.

This seems like an excellent and necessary project. You mention not doing any of the work in the wetland area. I imagine this is to avoid erosion and maintain shade trees. Of the diseased species you are concerned about, are they adjacent to the wetland? Are their healthy native species present in those spaces?

Diseased species are adjacent to the wetlands, however the majority of them were harvested in 2017. There are healthy native trees in areas adjacent to the wetlands, most notably native advanced regeneration and shrubs species that have regenerated from past management efforts.

Carbon/Climate Change

Do you prioritize retaining the largest trees for their value in storing carbon?

Many factors go into consideration for retaining trees. They are based upon tree health and overall project objectives. One of the Stewardship Goals for the Forest Management Program is Climate Change Mitigation and Adaptation. Forests are managed to store Carbon in larger healthy fast-growing trees. Or, they are removed and stored in forest products such as lumber. Improving carbon sequestration is accomplished by managing for younger and faster growing trees. Forest resiliency efforts are accomplished by diversifying age classes. Additionally, older mature trees with significant carbon content may be retained as legacy trees within project areas.

Are your woodland zone goals listed in terms of priority? Which is the most important goal at this time for the Department? i.e. Why is carbon stock management listed last given the preeminent threat of climate change and short window for mitigation?

Our Woodland Zone designations were created about ten years ago during the Forest Futures Visioning Process, and multiple ecosystem services were defined as management objectives for this zone. They are equally important and attention or priority is assigned to those of greater need in certain locations, while balancing overall well-being of the forest.

Carbon stock management is one of the program's three mitigation and adaptation strategies for climate change. Forests are managed to store carbon in larger, healthy, fast-growing trees. O,r they are removed and stored in forest products such as lumber. Improving carbon sequestration, is accomplished by managing for younger and faster growing trees. Forest resiliency efforts are accomplished by diversifying age classes. While climate change strategies are one of the stewardship objectives of the program. We also balance them out with other stewardship goals.

Cutting releases carbon. It will take many years to be stored again.

Agreed, management activities can cause a short-term net loss of carbon within that forested area. However, current data points to more carbon being lost on our forests at large due to natural mortality. On average, younger, vigorously growing stands tend to sequester more carbon than much older stands.

Since forest management removes carbon from the forest, how can it also increase carbon capture and storage, especially in the short term which is of critical importance in meeting the climate emergency already underway?

Carbon in trees removed from ecosystems by management activities can be stored over the long term in long lived forest products in use. Additional carbon capture is then achieved through the enhanced vigor and growth rate of residual trees, as well as establish younger trees which sequester more carbon.

What about the carbon created by using products other than wood like concrete and steel?

The environmental cost of producing these products results in greater carbon emissions and less carbon storage then construction with wood.

Comment: Tree harvests may release some carbon but depending on the wood product some carbon is still stored in the wood. It is also important to keep in mind that there is a high carbon footprint by importing wood that is not local.

Agreed, there is a greater carbon cost when importing forest products, particularly from forests closer to the equator where these forests have longer growing seasons and can sequester more carbon.

Doesn't the push to preserve biodiversity and our native forest health have an equally urgent timeframe as the above-mentioned one pertaining to carbon?

Both managing for biodiversity and climate change mitigation and adaptation are important as well as other stewardship values our forests offer. The Forest Management Program strives to find balance where we can, and prioritize these objectives as they relate to specific site conditions.

How does the carbon sequestration in a young forest compare to an older forest?

A simple analogy that can be used is comparing the amount of food a healthy young person takes in, compared to that of an older person. Younger, faster growing people (and trees) can take in more energy, which is needed for growth. As people (and trees) mature, the additional nutrition needed is reduced as they go from the growth and maintenance stage to simply the maintenance stage. Younger forests sequester more carbon while larger trees can store more carbon.

Since you will be measuring carbon flux, how will you keep track of the uses of harvested wood, for example how much will be burned as biomass chips or pellets or as firewood, thus going directly into the atmosphere. Also how will you measure your baseline carbon so you can follow and compare changes in carbon in all carbon pools including soil?

Forest products are measured and annotated on the Chapter 132 Forest Cutting Plan. Lower quality products that can be (but not necessarily are) used for biomass, pellets or firewood are recorded in cords or tons. The end use of harvested forest products is not specified by DCR; but having robust markets for the range of products potentially harvested is of critical importance for sustainable forest management.

The Management Forestry Program continuously monitors the growth of our forests using our Continuous Forest Inventory (CFI) Program. The CFI Program was established in the late 1950s; and for over 60 years has collected information about the DCR's (and predecessor agencies') land base. The program now includes over 2,000 sample locations where information on stand composition and structure are collected; and has monitored the fate, dimensions, characteristics, and vigor of over 100,000 trees. These data help to provide information on the status and trends of our forests health and condition, and help to evaluate outcomes of management activities in an adaptive management framework.

What is the climate impact of the logging that you are proposing? Please be specific and disclose how much carbon is currently stored, how much will be removed, and how much will remain. How much of this wood will go for burning at a biomass incinerator? What are the public health impacts from burning biomass?

Firstly, The Forest Management Program proposals are not simply "logging". While forest products and helping rural economies is one of the stewardship objectives, the program strives to manage to create conditions in the forest that also improve wildlife habitat conditions, recreation, mitigating the stressors of climate change, and others. Management projects which create forest products that can be sold is a cost-effective methodology for obtaining the many stewardship values for which we manage. Carbon is accounted for across the entire DCR forest holdings; but there is much more to the interaction between forests and climate than merely carbon accounting. The proposal presented is an initial phase of the management project process. The utilization and marketing of harvested forest products will be determined by the successful contractor.

The DCR Forest Management Program does not manage the State's health impacts. That would be the Department of Public Health (https://www.mass.gov/orgs/department-of-public-health) . We assume the health risks are minimal as the Cooley Dickenson Hospital currently uses biomass for its HVAC system.

What percentage of DCR public lands logging results in biomass for wood chips or pellets?

See other response.

How can you continue with business as usual when we are in a climate emergency? Didn't you read the latest IPCC report which declares that it is Code Red for humanity. What is wrong with you all? How can you sleep at night?

The Forest Management Program strives to do its best to manage our forests to meet all their stressors, including those of climate change. DCR's approach to forest management is to increase its resiliency to stressors and disturbances; which – aside from the relatively limited extent and intensity of its management activities keeping up with the overwhelming trends in forest age class distribution that are a legacy of land use and broad societal pressures since the 1600s – is perfectly consistent with the IPCC's recommendations over the years.

The IPCC has consistently recommended sustainable forest management as an approach to maintain both the resilience of forest carbon stocks to disturbance, and enhance the sink strength of forests (i.e., increase flux). For example:

- WGI Contribution to the AR6 IPCC report "Climate Change 2021. The Physical Science Basis."
    - This document, which is still in draft form (i.e., "Do Not Cite, Quote or Distribute) and as was cited by the authors of other comments, specifically acknowledges the contribution of sustainable forest management to manage vulnerabilities (which themselves may be exacerbated by climate change) to the permanence of both ecosystem and wood product forest carbon stocks and flux strength, and even increase the strength of the

sink (§5, pg. 106; page 1258 of the document available at https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf and the same document cited by the commentors). This message - that sustainable forest management is a core part of maintaining forests that function not just for carbon storage and flux, but also for habitat, clean water, wood products, recreation, and spiritual contemplation – has been consistently echoed in many locations over many IPCC reports.

- Synthesis Report of the Fifth Assessment Report:
    - Page 102 (middle left): “The most cost-effective mitigation options in forestry are afforestation, sustainable forest management and reducing deforestation, with large differences in their relative importance across regions.”
- WGII Contribution to Fifth Assessment Report:
    - Pages 214-215: "Cross-sectoral integrated approaches such as Integrated Water Resources Management (IWRM), sustainable forestry management (SFM), and Integrated Coastal Zone Management (ICZM) are viewed as being more effective than standalone efforts (Section 16.5.1)."
    - Page 889: "Related climate change adaptation efforts also improve ecosystem resilience by implementing sustainable forestry management..."
- WGIII Contribution to the Fourth Assessment Report:\
    - Page 543, lower-left column: “In the long term, a sustainable forest management strategy aimed at maintaining or increasing forest carbon stocks, while producing an annual sustained yield of timber, fibre or energy from the forest, will generate the largest sustained mitigation benefit.”
- WGI, II, and II Contribution to the Third Assessment Report (https://www.ipcc.ch/site/assets/uploads/2018/05/SYR_TAR_full_report.pdf):
    - “Moreover, larger C stocks may pose a risk for higher CO2 emissions in the future, if the C-conserving practices are discontinued. For example, abandoning fire control in forests…” (page 325, right column, ¶ 2).
    - “Although both the sequestration rate and pool of carbon may be relatively high at some stages, they cannot be maximized simultaneously. Thus, management strategies for an ecosystem may depend on whether the goal is to enhance short-term accumulation or to maintain the carbon reservoirs through time. The ecologically achievable balance between the two goals is constrained by disturbance history, site productivity, and target time frame. For example, options to maximize sequestration by 2010 may not maximize sequestration by 2020 or 2050; in some cases, maximizing sequestration by 2010 may lead to lower carbon storage over time.” (pages 325-326; beginning in last ¶ of right column on page 325)

- "…in other regions, where deforestation rates have declined to marginal levels, improved natural forest management practices, afforestation, and reforestation of degraded forests and wastelands are the most attractive opportunities [for C mitigation]." (Page 327, left column, first full ¶).

Other examples are available as well. The IPCC at large, and its experts in the field of forest and ecosystem management, clearly recognize a need for balanced forest management strategies – including timber harvesting, prescribed fire, and reserves of various scales - across ownership, political, and ecological boundaries.

In the interest of maximizing carbon storage and increasing wildlife habitat development would it be possible to increase the number of acres actively managed each year. According to an Audubon habitat biologist I recently spoke with some species of birds are in steep decline and require an early successional landscape meaning new growth. I feel DCR should step up the focus on growing new trees while also creating that much needed habitat. Would seem that everyone wins with forest management.

The Forest Management Program manages for as many Forest Stewardship Values as possible. We are aware of Audubon's State of the Birds report. We do understand the decline of wildlife that utilize young forest. However, our management practices are guided by the 2012 Landscape Designation Document. While National Forest researchers as well as Mass Wildlife suggest a more aggressive even-aged management approach be employed to help young forest dependent species, the Forest Management Program utilizes basically uneven-aged silviculture as suggested by the partners who developed the Landscape Designation document. The entire document can be found at https://www.mass.gov/doc/landscape-designations/download.

How much carbon will be released from your proposed "treatments" and how long will it take for this carbon to be removed from the atmosphere? What is the carbon storage compared to the "no-action alternative" such as leaving this area as a reserve?

The Forest Management Program accounts for carbon across its forests. The Forest Management Program balances the many Stewardship objectives when proposing management activity. Approximately 30% of DCR forests are classified as "reserves". Current CFI data indicates approximately 6.19 times more carbon transitions out of the live tree pool annually in our forests due to natural mortality than forest management operations.

As far as carbon being measured from harvesting forest products do you account for the majority of the trees being harvested are turned into lumber which is storing that carbon in our homes, businesses and any other product made with wood.

Yes, carbon that is stored in forest products such as lumber, can help with storing carbon for longer periods of time. We assume trees that are recorded to have "lumber" will be stored as such.

Has anyone at the DCR Management Forestry Program heard of the Next Generation Roadmap for MA Climate Policy? Why does DCR consider itself exempt from complying with Climate Law and science? Deforestation and forest degradation is a major source of GHG emissions. How can you continue to plan more large-scale forest degradation in light of the new climate law? What is wrong with you people. Are you corrupt?

If referring to the 2021 Act creating a next-generation Road map for Massachusetts Climate Policy found at https://malegislature.gov/Laws/SessionLaws/Acts/2021/Chapter8, then the DCR does not consider itself exempt from complying with climate law and adopts a longer planning framework than 2050 considering a wider range of management objectives than solely GHGs. DCR also uses the best available science for managing its lands for climate change impacts. The DCR Forest Management Program manages for many Stewardship Goals. The Forest Management Program does not implement Forest degradation projects on any of its forested holdings. The educated and licensed foresters manage the forests to improve conditions to meet several Stewardship goals.

If a tree is left to die and rot in place, would that result in more carbon release into the atmosphere in 30 years as opposed to milling and conversion into durable wood products?

The rate of decomposition would depend on species and other conditions. Converting the tree into a durable wood product may extend the length of time the carbon is captured, depending on the product. However, there still could be portions of the tree that are left in the woods for habitat, stand structure, or nutrient cycling.

Is it true that because of the larger sized trees in Massachusetts the majority of the trees carbon is stored in lumber?

Yes, a large healthy tree has more captured carbon then a smaller healthy tree. The carbon is captured in the woody material of the tree.

We need to conduct more sustainable forestry here in MA, not less. People use wood products, and we should not turn a blind eye to non-sustainable cutting that occurs in many tropical features that produce wood products, some of which find their way here to MA. MA state forest lands increase total carbon storage annually, after accounting for carbon release from harvesting. Harvested wood can be used to substantially reduce the carbon footprint of new, multi-story building construction vs. traditional steel and concrete. This member of the public supports DCR forest management practices!!

The Forest Management Program agrees we need more sustainable forestry in Massachusetts. We are hopeful that advances in technology will improve markets and utilization of forest products harvested locally. This will help our program manage for many stewardship goals.

How can you be sure that your particular projects are comparable to the plots that you use for carbon on a landscape level if you have no carbon data on your particular project sites.

The use of sample-based estimation techniques in strategic forest inventories – like DCR's CFI program – is a long-established tool for monitoring the status and trends of the composition, structure, and health of forest ownerships. Forest managers have used systematic, sampling-based methods (as opposed to purposive sampling or a census / complete enumeration) since the 1800s, before the mathematical underpinnings of the statistical techniques were even fully developed. The field of sample-based estimation has developed considerably since then through the development of ecology, forestry, survey-based sampling, statistics, and computational power. Ancillary data sources allow us to group together information from CFI sample locations that are most similar to areas to be managed on a variety of biological and physical gradients. In addition, DCR foresters undertake sampling of project areas both before and after the management activity takes place. Finally, DCR's foresters carefully prescribe treatments that involve the designation of the vegetation to be altered, either through a census or sample. These data allow DCR to not only evaluate the implications of management activities with respect to ecosystem and wood product carbon, but also on changes in vegetation, forest structure, habitat, and many other attributes.

What has been the carbon impact from the DCR logging program over the past 40-years? How much carbon has DCR added to the atmosphere from your past forest degradation activities? Please be project specific. What is the carbon impact from active management?

Our Forest Management Program manages for a wide range of Stewardship Values. Additionally, forest carbon resources are only one attribute among myriad others for which the DCR's Bureau of Forestry manages. The Bureau of Forestry's state lands management program operates a CFI system that strategically monitors the condition and trends of its lands. Using methods and models comparable to those of the component ratio method (CRM) currently used by the Forest Inventory and Analysis program of the United States Forest Service in Massachusetts and the northeastern United States of America, the CFI system has documented that the Bureau of Forestry's management has resulted in:

- Whole tree (above and below ground) carbon in live trees greater than or equal to 5.0 inches diameter at breast height increasing over the past 40 years (1980 - 2019):
    - On a totals basis, from 7,228,810 tons to 11,909,574 tons (short tons, or 2,000 pounds); and
    - On a per-acre basis, from 29.00 tons/acre to 39.23 tons/acre.
- Whole tree (above and below ground) carbon in standing dead trees greater than or equal to 5.0 inches diameter at breast height increasing over the past 40 years (1980 - 2019):
    - On a totals basis, from 186,844 tons to 494,661 tons (short tons, or 2,000 pounds); and
    - On a per-acre basis, from 0.75 tons/acre to 1.63 tons/acre.
- Carbon in coarse woody debris (pieces of dead wood greater than or equal to 3.0 inches in diameter) increasing over the past 20 years (2000 - 2019):
    - On a totals basis, from 130,128 tons to 184,447 tons (short tons, or 2,000 pounds); and

- On a per-acre basis, from 0.47 tons/acre to 0.61 tons/acre.

Use of the CRM model in the above example does not assume that it is the best, but rather, helps facilitate a direct comparison to estimates from FIA DB and helps leverage that sample for increased confidence in estimates. The simplistic presentation of the carbon numbers above belie the complexity of forest management: DCR manages forests for myriad goals at a landscape scale; carbon is only one of those goals. Maximization of carbon stocks or rates of sequestration are mutually exclusive; and are often a zero-sum exercise with other goals. The effect of DCR's management - its extremely low rates of harvest - are that carbon flux from the atmosphere into its forests are lower than they might otherwise be, and its forests are less vigorous and resilient than they might otherwise be with more management activity.

How much carbon has DCR added to the atmosphere from your past forest degradation activities? Please be project specific.

DCR does not engage in forest degradation activities. Ecosystem and wood product carbon stocks are only one forest attribute for which DCR manages. Using CFI data, and methods and models comparable to those of the component ratio method (CRM) used by the Forest Inventory and Analysis program of the United States Forest Service in Massachusetts and the northeastern United States of America, the CFI system estimates that on lands managed by the Bureau of Forestry:

On live trees for which diameter at breast height is greater than or equal to 5.0 inches, between 1980-2019:

- Survivor growth has been 5,895,624 tons (short tons, or 2,000 pounds);
- Ingrowth has been 373,009 tons;
- Gross growth is therefore 6,268,633 tons;
- Mortality (i.e., carbon in trees that have died as a result of anything but forest management project removals) is -2,378,382 tons;
- Net growth is therefore 3,890,251 tons;
- Harvest removals have been -462,041 tons (this does not account for carbon stored in wood products, only ecosystem carbon);
- Carbon in live trees on land acquired by DCR has been 1,153,213 tons;
- Net change in the live tree pool is therefore 4,581,422 tons.

- Salvage has been -8,689 tons (this does not account for carbon stored in wood products, only ecosystem carbon);

- Carbon in standing dead trees on land acquired by DCR has been 44,249 tons;C

- Carbon in down dead trees on land acquired by DCR has been 32,870 tons;

- Mortality contributed 1,532,279 tons to the standing dead tree pool;
- Mortality contributed 846,103 tons to coarse woody material (down dead trees)

- The measurement of individual down, dead trees did not commence until the 2000 CFI cycle; so, estimates of changes in the dead and down tree pool are only available over a shorter time base (20 years). Some of the carbon accounted for below was emitted to the atmosphere and some remained on-site, cycling through forest floor pools, forest soil pools, and other pools.
    - Decay of live trees that died and remained standing has been -727,683 tons (40 years);
    - Decay of live trees that died and fell or otherwise decayed below remeasurement thresholds has been -415,422 tons (40 years);
    - Decay of standing dead trees that remained standing has been -92,850 tons (40 years);
    - Decay of standing trees that fell or otherwise decayed below remeasurement thresholds has been has been -421,044 tons (40 years);
    - Decay of down dead trees, including those that decayed beyond remeasurement thresholds, was -155,449 tons (20 years).

- Measurements of fine woody debris, and forest floor litter and duff, has only commenced at the beginning of the 2020 inventory cycle so detailed accounting is not yet available. Measurements of the forest soil may commence pending funding and staffing commitments adequate to maintain these important measurements through time.
- Note that the sum of the components of change, over the same time period between various point-in-time estimates, do not always equal exactly the difference between the point-in-time estimates.

Project-specific carbon accounting could occur but results are extremely sensitive to assumptions on the temporal scale – for example, it would be inappropriate to make landscape-scale decisions about forest management activities over a time period as short as 20 or 40 years. Also, projects are not conducted for the sole purpose of manipulating carbon stocks but to maximize, to the extent possible, multiple goals (e.g., metrics associated with wildlife habitat, forest diversity, watershed protection, recreation, forest products, carbon, etc.) simultaneously. Maximization of carbon stocks or flux over the short term would occur to the detriment of those other goals, and would be no different than high-grading for purely financial purposes. The end result of the past 40 years, though, is that harvest removals are dramatically lower than net growth (i.e., harvesting is 11.9% of net growth), and there is 5.14 times as much carbon in trees that die from natural causes as in all parts of trees that are removed for

management purposes. The infinitesimal amount of carbon in trees that are removed is more than worth the added benefits of forest diversification, wildlife habitat, contribution to rural economies, and others.

What percentage of DCR public lands logging results in biomass for wood chips or pellets? What is the climate impact from providing that wood for burning, which immediately releases CO2 to the already overburdened atmosphere?

The Forest Products Sale Permit is a tool to specify silvicultural and land management outcomes, and so it would not be desirable to use that as a mechanism to specify the end use of forest products removed from its land. Robust markets for traditional and non-traditional forest products of all species and grades of trees – including for the use of wood as biomass for local energy production and heat in rural areas - is of vital importance to accomplishing sustainable forest management. DCR has no way to track exactly the proportion of harvested tree biomass that is used in wood chips or pellets for heat or energy production. Based on tree tallies from DCR's forest management projects from FY1992 to present, DCR estimates that approximately 4.9% of biomass of harvested trees over that time would even have been suitable for use for these products; and far less than that would have been inputs as primary products due to market fluctuations and other factors. Some mill residues from processing of higher-grade logs into boards may have also been used as inputs to energy production as well.

What is the climate impact from providing that wood for burning, which immediately releases CO2 to the already overburdened atmosphere?

Having a market for low-grade trees, and residues from primary processing of higher-grade trees, is critical to ensuring sustainable management of forests. Being able to remove poorly-formed and less vigorous trees helps to reallocate biomass growth on to well-formed, long-lived trees; helping maintain higher rates of C flux from the atmosphere in to trees, and store C in long-lived harvested wood products. The use of locally-produced wood for heat and energy production displaces fossil fuels that would otherwise be used. It would be extremely short-sighted to forgo the miniscule emissions from forest management activities over the short-term, as it would result in forest conditions more susceptible to catastrophic damage over moderate- to longer-term planning horizons. DCR specifies terms in its Forest Products Sale Permits to ensure tree and vegetation removal practices do not excessively degrade sites; retain enough vegetation to allow for nutrient cycling and habitat considerations; while still allowing for a range of end uses of harvested trees. Wood utilized as wood chips or pellets for energy generation would otherwise be left on site; so, with those protections in place, greater net utility to society is derived through its use for energy generation.

What is the carbon impact of the "forest restoration" being proposed at Miles Standish? How much carbon will be released by this project? What will the before and after carbon levels be above ground, and below ground? Please specify how long it will take the forest to recover the current carbon storage levels, and how does this fit in with the immediate need to drastically reduce CO2 emissions due to the climate emergency.

DCR manages for multiple objectives, not just to increase forest carbon stocks or maximize sequestration. While a carbon accounting of the project could be performed, it would be useless and counter-productive: to knowingly and intentionally manage for the accrual of carbon in on-site stocks including large trees on fire-adapted sites would be irresponsible from both an ecological perspective and the mitigation of risk to public safety. Mitigation of hazards to public safety, maintenance and enhancement of recreation opportunities, and habitat management, are all goals for the Myles Standish project. The forest in the project area is overstocked relative to its ability to provide those values:

- Tree growth is too dense and tree vigor too low, creating excessive fire risk and risk of more severe fires with negative outcomes greater in number and magnitude, than would otherwise occur in an ecological community better adapted to fire.
- Access to the site for fire and habitat management purposes, and safety for the campers, is insufficient.
- Fire suppression has resulted in the loss of fire-dependent ecological communities.

The definition of "recovery" for this site is, in fact, a reduction of live and dead tree carbon stocks and more frequent disturbance better suited to the ecological community here. This will reduce the very real risk of large emissions from catastrophic disturbance and allow the site to be more resilient to other stressors.

What specific BMPs address climate impacts? How do those BMPs relate to the climate emergency?

Carbon stock management is one of the program's three mitigation and adaptation strategies for climate change. Forests are managed to store carbon in larger healthy fast-growing trees. Or they are removed and stored in forest products such as lumber. Increasing carbon sequestration is accomplished by managing for younger and faster growing trees. Forest resiliency efforts are accomplished by diversifying age classes. While climate change strategies are one of the stewardship objectives of the program, we balance them and the urgency of climate change mitigation as well as other urgent issues such as declining wildlife populations and the overall threat to the loss of biodiversity.

What role do DCR lands play in the State's professed goal of attaining net zero emissions by 2050? Why does EEA believe that MA will need to purchase 50% of our carbon offsets from out of state to meet the net zero target? How do you rationalize cutting our forests when we plan to reach net zero by 2050?

Managing forest carbon stocks is only one of many objectives of DCR's management of forestland. DCR balances all those objectives when undertaking a forest management project. Maximization of carbon stocks or sequestration in the short term is not desirable if it sacrifices the ability of forests to meet those objectives over a longer time horizon. DCR considers the expected effects of its management activities not just at 2050, but tries to ensure a resilient and productive forests hundreds of years into the future. The link to program's informational web page on forest carbon is https://www.mass.gov/info-details/managing-our-forests-for-carbon-benefits.

Recreation and Aesthetics

How will trails be protected?

Existing designated trails are granted a level of protection per the Landscape Designations: Management Guidelines document. All designated, legal trails, will be re-established post harvest. The possibility of permanent closures or possible permanent alterations and reroutes to the existing trail network are not expected at this time. Trails will be cleared of debris and maintained in passable condition post harvest.

Why designated as woodland when we have so many hiking trails. Warwick is designated as Recreation.

Properties, and areas within properties, were designated as Reserves, Parklands, or Woodlands during the Forest Futures Visioning Process using the guidelines in the Landscape Designation document. Properties acquired since that process are assigned a designation based on an internal process involving multiple DCR programs and their respective professional staff and experts. Designations of recently acquired land generally tend to align with those of neighboring existing holdings.

What will be the buffer behind Birnam road, houses?

DCR will discuss with its abutting neighbors the buffer areas along property lines during its forest management projects.

In the last round of logging in this forest, logging cuts went across the trails creating light gaps. These trails have grown in and are difficult to traverse due to vegetation, ticks, etc. Will the state clear such trails in the coming years this time?

The Bureau will consult with our recreation and trail colleagues about trail conditions in Northfield State Forest.

Regarding trails- DCR, via Amanda Lewis, has 3 trails (probably among the ones on your map, but not all, which include some unofficial trails) designated as "official"/ mapped. Will you attempt apply aesthetic buffers to those trails? To clarify-- there are "too many" trails on your map compared with what we have from Amanda.

Thank you for your comment. We will consult with our trail colleagues about identifying trails in the project area.

None of the areas that you plan to "treat" will be suitable for recreational use for the next 20-years. How can you degrade the recreational use of an area without making any analysis of the negative impact to the public?

The Forest Management Program manages for multiple Stewardship Objectives. Recreation is one of the many values we strive to manage, and aesthetic buffers are often left around approved recreational trails and areas. The Program understands that forest management activities do change the appearance

of the forest, but the area does remain productive forestland and the time the actual activity occurs is short-lived.

Once again you are planning to destroy the recreational attributes of this area with a commercial timber sale, leaving the area devastated for the next several decades.

We politely disagree with your assumption we are planning to "destroy" the recreational attributes of the area, as well as "leaving the area devastated for several decades".

Biodiversity, Wildlife Habitat, and Silviculture

How many field acres will be reclaimed and have you considered allowing these acres to mature naturally?

The edges of the field will be reclaimed and mowed annually in the fall, 1-2 acres. The dying Christmas tree plantations will be cut and chipped, or cut and piled as brush, and then allowed to naturally regenerate, 3-4 acres.

Hi this is Keith Fritze, NWTF-Massachusetts State Chapter President. Thank you to DCR for these presentations. Sustainable forestry emulates natural forest disturbances to create much-needed balance of tree ages, species and habitat types. A broad range of species, from wild turkeys, to grouse and deer will benefit from the proposed practices. The proposed activities will create critical nesting, brood-rearing and foraging habitats. In turn, increased recreational benefits will be realized for hunters, wildlife watchers, and other recreational users as wildlife utilization of these areas increases. NWTF-MA supports the proposed forestry projects to improve stand health and diversify forest structure, age class, species composition on the specified state forests.

Thank you for your comments.

Since increasing biodiversity is one of the stated goals for this project, what baseline biological inventory is available or planned? How are monitored taxa selected?

The DCR Forest Management Program relies on Data from other agencies within the Commonwealth, Such as the Division of Fisheries and Wildlife and The Natural Heritage and Endangered Species Program. We also rely on information from non-governmental organizations (NGO's) such as Mass Audubon, The Wildlife Management Institute, The Nature Conservancy, Ruffed Grouse Society, National Wild Turkey Federation, and others.

Doesn't the push to preserve biodiversity and our native forest health have an equally urgent timeframe as the above-mentioned one pertaining to carbon?

The Forest Management Program strives to manage for a broad spectrum of stewardship values. We rely on the expertise of our well educated, licensed foresters, who are natural resource professionals, to look at each project to achieve the best results.

Great to see DCR managing their Forest Lands! Can you tell us more about the even-aged management at Myles Standish State Forest and reducing the risk of fire damage?

Thank you for your comments. Detailed information regarding the proposed project at Myles Standish State Forest can be found at https://www.mass.gov/guides/southeast-forest-management-projects#-charge-pond-campground-complex-protection-plan,-myles-standish-state-forest-.

Thank you for incorporating sustainable forestry as a critical part of DCR.

Thank you for your comment.

Kudos to DCR for restoring native tree species via silviculture in these pine plantations.

Thank you for your comments. We are guided by our Landscape Designation document.

Thank you for focusing on vegetative diversity, that's critically important for wildlife habitat.

Thank you for your comment. Wildlife habitat is one of the Stewardship values for which we manage.

A few years ago I walked with the State forest DCR teams on each of the proposed cuts on State land during that entire year. As a biologist/zoologist I saw first hand that that none were necessary for the benefit of the species' forests involved. Silviculture is always pro-people. Silviculture is simply a new name for an old practice. Best practices were always pro industry and all were harm-full the native forest (aka species' forest). I also saw that the problem was with DCR. The problem was that State Forestry in staffed by foresters. UMass trained foresters do not care for the species' forests. They may have passion for the natural landscape, but do not have compassion for all the other species of each species' forest. My question is, in the 21st century we a losing acres to business/biomass interests. When we live in the age of pro-forestation why does DCR continue to hire forestry majors who do not have any compassion for species' forests? --- from the deep woods of the Species' Forest, Conway, Massachusetts, 501(c)(3) land trust with an ethical vegan board of directors speciesforest.blogspot.com (Dick Stafursky, Vermont)

Thank you for your comment. The Management Forestry Program respectfully disagrees with your assertion that our licensed, well-educated staff, who are natural resource professionals, does not have compassion for forests.

In the interest of maximizing carbon storage and increasing wildlife habitat development would it be possible to increase the amount of acres actively managed each year. According to a Audubon habitat biologist I recently spoke with some species of birds are in steep decline and require an early successional landscape meaning new growth. I feel DCR should step up the focus on growing new trees while also creating that much needed habitat. Would seem that everyone wins with forest management.

Currently our forest models indicate our forest stage class distribution can be improved by following the models developed, in part, by Dr. Richard DeGraaf, Chief Research Wildlife Biologist (retired) with the United States Forest Service Northeastern Research Station. These are the same models our sister agency, MassWildlife, utilizes. However, we are bound to largely uneven-aged forest management practices of very light intensity by the Landscape Designation document.

Are larger openings necessary to allow native species from the seed bank to regenerate? Can you speak to that?

Regenerating certain species does require large openings. For example, species such as black cherry, aspen, white birch, sugar maple, and white ash have greater regeneration success when full sunlight reaches the forest soils. Black and pin cherry are species which can drop seeds on the forest floor creating the "seed bank" you describe. Once the forest floor is exposed to full sunlight and soil temperatures warm, these seeds can produce new seedlings.

Comment. Thank you for protecting biodiversity in our forests and keeping up with the latest science.

Thank you for your comment. Biodiversity is one of the many stewardship values for which we manage.

What long-term benefits can we expect by promoting native forest communities over exotic even aged plantations? Do you think whippoorwills will find this site desirable? Comment. Plantations degrade our forests. Thank you for restoring natural biodiversity.

Plantations, whether exotic or native, are monocultures. Long term issues including the loss of the entire stand to insect or disease can happen more readily in plantations. Eastern whip-poor-wills may find this area favorable in a few years. However, they favor larger openings.

Is it true all native species of trees in Massachusetts regenerate themselves meaning no native species would need to be replanted?

Native species indeed tend to regenerate themselves naturally. The silviculture which is used, as well as available seed, have influence on their success rates.

How can we manage for biodiversity, if we don't even have a list of what actually lives in a given forest? What is DCR doing to remedy this sad state of affairs?

The DCR Forest Management Program relies on data from other agencies within the Commonwealth, such as the Division of Fisheries and Wildlife and The Natural Heritage and Endangered Species Program. During the proposal process, all proposed projects are sent to those two agencies, among others, for comment by their well-trained professionals on staff.

Why is everything being planned a type of clear-cutting (all even-aged management) when your own Landscape Designation Bible says that even-aged treatments will be very rare and only use under exceptional circumstances?

The Landscape Designation document allows for even-aged management up to 5 acres in size. A 5 acre opening is defined as a "clear-cut/even-aged management" in Massachusetts. However, other states and the US Forest Service define a 5-acre opening in a forest as potentially part of an uneven-aged structure. Many of the proposed projects include the use of uneven-age silvicultural systems as well.

The conservation of Lawton Tree Forest is integral to the origin story of Mount Grace. While we are extremely proud of the history of the tree farm, Mount Grace is committed to protecting the rich biodiversity of our region. Mount Grace enthusiastically supports the DCR proposal to manage this forest to enhance species diversity and a variety of age classes. Personally, I enjoy hikes through these woods weekly, as they are adjacent to our Mount Grace headquarters. I am looking forward to returning to these walks in future years, knowing that the forest will be more resilient to climate change as well as providing improved wildlife habitat as a result of the proposed forest management work. Mount Grace is in the process of a pollinator project in our arboretum at Skyfields. I believe this proposed DCR cut will complement the work we are undergoing planting native plants and controlling invasives.

Thank you for your comments; we strive to manage for the Stewardship Values you describe.

Are there any forests in DCR that are left alone?

The 2012 Landscape Designation document assigns approximately 30% of DCR's forested land holdings to the Reserve designation. The document states these areas are to allow "natural processes" to dictate succession. However, these areas are often treated for invasives plant species as well as for insects and other pathogens.

Can you please provide references to support the claim that our forests are "out of balance" and that we need much more early successional habitat?

The documents available at these two links are excellent resources on this topic:

- https://www.mass.gov/service-details/masswildlifes-habitat-goals
- https://www.fs.usda.gov/treesearch/pubs/58320

Is the Mass State Forest Action Plan & Wildlife Action Plan considered within the framework of the Landscape Designations Mgt Guidelines document?

These documents were prepared separately. The Mass State Wildlife Action plan was developed by the Division of Fisheries and Wildlife. The Landscape Designation document was produced in 2012. The State Forest Action Plan was developed by DCR to outline goals and strategies to protect the Commonwealth's forests. This document considers wildlife and wildlife habitat in relation to the forests of Massachusetts. The Division of Fisheries and Wildlife were consulted and provided valuable feedback to the 2012 Landscape Designation document as well as the 2020 State Forest Action Plan update.

Since old growth forests are now vanishingly rare in Mass., what is DCR doing to increase the representation of representation of truly old forest habitat?

Currently DCR's Landscape Designation document has set aside approximately 30% of its forests as Reserves.

As part of the Massachusetts NWTF I have seen how important these projects are and think they are great. Living adjacent to your property in Oakham I recently walked your project in Oakham and see a lot more sign of wildlife returning and feeding on the property. How do you think the removal of some species and the introduction of native species will affect wildlife? What feed sources will be present and improved habitat features?

The effects of removing/cutting trees are dependent upon many different factors. Thinning operations remove some trees to allow greater access to resources for residual stems. Regeneration efforts generally remove a greater number of stems to create conditions favorable to the regeneration of selected species. Feed sources that will be present will be a variety of hard and soft mast-producing trees and shrubs.

Wildlife question. Are there any old growth dependent species in Massachusetts? If so what species specifically?

There are no known "old growth" dependent species known in Massachusetts. There are several species of moss and lichens that are believed to do better when forests achieve conditions found when allowed to develop past 150 years.

Great to see that DCR is both restoring globally rare pine barrens while substantially reduce fire danger for the high numbers of recreational users at Myles Standish – a real win-win!!

Thank you for your comment. The forest management program shares your thoughts.

Young Forest and Shrublands habitat has been identified as an important habitat in MassWildlife's Wildlife Action Plan. Nearly 30 Species of Greatest Conservation Need depend on this habitat. Yet this habitat has declined dramatically through time. How can DCR's forest management activities help reverse these trends?

Increasing the amount of young habitat, and planning to perpetuate a greater balance of stage classes, should help maintain wildlife populations in the long term. The Forest Management Program strives to create a balance of forest stage classes to meet a variety of goals from habitat to forest resiliency and biodiversity. The Forest Management Program has many Stewardship Values for which it strives to manage. Our current management is guided by the Landscape Designation document.

Comment I applaud these DCR projects that seek to convert poorly structured plantations to forests that are more diverse in composition, age classes, native species and forest types and communities that are more resilient, in the face of climate change.

Thank you for your comments.

I support DCR's forest habitat projects for Otter Creek, Lawton and Myles Standish. The Mass Forest Action Plan calls for managing forest ecosystem healthy and biodiversity. This work is good for biodiversity.

Thank you for your comments.

Please expand on current annual DCR State Forest growth rates compared to the annual harvest plus mortality rates in terms of forest sustainability and expand on how important active forest management is to increasing biodiversity goals on a landscape level.

Across all lands managed by the Bureau of Forestry (BOF); and, for live trees greater than or equal to 5.0 inches diameter, on the basis of above- and below-ground biomass estimated using models and methods comparable to the component ratio method (CRM) developed and used by the United States Forest Service's Forest Inventory and Analysis program, growth far exceeds harvest removals; and natural mortality far exceeds harvest removals. CRM is adopted not as an endorsement, but to facilitate an easy and direct comparison to other strategic inventories.

Survivor growth, or the growth of trees that are alive at both measurements, is the largest component of gross growth. This is to be expected given the broad patterns of agricultural abandonment and regrowth in Massachusetts in the early and mid-1900s, along with the relatively small amount of harvesting performed by BOF. This component of change has increased over time (as would be expected, as large, living trees get larger) but the rate of increase is diminishing (as would also be expected in a largely even-aged forest ownership, as trees age, and density-dependent mortality increases in heavily-stocked stands). Survivor growth over the past two decadses averages 1.54 short tons (2,000 lbs) of dry biomass per acre per year.

Ingrowth is the growth of new (young) trees in to the population. Ingrowth has declined by 47% over the past 60 years. We expect ingrowth to be smaller than survivor growth both because of the nature of tree growth (trees must be smaller before they can be bigger) and because of the same landscape-scale patterns of forest use described above. The long-term decline in ingrowth, while not unexpected given the low-intensity and limited-extent of management DCR is required to practice, is still very concerning from the perspective of forest health – that younger trees are not being recruited and surviving to be able to replace older trees in the case of disturbance. Ingrowth over the past two decades averages 0.07 short tons of dry biomass per acre per year. Survivor growth plus ingrowth equals gross growth in the simple accounting model presented here.

Mortality, or the death of trees from natural causes (including suppression, native and introduced pests and pathogens, fire, etc.) averages 0.70 short tons of dry biomass per acre per year. This is the biomass that is in the tree at the time of death; it does not immediately enter the atmosphere, but decays over time and is emitted gradually into the atmosphere or cycles through other ecosystem forest carbon pools. Mortality has increased by 899.4% over the past 60 years. Gross growth minus mortality equals net growth. Net growth has declined by 37.2% over the same time period.

Harvest removals include the biomass in live trees at the time of removal, and trees that were either cut and removed by direct human activity related to harvesting or died as a result of silvicultural activity (e.g., girdling, brush removal, etc.). Harvest removals over the past two decades average 0.11 short tons of dry biomass per acre per year. Harvest removals have declined by 88.9% over the past 60 years. Net growth minus removals (plus any acquisitions or deaccessions, in this simple accounting model) equals net change. Net change has declined by 45.2% over the past 60 years. Note that these changes belie other nuanced trends among various species, pools, and spatial and temporal scales.

Metrics associated with the assessment of sustainability go far beyond the relative amount of biomass in the various components of change, and can include the species distribution and trends within those specific components as well. For example, the tree species accounting for the greatest proportion of ingrowth are (in descending order) American beech, red maple, eastern hemlock, and black birch, and together compose 48.1% of ingrowth on a biomass basis. American beech, red maple, and striped maple together compose 46.6% of all trees where diameter at breast height is under 5.0 inches. These are tree species associated with closed canopies and limited disturbance. These are species not currently associated as the cornerstone of robust forest ecosystems resistant to stressors and disturbance, or species associated with the storage of carbon in harvested wood products over very long timeframes – but based on current data and management trends – these species have a greater chance of representing the future of some of DCR's forests at present. The majority of harvested biomass over the past decade has been from softwood plantation species; and while diversifying plantation monocultures is important, it comes at the expense of tending native stands.

Timber harvesting is a vital tool for managing forests to meet the multiple demands placed on them by society. Allowing these forests to increase stocking levels subject only to natural disturbance would be irresponsible. Sound management can maintain high growth rates and minimize mortality while meeting multiple goals and objectives. Timber harvesting can be used strategically across a property or landscape to diversify species composition, age class distribution, and stocking levels, to create a forest more resilient to disturbance than might otherwise exist. Approximately 76% of the forest area managed by the Bureau is occupied by stands with a narrow range of ages, between 65-115 years of age; and the amount of forest occupied by stands under 5 years old has declined from 6.75% to 2.20% over the past 60 years. 81.1% of the forest area managed by the Bureau is even-aged in structure. Increasing the diversity of age classes and stand structures across the landscape will help increase resilience to forest stressors and disturbances, especially the largest-scale and most-intensive – like hurricanes. Active forest management more generally should also include a deliberate, science-backed decision-making process to determine whether timber harvesting should be excluded as a tool from certain sites.

Why are you cutting the hardwood if the hemlock succumb [in reference to the project at Chester-Blandford SF]?

Maintaining healthy hemlock is one of many goals of this project. There are four forest types being treated, Norway spruce, aspen/red maple/red pine, hemlock, and oak-hemlock. Through this project the goals are to continue the process of converting the non-native and off-site plantations to native tree

species, extend the early successional habitat located within and adjacent to the project area, create conditions for the retention of healthy hemlock, promote the growth and regeneration of red oak, and capture the value of white ash in jeopardy from EAB. Ensuring stands include a diversity of tree species and ages also helps to guard against the negative effects of rapid mortality of one or two species in an area.

General Questions and Comments

If there is 45 days for public comment, why is it ending Aug 31 when we are hearing about the presentations this week?

Our 2021 proposals were posted online at the beginning of July. The public meetings were scheduled in August, and so DCR extended the public comment period to allow for some time to comment after the meetings.

Where does the timber go?

The Forest Management Program enters into agreements with contractors to help us create forest conditions to meet our many stewardship goals. The destiny of forest products removed from the project site is dependent on the operators' markets. Some wood stays local or in-state; some does not.

Northfield - There is a very large tract of land shown in the area to be logged. Will that be clearcut?

No – as the project is further refined, the actual area for treatment shown on the map will be revised and will reflect areas that will remain untreated during the project. Also, the silviculture to be applied in the project is an irregular shelterwood treatment with variable density thinning, so there will be many trees retained after the project is completed.

Are forestry cutting plans available to Northfield Con Com and Open Space Com?

MGL Chapter 132 requires persons harvesting over 25 MBF (thousand board-feet) or 50 cords to file a Forest Cutting Plan. The filing requires the landowner to submit one copy to the DCR service forestry program and one copy to the conservation commission to the town which the project is located. The project is still in its early proposal stage and so as the project is further refined a Forest Cutting Plan will be prepared and submitted.

Please explain your legal justification for "in kind services," which do an end run around normal budgetary processes and deny funds that would have gone to towns.

The Management Forestry Program will put out to bid a list of work within a project area. Not only does this include forestry work but will also include improvements or enhancements to a project area. These enhancements may include things such as road improvements, invasive species treatments, culvert replacement, etc.

When is the pre-cut tour for public?

Public tours for the proposed management activities will be announced on our website as the projects progress at https://www.mass.gov/service-details/forestry-on-state-public-lands.

SB did not notify Open Space. We need to be notified.

Our projects are posted on our website at https://www.mass.gov/service-details/forestry-on-state-public-lands.

When will the actual silviculture plan be determined and announced? This isn't acceptable, public comment period needs to be extended from 45 days from when a follow-up public presentation gives the actual plan details.

Project prescriptions will be posted on our website after project layout is completed at https://www.mass.gov/service-details/forestry-on-state-public-lands. Please also see the earlier response on the timing of the comment period.

Mount Grace Land Conservation Trust supports the proposed project at Northfield State Forest.

Thank you for your comments.

How many towns follow up on having presentations?

For the current project proposals, representatives from two towns requested, and one town received, a follow up presentation.

My compliments to Keith and DCR on a well conceived project that will continue historical forest management on the property.

Thank you for your comments.

When do you anticipate this management likely be started? This winter? Future years? Will it take one season, or longer?

Factors affecting project start up and completion is dependent upon final project layout, prescriptions, regulatory obligations, contract development, and weather.

How can this project make forest management and its associated connectedness to the land more accessible to those who don't have that type of connection? Is there good baseline data for future comparisons?

Our CFI program helps collect, analyze, and provide data that helps to serve as a baseline for land management activities at a strategic level. It collects information on tree characteristics and forest structure over time to evaluate changes from both natural and human-induced disturbances. The

Management Forestry Program also samples proposed project sites before and after the project to help craft prescriptions for management, and to help provide feedback for guiding future management activities (e.g., in an adaptive management framework).

Can citizens come along in inventory sampling?

The Management Forestry Program provides a number of public woods walks over the course of the year.

Please explain your legislative mandate to log our State Parks. What law do you think gives you the right to degrade our forests with commercial timber sales?

Various Commonwealth laws, the state Constitution, and sound forestry practices require that DCR manage state forests for a range of purposes and goals. These include:

- Article 97 of the Articles of Amendment to the Constitution of the Commonwealth of Massachusetts (1972): "The people shall have the right to clean air and water, freedom from excessive and unnecessary noise, and the natural, scenic, historic, and aesthetic qualities of their environment; and the protection of the people in their right to the conservation, development and utilization of the agricultural, mineral, forest, water, air and other natural resources is hereby declared to be a public purpose."
- M. G. L. Chapter 21, Section 2F (2003): "Said management plans shall include guidelines for the operation and land stewardship of the aforementioned reservations, parks and forests, shall provide for the protection and stewardship of natural and cultural resources and shall ensure consistency between recreation, resource protection, and sustainable forest management."
- M. G. L. Chapter 132, Section 31 (State Forests) (enacted 1914 and revised 2003): "[The State Forester] shall reforest and develop such lands, and may, subject to the approval of the Commissioner, make all reasonable regulations which in his opinion will tend to increase the public enjoyment and benefit therefrom and to protect and conserve the water supplies of the commonwealth."
- M. G. L. Chapter 132, Section 40 (enacted 1943 and revised 1983): "It is hereby declared that the public welfare requires the rehabilitation, maintenance, and protection of forest lands for the purpose of conserving water, preventing floods and soil erosion, improving the conditions for wildlife and recreation, protecting and improving air and water quality, and providing a continuing and increasing supply of forest products for public consumption, farm use, and for the wood-using industries of the commonwealth."

How can you seriously call this a "public meeting" when it is a canned presentation with no oppotunity for public participation? This isn't a public meeting, you have pre-recorded this garbage and the slides are barely legible. This is just so embarrassing and unprofessional.

The virtual presentation process was developed during the COVID pandemic. While our initial presentations had some technology flaws, we have gained experience to improve our presentations. We have also received positive feedback from citizens who favor these virtual presentations. Their rationale ranges from the simple ability to learn about projects without having to travel long distances to the public meeting site, to less interruptions. The increased participation helps the Forest Management program reach more interested parties.

We disagree with your comments on public participation. While we do have time constraints, entering questions or comments in the chat box is a proven method to receive more comments and questions. It allows for a platform where interruptions and distractions are kept to a minimum.

Will any of these projects be as disasterous as what was accomplished in Wendell State Forest with the Brook Road Timber Sale? Go take a look at what he did to that beautiful area which was trashed and is still a horrible mess.

We respectfully disagree with the above statement, and know that the Brook Road project was successful in achieving its objectives. Thank you for your comment.

Why do you continue to plan the same old logging projects when there is so much public opposition to selling our public forests using commercial timber sales? What will it take to stop this insanity?

The Management Forestry Program does not simply "log" its properties. We strive to manage for a diversity of forest stewardship values. We receive a range of comments and concerns, both supportive and with constructive criticism, and strive to respond them; and manage public forests using science-based principles.

What are the administrative review options for these projects, since DCR summarily rejects or ignores public comments? What administrative actions are available when a decision is made, and how does the public know when an appeal of a decision can be filed? Or is this land not actually owned by the public, which has essentially no say in how their lands are abused by DCR?

DCR has a very thorough and robust public process. Over the years, projects have been changed, modified, or tabled based on public input that was received.

Please release the full detailed annual budget for the DCR Management Forestry Program so that the public knows how much this commercial logging is costing the taxpayers. Why are you hiding this information? What is so threatening about your budget that it has to be kept top-secret? Shouldn't you be proud of your budget instead of hiding everything? This is public information and you are violating the Public Records Law.

Operating budgets for programs within the Bureau of Forest Fire Control and Forestry are not itemized out. The entire forestry budget includes costs such as fuel, supplies, clothing, services, etc. Salaries, indirect costs and fringe costs are rolled up into a DCR personnel budget that is not broken down by division, bureau, or program.

Can you speak to the budget for the DCR Management Forestry program?

Please see above answer.

How does CFI relate to the USFS FIA program?

CFI and the USFS (United States Forest Service) FIA (Forest Inventory and Analysis) program are very similar, by design. They are both strategic inventories of the forest resource; they both have grown from a commodity-oriented program to encompass a far broader range of indicators; and they are both fundamental to the sound management of the forest resource. They have both transitioned recently from a periodic to an annual measurement system. The Bureau's CFI program strives to base many of its definitions, criteria, and field data collection procedures on the FIA program to be able to maximize the utility of both datasets by leveraging existing research and models used by FIA where applicable, increasing effective sample size, and allowing for the direct comparison of estimates across the programs. Collection of repeated measurements on the same trees and the same points on the landscape for over 60 years yields extremely powerful insights into tree growth and stand dynamics at the scale of individual plots and landscape-scale patterns of forest growth, health, and change, and when combined with forest growth and yield models allows for powerful predictions of future forest conditions and management activities.

Comments received by email at Forestry.Comments@mass.gov during the public comment period

From: Kenneth Conkey <kconkey@live.com>
Sent: Friday, August 13, 2021 10:46 AM
To: Forestry Comments (DCR)
Subject: Forest management

Thank you, thank you, thank you for proposing more forest management projects. The benefits for wildlife and maximizing carbon storage far outweigh non management. Folks who are against management are against agriculture " the growing and harvesting of forest products on forest land" please look it up in the definition of agriculture if there is any doubt. We need to continue to grow new trees and provide much needed wildlife habitat through timber harvesting. Fortunately in Massachusetts all native species of trees regenerate themselves creating new carbon absorbing saplings to replace the removed trees. Mr Moomaw though going to an expensive college chooses not to do any research in Massachusetts because it wouldn't support his agenda. The majority of the carbon from harvested trees is stored in lumber. It's a great system from a carbon standpoint and a wildlife habitat standpoint as well. People talk about protecting land by doing nothing with it. That means there's no possibility of creating wildlife habitat as there are no "old growth" dependent species of wildlife that exist. Again I strongly support DCR managing our forestland. Thank you

Thank you for your comments.

From: Lise LeTellier <wildwoodlise@gmail.com>
Sent: Friday, August 13, 2021 2:23 PM
To: Forestry Comments (DCR)
Subject: Forest Management is necessary

To whom it may concern,

I hope to make at least one of the upcoming virtual Public hearings on the management proposals by the DCR but in case I am unable to make it, I wanted to send my comments.
New England forests are a unique environment with their own unique history. I am currently responsible for overseeing the management of our community's 400 acres of Chapter 61B forestlands in Tolland MA . We are surrounded by Granville State Forest and nearby Tolland State Forest (The entire community owns 800 acres)

There is a spectrum of management practices that I have witnessed in my life span. Some on DCR or other state or private property. Though I struggle to see a forest cut back dramatically, when it is done right, it serves a vital purpose and it always amazes me when it grows back. Currently many wildlife species in our New England habitat are in decline. Many of our forests have climaxed and are now being threatened, or even destroyed, by invasive species that humans have introduced. With climate change happening so quickly now, this adds to the problems.

Leaving "well enough alone" is no longer an option for our forests. We need to manage the problems. We need to actively manage our forests. Foresters and Ecologists have been studying all these issues for a long time. From all my research it seems that uneven age and even age management is the best option for our New England forests, though shelterwood and even age management also serves vital purposes for specific reasons as mentioned in your plans in some state forests. By creating age diversity, vertical diversity, and species diversity, we will support a larger range of wildlife, create a more fire and climate resilient forest and allow for our recreational and timber needs. We have learned a lot over time. We have made mistakes in the past, due to lack of knowledge and out of greed, but now we have knowledge, we have a better sense of balance, we have foresters who understand the forest is more than timber.

I support the proper management of our state forests as recommended.

Lise LeTellier
79 Fox Den Rd
Tolland, MA 01034

Thank you for your comments.

From: Joe <jconkey8@gmail.com>
Sent: Saturday, August 14, 2021 3:18 PM
To: Forestry Comments (DCR)
Subject: Forest management projects

State forest land needs more and more forest management to promote future healthier forests and future healthier habitats for wildlife. We need more harvesting of mature peaked trees and unhealthy trees to promote better future forests!

Sent from my iPhone

Thank you for your comments.

From: Sarah Wells <wells@mountgrace.org>
Sent: Tuesday, August 17, 2021 6:03 PM
To: Forestry Comments (DCR)
Subject: comments on Northfield, Lawton, and Otter River State Forest Mgt Projects

Mount Grace Land Conservation Trust supports the proposed forest management activities for Northfield State Forest, Otter River State Forest, and Lawton State Forest. These three properties are within our 23-town service region, and we support DCR's sustainable management of these and other properties in their portfolio.

As an abutter to Lawton State Forest, we strongly support this proposed project in particular.

Thank you,
Sarah Wells

~~~~~~

Sarah Wells
Conservation Director, Mount Grace Land Conservation Trust
Coordinator, North Quabbin Regional Landscape Partnership
Office: 978-541-1773
Cell: 413-475-4101
wells@mountgrace.org

1461 Old Keene Road, Athol MA 01331
www.mountgrace.org
~~~~~~

Thank you for your comments.

From: Cinda Jones <cjones@cowls.com>
Sent: Wednesday, August 18, 2021 1:11 PM
To: Forestry Comments (DCR); Church, Peter (DCR); O'Connor, Robert (EEA); Tisa, Mark (FWE)
Cc: Shane Bajnoci; Tony Maroulis; Evan Jones

We understand you will be holding public information sessions and seeking comments about forest management on state land in the coming weeks.

We're writing to give you a perspective you often don't hear because people who support you and the forest biologists who make management decisions on state land don't usually have as much extra time or inclination to share their thoughts as your usual protesters do.

As the state's largest conservationist and multiple awards winning tree farmer, we're writing in strong support of the projects you're presenting. We're writing to say that even these proposals are not enough. DCR is far behind accomplishing necessary forest management for optimal health and safety of our public lands and in support of human and wildlife populations. We need to pick up the pace and do more.

We appreciate this opportunity to comment on the 2021 Forest Management Proposals. The Cowls family has sustainably managed forests and conserved open space for over 280 years. The proposals on your website seem very much in line with the management we have been doing on our land for years. We fully support your efforts. Land management is a must in order to justify open space conservation; provide habitat for wildlife; and combat the long term issues of climate change.

A well-managed forest allows for the storage of carbon both in the forest and in forest products. A younger healthy forest can sequester more carbon from the atmosphere than old decaying trees. An uneven aged forests can better withstand increasingly volatile weather events we've been suffering. A diversity of tree age classes also better survive wildfires.

Cowls has taken to heart the advice of the Wildlife Management Institute and Mass Wildlife in varying our forest structure and providing wildlife openings. We have won numerous awards for our forestry as a direct result. We would refer you to WMI's young forest project, as well as the forest diversity model developed by the USDA Forest Service's Richard DeGraaf.

While I fully support your proposed projects as presented. I believe it is important that DCR picks up the pace and undertakes more management projects.

I strongly recommend that DCR apply informed and practiced forest biological science developed by forest management experts in order to improve the Landscape Designation Document that was developed by the Nature Conservancy – an environmental preservation organization - as a means to limit forest management and preserve open space

Lately it feels like the state is making forest management decisions based on the noisiest protesters' most public demands. As if DCR believes that forest management decisions are best made by public consensus of the squeekiest wheels, and not by forest scientists.

Can you imagine if the public weighed in on how much chlorine DCR should put into its swimming pools? Chlorine is bad, right? We should put no chlorine into public pools, the public would cry. But that's ridiculous. DCR uses scientific methods to calculate how much chlorine a pool needs. DCR has experts in pool science making these decisions about pool management. Please expect and allow no less for our state forests, which were purchased for the express purpose of creating a public bank account for wood, wildlife habitat, recreational opportunities, clean air and water. Specifically including under Ch132: *"…providing a continuing and increasing supply of forest products for public consumption, farm use and for the wood-using industries of the commonwealth."*

Forest scientists are the only ones qualified to manage forests. Please let your experts make management decisions. Not public noise. And please make sure that our state forests are producing all the products they were purchased to produce – not just a couple.

Thanks for considering our opinions.

Cinda Jones, Owner, WD Cowls, Inc.,
Shane Bajnoci, MA Licensed Forester #08, UMass School of Forestry, 1997

Cinda Jones
President, **W. D. Cowls, Inc., Land Company**
Developer, **The Mill District, North Amherst, MA**
Timberland Management - Sand & Gravel - Natural Resources - Real Estate
P.O. Box 9677, 134 Montague Road, North Amherst, MA 01059
www.cowls.com - www.TheMillDistrictNA.com - cjones@cowls.com - 413-549-1403 - cell: 413-575-2900

Thank you for your comments.

From: Miriam <mimbck@yahoo.com>
Sent: Thursday, August 19, 2021 1:06 PM
To: Forestry Comments (DCR)
Subject: DCR commercial logging

To Whom It May Concern:

During this time of critical climate and biodiversity emergency, it is essential that we preserve all of our public lands wild. Recent science has alerted the public of the intense dangers of commercial logging while we are losing vast forested ecosystems locally, regionally, nationally and globally. Private forests are disappearing at alarmingly fast rates due to commercial logging, storms, wildfires and development. The biodiversity and natural properties of forests moderate weather systems and provide for enormous diversity and numbers of living organisms in every part of it. When logging occurs, it destroys the networks within the forest, reducing the integrity and health of other trees and life within it. We are learning more and more about the benefits of leaving nature alone in its own incredible wisdom to heal us from all the destruction that humankind has caused in our interventions. It is time that we learn from our own mistakes.

thanks, Miriam Kurland 566 East St. Goshen, Ma. 01032 mimbck@yahoo.com

Thank you for your comments.

From: William Sloan Anderson <wsloananderson@franklinlandtrust.org>
Sent: Thursday, August 19, 2021 3:38 PM
To: Forestry Comments (DCR)
Subject: DCR Forestry

The Commonwealth gets over 90% of its wood products from outside of its borders. It is important that its citizens and forest land owners not abdicate their responsibility for good stewardship to somewhere else. We have the ability to keep forests as forests, here in Massachusetts, by preventing their conversion to developed land through conservation, as well as management.

We ask a lot of our forests, both private and state owned: from carbon sequestration and storage to forest products and habitat. DCR has helped private land owners manage for a myriad of goals through its programs and by demonstration.

As Director of Stewardship for a rural land trust, in northwestern Massachusetts, I applaud the efforts DCR has made to manage its forests for diversity of age, composition, habitat and resiliency in the face of climate change.

Will Sloan Anderson
Stewardship Director
Franklin Land Trust

Thank you for your comments.

From: Dean Zuppio <dazuppio@gmail.com>
Sent: Thursday, August 19, 2021 4:51 PM
To: Forestry Comments (DCR)
Cc: Forestry Comments (DCR)
Subject: Re: DCR Forest Management Public Notice

i tried to join the thursday meeting 4 times and was rejected. why?

On Tue, Aug 3, 2021 at 5:24 PM Forestry Comments (DCR) <Forestry.Comments@mass.gov> wrote:

> Dear Friends,
>
> Please see attached invitation to DCR's Forest Management Projects virtual public meetings on August 17th and 19th at 4pm. Each virtual public meeting will discuss three of the six forest management projects in Chester-Blandford, Mount Washington, Northfield, Otter River, Lawton and Myles Standish State Forests. Included in the invitation are links to the respective Teams Live meetings. If there are any questions or concerns, please address them to Forestry.comments@mass.gov.
>
> Sincerely,
>
> DCR Forestry Comments

We apologize for any technical difficulties that resulted in the ability for you to attend the virtual presentations. The projects and their written proposals and recorded virtual meeting presentations can be found at. https://www.mass.gov/service-details/forestry-on-state-public-lands.

From: Rena Amidon <raa112b@comcast.net>
Sent: Thursday, August 19, 2021 7:08 PM
To: Forestry Comments (DCR)
Cc: Vautour, Joelle (DCR)
Subject: FW: Beaman Pond Lot 2, Otter River State Forest

RE: **Beaman Pond Lot 2, Otter River State Forest**

To The Bureau of Forest Fire Control and Forestry

Please be advised the Mill Glen Board of Trustees fully supports this long overdue harvest. We are a neighboring private camping and recreation area that that consists of approximately 150 acres of land and water. We recognized that we were experiencing eminent forest fire danger with our lands approximately 10 years ago and immediately put together a cutting plan. Almost immediately after cutting the amount of wildlife that returned to our forest was amazing, we see far more deer, bear, turkeys, and other now than ever before. The regrowth has a nice mix of hardwood and softwood now benefitting a wider variety of wildlife.

Our board of trustees have discussed these same fire concerns with your forest as our neighbors. When we have hiked through your Red pine, Scots pine, Norway spruce, and White pine plantations, all you need to do is look up and realize there is less than 25% of tree with a crown and many are dead. A good wind storm or any form of pestilence will wipe out your forest in short order. The mono culture of the Otter River Forest is typical of many of DCR's forests such as the nearby Templeton State Forest. Your proposed project is 10 to 15 years overdue, please begin this project and many more as soon as possible.

Sincerely,
Rena Amidon
Secretary/Treasurer
Mill Glen Pond Trust
Raa112b@comcast.net
978-895-2169
Mill Glen Pond Trust

Thank you for your comments.

From: FranW <fjw123@comcast.net>
Sent: Friday, August 20, 2021 8:38 AM
To: Forestry Comments (DCR)
Cc: FranW
Subject: Myles Standish project

8/20/21

To whom it may concern,

I understand your next area of work will include the campground at Myles Standish in the Charge Pond Loop area. The number of healthy trees that have been destroyed in this project is both frightening and irritating. The trees offer shade for hikers, bird watchers, horseback riding and other passive recreation activities. The trees offer homes for wildlife such as birds, insects, chipmunks, squirrels, etc. The only trees left behind were dead ones and I am surprised those weren't picked off first since they are more dangerous and less necessary as they are dead.

The campers want shade, they want areas to escape the sun, they don't want to have to rely on tenting and being forced to stay in a tent in order to get that shade, the horses also need shade so my concern is more trees being taken down in the camping area to an extreme. I know there will be a 50 foot buffer, but now this new work area also removes trees in places where people can walk, hike, ride in the shade (currently). I am speaking of particularly the pine barrens off of Stringer road.

My other concern is the shape the trail system is left in after this work is done. It seems to me there is no plan in place for trail restoration after the work is completed,. And in the past, the Friends of Myles Standish, (a group dedicated to the care and condition of the forest) has had to ask people to raise funds for heavy equipment to fix a mess they did not create.

I request an extra 50 feet added to the buffer zone and to leave the remaining section of Pine Barrens off Stringer road alone, enough trees have died in this process, and likely sold to become telephone poles. This is ironic in my opinion as a way to "restore" nature.

I request a response from you regarding my letter detailing the following:

1) How does the current restoration [roject plan on caring for the trail system after work has been done? (Ie: clearing trees, etc)

2) Detailed comments on an increased "buffer zone" around the camping areas A-E

3) What happened to all the healthy trees that were cut down, where did they go?

Thank you for your attention to this matter and I look forward to your response

Franny Jo Walsh

Board member of the Friends of Myles Standish

Email fjw123@comcast.net

For DCR and MassWildlife the preservation of biodiversity is the cornerstone of both our missions. This project aligns perfectly with that mission. Myles Standish State Forest and the surrounding area have had several wildfires over the years, as pointed out. From a public safety perspective, it would be irresponsible for DCR and MassWildlife to not reduce the amount of fuels in the Myles Standish Complex Pine Barrens Restoration project area and the Charge Pond Campground Complex area, let alone not restore the area for rare species. Southeastern Massachusetts represents one of the largest remaining examples of this regionally and globally rare community and species suite. The project is large, but this is due to the fact there is simply nowhere else left that offers such an ecological opportunity.

Many of the rare species rely on habitat with an open vegetation structure and performing a thinning for the 142 acres being added to the Myles Standish Complex would not accomplish our goals. This ecosystem, termed Pine Barrens, depends on disturbance, historically fire, to maintain its open structure. To that end, to sustain the function and structural composition of the Pine Barrens, reduction in overstory density through tree removal and mowing operations follow by prescribed burns are needed. Thinning between campground loops and providing a dedicated safety zone will reduce hazardous fuel loads and reduce the risk and/or spread of wildfire, thereby increasing public safety.

The benefits of this project out way its cost, as doing nothing and allowing the fuels to further accumulate will increase the wildfire danger within the Complex but also to the surrounding residential areas. These residential areas are rapidly increasing, as pointed out, and as such we are losing a critical landscape to development.

Per the 2007 Biodiversity of Myles Standish State Forest report from the Natural Heritage and Endangered Species Program, Pine Barrens management is a high priority to improve and maintain habitat quality for pine barrens species, and to reduce the potential for wildfire. The greatest ecosystem service value is the restoration of globally rare, fire-adapted pitch pine/scrub oak barrens that provide habitat for numerous state-listed species.

Pine Barrens, and the plant species associated with them (pitch pine, scrub oak, heath species, etc.) are far less common in Massachusetts than white pine associated forest types. White pine is the most common tree species in Massachusetts. Pine Barrens are a globally rare natural community making our restoration efforts that more important. Human effort to exclude fire in these pine barrens in the past has favored the growth of white pine over pitch pine and scrub oak in some areas. If this continues the shade intolerant pitch pine and scrub oak will be overtaken by white pine. Closed canopy forests can be found on numerous State properties as well as in other sections of Myles Standish State Forest. To purposely allow this limited resource to transition to a closed canopy forest is a goal that we can't responsibly pursue. Additionally, fire exclusion leads to mesification, nutrient enrichment, and displacement of barrens plants by generalist species.

DCR and MassWildlife want to categorically state that to knowingly and intentionally accrue carbon in large trees on fire-adapted sites like the Myles Standish Complex, would be detrimental from an ecological perspective, and dangerous from a public safety perspective. We acknowledge that there will be a carbon release when trees are cut and prescribed fire is used to restore and maintain pitch pine/scrub oak barrens conditions in what is currently closed canopy pitch pine and white pine forest. Most importantly though, we recognize that the current structure of the forest in the project area is at

high risk for catastrophic wildfire and could release virtually all of the carbon currently stored in the live plant tissue in the event of a wildfire. Managing this fire-adapted ecosystem will release carbon in measured, controlled, and relatively low amounts that will be re-sequestered during the intervals between prescribed burns, and will provide a critical safeguard against large wildfires.

Trails will be restored following all mechanical operations. Forestry did not receive any comments after the last round of restoration projects concerning the state of the trails. During mechanical operations people were using trails that were closed, even though signs were posted. For the safety of everyone, trails should not be accessed, even when mechanical equipment is not running.

If deemed necessary, we encourage working with DCR to develop and install additional trail signs. A MassTrails grant may be one option. Archaeological approval for any ground disturbance is required to ensure the integrity of cultural sites and features. All forest management proposals are reviewed by our Cultural Resources staff. As there will be a buffer to paved roads as well as to campgrounds, campers will still have their privacy and shade while allowing DCR to reduce their concern of a wildfire from impacting their camping experience. As mentioned in the Forest Management Proposal, a no-cut buffer will be established from all campground sites and paved roads within the camping complex to reduce direct visual contact with the project and to keep campsites shaded. The width of the buffer will be reviewed by Forestry, Fire Control, and Park staff to determine the best fit for campers and for wildfire protection.

Unplanned wildfires are suppressed in this landscape for reasons related to public safety and protection of infrastructure. Although this area is known to have a fire history, residential use of areas surrounding these public lands does not allow fire to go unchecked on the landscape. Prescribed fire remains a viable management tool and will be carefully implemented to ensure burns are carried out with proper weather and smoke management planning to ensure objectives are met and resources protected.

Forest products produced from last year's portion of the project were mainly wood chips and wood ties used in the production of bark mulch and railroad and landscaping ties, respectively. All the wood was utilized in Massachusetts. In the first two years of this project all material was mulched in place.

Lastly, if this work is not done, the specialized native plants and animals of the pine barrens will vanish from the area. As the barrens become overgrown with dense pitch pine and white pine, other plants such as low-bush blueberry or wild indigo cannot compete and eventually disappear. As their barrens habitat disappears, the many animals depending on these plants for food and cover will also disappear. In addition, if wildfires do occur, the current dense growth makes it harder for firefighters to suppress the fire and protect nearby property.

From: Darcy Sweeney <darcysweeney@gmail.com>
Sent: Friday, August 20, 2021 12:30 PM
To: Forestry Comments (DCR)
Subject: comments for DCR forest management projects

Farming, Forests, and Food Systems of Climate Action Now, Western MA
Northampton
01062

We of the Regenerative Farming, Forests, and Food Systems working group of Climate Action Now, Western Massachusetts are committed to learning from and working with nature, which has always self-regulated. We humans need to stop degrading ecosystems and instead, support strategies that protect and restore the health of soil, water, forests, and our fellow creatures. We focus, in collaboration with allies, on education and policy that support biodiversity, forest protection, regenerative, organic farming and food justice/sovereignty.

All of your logging proposals have the following problems, which have been extensively researched:

1. These projects will all release carbon at a time when our planet's ecosystem is in crisis due to climate change and human interference.
2. Logging disrupts the soil and soil organisms, which also sequester carbon.
3. Logging disrupts the water system.
4. Logging can make the remaining forest more susceptible to invasive plants, harmful insects, and disease.
5. Forests are critical in our planet's ability to moderate weather systems and enhance the water cycle. Logging interferes with this.

6. Logging results in fragmentation of the forest as a whole, which harms many native species of birds and other animals.
7. Three of your logging proposals (Chester-Blandford, Mt. Washington, Lawton State Forest) suggest that the logging will at least partially be for the purposes of “native species regeneration” through allowing the understory more space. However, given time, that understory of native species will grow and replace the older trees, including plantations. There is no benefit to rushing the process through logging and yet there are multiple problems, as listed above. It’s important to remember that dead trees may not look neat and park-like, but they are important for the organisms who live there, the ecological process, and ultimately for us.
8. As to reducing Ash density (Mt. Washington State Forest), there is research that suggests that logging reduces the natural ability of forests to fend off pests and disease and may actually spread the problem through removal of the wood product.
9. In terms of fire resistance, new research indicates that commercial logging increases conditions necessary for the spread of fires.
10. Research is mentioned in two proposals (Northfield State Forest, Lawton State Forest). We need to expand research on the benefits of intact, wild forests rather than seeking justifications for commercial logging, since the latter has been studied by forestry programs for a long time.

There are already plenty of private lands being logged. What we are asking is that our state lands and wildlife areas be left intact and wild, to regulate themselves, to be the subject of research only as the ‘control subjects’. We need our wild forests for human health and enjoyment; for biodiversity and the health of our environment and for the continued existence of a livable planet. Please preserve what is arguably the most important asset the people of Massachusetts have for connecting to nature, staying healthy and happy.

Thank you for your comments.

From: Jeffrey Hayer <hayer_99@yahoo.com>
Sent: Friday, August 20, 2021 2:49 PM
To: Forestry Comments (DCR)
Cc: Emma Ellsworth; Jared Duff; Jeff King; Henry Godek; jackie medeiros
Subject: 2021 forest management proposals

After listening to yesterday's proposals you should be commended on your hardwork . As a taxpayer,outdoorsman, landowner (forest),retiring physician who is actively engaged in management practices of my forests I would like to suggest the following… we must redefine the present practices to be more progressive ie looking at the Scandinavian models which incorporate economic(lumber industry), wildlife management principals(maximizing the forest's ability to shelter ,nourish the game/song bird reptile and mammal population in a balanced manner) climate change(carbon storage carbon sequestration)tree diversity (local species at various stages of maturation) by increasing the clear cutting acreage and customizing the frequency to be determined by local environmental factors. A patchwork approach needs to be implemented. It is time to recognize that unbiased scientific data is available supporting progressive management principles and faulty data is becoming more recognizable and should dispell the proforestation myth. I would be most happy to engage in further conversation re common sense principles.It is time to put emotions aside and work for the common goal of creating and maintaining our forests health.Only through the use of scientific principles will we be able to preserve our forests for all to live in harmony and enjoy our forests bounty. Jeff Hayer Heath Mass

Sent from my iPhone

Thank you for your comments.

From: Vickie Balewski <vbalewski1975@gmail.com>
Sent: Sunday, August 22, 2021 1:50 PM
To: Forestry Comments (DCR)
Subject: Forest Management

To whom it may concern:

The state of Massachusetts and The Department of Recreation and Conservation seem to be more concerned with the opinions of the uneducated public rather than focusing on managing the hundreds of thousands of acres available to them. The minimal percentage of land being harvested/ managed is something that I feel needs to change. More forest management and public outreach is a must in order to better educate the public on the beneficial outcomes of a managed forest.

Limiting DCR foresters to only a certain amount of acreage they can manage per year is only hurting the forest and wildlife that comes with it. Harvests that benefit wildlife with larger openings in the forest canopy should be promoted. Forest management provides proper conditions for regeneration (young trees) to become established, which in turn provides low browse and nesting sites for wildlife, all while making the forest more diverse. A diverse, healthy forest, is more resilient to climate change, disease and insect infestations, and forest fires. Over time they are likely better at sequestering carbon.

With this being said, I feel the state should be actively managing their forest at a much larger rate than what is currently being managed. DCR should also be combatting the negative, uneducated public reactions with more articles and informative information that support the science behind timber harvesting. Practice what benefits the forest and worry less about keeping the poorly informed public happy.

Thanks for your time,
Vicky Balewski

Thank you for your comments.

From: maria_bartlett@verizon.net
Sent: Sunday, August 22, 2021 4:06 PM
To: Forestry Comments (DCR)
Subject: Logging MA forests

Dear Reader,

It is my understanding that the annual round of logging our MA forests has been announced. I am writing to object to this annual logging which is done in the name of "management." Our forests know best how to manage themselves. I write as a confirmed gardener and member of my local Green Advisory Board.

Left to themselves, forests sequester carbon, protect biodiversity, clean/store water, cool the air surrounding the forests, and provide much needed communing with nature for us humans. Logging is not necessary to maintain any of these benefits and, on the contrary, interrupt them. Logging, usually done in a clear cutting method, destroys mature trees which are the best at removing carbon from the air; destroys the "community" of trees that make up the ecosystem that insures biodiversity and does nothing but harm to the forest the logging is supposed to manage. The only benefit is to the private commercial logging industry. It is even worse if these logged products are then used to generate "dirty" energy that releases more CO2 and pollutants even than coal.

This logging practice is egregious and should be stopped entirely.

Thank you for the opportunity to give my input.

Maria Bartlett
26 Jenkins Road
Andover

Thank you for your comments.

From: Seth Elwood <sethelwood@aol.com>
Sent: Sunday, August 22, 2021 4:21 PM
To: Forestry Comments (DCR)
Subject: Harvesting projects

I think all of these projects are great. A managed forest is a heathy forest. More management would be great there are lots of state land with a large percentage of unhealthy trees that could be harvested to make way for new growth
Thanks
Seth Elwood

Sent from my iPhone

Thank you for your comments.

From: Bruce Bennett <grouse1202@gmail.com>
Sent: Sunday, August 22, 2021 10:43 PM
To: Forestry Comments (DCR)
Subject: Forest management Proposals

I would like to express my favorable opinion of the present proposed forestry management plans on the Mass State Forests. I would also like to support at least 20 early successional growth spread thru out our state forests. This could be accomplished by selectively clear cutting suitable tree covers.

Bruce
Bennett
Member, Board of Directors
Ruffed Grouse Society
Sunderland, Ma
413-237-1054

Thank you for your comments.

From: Lisa Hall <lisahallg@gmail.com>
Sent: Sunday, August 22, 2021 10:54 PM
To: Forestry Comments (DCR)
Subject: State Forest Management

Categories: Red Category

Dear Dept of Forestry;

While in the past, it was understood that forests should best be managed by regularly harvesting trees, new research has shown that the best way to use forests as carbon sinks is to leave them alone. Mature forests capture far more carbon than those which have been logged. This newer way of thinking will help Massachusetts achieve the important climate goals that have recently been passed into law. It also has the side benefit of creating more beautiful recreational resources for Mass citizens.

Therefore, please scrap all plan to do logging on any state lands. The monetary value of the trees that are cut does not match the benefit of leaving them alone.

Lisa Hall
Florence Ma

Thank you for your comments.

From: Todd Waldron <toddw@ruffedgrousesociety.org>
Sent: Monday, August 23, 2021 11:10 AM
To: Forestry Comments (DCR)
Subject: RGS & AWS Supports DCR Forest Management Projects in Chester-Blandford, Mount Washington, Northfield, Otter River, Lawton, and Myles Standish State Forests
Attachments: RGS AWS NY Mass DCR Comments Aug 21 2021.pdf

Please see the attached letter of support from Ruffed Grouse Society & American Woodcock Society in favor of DCR's forest management projects in Chester-Blanford, Mount Washington, Northfield, Otter Rier, Lawton and Myles Standish State Forests.

Thank you for incorporating sustainable forestry and wildlife habitat needs into DCR's stewardship approach.

I'm available to discuss if you have any questions.

Todd

Todd Waldron
Northeast Forest Conservation Director
Ruffed Grouse Society | American Woodcock Society
(412) 874-8702
www.ruffedgrousesociety.org

RGS AWS
RUFFED GROUSE SOCIETY | AMERICAN WOODCOCK SOCIETY

Todd Waldron
Ruffed Grouse Society & American Woodcock Society
Northeast Forest Conservation Director
Chestertown, NY 12817

August 23, 2021

Peter Church
Director, Forest Stewardship
DCR Bureau of Forest Fire Control and Forestry
251 Causeway Street
Suite 900
Boston, MA 02114

Re: Massachusetts DCR Public Comments for Proposed Silvicultural Activities on 6 State Forests

To Director Church,

Thank you for offering Ruffed Grouse Society & American Woodcock Society the opportunity to comment on Massachusetts' DCR proposal for 6 upcoming state forest silvicultural projects, as outlined in your virtual public meetings on August 17 & 19. Established in 1961, the Ruffed Grouse Society (RGS) is North America's foremost conservation organization dedicated to creating healthy forests, abundant wildlife and promoting a conservation ethic. Together with the American Woodcock Society (established in 2014), RGS & AWS work with landowners and government agencies to develop critical wildlife habitat utilizing scientific management practices.

RGS & AWS strongly supports DCR's forestry project recommendations for the 6 state forests discussed in the public meetings. This includes the silvicultural proposals for the Chester-Blanford, Mt. Washington, Northfield, Otter River, Lawton, and Myles Standish State Forests. The Massachusetts 2020 Forest Action Plan (link here) identifies 10 broad goals for Massachusetts' forests, including "increasing resistance and resilience of trees and forests to mitigate and adapt to the effects of climate change, and managing for forest ecosystem health and biodiversity". There are 570 Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan and the loss of habitat and forest age class diversity is one of the leading factors https://www.mass.gov/service-details/state-wildlife-action-plan-swap. This issue is attributed in large part to wide-ranging habitat decline and a lack of forest habitat diversity.

Balanced, resilient forests provide whole ecosystem benefits, including clean air & water, recreation, open space, and abundant wildlife habitat. There is a link between forest age class diversity loss and wildlife declines. Forest habitat diversity was historically maintained by natural disturbances - which have largely been suppressed in New England for over a century. Sustainable forestry emulates natural forest disturbances to create a much-needed balance of tree ages, species, and habitat types that are good for wildlife and ecosystem resiliency.

A concerted effort is needed to ensure resilient, climate-adapted, diverse forest landscapes throughout Massachusetts. We applaud DCR's efforts to incorporate sustainable forestry and wildlife friendly silvicultural practices into your Landscape Designation Management Guidelines and feel this is consistent with both the Massachusetts Forest Action Plan and the State Wildlife Plan's Species of Greatest Conservation Need recommendations.

Respectfully,

Todd H. Waldron

Northeast Forest Conservation Director
Email: toddw@ruffedgrousesociety.org
Phone: (412) 874-8702

www.ruffedgrousesociety.org

For more information visit the RGS & AWS website at RuffedGrouseSociety.org. Follow us on Facebook and Instagram @RuffedGrouseSociety.

Thank you for your comments.

From: tjdesell <tjdesell@gmail.com>
Sent: Monday, August 23, 2021 11:36 AM
To: Forestry Comments (DCR)
Subject: annual round of forest management (i.e. logging) projects

Fellow Massachusetts guardians,

We must lead by example and not cut any of our trees given their much heightened value in their living state due to the carbon sequestration embodied in the standing tree and its ongoing growth.

If any of the cut trees and/or brush were to be burned, the damage would be doubled for climate change, eliminating a CO2 sink and adding to the CO2 in the atmosphere.

Please stop disrupting the natural management processes that have been proven over millennia.

Sincerely,

Thomas Desellier
Granby, MA

Thank you for your comments.

From: Christene DeJong <christenedejong@gmail.com>
Sent: Monday, August 23, 2021 4:59 PM
To: Forestry Comments (DCR)
Subject: Stop logging our state owned forests!

Dear MA Department of Conservation and Recreation,

I love our Massachusetts forests. I fell in love with them as a child and the joy and wonder I experience walking trails and scrambling up hills only grows. I share the magical experience of our state forests with my young daughter. She delights in the salamanders, the ferns, the trillium. She listens for the birds she has learned to identify by call and sight. She quietly observes the newborn fawn tucked under a small mountain laurel, her mouth slackjaw with amazement.

Our forests are precious gifts that are not only vital to our emotional well-being, but to our physical being as well. We know that forests clean our water and air and enhance biodiversity, making the earth cleaner and more able to sustain life.

The red-light panic button for humanity has been hit. We live in a time of run-away climate change and we need to do everything - *everything* - to draw down carbon and to mitigate its devastating impacts.

We must stop logging in our state owned forests. Forests are self-regulating. They don't need us humans to manage growth. We must protect the magical, awe-inspiring landscapes so that someday my daughter's daughter can gaze in wonder at this land. We must keep the complex, biodiverse landscapes to sequester carbon and clean our water and air.

I am a life-long resident of Massachusetts. These are my forests and I demand that we honor biodiversity and life and the beauty around us and cease all logging immediately. There are plenty of privately owned forests to help meet the demand for wood.

Be bold and do what needs to be done. The possibility of life on our planet depends on it.

With deepest thanks for listening and caring,
Christene DeJong
81 Pine Grove
Amherst, MA 01002

Thank you for your comments.

From: Sophia Gergely <sophia.gergely@gmail.com>
Sent: Monday, August 23, 2021 6:59 PM
To: Forestry Comments (DCR)
Subject: Forrest logging

We should leave many of these forests alone - logging is a thoughtless tampering. Without looking toward the long range effects.

Sent from my iPhone

Thank you for your comments.

From: Patricia Ramsey <pramsey@mtholyoke.edu>
Sent: Monday, August 23, 2021 8:42 PM
To: Forestry Comments (DCR)
Subject: Stop Logging on our State-Owned Forests

Categories: Red Category

We need our forests for carbon sequestration and for biodiversity. Logging is NOT the answer!!

thank you,
Patricia Ramsey
Amherst, MA

Thank you for your comments.

From: Dicken Crane <dickencrane@mac.com>
Sent: Saturday, August 28, 2021 9:03 AM
To: Forestry Comments (DCR)
Subject: DCR Forest Management Projects

Hi Tom
The lands that DCR owns across the state are a great resource for both our population and the planet. While most of this land is forested less than half is managed for the public benefits that forest provide. All forest land provides public benefits but in many of our stands those benefits are declining as the result of climate change, invasive plants and insects not to mention centuries of human impacts.
Science shows that we can do better than doing nothing to protect our forests. We can increase their resilience to climate change, increase sequestration and improve habitats for both ourselves and the other species we share the planet with. While history shows that mankind can also do the reverse it does not justify a failure to make positive changes in how we interact with and manage our forested landscape today.
The science based management projects that DCR has proposed represent an effort to restore the diversity and functionality of these stands that have been effected by climate change, invasives and human impacts like non-native plantations. These projects reflect DCR's focus on forest and habitat health, climate resilience and carbon sequestration and storage.
DCR's forest management program is on the right course to support the goals that provide both public and planetary benefits.

Thanks for the opportunity to comment
Dicken Crane

Thank you for your comments.

From: Tribal Scribal <lionoak@gmail.com>
Sent: Sunday, August 29, 2021 9:40 AM
To: Forestry Comments (DCR)
Subject: Re.: DCR Forest Management Projects

We are in a Climate Crisis and commercial logging is part of the problem. Our children, grandchildren and future generations require us to rethink business-as-usual. We need our forests protected and preserved so they can continue the critical work of natural carbon capture and storage of carbon within the forests and forests soil. Commercial logging releases stored carbon back into the atmosphere and only a minimal amount is sequestered in forest products that are not burned.
Chester-Blandford, Mount Washington, Northfield, Otter River, Lawton, Myles Standish and all Massachusetts State Forests should be off limits to commercial logging and be designated as carbon reserves for the health and well-being of the residents of the Commonwealth now and into the future.

Don Ogden
Florence, MA 01062

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"Our planet's future climate is inextricably tied to the future of its forests." - *Oct. 5, 2018 letter from 40 scientists to the Intergovernmental Panel on Climate Change*

"A society grows great when old men plant trees in whose shade they shall never sit." - Greek Proverb

http://concertobi.blogspot.com/
****
Checkout The Enviro Show on WXOJ-LP, 103.3fm. Northampton, MA, Tuesdays, 6pm
[Webstreaming at:
http://valleyfreeradio.org/listen/
Also on WMCB, Greenfield; 107.9, Mondays & Tuesdays at 6pm. Streaming at
http://wmcb.net/Listen.html
[Blog w/links and YOUR comments at: http://envirosho.blogspot.com/]
Email: enviroshow@valleyfreeradio.org
****

Thank you for your comments.

From: Bill Hull <hull@hullforest.com>
Sent: Monday, August 30, 2021 8:17 AM
To: Forestry Comments (DCR)
Subject: Proposed forestry work

Dear Sirs:

Thank you for the well informed presentation on proposed Forestry projects for 2021. In reviewing the proposed projects I note that many involve the creation of early successional habitat. This is a critically lacking component of most of our forests in Mass whether private or public. More early successional habitat means more wildlife and of a greater diversity, all good outcomes.

Other projects, such as in the Myles Standish State Forest, have a focus on managing forest fuel loads. I am pleased to see that managing fuel loads is on the radar screen. Too bad this has not been a bigger focus out west where our public forests are being destroyed by wildfires. Pre planning to protect a campground is to be particularly commended.

Other projects aim to harvest Ash which is under a certain death warrant from the Emerald Ash Borer. Others involve Red Pine salvage and replacement particularly in areas of public use such as trails where falling dead tress can pose a safety hazard.

As a Ma licensed Forester in the private sector working for one of the largest private sector timberland owners in MA. I can say that I find your proposed projects to be well thought out and a credit to the management skills of your staff. I support all the proposed projects and wish you well in their implementation.

With Best Regards,

Bill Hull

William B Hull, GP
Hull Forestlands LP
101 Hampton Road
Pomfret Center, CT 06259
800.353.3331 860.974.0127 F:860.974.2963
www.hullforest.com

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Thank you for your comments.

From: Julie Robinson <h2ofwl@comcast.net>
Sent: Monday, August 30, 2021 10:35 AM
To: Forestry Comments (DCR)
Subject: DCR Forest Management Projects

Good morning: We are writing to indicate our support of the following DCR Forest Management Projects: Chester-Blandford, Mount Washington, Northfield, Otter River, Lawton, and Myles Standish State Forests. The work proposed follows best management practices for forestry work. The forest areas being proposed for management are older even aged plantations of softwood and/or diseased stands that need to be treated. As even aged stands of softwoods mature, regeneration decreases and eventually the stands begin to fall apart. Today, here in the northeast, our forests are maturing faster than they are regenerating and have been doing so for a number of decades. In order to keep the forests healthy and to have a diversity of wildlife, we need a mixture of different habitat types and different ages of habitat. Forest regeneration, also known as young forest habitat, is critically important for future healthy forests and for many species of wildlife. Today, young forests comprise less than 2 percent of forestland in some areas. As a result of this declining forest type, there are more than 60 species of wildlife in the East and Upper Midwest whose populations have been falling and are now considered "Species of Greatest Conservation Need". In addition, there are dozens of more common wildlife species that also rely on this young forest habitat. In our opinions, the forest projects as proposed will provide future healthy forests and much needed and critical young forest habitat for wildlife. Thank you for the opportunity to comment. Edward Robinson and Julie Robinson, Certified Wildlife Biologists, Retired - NH Fish and Game Department.

Thank you for your comments.

From: CHARLES PERNAA <cp571@msn.com>
Sent: Monday, August 30, 2021 3:27 PM
To: Forestry Comments (DCR)
Subject: Beaman Pond Lot 2.0, Willis Road North, and Willis Road South

Beaman Pond Lot 2.0
I would like to make a positive comment on this sale. I realize this is in a Parkland designated property where wood products are not a goal. I do have knowledge of past management as former forester who conducted silvicultural treatments on several areas of this proposed sale. Forest health, vigor, and proximity to recreation areas has always been priority. With declining health the safety of patrons is most important but trees were planted to produce wood resources for the people of the Commonwealth. This proposal should be able to do both.
Chuck Pernaa

Willis Road North
I think this is a good treatment for this parcel of land. I was the forester who conducted the treatment in 2003. Areas treated were plantations that were not cut prior to states acquisition. (in 1980's the Lawton's were deciding what to do with the property. Develop it or sell as one parcel. They cut merchantable timber before sale to state) These stands were too small in diameter to harvest. Therefore this proposal covers many acres that were cut in the early 1980's and have grown for 30+ years from last treatment. With poor growth, needle scale and fungal activity it is a smart time to conduct a silvicultural activity on this parcel.
Chuck Pernaa

Willis Road South
I believe this is a good project to enter into with the University of Massachusetts-Amherst. I was the forester who conducted treatments on this parcel after the State bought property. This area was also cut heavily in the early 1980's. There is a diversity of species in this area with only a small area of plantations. Area has had 30+ years to recover from last major treatment. A good project for Massachusetts first Tree Farm.
Chuck Pernaa

Thank you for your comments.

From: Craig Hefner <chefner60@gmail.com>
Sent: Monday, August 30, 2021 6:04 PM
To: Forestry Comments (DCR); Lewis, Amanda (DCR)
Subject: Northfield State Forest
Attachments: trail1 copy.jpg; Trail2 copy.jpg; Trail3 copy.jpg; Trail7 copy.jpg; Trail8 copy.jpg; Trail6 copy.jpg; Trail5 copy.jpg; Trail4 copy.jpg

Greetings,

I am writing regarding the logging in the Northfield State Forest between Birnam Road and School Street.

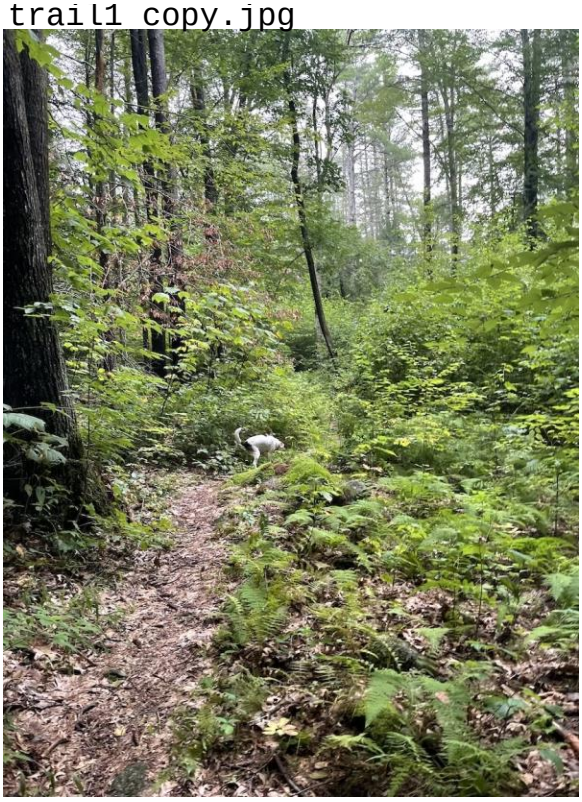
This is a new section of the Northfield State Forest and many people are just discovering it and using it regularly. Your Plan will be immediately in the two access points to this State Forest and will certainly discourage new users at a time when it was just becoming known. I understand that logging, when done properly, is part of good forest management. However, It seems to me that selecting another area of the forest at this time makes more sense, not where virtually all users gain access to a new tract of State land. If a goal is recreational use, this logging plan is detrimental for this purpose.

One of my main concerns is how the trials grow-in due to the light gap left from logging. This area has already been logged a few years ago and attached are photos of trails that have grown in. All of these photos are of trails in or near the proposed logging. The logging was done several years ago when NMH School owned the property. The State says that they maintain the trails, and they do a good job of removing downed trees. HOWEVER, they do NOT clear trails as they grow-in after logging. The only reason that these trails are even passable is because I (and a couple other mountain bikers) keep them open by pulling, breaking, and cutting trees as they grow in. However, it is difficult to keep up with and the trails are barely passable. If you consider the recreational use of these trails, when people go out and hike or bike on the trails, when they have to go through a thicket which gets them wet and tick infested, they do not go back. I know this for a fact because I have spoken to multiple people for whom this has happened.

It is my hope that, if this land is logged, the State DCR will (this time) do the right thing and send a crew to cut back the growth that occurs from the light gaps and keep the trials open and wide in the years to come.

Craig Hefner

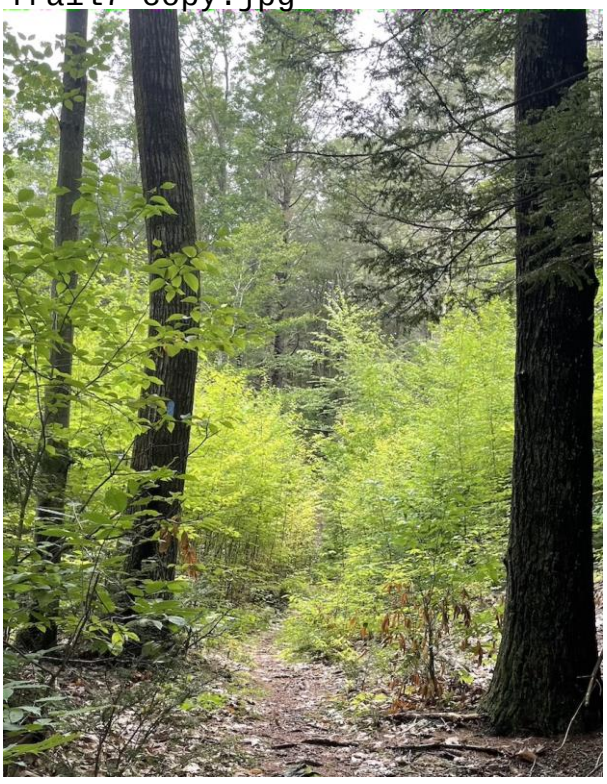
trail1 copy.jpg



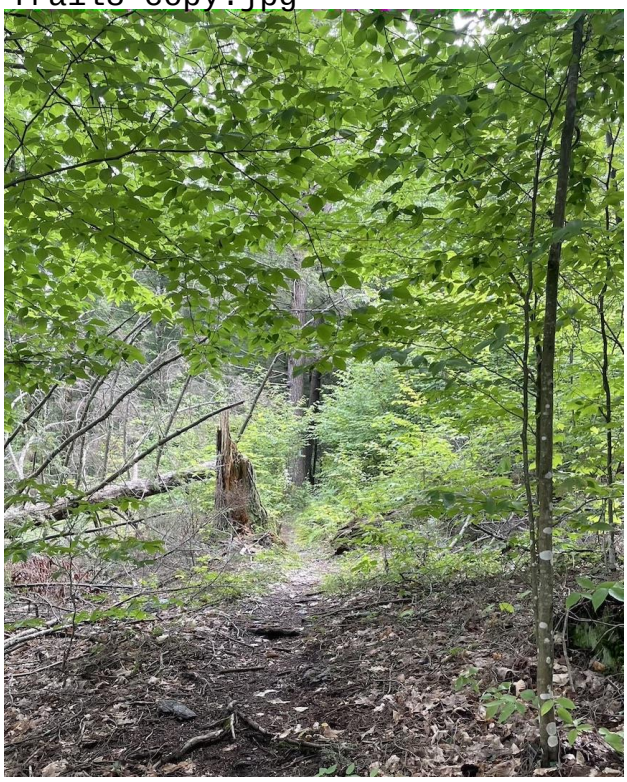
Trail2 copy.jpg

Trail3 copy.jpg

Trail7 copy.jpg



Trail8 copy.jpg



Trail6 copy.jpg

Trail5 copy.jpg

Trail4 copy.jpg

Thank you for your comments.

From: Hayden Conkey <hconkey94@gmail.com>
Sent: Monday, August 30, 2021 7:40 PM
To: Forestry Comments (DCR)
Subject: Forest Management

To whom it may concern:

I believe correct forest management is vital to improve not only the ecosystem but the climate as well. Over the years, DCR along with the Umass forestry program has proven these timber harvesting projects to be beneficial to the forest and wildlife that live within. However, the negative reactions from the under informed and uneducated general public has raised attention to the future proposal of DCR's projects. Having seen the positive effects and importance of selective timber harvesting throughout the years, I think the following are much needed to ensure a healthier forest for the future:

1. More "wildlife cuts" to create more habitat for a number of different species. This includes large openings in the forest canopy.

2. MORE MANAGEMENT! A minuscule percent of state land is currently being managed. Removing large trees creates openings that allow newly established regeneration to grow. This also provides browse and nesting sites for wildlife. A healthy forest is a diverse one. This overtime creates a forest more resilient to climate change while also removing carbon from the forest.

3. More public outreach. The public is currently being negatively persuaded by false information. DCR needs more articles published, more seminars held, and more effort given to combat the false accusations against forest management.

Selective timber harvesting plays a huge role in the fight to combat climate change. The state of Massachusetts has great opportunity with the vast amount of forested land that could be managed. Unfortunately, very little is being put to use. I hope to see much more timber harvesting projects being proposed by DCR.

Thanks for your time,

Hayden Conkey

Thank you for your comments.

From: Michael Foster <mwfoster62@gmail.com>
Sent: Monday, August 30, 2021 9:08 PM
To: Forestry Comments (DCR)
Subject: Chester-Branford forest management plan comments

Mr. Commissioner Montgomery,

I appreciate the opportunity to comment on the proposed DCR Forest Management Projects in Chester-Blandford, Mount Washington, Northfield, Otter River, Lawton and Miles Standish State Forests.

I have spent a lot of time hiking and hunting in many of our state's wonderful DCR properties and I generally support the department's silviculture prescription for controlling the quality of forest and woodlands under their stewardship. I would like to see a more aggressive and strategic forest management approach in concert with other state agencies like DFW to address shortfalls in past management policies that have hindered the ability to achieve a balance multi-successional forests.

I am particularly familiar with the Chester-Blandford State Forest and as such very interested in Kristopher Massini's forest management plan for the Old House Project. The presentation was well done and the forest management proposal is a sound plan to address concerns in this lot.

What struck me is the Chester-Blandford SF is a large property - 2,776 acres of woodlands. This plan encompasses 106 acres and one of the goals is to create only 5 acres of young forest habitat. On a micro level it is a positive step but I am concerned it is not enough.

I would have liked to hear more commentary from the forester on how the Old House Project ties in with the other 15 projects this state forest has completed since 1980. In the last 40 plus years how successful has the Chester-Blandford State Forest management plan been at meeting the objectives? More particularly, have the size, scope and timing of these projects been effective in reaching the agency's goals for a broad range of ecosystem services?

Back in 2012 the state presented the Landscape Designations for DCR Parks and Forests Selection Criteria and Management Guidelines. The active forest management program was confined to public DCR land parcels designated as woodlands.

How does the department expect to achieve balanced ecosystem services and benefits across the broader landscape when approximately 60% of state land controlled by DCR is designated as reserve or parkland where no active forest management practices are allowed? Shouldn't the DCR Landscape Designations and Management Guidelines be reevaluated to allow more flexibility, where appropriate, to successfully bring about the desired objective?

As one of the largest land stewards in the Commonwealth, the Department of Conservation and Recreation has an opportunity to shape long-term management and conservation of biodiversity. Thank you for being more proactive and thoughtful in future forest management policy and plans.

Sincerely,

Michael W. Foster

211 Moreland Street

Worcester, MA 01609

Thank you for your comments. The Chester-Blandford State Forest project endeavors to create an expanding mosaic of young forest near previously recently harvested stands, both on state forest land and adjacent private forest land. On state land, vegetation composition in young forest created approximately 15 years ago is beginning to change from brushy herbaceous growth to more woody tree saplings and work proposed in this project will create its replacement. Harvesting on adjacent private lands also created younger age classes which this project will perpetuate, providing continued juxtaposition of a variety of forest stage classes.

From: Charter <ktconkey@charter.net>
Sent: Tuesday, August 31, 2021 8:03 AM
To: Forestry Comments (DCR)
Subject: DCR Forest Management

I'm strongly in favor of forest management on public lands. It makes the most sense from a carbon standpoint as well as a wildlife habitat creation. I feel we should be managing more public land than we are. We need to grow new trees.

Toni Conkey

Sent from my iPhone

Thank you for your comments.

From: Darcy Sweeney <darcysweeney@gmail.com>
Sent: Tuesday, August 31, 2021 9:35 AM
To: Forestry Comments (DCR)
Subject: Forest Management Projects

To Whom It May Concern at the DCR:

I am writing with regard to this year's forest management projects to ask the DCR to please stop logging our public forests! Forests have been managing themselves just fine for millions of years. It is the ultimate in human hubris to think that we humans can improve on nature. The reasons given for logging are too often short-sighted or misconceived. For example, the concern about bird declines associated with early successional habitat in recent decades on closer look are actually bird species that were not prevalent prior to the European settlement when vast swaths of forest were cut. Similarly, why is there a need to remove the ill-conceived tree plantations that were planted decades ago? Rather than devastating the forest and its creature through logging, releasing carbon into the air when trees are cut, and all the carbon emissions released by machinery, why not let the tree plantations return to natural forest over time without human interference?

In the midst of this terrifying climate crisis we need undisturbed forests more than ever for biodiversity, carbon sequestration, and the beauty and tranquility that only forests can confer. Please stop destroying our public forests!!

Darcy Sweeney

31 Lexington Ave.

Florence, MA 01062

Thank you for your comments.

From: Robert Hendry <rhendry@umass.edu>
Sent: Tuesday, August 31, 2021 10:01 AM
To: Forestry Comments (DCR)
Subject: northfield birnam rd logging

Dear Mr. Dinardo,
I'm writing to discuss the DCR logging planned for Birnam Rd. area in Northfield. I'm aware that I have missed the public comment deadline but I request that we keep diaglouge open on this project as it is a very important recreation area in our town. I am concerned about the area because the area was unusable for recreation for several years after NMH logged in 2013. Additionally, runoff created by adding new roads changed waterflow off the mtn that resulted in my basement flooding with water. Speaking with DCR reps at the time I was assured that all the work was done to the letter of the law. This is fine but it just proves that the current law is insufficient to protect the woodlot and the adjacent properties. Can you please help allay some of my fears about future logging?

Can I ask a few questions that I was not able to find in the online docs?

1. When will the logging be done?
2. How long will it take?
3. Will the work be done by one company?
4. Are there financial estimates of how much DCR will be paid by the logging company?
5. Is the bidding process for the project already under way? Any www links?
6. How long will the trails be closed?
7. Have you personally walked the trail network to establish current conditions?
8. Will you personally walk them after logging to inspect trails after logging is done?
9. Will more of the big sharp rocks be used on roads?
10. Did the previous logging 'diversify' the area? (comp study)

Thank you.
Robert Hendry
64 Glenwood Ave
Northfield, MA

Thank you for your comments.

From: ernie foster <ernie@foster-companies.com>
Sent: Tuesday, August 31, 2021 4:05 PM
To: Forestry Comments (DCR); Montgomery, Jim (DCR)
Cc: Tisa, Mark (FWE); Amidon, Ronald (FWE)
Subject: 2021 Forestry Management Proposal

Dear Commissioner Montgomery,

Thank you for the opportunity to comment on the 2021 Forest Management Proposals. The proper professional forestry management of our State's land holdings are vital to all living things today and in the future. The projects presented on your website are very encouraging for State land areas under DCR control. I remain confused as to why there has been a need in the past to have a classification assigned as a Forest Reserve. Every forest parcel has its own identity and individual management needs. And most often those needs are identified by Massachusetts Fish & Wildlife biologist who have a like interest and responsibility to manage all living things that use the forest, habitat, and forest floor. To arbitrarily assign parcels of land into a Reserve category that is not based on any science is a dangerous management decision, and not in the best interest of wildlife, plant life and tree species.

During my twenty-year tenure on the Massachusetts Fisheries and Wildlife seven-member Board of Directors, I always related the Director and Commissioner in a like responsibility with the medical term of "Primary Care Physician". Their position put them in charge of their arena to identify the problems, and assigning the right professionals to care for the patient. I feel the same way about forestry management responsibilities. I also feel that the two agencies are much like a successful marriage. They need each other as they interact in all walks of life, and care for their own and others around them. The category Forest Reserve does not let either "parent" care for the patient.

Those that know me, know that I am a very active outdoors person in the hunting, fishing, and shooting sports. One of my passions in this arena is pointing bird dogs in pursuit of wild upland game birds, more specifically ruffed grouse and woodcock. Those that hunt these crafty game birds know the importance of the habitat necessary for their survival. To be right up front with you, in my opinion, DCR has done a poor job in the past of being pro-active with the forestry management cuts to provide improved habitat for all living things. Our ruffed grouse and woodcock decline in populations are directly related to the loss of their need for the right habitat; as well as other living things that frequent the same habitat. Man can provide many solutions to issues in the environment, mother nature, working alone, controls its destiny……not the way to go in America today. Like all individuals, as we grower old we need professional help.

Going back to my interest in upland wild game bird hunting, one of my favorite range of covers was along the Skyline Trail from Huntington, through Chester, into Middlefield, Hinsdale and the route to Dalton. I have hunted these covers for over forty years. During those forty plus years I tramped the converts in their different stage of growth from beginning stages of life to now mixed species of timber all fighting for a place in life. Many of the covers were abandon orchards which offered a food sauce to many species of wildlife that once lived in a habitat that support their life. Prior to writing this email I visited several of the areas in the Middlefield Factory Brook area, areas that were prime habitat for Grouse, woodcock, turkey, deer, bear, rabbit, bobcat, all kinds of bird life, reptiles, fruit bearing trees, shrubs and ground cover, now all dead from the overstory of leaf and coniferous trees that have grown out of control given to them from the designated Forest Reserve protection. A designation that has contributed to the death of so many other living things. How sad!

There is still time, as the PCP/Stewarts of the DCR land oversight, abort the Forest Reserve category and wake up tomorrow morning and every morning saying what can I do that is in my control to make our forest areas a better place for all living things, and for those that walk in them to “smell the roses”?

I applaud you for the many projects you have recently started, and once done they will be part of your legacy. Let’s add to the list.

Again, thank you for your time and all you and your staff have done. Please revisit the current need for a Forest Reserve Designation.

Cordially,

Ernie Foster, Jr.

Ernest W. Foster, Jr.

Ernie@Foster-Companies.com

Ernest W. Foster, Jr. Real Estate
632 Cambridge Street
Worcester, MA 01610

office: 508-835-3136
cell: 508-410-6826
fax: 508-835-4511

Thank you for your comments.

From: Glen Ayers <glenayers@gmail.com>
Sent: Tuesday, August 31, 2021 4:14 PM
To: Forestry Comments (DCR)
Subject: Comments on 2021 DCR Public Lands commercial logging projects

To; DCR Forestry Comments
From: Glen A. Ayers
Date 8/31/21

RE: Opposition to all DCR Public Lands forest degradation plans, including commercial timber extraction at:

1. Chester-Blandford State Forest, Old House Lot;
2. Mt. Washington State Forest, Cattle Barn Lot;
3. Northfield State Forest, Birnam Road Lot;
4. Otter River State Forest, Beaman Pond Lot 2.0;
5. Lawton State Forest, Willis Road North and South;
6. Myles Standish State Forest, Charge Pond Campground Complex.

I strongly object to the commercial logging of the above State Forests on the following grounds:

1. The DCR lacks adequate legislative direction to conduct commercial timber extraction projects on publicly owned lands. In fact, existing legislative direction indicates that commercial logging is essentially prohibited except under specific conditions, none of which are met by the current proposals to commercially log our State Parks and Forests.

The DCR inappropriately claims to have been given a broad mandate to "manage" public forests by using commercial timber extraction, by singling out a single phrase found in MGL C. 132, s. 40, which states "providing a continuing and increasing supply of forest products for public consumption, farm use, and for the woodusing industries of the commonwealth". This phrase is the final thought at the end of a longer section that includes "protection of forest lands for the purpose of conserving water, preventing floods and soil erosion, improving the conditions for wildlife and recreation, protecting and improving air and water quality", which implies that the preceding requirements take priority over the final phrase. However, DCR has seized on this final phrase to falsely claim that it has been directed to conduct commercial timber sales in publicly-owned forests, using this generic phrase, which was intended to be a "public welfare" policy meant to apply broadly to all forested lands in the commonwealth, and DCR has instead willfully misinterpreted this phrase to justify their commercial logging projects. This is the weakest sort of justification, and one which falls flat on its face when the true understanding of the policy direction found in Section 40 is understood to apply in the broadest of senses to the entirety of the Commonwealth.

The DCR public lands logging program has no legitimacy, in that there is no State equivalent of the National Forest Management Act, or any similar legislation that establishes timber extraction by way of the commercial logging of State Parks and State Forests. The entire commercial logging program housed at the Management Forestry Program within DCR is an entirely fictitious administrative creation, which unlawfully transfers public

assets to private individuals using illegitimate approvals and unappealable contracts. Nothing about the process is defensible, in that it completely fails to follow the procedural standards of the MA Administrative Procedures Act, Chapter 30A. While the DCR does have limited legislative approval to sell or market wood products that are associated with utilities such as power transmission lines and pipelines that cross public lands, these limited cases are not in any way applicable to the illegitimate commercial logging projects that are being proposed.

In addition, more recent and more applicable legislative direction is given in MGL C. 132A, s. 2B, which states that "It is hereby declared to be the policy of the commonwealth that all such sites acquired or developed by the commissioner shall in so far as practicable be preserved in their natural state;" with the following restriction clearly spelled out by the legislature: "no commercial activities except those essential to the quiet enjoyment of the facilities by the people shall be permitted." This law, passed after the statewide general direction found in C. 132, s. 40, is specific to "acquired" lands only, which means public lands, and clearly restricts the development of "commercial activities" to only those found to be "essential" to the public purpose of the land. The DCR has completely ignored this more recent and more applicable legislative direction, and in doing so has debased the spirit and intent of the law, thereby violating the public trust. For this reason the six commercial projects listed above should be cancelled and no further commercial logging should be planned on any DCR-controlled public lands.

2. The so-called "Public Participation" process that DCR imploys to facilitate the commercial logging of public lands, is nothing more than a sharade intentionally designed to provide the public with no meaningful input into the decision-making process. This is exemplified by the fact that the process is entirely arbitrary, follows no legitimate regulatory procedure, and provides absolutely no administrative recourse or or options. There is a single arbitrary 45-day "public comment period" that the DCR has established as a "policy" without any foundation in law or regulation, and which the DCR utilizes to create the illusion that the public has an actual say in the management of their public lands. Nothing could be further from the truth. In reality, the DCR engages the public in a bad-faith effort designed to stifle opposition and mislead the public. After the end of the so-called public comment period, DCR routinely dismisses, derides, deflects, and rejects the legitimate issues that are raised by the public and perfunctorily approves the proposed plans with no regard for the issues raised by the public. This has happened time after time, year after year. If DCR responds to substantive comments in any way, it is with timberspeak and simplistic self-serving pronouncements.

The process then followed by the DCR is intended to further hide the workings of the Management Forestry public lands logging program from the public. This is done by the use of a perverted interpretation of the regulations found at 302 CMR 16.00, in which DCR considers itself to be the "applicant landowner", which is a term not defined in the regulations. DCR writes a cutting plan to commercial log and area that it selects, which DCR then submits to itself (DCR) for review and approval. In accordance with the regulations, if the agency (DCR) doesn't like it's own decision that it makes regarding the plan that it wrote and submitted to itself, then DCR can appeal the denial of the plan approval by DCR to itself (DCR). In this totally absurd selection-submission-review-approval process, DCR is the only entity that has any say in what is selected, what is proposed, what is reviewed, and what is approved. While the regulations do allow for an administrative appeal of the decision at 302 CMR 16.04(8), because DCR improperly considers itself the "applicant landowner", the right of appeal is meaningless, since DCR would be appealing the decision that DCR made to DCR. In this way the public is completely and intentionally excluded from any meaningful participation in the disposition of their jointly-owned public assets (their parks and forests), and also completely and intentionally excluded from any sort of administrative remedies which clearly violates Chapter 30A, the MA Administrative Procedures Act.

It is painfully clear that the 302 CMR 16.00 regulations were never intended to apply to public lands logging, since they are unworkable without using the erroneous interpretation and absurd procedure that DCR avails itself of in order to implement the regulations in a totally self-serving and illegitimate manner. These regulations can not be applied to public lands logging, and to do so makes the entire process a farce. No appeal, no administrative process, no legitimacy. Thus the DCR public lands commercial logging program is an

egregious abuse of discretion, and may even be considered to be a criminal enterprise or racket. This willful manipulation of the legal process, intended to illegally transfer public assets to private individuals with no accountability, utilizing an obviously illegitimate process, with the intention of defrauding the public, is a clear example of corruption that should be subject to the anti-racketeering provisions of RICO.

Summary

For the above stated reasons, the DCR must cancel the six proposed commercial timber sales listed for 2021. If there is a legitimate reason to kill public trees and degrade our State Parks and State Forests, then DCR should establish a process which allows meaningful public participation, clearing identifying the administrative process that will be followed, including the public right to appeal any bad agency decisions. If a case can be made for public safety, that would be one thing, but the use of commercial timber sales to log our public lands has no legitimate purpose, is not being done in accordance with legislative direction, and is being done by DCR in an entirely self-serving and corrupt manner. The public opposition to this program will not be going away and will only continue to grow until DCR responds in a manner that honestly addresses the public's legitimate concerns. In light of the recent IPCC Climate Report, the actions of DCR constitute an appallingly inconsistent, willfully negligent, and intentionally maleficent destruction of our critically important public forests and parks. The DCR must stop acting as a climate denier, and start following the science and the law. To do otherwise will meet with increasing opposition.

Sincerely,

Glen Ayers
254 Davis Street
Greenfield, MA 01301
glenayers@gmail.com

Thank you for your comments.

From: Michael Kellett <kellett@restore.org>
Sent: Tuesday, August 31, 2021 4:33 PM
To: Rowcroft, Jessica (DCR); Forestry Comments (DCR)
Subject: Comments on Seven 2021 DCR Proposed Forest Management Projects
Attachments: DCR 7 2021 logging projects final 20210831.pdf

Jessica A. Rowcroft
Bureau of Planning, Design & Resource Protection
Department of Conservation and Recreation
251 Causeway St. Suite 600
Boston, MA 02114
jessica.rowcroft@state.ma.us

Dear Ms. Rowcroft:

Attached are comments on seven 2021 DCR proposed forest management projects signed by a number of interested organizations and citizens.

If you have questions, feel free to contact me directly at kellett@restore.org.

Thank you for the opportunity to comment on these projects.

On behalf of the signers,
Michael Kellett

****
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August 31, 2021

Submitted via email to: Jessica Rowcroft jessica.rowcroft@state.ma.us and Forestry.comments@mass.gov

Jessica Rowcroft, Project Manager
Massachusetts Department of Conservation and Recreation
251 Causeway Street, Suite 700
Boston, MA 02114

RE: Comments on Seven 2021 DCR Proposed Forest Management Projects

Dear Ms. Rowcroft,

We are writing to comment on seven forest management projects that are being proposed by the Massachusetts Department of Conservation and Recreation (DCR) in six state forests.[1] The projects include: Old House Lot[2] (Chester-Blandford State Forest), Cattle Barn Lot[3] (Mt. Washington State Forest), Birnam Road Lot[4] (Northfield State Forest), Beaman Pond Lot[5] (Otter River State Forest), Willis Road North[6] and Willis Road South[7] (Lawton State Forest), and Charge Pond Campground Complex[8] (Myles Standish State Forest).

DCR has issued an individual proposal for each logging project. These proposals include a number of claims regarding the purported benefits of logging, most of them presented in more than one project plan. These comments cite some of the major claims made in the DCR proposals and our response to these claims.

There may be some legitimate need for some of these logging activities, such as the removal of hazard trees. However, we are concerned that in most cases the claimed benefits of these logging projects are either questionable or not supported by the facts.

Carbon Capture and Storage

DCR claim: DCR contends that its logging projects will be beneficial in *"maintaining structural and species diversity, providing positive benefits to wildlife, and using silvicultural techniques to help forests adapt to climate change and enhance carbon stock management."* (Cattle Barn Lot) and that this logging will *"[enhance] carbon sequestration and storage"* (Birnham Lot).

On its website, DCR expands on these claims:

> *[T]he Department of Conservation and Recreation's Bureau of Forestry leads in delivering carbon benefits on state lands for future generations.…*

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[1] Department of Conservation and Recreation. 2021. Forest Management Projects Proposed 2021. Commonwealth of Massachusetts https://www.mass.gov/guides/forest-management-projects#-forest-management-projects-proposed-2021-
[2] https://www.mass.gov/doc/old-house-lot-proposal/download
[3] https://www.mass.gov/doc/cattle-barn-lot-mwsf-southern-berkshire-proposal/download
[4] https://www.mass.gov/doc/birnam-road-lot-nsf-proposal/download
[5] https://www.mass.gov/guides/mid-state-forest-management-projects#-beaman-pond-lot-2,-otter-river-state-forest-
[6] https://www.mass.gov/doc/willis-road-north-lsf-mid-state-proposal/download
[7] https://www.mass.gov/doc/willis-road-south-lsf-mid-state-proposal/download
[8] https://www.mass.gov/doc/charge-pond-campground-mssf-southeast-proposal/download

The Commonwealth has made it a priority to permanently protect forest land from development and keep forests as forests. The DCR alone has acquired around 116,000 acres of land in the last 60 years. In contrast since the early 1990s, 4,800 acres of forest land are permanently lost to development in Massachusetts each year. The State Parks and State Forests protected lands, which will remove and store carbon dioxide….

While it is important to have older stands that hold large amounts of carbon, these carbon stocks are at risk from severe weather, diseases, and pests…. [M]anaging [i.e., cutting down trees] for diverse conditions locally and across the landscape allows for adaptation to a changing climate and provides a level of resiliency to events and issues attributed to climate change such as weather, fire, or invasive species….

There has been a continual accrual of total carbon on the DCR's forest land since 1960. Not only has total carbon increased but carbon stocks per acre on the DCR's lands have nearly doubled as well…. [T]imber harvesting timber harvesting has a minimal impact on our overall carbon portfolio. ***In fact, carbon in trees harvested represents less than one-half of one percent of the total tree carbon stocks.*** *[Emphasis in original.]*[9]

Response: DCR maintains that it is a leader in fighting climate change. There are several serious flaws in this claim.

A recent report co-authored by a University of Massachusetts forestry faculty member states flatly: "All harvesting reduces carbon storage of a forest below the maximum potential for the site."[10] DCR does not deny this. Indeed, in a 2018 presentation to the Department of Conservation and Recreation Stewardship Council, DCR Management Forestry Supervisor, William Hill stated, "It's obvious that the choice of leaving a forest uncut sequesters more carbon. We accept that."[11]

DCR repeatedly touts the fact that carbon stocks are increasing on forest lands it administers and implies that its forest "management" (logging) program is contributing to this increase. In fact, the increase is happening *despite* the logging done by DCR, not because of it.

America's forest carbon stocks have already been depleted by about 60% due to past logging and clearing.[12] Continued logging is releasing more carbon and further reducing the potential carbon sink.[13]

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[9] Department of Conservation and Recreation. 2020. Managing Our Forests ... For Carbon Benefits. Commonwealth of Massachusetts. https://www.mass.gov/info-details/managing-our-forests-for-carbon-benefits

[10] Catanzaro, Paul and Anthony D'Amato. 2019. Forest Carbon: An Essential Natural Solution for Climate Change. University of Massachusetts Amherst and University of Vermont. https://masswoods.org/sites/masswoods.org/files/Forest-Carbon-web_1.pdf

[11] William Hill. From transcribed excerpts of recording of presentation by DCR Management Forestry Supervisor William Hill to Department of Conservation and Recreation Stewardship Council Meeting, October 12, 2018.

[12] McKinley, Duncan C., Michael G. Ryan, Richard A. Birdsey, Christian P. Giardina, Mark E. Harmon, Linda S. Heath, Richard A. Houghton, Robert B. Jackson, James F. Morrison, Brian C. Murray, Diane E. Pataki, And Kenneth E. Skog. 2011. A Synthesis of Current Knowledge on Forests and Carbon Storage in the United States. Ecological Applications, 21(6), 2011, pp. 1902–1924. doi: 10.1890/10-0697.1.

Since 1600, logging and other forest clearing have dramatically reduced carbon storage in the forests of New England.[14] However, because of their tremendous ability to recover from past abuse, Massachusetts forests are now among the most carbon-dense in the eastern U.S.[15] In addition, because these forests grow fast, decay slowly, and have an average age of only 75 years, they have centuries of growth ahead. Research has shown that the greater the amount of logging, the less carbon that is stored in the forest. If protected from logging, New England forests are capable of storing 2.3 to 4.2 times more carbon than they do currently.[16] If these forests are allowed to grow back and kept intact to reach their ecological potential — termed proforestation — there is enormous potential for additional carbon storage.[17]

DCR contends that its logging program has an infinitesimal effect on climate disruption. This is highly misleading. In the northern United States, including New England, logging accounts for about 86% of the carbon emitted by forests each year — far greater than releases by development and other land uses.[18] Moreover, logging directly emits carbon from fuel burned by logging and hauling equipment, as well as by the decomposition of trees after they are cut.[19] Because overall forest growth has yet to absorb the emissions from forest loss and degradation over the last several centuries, logging to expand early successional habitat further sets back recovery of original carbon stocks.

The claim of DCR that the carbon released by its logging program is insignificant ignores the long-established concept of cumulative effects.[20] When the impacts of logging by DCR are added to the thousands of other logging operations in New England, the United States, and around the world, the impact is massive. One study concluded that if logging were phased out across America's public lands — including state-owned lands — it could result in as much as a

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[13] Hudiburg, Tara W., Beverly E. Law, William R Moomaw, Mark E. Harmon, and Jeffrey E. Stenzel. 2019. Meeting GHG Reduction Targets Requires Accounting for All Forest Sector Emissions. Environ. Res. Lett. 14 (2019) 095005. https://doi.org/10.1088/1748-9326/ab28bb

[14] Duveneck, Matthew J., Jonathan R. Thompson, 2019. Social and Biophysical Determinants of Future Forest Conditions in New England: Effects of a Modern Land-Use Regime. Global Environ. Change 55, 115–129. doi: 10.1016/j.gloenvcha.2019.01.009

[15] Zheng, Daolan, Linda S. Heath, Mark J. Ducey, Brett Butler. 2010. Relationships Between Major Ownerships, Forest Aboveground Biomass Distributions, and Landscape Dynamics in the New England Region of USA. Environmental Management (2010) 45:377–386 DOI 10.1007/s00267-009-9408-3 https://www.ncrs.fs.fed.us/pubs/jrnl/2010/nrs_2010_zheng_001.pdf

[16] Keeton, William S., Andrew A. Whitman, Gregory C. McGee, and Christine L. Goodale. 2011. Late-Successional Biomass Development in Northern Hardwood-Conifer Forests of the Northeastern United States. Forest Science 57(6) 2011 https://www.uvm.edu/giee/pubpdfs/Keeton_2011_Forest_Science.pdf

[17] Moomaw William R., Susan A. Masino, Edward K. Faison. 2019. Intact Forests in the United States: Proforestation Mitigates Climate Change and Serves the Greatest Good. Front. For. Glob. Change, 11 June 2019 | https://doi.org/10.3389/ffgc.2019.00027 https://www.frontiersin.org/articles/10.3389/ffgc.2019.00027/full

[18] Harris, N. L., S. C. Hagen, S. S. Saatchi, T. R. H. Pearson, Christopher W. Woodall, Grant M. Domke, B. H. Braswell, Brian F. Walters, S. Brown, W. Salas, A. Forek, and Y. Yu. 2016. Attribution of Net Carbon Change by Disturbance Type Across Forest Lands of the Conterminous United States. Carbon Balance and Management. 11(1): 24. 21 p. http://dx.doi.org/10.1186/s13021-016-0066-5

[19] Law, Beverly E., Tara W. Hudiburg, Logan T. Berner, Jeffrey J. Kent, Polly C. Buotte, and Mark E. Harmon. 2018. Land Use Strategies to Mitigate Climate Change in Carbon Dense Temperate Forests. PNAS April 3, 2018 115 (14) 3663-3668. https://doi.org/10.1073/pnas.1720064115

[20] NEPA.gov. 2020. Considering Cumulative Effects Under the National Environmental Policy Act. Chapter 2: Scoping for Cumulative Effects. https://ceq.doe.gov/docs/ceq-publications/ccenepa/sec2.pdf

43% increase over current carbon sequestration levels.[21] This would be a major contribution to climate stabilization efforts.

Likewise, although some carbon may be stored in forest products, this is far less than if the forest were left standing. Studies have shown that even considering conversion to wood products, most of the original carbon in a logged forest will be released to the atmosphere within a relatively short time.[22],[23] Recent analyses have found that the benefits of cutting trees and storing carbon in wood products have been greatly overestimated by forestry advocates.[24],[25]

While a young forest recovering from logging will capture and store carbon, the amount stored in the forest will be much less than if the existing trees were allowed to grow.[26] Recent studies show that large, old trees actively fix large amounts of carbon compared to smaller trees, and a single big tree can add the same amount of carbon to the forest within a year as is contained in an entire mid-sized tree.[27] A global survey found that the largest 1% of trees store 50% of the carbon in a forest, and that old forests have far larger carbon stocks than young forests.[28] This is consistent with a recent study, which found that living trees in an intact eastern white pine forest in Massachusetts can accumulate aboveground carbon a high rate — especially in the largest trees — and can continue to accumulate high amounts of carbon in live trees for well over 150 years.[29] By cutting many, if not all, mature trees at each site, the proposed logging

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[21] Depro, Brooks M. Brian C. Murray, Ralph J. Alig, Alyssa Shanks. 2008. Public Land, Timber Harvests, and Climate Mitigation: Quantifying Carbon Sequestration Potential on U.S. Public Timberlands. Forest Ecology and Management 255 (2008) 1122–1134 http://naldc.nal.usda.gov/download/21039/PDF

[22] John Talberth, Dominick DellaSala, and Erik Fernandez. 2015. Clearcutting our Carbon Accounts: How State and Private Forest Practices are Subverting Oregon's Climate Agenda. Center for Sustainable Economy and GEOS Institute. November 2015 http://sustainable-economy.org/wp-content/uploads/2015/11/Clearcutting-our-Carbon-Accounts-Final-11-16.pdf

[23] Ann L. Ingerson. 2009. Wood Products and Carbon Storage: Can Increased Production Help Solve the Climate Crisis? The Wilderness Society, Washington, DC. https://www.sierraforestlegacy.org/Resources/Conservation/FireForestEcology/ThreatsForestHealth/Climate/CI-Ingerson-TWS2009.pdf

[24] Leturcq, Philippe. 2020. GHG displacement factors of harvested wood products: the myth of substitution. Scientific Reports Vol. 10, No. 20752. https://www.nature.com/articles/s41598-020-77527-8

[25] Hudiburg, Tara W., Beverly E. Law, William R Moomaw, Mark E. Harmon, and Jeffrey E. Stenzel. 2019. Meeting GHG Reduction Targets Requires Accounting for All Forest Sector Emissions. Environ. Res. Lett. 14 (2019) 095005. https://doi.org/10.1088/1748-9326/ab28bb

[26] Law, Beverly E., Tara W. Hudiburg, Logan T. Berner, Jeffrey J. Kent, Polly C. Buotte, and Mark E. Harmon. 2018. Land Use Strategies to Mitigate Climate Change in Carbon Dense Temperate Forests. PNAS April 3, 2018 115 (14) 3663-3668. https://doi.org/10.1073/pnas.1720064115

[27] Stephenson, N.L., A. J. Das, R. Condit, S. E. Russo et al. 2014. Rate of Tree Carbon Accumulation Increases Continuously with Tree Size. Nature: doi:10.1038/nature12914 (2014). https://doi.org/10.1038/nature12914

[28] Lutz, James A., Tucker J. Furniss, Daniel J. Johnson, Stuart J. Davies, David Allen, Alfonso Alonso, Kristina J. Anderson-Teixeira, Ana Andrade, Jennifer Baltzer, et al. 2018. Global Importance of Large-diameter Trees. Global Ecology and Biogeography. Volume 27, Issue 7, July 2018 pp. 849-864 https://doi.org/10.1111/geb.12747

[29] Leverett, Robert T., Susan A. Masino, and William R. Moomaw. 2020. Older Eastern White Pine Trees and Stands Sequester Carbon for Many Decades and Maximize Cumulative Carbon. https://doi.org/10.1101/2020.10.27.358044

projects would release massive amounts of carbon and set back the amount of new carbon sequestration for decades.

Soils in the Northeastern United States account for at least 50% of total ecosystem carbon storage, with mineral soils comprising the majority of that storage.[30] A recent study examining the effects of clearcutting on carbon storage in a northern hardwood forest indicates that mature tracts of forest store significantly more soil organic carbon in strongly mineral-bound and stable carbon pools than soils from forest tracts that are cut.[31] Furthermore, logging can cause a gradual release of carbon from soils, lasting for decades after the logging is complete.[32]

DCR asserts that cutting down trees diversifies the forest and increases resiliency to climate change impacts related to weather, fire, or invasive species. This claim is disputed in a paper published by Harvard Forest faculty.

> *[T]here [is] sparse evidence that such approaches achieve their goals of increasing resistance and resilience [and] little evidence suggests that natural disturbances yield negative functional consequences. Therefore, current management regimes aiming to increase long-term forest health and water quality are ongoing "experiments" lacking controls. In many situations good evidence from true experiments and "natural experiments" suggests that the best management approach is to do nothing.[33]*

Other studies also indicate that logging for "protection" is ineffective and counterproductive. Instead, there is growing recognition that stable older forests are more resistant to climate change than younger forests, particularly regarding carbon storage, timber growth rate, and species richness.[34]

Although the DCR website proclaims that "active management" (i.e., logging) increases carbon storage, only two of the 2021 DCR logging project proposals even mention climate change or

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[30] Fahey, T. J., T. G. Siccama, C.T. Driscoll, G.E. Likens, J. Campbell, C.E. Johnson, J.J. Battles, J.D. Aber, J.J. Cole, M.C. Fisk, P.M. Groffman, S.P. Hamburg, R.T. Holmes, P.A. Schwartz and R.D. Yanai. 2005 The Biogeochemistry of Carbon at Hubbard Brook. Biogeochemistry, **75**, 109– 176. https://www.researchgate.net/publication/226474596_The_Biogeochemistry_of_Carbon_at_Hubbard_Brook

[31] Lacroix, Emily, Chelsea L. Petrenko, and Andrew J. Friedland. 2016. Evidence for Losses from Strongly Bound SOM Pools After Clear Cutting in a Northern Hardwood Forest. Soil Science 181(5) DOI: 10.1097/SS.0000000000000147 https://www.researchgate.net/publication/301680144_Evidence_for_Losses_From_Strongly_Bound_SOM_Pools_After_Clear_Cutting_in_a_Northern_Hardwood_Forest

[32] Petrenko, Chelsea L and Andrew J. Friedland. 2015. Mineral Soil Carbon Pool Responses to Forest Clearing in Northeastern Hardwood Forests. GCB Bioenergy (2014), doi: 10.1111/gcbb.12221. http://onlinelibrary.wiley.com/doi/10.1111/gcbb.12221/abstract

[33] Foster, David R. and David A. Orwig. 2006. Preemptive and Salvage Harvesting of New England Forests: When Doing Nothing Is a Viable Alternative. Conservation Biology Volume 20, No. 4, 959–970 DOI: 10.1111/j.1523-1739.2006.00495.x http://harvardforest.fas.harvard.edu/sites/harvardforest.fas.harvard.edu/files/publications/pdfs/Foster_ConservationBio_2006.pdf

[34] Thom, Dominik, Marina Golivets, Laura Edling ,Garrett W. Meigs, Jesse D. Gourevitch, Laura J. Sonter, Gillian L. Galford, William S. Keeton. 2019. The Climate Sensitivity of Carbon, Timber, and Species Richness Covaries with Forest Age in Boreal–Temperate North America. Global Change Biology, Volume 25, Issue 7, Pages 2446-2458. https://doi.org/10.1111/gcb.14656https://onlinelibrary.wiley.com/doi/10.1111/gcb.14656

carbon capture and storage. They provide no information on current carbon stocks, the amount of carbon that will be released by the project, the impact of the project on future carbon capture and storage, the cumulative impacts of releasing carbon year after year from multiple logging projects, or how the potential benefits of the project outweigh any negative impacts on climate change.

Indeed, we are concerned that DCR officials do not seem to have an adequate awareness or understanding of recent science on climate change forest carbon. In comments on DCR's 2020 proposed logging projects submitted by a number of signers of these comments, we pointed out the importance of proforestation in decisions on the management of our public forests. In its response to our comments[35], DCR contended that

> *the reference to "proforestation" as a way to increase carbon stocks is, at best, an untested hypothesis; the cited reference for this approach contains questionable assumptions and interpretations of referenced literature as well. It ignores the fundamental mathematical tradeoff that comes with maximization of stock of a growing resource, in that average annual sequestration is less than maximum average sequestration.*

This response is illogical and perplexing. Proforestation is not a "hypothesis," but term for a well-documented and widely accepted reality — that growing existing forests intact to their ecological potential is an effective, immediate, and low-cost approach to absorb and store carbon from the atmosphere. The original peer-reviewed paper synthesized data that compared "managed" forests to "passive" or "unmanaged," (i.e., areas such as Massachusetts state reserves, National Parks, wilderness areas, Adirondack preserve) and included copious up-to-date scientific references.[36] It has a special focus on New England and Massachusetts concerns. Hundreds of leading climate scientists, ecologists, and conservation biologists worldwide recommend proforestation to help achieve climate mitigation goals.[37] It is disturbing that DCR would greet this paper and its discussion of this important climate change solution with derision.

Equally perplexing is that the five references DCR cited in its criticism of proforestation are not even relevant to the issue. On the contrary, they are old papers published in the 1960s, 70s, and 80s, with the newest in 1988 — more than 30 years ago. They are focused on the mid-1900s concept of maximizing timber production through "sustained yield" logging. None of the references anticipated the climate crisis and they do not even mention forest carbon capture and storage. Most are based on traditional silvicultural and economic models, not on-the-ground empirical data. Moreover, none of these sources are specific to issues in Massachusetts or New England. The closest they come to Massachusetts is a 45-year-old paper by the MIT economist, Paul Samuelson, on whether or not "sustained-yield" forestry is a viable economic model.

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[35] DCR. 2020. Forest Management Project Comments And Responses – Winter Proposals 2020. https://www.mass.gov/doc/forest-management-proposal-comments-and-responses-for-2020-projects/download

[36] Moomaw William R., Susan A. Masino, Edward K. Faison. 2019. Intact Forests in the United States: Proforestation Mitigates Climate Change and Serves the Greatest Good. Front. For. Glob. Change, 11 June 2019 | https://doi.org/10.3389/ffgc.2019.00027
https://www.frontiersin.org/articles/10.3389/ffgc.2019.00027/full

[37] Letter from Global Scientists to Members of the European Parliament ITRE Committee, ENVI Committee, and AGRI Committee. 22 May 2020. https://sites.tufts.edu/gdae/files/2020/05/EU-Forest-Letter-3.pdf

In this context, DCR's claim that it "leads in delivering carbon benefits on state lands for future generations," rings hollow. We are seriously concerned that DCR does not have the knowledge, expertise, or commitment to protecting and managing our state lands to maximize their contribution to fight the looming threat of climate change.

These concerns come at a critical time. The 2008 Massachusetts Global Warming Solutions Act (GWSA) called for dramatic reductions in greenhouse gas emissions beginning in 2020. The 2021 report of the UN Intergovernmental Panel on Climate Change (IPCC) warns that we need to dramatically address climate change by 2030, which will require not only reducing greenhouse gas emissions from energy production, but also absorbing and storing carbon from the atmosphere.[38] Forests are a critical part of this solution. In 2019, Governor Baker recognized this by reaffirming a commitment with 24 other governors in the U.S. Climate Alliance to the goal of capturing and storing more carbon in forests as a way to mitigate climate change.[39]

DCR has an opportunity to act on Governor Baker's commitment by implementing an approach that ensures that our forests are managed to minimize carbon emissions and maximize carbon capture and storage. Instead, we are distressed to see that the seven forest projects at hand take a business-as-usual approach toward these critical issues while the global climate crisis continues to worsen.

"Treatment" for Insects and Disease

DCR Claim: The logging proposals claim that cutting down trees and other intrusive management is needed to "treat" a wide range of insect infestations and diseases. These supposed threats to forest "health" include the emerald ash borer, wooly adelgid, and hemlock looper (Old House Lot) and red pine scale and needle cast disease (Beaman Lot). The primary "treatment" is to cut down more trees through clearcutting and other intensive management.

This includes the "salvage" (logging) of white ash trees before their supposed imminent mortality from the emerald ash borer (Balance Rock Lot, Hubbard River East Lot), the "treatment" (logging) of hemlock trees "infested" with hemlock wooly adelgid (Horse Valley Lot, Hubbard River East Lot) and hemlock looper; and the "removal" (by logging) of beech trees "infected" by beech bark disease (Cold River Lot, Hubbard River East Lot). It also includes the use of herbicide to control "excessive beech proliferation" (Balance Rock Lot, Cold River Lot, Horse Valley Lot, Hubbard River East Lot). In addition, it includes logging to "increase the distribution and density of sugar maple" to "combat" regional sugar maple decline (Balance Rock Lot, Cold River Lot).

Response: DCR contends that its logging program protects forests — and carbon stocks — from diseases and pests. On the contrary, there is little evidence to support the assumption by foresters that logging will reduce insects and disease.[40] Moreover, insects and disease are a

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[38] IPCC, 2021: Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press. In Press.

[39] United States Climate Alliance. 2020. Natural & Working Lands Challenge (Updated: January 14, 2020) http://www.usclimatealliance.org/nwlchallenge

[40] Black, Scott Hoffman. 2005. Logging to Control Insects: The Science and Myths Behind Managing Forest Insect "Pests." A Synthesis of Independently Reviewed Research. The Xerces Society for

natural part of healthy forest ecosystems. They help decompose and recycle nutrients, build soils, maintain genetic diversity within tree species, and provide homes and food for wildlife.

Emerging studies find that cutting down trees to "save" the forest from insects and disease does not solve the "problem," but makes it worse.

There is also increasing evidence that logging reduces the natural resistance of a forest to insects and disease. In one study, researchers found that after "thinning" of forest plots, 50% of the genetic diversity of the trees of that species had been lost. Of particular concern was the loss of rare alleles, which plants and animals rely upon to deal with new challenges.[41] Studies are finding that, despite an outbreak of the emerald ash borer that killed most ash trees, some trees "lingering ash" persisted, and offer options for breeding or reforestation.[42],[43] Cutting down ash trees that have not been infected or are still "lingering" can cause the loss of trees that could potentially have resistant genes that will be be critical in allowing the species to survive and recover.

Fire Prevention

***DCR Claim*:** Logging is needed to reduce fire risk (Charge Pond Campground Complex). Specifically:

> *The primary goal is to reduce the fuel load in and around the Charge Pond Campground Complex to protect campers in the event of a wildfire. Thinning between campground loops will occur on approximately 34 acres.… Reducing the canopy cover will result in an open habitat benefiting a variety of rare, declining, and common species.… Large diameter trees will be removed to meet the retention/spacing guidelines above by whole-tree harvesting and chipping, with all logs and chips removed from the site.… Approval from the DCR Commissioner will be required for openings above 1/3 acre that harvest all merchantable trees.…*

Response: The primary goal of this project is "to protect campers in the event of a wildfire." This is a legitimate goal for public land managers. However, the strategy described in the Charge Pond Campground Complex project proposal is based on scientifically questionable assumptions regarding wildfire and wildfire mitigation.

Invertebrate Conservation, Portland, OR https://www.xerces.org/wp-content/uploads/2008/10/logging_to_control_insects1.pdf

[41] Six, Diana L., Eric Biber, and Elisabeth Long. 2014. Review Management for Mountain Pine Beetle Outbreak Suppression: Does Relevant Science Support Current Policy? Forests 2014, 5, 103-133; doi:10.3390/f5010103 forestsISSN 1999-4907 https://www.researchgate.net/publication/259714120_Management_for_Mountain_Pine_Beetle_Outbreak_Suppression_Does_Relevant_Science_Support_Current_Policy

[42] Koch, Jennifer L., Mary E. Mason, David W. Carey, Kathleen Knight, Therese Poland, and Daniel A. Herms. 2010. Survey for Tolerance to Emerald Ash Borer within North American Ash Species in Proceedings of the Symposium on Ash in North America. U.S. Forest Service Forest Service, Northern Research Station. General Technical Report NRS-P-72 https://www.fs.fed.us/nrs/pubs/gtr/gtr_nrs-p-72r.pdf

[43] Steiner, K.C., Graboski, L.E., Knight, K.S. et al. 2019. Genetic, spatial, and temporal aspects of decline and mortality in a Fraxinus provenance test following invasion by the emerald ash borer. Biol Invasions 21, 3439–3450. https://doi.org/10.1007/s10530-019-02059-w

The project would remove large diameter trees and "reduce canopy cover." However, removing large trees can increase the rate of fire spread by opening up the forest to desiccation of vegetation and soils, greater wind velocity, and increased temperatures, which increase the risk and intensity of fire.[44] Large trees are also important for carbon storage when alive and they take many decades to rot away, losing their carbon gradually during that time.[45] Indeed, a recent, large-scale analysis confirmed that logged forests tend to have more intense fires than unlogged forests that are supposedly "overgrown" with "fuel".[46]

DCR also plans to thin the forest between campground loops. Thinning can help to reduce the intensity of wildfire. However, research has shown that an average of only 1% of forests thinned by the U.S. Forest Service actually experience wildfire each year.[47] Because the effectiveness of thinning "treatments" lasts about 10 to 20 years, this means that most of these logged sites will not experience wildfire during that period. Considering how challenging and expensive fuel reduction thinning is, this raises questions regarding whether this is wise management strategy for DCR to pursue.

In exhaustive analysis of wildfires in the United States from 1992 to 2012 found that 84% of these wildfires were started by humans, either accidentally or on purpose.[48] This indicates that the most effective strategy for reducing the risk of wildfire at the Charge Pond Campground Complex may be to prohibit or carefully regulate the use of fire by campers, rather than logging the surrounding forest.

Ecosystem Restoration

***DCR Claim*:** Intensive logging is needed to "restore" native ecosystems. For Old Town House Lot:

> *Within the state forest several small plantations were removed around 2005 creating early successional habitat, followed in 2015 by a heavy regeneration harvest on private land adjacent to the project area. As these previously harvested areas progress through natural succession their early successional habitat value is slowly being lost. The clearcutting of five acres of the red pine-red maple-aspen stand will replace some of this habitat loss.*

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[44] Moritz, Max A., Enric Batllori, Ross A. Bradstock, A. Malcolm Gill, John Handmer, Paul F. Hessburg, Justin Leonard, Sarah McCaffrey, Dennis C. Odion, Tania Schoennagel, and Alexandra D. Syphard. 2014. Learning to coexist with wildfire. Nature 515: 58-66. doi:10.1038/nature13946

[45] Moore, David J. P., Nicole A. Trahan, Phil Wilkes, Tristan Quaife, Britton B. Stephens, Kelly Elder, Ankur R. Desai, Jose Negron, Russell K. Monson. 2013. Persistent reduced ecosystem respiration after insect disturbance in high elevation forests. Ecology Letters 16(6): 731-737. https://doi.org/10.1111/ele.12097

[46] Bradley, Curtis M., Chad T. Hanson, and Dominick A. DellaSala. 2016. Does Increased Forest Protection Correspond to Higher Fire Severity in Frequent-Fire Forests of the Western United States? Ecosphere 7(10):e01492. 10.1002/ecs2.1492 https://doi.org/10.1002/ecs2.1492

[47] Schoennagel, Tania, Jennifer K. Balch, Hannah Brenkert-Smith, Philip E. Dennison, Brian J. Harvey, Meg A. Krawchuk, Nathan Mietkiewicz, Penelope Morgan, Max A. Moritz, Ray Rasker, Monica G. Turner, and Cathy Whitlock. 2017. Adapt to more wildfire in western North American forests as climate changes. Proceedings of the National Academy of Sciences of the USA 114: 4582–4590. https://www.pnas.org/content/114/18/4582

[48] Balch, Jennifer K., Bethany A. Bradley, View ORCID ProfileJohn T. Abatzoglou, R. Chelsea Nagy, Emily J. Fusco, and Adam L. Mahood. 2017. Human-started wildfires expand the fire niche across the United States. PNAS March 14, 2017 114 (11) 2946-2951. https://doi.org/10.1073/pnas.1617394114

For Charge Pond Campground Complex:

> *[R]estore and maintain native pitch pine and scrub oak natural communities…. Reducing the canopy cover will result in an open habitat benefiting a variety of rare, declining, and common species….*
>
> *Future treatments will be mowing and/or prescribed fire to kill white pines that typically regenerate in such areas and to stimulate sprouting and growth of native shrubs.*

Response: DCR claims that it is restoring "native ecosystems" with the clearcutting and other intensive logging proposed for these projects. However, there is ample evidence that the native ecosystems of Massachusetts before 1600 were dominated by dense, old-growth forests with a closed canopy.[49],[50] There were limited open areas, largely where there were cliffs and scree slopes, ridge tops, wetlands, beaver meadows, avalanche tracks, river margins, and pond and lake margins, and coastline bluffs.

Natural disturbances such as hurricanes and tornadoes, ice storms, insect infestations and disease, beaver impoundments, and fires also caused forest openings. However, these did not cover a significant portion of the landscape of New England.[51] Moreover, these openings did not at all resemble a clearcut. Instead, they were a chaotic jumble of dead and damaged, downed wood, tip-ups, downed log dams in streams and water bodies, and snags and downed logs in forests. The ground was shaded by surviving and rapidly recovering trees. There was no bare ground or scarified soil and nothing was removed.[52],[53],[54]

Before 1600, the plants DCR is focusing on for "restoration" lived in these extreme and rare sites.[55] Today, DCR is attempting to reconstruct the human-created landscape of the mid-1800s to early 1900s, when most of the forest had been cleared and early-successional habitat was common on abandoned farms and other areas that were left alone. During this period,

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[49] Foster, David R., Glenn Motzkin, Debra Bernardos, and James Cardoza. 2002. Wildlife Dynamics in the Changing New England Landscape. Journal of Biogeography, 29, 1337–1357 https://pdfs.semanticscholar.org/56d4/afbb6a1b80b25fae122ba80885d6fe240448.pdf

[50] Oswald, W. Wyatt, David R. Foster, Bryan N. Shuman, Elizabeth S. Chilton, Dianna L. Doucette, and Deena L. Duranleau. 2020. Conservation Implications of Limited Native American Impacts in Pre-contact New England. Nat Sustain 3, 241–246 (2020). https://doi.org/10.1038/s41893-019-0466-0

[51] Lorimer, Craig G. and Alan S. White. 2003. Scale and Frequency of Natural Disturbances in the Northeastern US: Implications for Early Successional Forest Habitats and Regional Age Distributions. Forest Ecology and Management 185 (2003) 41–64. https://www.sciencedirect.com/science/article/abs/pii/S0378112703002457

[52] Foster, David, Frederick Swanson, John Aber, Ingrid Burke, Nicholas Brokaw, David Tilman, and Alan Knapp. 2003. The Importance of Land-Use Legacies to Ecology and Conservation. BioScience, Volume 53, Issue 1, January 2003, Pages 77–88. https://doi.org/10.1641/0006-3568(2003)053[0077:TIOLUL]2.0.CO;2

[53] Cooper-Ellis, Sarah, David R. Foster, Gary Carlton, and Ann Lezberg. 1999. Forest Response to Catastrophic Wind: Results from an Experimental Hurricane. Ecology 80 (8) 2683-2696. http://www.jstor.org/stable/177250

[54] D'Amato, Anthony W., David A Orwig, David R Foster, Audrey Barker Plotkin, Peter K Schoonmaker, and Maggie R Wagner. 2017. Long-term structural and biomass dynamics of virgin Tsuga canadensis-Pinus strobus forests after hurricane disturbance. Ecology 98(3):721-733. https://doi.org/10.1002/ecy.1684

[55] Marks, P.L. 1983. On the Origin of the Field Plants of the Northeastern United States. The American Naturalist, Vol. 122, No. 2 pp. 210-228. http://www.jstor.org/stable/2461231

populations of early-successional species exploded, only to begin returning to their natural levels in recent years.[56],[57],[58]

There may be a few places where intensive logging to "restore" a habitat is appropriate. In terms of these projects, not enough information is provided to judge that question. The Myles Standish Resource Management Plan describes recent history and the current situation and prescribes management actions, but it provides little information on how clearcutting and other extreme logging is necessary, what the potential negative impacts would be, and whether there are other less-intrusive alternatives.[59] The issue of intensive human intervention to create early-successional habitats needs far more scientific research, fact-based analysis, and public involvement than has thus far been provided by DCR.

Whether or not there is some potential benefit to ongoing human intervention to "restore" early successional habitats, it is dubious to assume this strategy is feasible in the long term. Maintaining these early successional habitat habitats requires clearcutting or other intensive clearing of each site as often as every 10-12 years, a significant undertaking.[60] This requires a permanent, never-ending commitment to logging, mulching, mowing, herbiciding, and burning over a large area.

For example, according to DCR, several small pine plantations in the vicinity of the Old Town Lot project were clearcut in 2005, creating early successional (i.e., shrubby recovering forest) habitat, and a "heavy regeneration harvest" (i.e. forest liquidation) was done on an adjacent private tract in 2015. Any benefits to wildlife are already being lost as the forest recovers, so DCR proposes another 5-acre clearcut, only 16 years after the first clearcutting operation.

This kind of intensive habitat manipulation is very expensive to maintain in terms of personnel, equipment and facilities, and fossil fuel consumption.[61] DCR's budget has been declining in recent years and there is little sign of this trend being reversed. There is a very real possibility that after the current surge of early-successional habitat logging projects, there will be inadequate funds for "treatments" to maintain the open habitat in the future. This would leave a fragmented and degraded landscape that is less, not more, biodiverse. DCR provides no

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[56] Foster, David R. 1995. Land-Use History and Four Hundred Years of Vegetation Change in New England. In: Turner, B. L., Sal, A. G., Bernaldez, F. G., DiCastri, F., Global Land Use Change: a Perspective from the Columbian Encounter, SCOPE Publication, Consejo Superior de Investigaciones Cientificas, Madrid.
https://harvardforest.fas.harvard.edu/sites/harvardforest.fas.harvard.edu/files/publications/pdfs/Foster_GlobalLandUseChange_Chapter_10.pdf

[57] Foster, David R., Glenn Motzkin, Debra Bernardos, and James Cardoza. 2002. Wildlife Dynamics in the Changing New England Landscape. Journal of Biogeography, 29, 1337–1357
https://pdfs.semanticscholar.org/56d4/afbb6a1b80b25fae122ba80885d6fe240448.pdf

[58] Thompson J.R., Carpenter D.N., Cogbill C.V., Foster D.R. 2013. Four Centuries of Change in Northeastern United States Forests. PLoS ONE 8(9): e72540.
https://doi.org/10.1371/journal.pone.0072540

[59] DCR. 2011. Myles Standish Planning Unit Resource Management Plan.
https://www.mass.gov/files/documents/2016/08/xc/rmp-mssf.pdf

[60] DeGraaf, Richard M. and Yamasaki, Mariko. 2003. Options for Managing Early-Successional Forest and Shrubland Bird Habitats in the Northeastern United States. Forest Ecology and Management. 185: 179-191. https://www.nrs.fs.fed.us/pubs/6765

[61] Oehler, J. D. 2003. State efforts to promote early-successional habitats on public and private lands in the northeastern United States. Forest Ecology and Management, 185(1-2), 169–177.
doi:10.1016/s0378-1127(03)00253-6

information on how it can ensure that this intensive logging program can be continued indefinitely.

Liquidation of Plantations

***DCR Claim*:** Larch, red pine, white pine, Norway spruce, red pine, and Scots pine plantations need to be removed because their "health and vigor…have been declining steadily," they "are at high risk of mortality," or they suffer from other ailments. Depending on the particular plantation, the list of disorders includes fungus, insects, disease, wind damage, overcrowding, or "growth stagnation." (Cattle Barn Lot, Willis Road North, Willis Road South, Beaman Pond Lot).

Response: The plantations targeted for logging tend to be about 85 to 100 years of age. In many cases these plantations have already been thinned by previous logging or through natural mortality and disturbances. In most cases, there is already an understory of native trees and herbaceous plants, which are gradually replacing the plantation trees as they die over time. Liquidation of plantations may speed up this process, but there is no evidence that it is necessary to ensure the eventual recovery of the native forest.

DCR plans to log plantations to "salvage" the commercial value of trees before they die. However, as discussed above, this comes at a major cost to the forest. Cutting down these trees causes major disturbance of forest ecosystems due to fragmentation of interior forest, scarification of soils, and degradation of water and air quality. It can also increase susceptibility to invasive species, spread harmful insects and disease, and worsen the risk of fire. In addition, it removes dead trees that provide vital habitat for numerous birds and other species.[62]

Perhaps the greatest cost is that liquidating plantations will worsen climate change. As noted previously, cutting down these trees will release most of their carbon, along with a significant amount soil carbon, into the atmosphere within a relatively short period of time. On the other hand, studies indicate that if these trees were left alone, even after they die they would continue to store most of their carbon for decades, releasing it slowly and gradually.[63] This is especially important because, as the Intergovernmental Panel on Climate Change (IPCC) warns, minimizing carbon emissions over the next decade is critical if we are to avoid catastrophic climate change.

We do not object to the appropriate use of tree removal where it is shown to be necessary for public health and safety purposes. However, DCR does not provide substantive evidence that this is the case. Regarding Beaman Pond Lot, DCR acknowledges that commercial logging is not a priority because the area is classified as a "parkland." The project proposal claims that commercial logging is justified for the sake of "public safety" or "to restore ecologically significant communities," but it provides no specific evidence to support this claim.

DCR estimates that the trees in the stands slated for logging at Beaman Pond Lot are 85 to 104 years of age. At this age, even a plantation develops ecological complexity that DCR seems to make little effort to assess. What we do know is that cutting and removing trees

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[62] Thorn, Simon, Sebastian Seibold, Alexandro B. Leverkus, Thomas Michler, Jörg Müller, Reed F. Noss, Nigel Stork, Sebastian Vogel, and David B. Lindenmayer. 2020. The living dead: acknowledging life after tree death to stop forest degradation Front Ecol Environ. https://doi.org/10.1002/fee.2252

[63] Moore, David J. P., Nicole A. Trahan, Phil Wilkes, et al. 2013. Persistent Reduced Ecosystem Respiration After Insect Disturbance in High Elevation Forests. Ecology Letters, (2013) 16: 731–737 doi: 10.1111/ele.12097 http://onlinelibrary.wiley.com/doi/10.1111/ele.12097/abstract

disrupts this balance, leading to a loss of resiliency and stability just when these things are most needed to resist the impacts of climate disruption.

Conclusion

We oppose all seven of the proposed logging projects in their current form. We believe that the people of Massachusetts want their publicly owned forests to be left uncut and intact, similar to our current reserve areas.

We believe citizens want our public forests to recover their old-growth characteristics, once again providing habitat for the full range of native plants and wildlife, with an ecological balance determined by natural processes, not by human manipulation based on a limited understanding of the natural world. We believe that our public forests should be preserved as nature sanctuaries for the health and well-being of our people, not as “working” timberlands. This is how DCR can manage our state-owned forest lands for the greatest public good.

Accordingly, we recommend that DCR cancel these seven logging projects. We urge the agency to rethink its focus on timber production, artificial wildlife “management,” and other intrusive activities. Instead, the agency should preserve more large tracts of forest for maximum long-term carbon capture and storage, the recovery of old-growth forests that are home to all of our native species, and the opportunity for people across the state to enjoy green and healthy public forests that are free of resource extraction and development.

Although many of us have submitted comments over the last several years, we have not received timely or constructive responses from DCR. We have seen not seen that DCR has altered any of its plans in response to our comments. It was particularly troubling to read DCR's response to our comments on the 2020 logging projects that we feel are not science-based or reflective of the intertwined emergencies of climate crisis, loss of biodiversity, and threats to public health.

We are concerned about the current state of the relationship of DCR with the citizens of Massachusetts. We are invited by DCR to comment on these logging projects, yet we receive no notice of the response by the agency to us, only to discover it posted online after we searched for it. The purpose of public participation is an honest and transparent exchange of information and viewpoints, and the revision of agency management direction in response to changing public needs and priorities. We believe the time is long overdue for DCR to create a new public process and management that meet this important purpose.

You can reach Michael Kellett of RESTORE: The North Woods with a response or questions at kellett@restore.org or 978-392-0404.

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Thank you for your comments. While DCR has responded to many similar comments both this year earlier in this document as well as in previous years, responses to several themes in this comment are provided below.

Theme: DCR is not allowing its forests to "...recover from past abuse…" by being "...protected from logging…".

A substantial portion (±59.2%) of DCR's land base is currently devoted to management regimes where commercial timber production is not a primary objective. However, the forests of New England are in a vastly different state, and face vastly different pressures now, than in pre-colonial times. Use of forests to maximize carbon stocks would come at the expense of maintaining C flux from the atmosphere into ecosystem and harvested wood carbon pools, maintenance of habitat, water quality, etc. Implying that all stands could achieve stocking of carbon estimated using variable methodology from purposive sampling of old-growth stands ignores the effects of survivor bias and disturbance regimes; and it is also implausible that all stands could achieve or sustain levels of productivity estimated from sites above the 99th percentile of productivity of DCR lands (e.g. Leverett, Masino, and Moomaw, 2021).

Theme: The rate of growth of large trees is greater than small trees.

Please see last year's comments. The Stephenson et al. (2014) study itself points out that although individual tree growth rates may increase with size, stand-level productivity declines as the trees within increase in size (p. 3, left column, first full paragraph). The way in which Stephenson et al. (2014) analyzed their data is also irrelevant for populations of trees at the stand or forest level as it commits survivor bias and does not follow growth trajectories of individual trees. Additionally, the Stephenson et al. (2014) study investigated growth in the absence of competition (p. 6, right column, last paragraph) which is a condition seldom achieved in unmanaged stands. And, although the volume or biomass growth rate of large trees may typically be greater than that of smaller trees, it is by no means given that any particular tree in an unmanaged stand will have a monotonically increasing growth rate. The Stephenson et al. (2014) study also did not account for cull. DCR manages its forests for multiple goals at a landscape scale; and in stands where timber harvesting is a valid tool, foresters certainly prescribe removal of individual trees to sustain rates of growth (as measured by multiple metrics, such as wood, carbon, mast, etc.) of residual trees most likely to survive over the long term by reallocating growing space to those trees, longer than would be achieved in stands where timber harvesting cannot be used. Additionally, in most forest management projects, DCR foresters retain legacy trees with are typically the largest, most vigorous trees on site.

Theme: Forest management activities have deleterious effects on forest soils.

Please see last year's comments. The current consensus on the response of forest soils to disturbance is that the response is proportional along gradients of soil properties, antecedent and subsequent conditions, and the intensity of disturbance. Mild disturbances conducted using BMPs, such as those employed on DCR forest land, have minimal and temporary effects. The management activities prescribed by DCR are not the large clearcuts at the most extreme end of the spectrum on which results

were cited; but instead use thinning, small group selection, irregular shelterwood, and clearcuts of modest size. The use of BMPs far above minimum legal standards are always prescribed and enforced by DCR's management foresters; and regeneration is swift, to minimize deleterious effects of DCR's forest management activities on forest soils.

Theme: Massachusetts forests are comparable to New England's with respect to patterns of growth and harvesting.

Please see last year's comments. The Harris et al. (2016) publication was a valuable, experimental analytical product restricted to components of net C stock change that were readily attributable to disturbances that were also readily assessed from auxiliary data sources and investigation into small area estimation techniques. Application of those results to Massachusetts in particular commits geographic bias as evidenced by FIA data. Harvest removals, on the basis of above- and below ground biomass of live trees with DBH greater than or equal to one inch per acre, in Massachusetts are 18.2% of the combined sum of harvest removals and natural mortality on forest land remaining forest land. Harvest removals in Massachusetts are the lowest of any New England state, and only 30.8% of average harvest removals across New England. Natural mortality, expressed on a similar basis, is among the highest of any New England state, 17% above New England as a whole. Net growth, on a similar basis, is the lowest of any New England state, and 13% less than New England as a whole. Regardless of the results from analyzing patterns of forest growth and yield within arbitrary political subdivisions, forest management calls for a range of approaches at stand, ownership, and ecologically-relevant landscape scales.

Theme: Proforestation is a solution to climate change.

Please see last year's comments and earlier responses in this document. Proforestation, the cessation of timber harvesting as a way to "...absorb and store carbon from the atmosphere…", is not a viable forest management solution. It implicitly values the short-term retention and maximization of ecosystem carbon stocks - maximization of carbon stocks over the provision of other ecosystem benefits for the long-term. It ignores the multiple services for which society depends on forests. It does not take in to account the current state of DCR's forests relative to landscape-scale patterns of historical land use. DCR manages its forests for multiple goals and benefits, not just maximization of carbon stocks or flux. Maximization of one of those forest-carbon-related goals would necessarily need to be done at the expense of the other; let alone other goals such as habitat, protection of water quality, or the production of wood. As has been documented many times throughout history in the field of forest science and economics, maximization of production over the long-term of a stock that increases in a biologically-based, exponentially growing, doubly-asymptotic fashion - like forest carbon - fails when total stock is maximized because maximum average production (flux) is less than average annual production (flux). Optimal stand characteristics under uneven age management systems like age and diameter distributions, stocking levels, and cutting cycles, similarly have greater levels of production over the long term than simple stock maximization. The balance of stand characteristics within a well-managed forest at a landscape scale can also offer better long-run odds of mitigation of pest and

pathogen outbreaks and a better flow of forest benefits - including greater rates of flux and stock retention - than a forest with no management.

Theme: The IPCC report warns of the need for drastic solutions to address climate change, and forests are a critical part of absorbing and storing carbon from the atmosphere.

Please see last year's comments and earlier responses in this document. The WGI Contribution to the AR 6 IPCC report "Climate Change 2021. The Physical Science Basis.", which is still in draft form (i.e., "Do Not Cite, Quote or Distribute) and as was cited by the authors of other comments, specifically acknowledges the contribution of sustainable forest management to manage vulnerabilities (which themselves may be exacerbated by climate change) to the permanence of both ecosystem and wood product forest carbon stocks and flux strength, and even increase the strength of the sink (§5, pg. 106; page 1258 of the document available at https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf and the same document cited by the commentors). This message - that sustainable forest management is a core part of maintaining forests that function not just for carbon storage and flux, but also for habitat, clean water, wood products, recreation, and spiritual contemplation – has been consistently echoed in many locations over many IPCC reports.

From: Bart Bouricius <canopy.bart@gmail.com>
Sent: Tuesday, August 31, 2021 4:50 PM
To: Forestry Comments (DCR)
Subject: Comments on 2021 DCR Public Lands commercial logging projects
Attachments: DCR Logging testimony under DCR questions.odt

From Bart Bouricius
Date: Tue, Aug 31, 2021 at 4:50 PM
Subject: Comments on 2021 DCR Public Lands commercial logging projects

Find comments attached.

DCR Forest Management projects in Northfield State Forest and Lawton State Forest

Regarding the Northfield and Lawton State forest DCR proposals and nformation presentations for 2021 proposed logging projects, many questions that were asked, such as the legal justification for commercial timber sales, were not answered or were simply ignored. Both projects were said by DCR to include studying ways to "enhance carbon stocks and flux". Unfortunately this description given by DCR indicates that whoever wrote it has no idea what flux means. To measure carbon flux in respect to a particular logging project in a forested area, it would be necessary to measure the amount of carbon moving from the atmosphere to the forest environment and vice versa. To have a meaningful understanding of the carbon flux over time, it would be necessary to have a baseline measurement of the carbon in all carbon pools in the forest including 1. soil and its live and dead organic matter, 2. live above ground pool, including trees and other forest plants, fungi and other surface forest organisms, 3.dead wood including snags and logs, 4. litter and general forest detritus.

It would be necessary to follow changes in carbon pools for several years. Additionally, If one is concerned with measuring the full carbon impact of a logging project, It would be critical to follow the disposition of the harvested wood, including any that was burned as fire wood, biomass chips or pellets. And how much went into short term wood products such as pallets or paper. Additionally it would be necessary to follow the amount of more durable wood products such as furniture and building materials and look at the rate of failure and replacement of these more durable wood materials over time (building fires, termite damage, rotting boards, thrown out furniture etc).

It would also be important to follow and measure the carbon emissions from harvesting equipment and the transportation equipment required for hauling and shipping wood products to their ultimate destinations, as much of the harvests ends up out of state or overseas. It would also be necessary to measure the emissions produced in the production process of these wood products.

Unfortunately we were told by mr. Tom Brule the supervisor for the DCR Management Forestry Division, that DCR intends to ignore what happens to the harvested wood once it leaves the site. The problem with not measuring and counting all the carbon emissions is that it may appear that the net carbon from a logging project is increasing simply because the full emissions from the entire logging transportation and production processes are ignored. In other words, though after many years there may be slightly more total carbon stocks in the forest environment, the entire forest harvesting, processing and transportation procedure may have emitted more carbon to the atmosphere than the increased additional stocks in the forest, thus you could have had a net loss of carbon to the atmosphere without knowing this. Following the carbon flux of the entire harvesting manufacturing and transporting procedure is the only honest way to measure the carbon impact of logging at a given location or on the landscape level. Scientists also know that all logging converts forests to net carbon emitters for many years.

Sincerely,

Bart Bouricius
22A Main St.
Montague, MA 013561 cell: 413-265-1365

Thank you for your comments. Please refer to our earlier responses in this document and previous years regarding carbon accounting and monitoring efforts.

From: T Smith <terrance.smith@comcast.net>
Sent: Tuesday, August 31, 2021 5:19 PM
To: Forestry Comments (DCR)
Subject: T. Smith - DCR Forestry Comments

Good Afternoon-

I'm am writing in support of the recent proposals presented by DCR involving active forest management on DCR State Forest Lands.

Active forest management is important to providing biodiversity and healthy, sustainable forests across the Commonweath on a landscape level, long-term. Both even and uneven management cuts helps to maintain the desired stand structure and composition.

As a coverts cooperator for over 2 decades I've learned that if folks see firsthand, on the ground, good logging practices, and the immediate response from wildlife, that they are less skeptical of cutting. DCR's Quabbin and Ware River Watershed areas are excellent examples of sound forest management where loads of work has been successfully accomplished overtime. Regeneration is excellent and forest stands are improved for future generations. All types of users enjoy and respect these areas daily. Because of science based management these public lands have increased biodiversity to help combat the concerns of climate change, and declining avian wildlife species. The foresters and operators within these regions who laid out the plans, and then executed work should be recognized for their successful accomplishments. Other regions of the state should follow suit.

Going back to Colonial times, the Bay State has a long history of managing its forest stands sustainably, whether it's been for the the great white pines for the King's ship masts, various oak species for timber frames and flooring, or management of maple stands for syrup, we have always done well. Looking into the future it would be helpful for the region to adapt to changes in the global forest products market and consider local outlets for our low-quality wood and biomass to be used for sustainable energy production; programs, lending, and manufacturing facilities here in Massachusetts to support innovative building system approaches such as Cross Laminated Timber (CLT) for the environmental benefits, including carbon storage versus traditional construction using concrete and steel. Massachusetts has been a leader in innovation overtime, and forestry along with the forest products we all count on should be no exception.

As a private landowner, I have relied on DCR service foresters and private consulting foresters to provide sound advice and oversee projects on my behalf, respecting their background and advice. They are licensed professionals with science based education similar to doctors, dentists, engineers, and physicists. My simple feeling is if one is in need of reliable advice, a solution to a problem or service to be performed they should have trust and rely on the correct science-based licensed professional in the correct profession. As an example; a forester to lay out a plan and cut trees, a doctor to remove a limb, or a dentist to perform a root canal. My point being, that the minority of anti-tree cutting folks try to mislead folks about our foresters' true qualifications, backgrounds,

professionalism, and objectives in an effort to persuade the general public, or influence political policies.

Massachusetts state forest lands annnually grow in excess of the annual harvesting, mortality, and natural disturbance rates, and no one should mislead the public otherwise that these state agencies are destroying our forests because of active forest management operations.

In closing, for over 20 years I have served as a land-steward for the Swift River Sportsman's Club, Inc. in Belchertown, MA which has over 400 members who are mainly Massachusetts residents; President of the Western Massachusetts Chapter of the Ruffed Grouse Society which has locally over 200 Massachusetts resident members, and over 100,000 at the National RGS level. These organizations understand the importance of sustainable forestry practices now and going into the future. We all commend DCR and DFW state agencies in their recent efforts to collaborate together with not only a long-term vision for managing Massachusetts public lands, but actually executing the work to improve our sustainable, healthy forests.

Sincerely,
Terrance W. Smith
Ware, MA

Thank you for your comments.

From: Bob Hodgen <rdhodgen@gmail.com>
Sent: Tuesday, August 31, 2021 6:24 PM
To: Forestry Comments (DCR)
Subject: Thank you for your proper management of our Forests!

I am grateful that your agency takes the importance of preserving the natural resources that we have inherited and that we will continue, with your proper guidance, to continue to maintain a proper ecosystem for the future! Thank you for the proper management of which you provide.

Much appreciated,

Bob Hodgen

Thank you for your comments.

From: Christina Hodgen <chrishdgn@gmail.com>
Sent: Tuesday, August 31, 2021 6:52 PM
To: Forestry Comments (DCR)
Subject: Thank you!

Thank you to the DCR for the proper management of our forests!

Thank you for your comments.

From: Chris Egan <cegan@massforestalliance.org>
Sent: Tuesday, August 31, 2021 7:11 PM
To: Forestry Comments (DCR)
Subject: MFA Forest Management comments
Attachments: MFA DCR Management Forestry Comments 2021.pdf

Attached please find our comments on proposed 2021 DCR Management Forestry projects.

Thank you for the opportunity to comment.

Chris Egan
Executive Director
Massachusetts Forest Alliance
249 Lakeside Ave
Marlborough, MA 01752-4503
617-645-1191
www.massforestalliance.org

MASSACHUSETTS FOREST ALLIANCE
249 Lakeside Avenue, Marlborough Massachusetts 01752-4503
www.MassForestAlliance.org | (617) 455 - 9918 | info@MassForestAlliance.org

August 31, 2021

Tom Brulé
Department of Conservation and Recreation
40 Cold Storage Dr
Amherst, MA 01004

Dear Mr. Brulé:

Thank you for the opportunity to review and comment on DCR's proposed 2021 State Forest Management projects. We appreciate the extension of the comment period until after the public meetings were held.

The Massachusetts Forest Alliance represents forest landowners, foresters, timber harvesters, and forest products companies. We support DCR's forest management efforts in state forests. Here are some comments about the proposed 2021 projects.

Overall, we believe these projects to be well-founded in silvicultural science, and balance an assortment of goals – wildlife habitat, fire safety, forest resilience, control of invasives, recreation, and carbon sequestration.

Many of the projects involve work on tree plantations. Some of these plantations were planted during the Great Depression by the Civilian Conservation Corps, and some involve non-native species or species planted in places that were not ideally suited for them. While well-intentioned, we now know that a natural, native, mixed-species forest is superior for a variety of ecosystem services – including carbon sequestration.

Much of the opposition to DCR forest management is not particular to any one project but rather is blanket opposition to management on the 40% of state forest classified as woodlands, typically for cited reasons related to carbon sequestration and storage. A dying plantation will not sequester much carbon – in fact, it's likely that some of the plantations proposed for management have tipped over and become carbon sources (emitting more carbon than they are sequestering each year). To suggest that leaving a dying plantation alone would somehow increase carbon sequestration is simply ludicrous. Instead, DCR's forest management work in dying plantations will result in restoring quick-growing young trees much faster and lead to improved forest health and resiliency and increased carbon sequestration decades faster than letting nature take its course.

As with projects in recent years, some of this year's projects involve removing ash trees, which have been hit hard by the Emerald Ash Borer, an invasive insect. As this pest continues to wreak havoc on ash trees, it makes sense for DCR to take action to remove some of these trees. Removing these trees now and converting them to long-lived wood products like lumber, furniture, flooring, or even baseball bats can extend the storage of the carbon these ash trees sequestered long beyond their short remaining lives.

Several projects will create important early successional forest habitat. Massachusetts doesn't have enough of this critically important wildlife habitat because we suppress the natural disturbances – especially fire and flooding – that create it. Many species of migratory songbirds, mammals, and other wildlife rely on this habitat and are now threatened or species of special concern in Massachusetts. The Myles Standish State Forest project will reduce fire risk and protect the public while also restoring globally rare pine barrens habitat. These projects will help Massachusetts reach the goals of the Statewide Wildlife Action Plan.

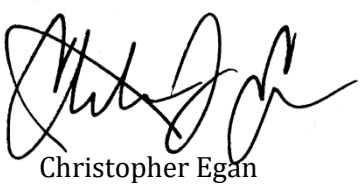
We're appreciative of the research projects that DCR is proposing with UMass Amherst. There wasn't much detail of this research during the public meetings about these projects. We're interested to learn more and see the results as you move forward.

It's important that DCR is a good neighbor and works closely with the communities in which it holds properties. There seemed to be significant concern by neighbors regarding the Northfield State Forest project, despite a history of management there before DCR's ownership. We're sure DCR will work closely with the neighbors to assuage any concerns.

In summary, we find the proposed projects to be well-described and based on sound silvicultural and other science, and we believe the rationale for conducting this work is clearly apparent and will benefit these forests going forward.

Thank you again for the opportunity to comment.

Sincerely,



Christopher Egan
Executive Director

Thank you for your comments.

From: JOHN CONKEY <timbco2@aol.com>
Sent: Tuesday, August 31, 2021 8:08 PM
To: Forestry Comments (DCR)
Subject: DCR forestry. I think they're doing a fabulous job with all the pressure they have from the antis. People would just let them do their job they are doing. Dcr. is an important piece of the puzzle as far as managing our forests

Sent from my iPhone

Thank you for your comments.

From: jstopnotch <jstopnotch@aol.com>
Sent: Tuesday, August 31, 2021 10:03 PM
To: Forestry Comments (DCR)
Subject: FORESTRY COMMENTS

To whom it may concern,

I have 37 years in the logging industry, most of which I was an independent logger. I was very discouraged through the many years of my career to see the lack of Forestry management of State lands. I personally have cut the same privately owned lots 4x's within 4 decades while watching abutting state owned land deteriorate and become unhealthy for wildlife habitat.

I am hopeful with Tom Brule's vast knowledge and expertise that more appropriate management and proper pro-forest harvesting is done rather than salvage cuts due to lack of management. Pro-management creates the healthiest forests.

Thank you,
John Conkey, Jr.

Thank you for your comments.

From: Moomaw, William R <William.Moomaw@tufts.edu>
Sent: Tuesday, August 31, 2021 11:54 PM
To: Rowcroft, Jessica (DCR)
Cc: Forestry Comments (DCR)
Subject: Comments on DCR forestry practices by William R Moomaw
Attachments: Moomaw DCR comment on forest management2021.pdf

Jessica Rowcroft, Project Manager
Massachusetts Department of Conservation and Recreation
251 Causeway Street, Suite 700
Boston, MA 02114

Plese find attached my comments on DCR forestry practices and information on how to improve them for carbon accumulation.

Thank you for this opportunity to provide input.

Sincerely,

William R. Moomaw

Professor Emeritus , Tufts University

Distinguished Visiting Scientist Woodwell Climate Research Center

william.moomaw@tufts.edu

To: DCR
From: Professor Emeritus William R Moomaw, PhD, Tufts University and Distinguished Visiting Scientist, Woodwell Climate Research Center
Re: Comments on Massachusetts state forests and other public lands and their carbon balance

I am providing comments on DCR's forest management plans and practices, and the implication for carbon storage and climate change. I am a climate scientist with over 30-years' experience and was a 5 time IPCC author in reports that focused on mitigation and adaptation.

DCR claims it is managing forests to optimize carbon benefits to address climate change, yet they have never provided any carbon accounting data to substantiate that claim. I am providing an example of how this might be done correctly.

I have been working with colleagues at Woodwell Climate Research Center who have been measuring carbon stocks using remote sensing. A summary for Massachusetts is provided below for the period from 2003-2017. Indeed there has been a very small addition to carbon stocks on state forest lands, but this would have been much greater had they not conducted some of the harvests they have.

State forests gained 141,700 tons of carbon. But lost 80,300 tons for a net gain of just 61,500 tons of carbon. Had there been no losses from harvesting and other causes, the total stock would have increased by **203,200** tons of carbon. For state lands as a whole, the net increase was just 237,700 tons of carbon. Had there been no removals of carbon the gain would have ben **683,100** tons of carbon..

	2003 Total ($1x10^3$ tons C)	2017 Total ($1x10^3$ tons C)	Total Loss ($1x10^3$ tons C)	Total Gain ($1x10^3$ tons C)	Net Change ($1x10^3$ tons C)
State Owned*					
State Forest	5,606.2	5,667.7	-80.3	141.7	61.5
Other	8,069.8	8,246.0	-142.5	318.7	176.2
All state lands	13,676.0	13,913.7	-222.7	460.4	237.7
No harvest or loss			0.0	683.1	683.1

In fact the increase would have been substantially greater were there no harvesting because of additional growth by the spared trees that were harvested. That process of allowing trees to grow to meet their ecological potential for carbon accumulation has been called Proforestation.

DCR has called Proforestation a hypothesis and cites a number of very old research articles, none of which contradict the empirical findings that allowing forests to continue to grow to the extent they can increases the accumulation of carbon in trees and soils. Many studies between

1990 and the present time demonstrate that old forests accumulate much more carbon than do managed forests. See the publication below by Moomaw et al 2019. It is essential to conduct a full accounting of all carbon related to forestry management. A USFS study demonstrated that the emissions from harvesting in the US is comparable in magnitude to the emissions from the entire building sector. A list of these references is provided. See the considerable number of direct measurements of forests in many parts of the world including Harvard Forest that validate Proforestation for increasing carbon accumulation.

If the Commonwealth is to meet its obligations to be Net Zero Carbon by 2050, our forests and wetlands must accumulate a very large amount of carbon between now and 2050. Dedicating a portion of state lands to that purpose is a no-cost means of making such a goal potentially feasible.

I would be pleased to connect DCR with the scientists at Woodwell Climate Research Center to develop this state-of-the-art technology and analysis for state lands. Please contact me at william.moomaw@tufts.edu

Hudiburg et al 2019 https://iopscience.iop.org/article/10.1088/1748-9326/ab28bb/meta
Law et al. 2018 https://www.pnas.org/content/115/14/3663
IPCC 2018 https://www.ipcc.ch/sr15/; IPCC 2019 https://www.ipcc.ch/srccl/
Mackey et al 2020 https://link.springer.com/article/10.1007/s11027-019-09891-4
Moomaw et al https://doi.org/10.3389/ffgc.2019.00027
IUCN 2020 https://www.iucn.org/crossroads-blog/202003/primary-forests-a-priority-nature-based-solution
IPBES 2019 https://ipbes.net/global-assessment-report-biodiversity-ecosystem-services
Lutz et al 2018 https://doi.org/10.1111/geb.12747
Naudts et al 2016 https://science.sciencemag.org/content/351/6273/597.full
Mildrexler et al 2020 https://doi.org/10.3389/ffgc.2020.594274
Cook-Paton et al 2020 https://www.nature.com/articles/s41586-020-2686-x?proof=t
Harmon et al 1990 https://www.science.org/doi/abs/10.1126/science.247.4943.699
Harris 2016 https://cbmjournal.biomedcentral.com/articles/10.1186/s13021-016-0066-5

Thank you for your comments. While DCR has responded to many similar comments both this year earlier in this document as well as in previous years, responses to several themes in this comment are provided below.

Theme: "...an example of how [carbon accounting] might be done correctly…"

DCR has a comprehensive system in place to monitor forest growth and health, both at the strategic level through CFI and use of remotely sensed data, and at the operational and tactical level through pre- and post-management stand exams. Remotely-sensed small area estimation techniques are still very much experimental and rely on field plots to calibrate the models that use remotely sensed data and provide totals that are distributed across a study area. As a sample of a comparison to the alternative estimators presented in the letter, DCR's CFI data, estimates for 2000 and 2020 (the closest years for the alternative estimators):

Stocks, live and standing dead trees for which diameter at breast height is greater than or equal to 5.0 inches, and down dead trees; using models and methods compatible with the component ratio method (CRM) used by the United States Forest Service Forest Inventory and Analysis program:

- 2000: 10,197 x 10^3 short tons (2,000 lbs) C (not CO_2)
- 2020: 12,589 x 10^3 short tons of carbon

Further, DCR is able to attribute changes not just as those between two point-in-time estimates of particular pools, but to well-defined components of change like survivor growth, ingrowth, mortality, harvest removals, land acquisition and deaccession, decay, and others; that are used to help monitor the overall status and trends of the health of forests managed by DCR. See the estimates provided earlier in this year's responses for additional examples. Beginning in 2020 DCR began to collect measurements of live and dead shrub coverage, down and dead fine woody material, and the duff and litter layer in both the CFI program and certain pre- and post-project monitoring samples and results are being compiled.

Theme "Had there been no removals of carbon the gain would have [been increased by the magnitude of harvesting removals]."

Stands and forests exhibit complex, dynamic patterns of growth and change that are, in part, a direct result of disturbance. Simply assuming that any carbon in harvested trees would result in accrued on-site ecosystem carbon, or potentially more, is incorrect. At the stand level, increased stocking may result in increased mortality as additional competition for growing space occurs between trees. Rates of net growth decline as stand age increases for that reason and others. As these patterns are repeated in multiple stands across a landscape as a result of broad societal patterns of land use, the structure of the forest suffers with respect to diversity and resilience to disturbance. Indeed, CFI and program data show that over the same time period as above, while harvesting decreased by approximately 57% over the past decade, natural mortality increased by 26% and ingrowth declined by 40% - so even as survivor growth increased slightly (2%), net growth (survivor growth + ingrowth – mortality) declined by 15%. The long-term sustained rate of C flux without forest management is not necessarily greater than in a managed forest; and accrual of C on trees more likely to end up with wood in long-lived wood products

benefits C storage as well in managed forests. Both unmanaged and managed forests have a place in DCR's landscape. Maximization of carbon stocks and flux is a zero-sum exercise and DCR strives to maintain a balance between those goals and many others including habitat, recreation, providing clean water, and forest products. Use of forests solely for maximization of short-term carbon storage is no different than high-grading for short-term financial gain.

From: Emma Ellsworth <ellsworth@mountgrace.org>
Sent: Wednesday, September 1, 2021 3:27 PM
To: Forestry Comments (DCR)
Subject: Support for the DCR Lawton Tree Farm project

To The Bureau of Forest Fire Control and Forestry

Mount Grace Land Conservation Trust fully supports the planned forest management planned for the Lawton Tree Farm adjacent to our headquarters located in Skyfields arboretum. I had the opportunity to walk with DCR forester Joelle Vautour and DCR Forest Management Program Supervisor

Tom Brule to hear about the need to remove the non-native and ailing red pine trees in order to make room for native regeneration. This will increase not only the biodiversity of the forest, but also the quality of habitat, and overall forest resilience.

The proposed DCR forest management plan will greatly enhance the work Mount Grace has started to restore our Skyfields arboretum, control invasives, and re-introduce native pollinator plantings where necessary. We look forward to seeing the replacement of the current dying mono-culture of red pines with a healthy variety of native tree species of different ages. The proximity to the older stand in the Skyfields arboretum will result the type of beneficial mosaic that supports the greatest variety of wildlife across life stages.

This is exactly the kind of forestry work that Mount Grace hopes will be expanded in our region. We look forward to collaborating on before and after forest walks and various outreach strategies to help explain the nuances of forest management to our neighbors and community.

Thank you,

Emma Ellsworth

Emma G Ellsworth, Executive Director
413-345-1004 cell, ellsworth@mountgrace.org

Mount Grace Land Conservation Trust
1461 Old Keene Road, Athol, MA 01331
978-248-2043, mountgrace.org

Thank you for your comments.

From: William Hill <foresterhill@comcast.net>
Sent: Wednesday, September 1, 2021 3:45 PM
To: Forestry Comments (DCR)
Subject: Comments regarding 2021 Forestry Projects

This email is being submitted as comments to the 2021 Forest Management Project Proposals, albeit later than the August 14 comment period closing. I understood Peter Church to state that comments would be received later than the comment period closing.

I am supportive of all of the project goals and believe that they fit with the directions outlined in the Landscape Designations / Management Guidelines for forest management on state lands.

Old House Lot - The removal of non-native plantations and transition to native forests is appropriate and should be done.

Cattle Barn Lot - I support the use of a mixture of even age and uneven age silviculture on appropriate sites as proposed. I suggest looking for opportunities to study European larch as a replacement species to hemlock.

Birnam Road Lot - I am very supportive of continuing forest management practices particularly irregular shelterwood silviculture that were begun by the previous owners of this property.

I applaud and support the cooperative study projects between DCR - Bureau of Forestry and UMass studying carbon stock flux within varying forest management regimes.

Beaman Pond Lot 2.0 - I support capturing the mortality and value of the red pine plantations at Beaman Pond Lot 2 through the harvesting and utilization / sale of the dying red pine.

Willis Road North and South - It is appropriate to continue forest management at Lawton State Forest. The plantations managed as a tree farm should be gradually removed and regenerated to native species. The use of forest management techniques to increase diversity and resilience to disturbance in the white pine -oak-hemlock stands is an excellent approach.

I applaud and support the cooperative study projects between DCR - Bureau of Forestry and UMass studying carbon stock flux within varying forest management regimes.

Charge Pond Campground Complex Protection Plan - The project as proposed is important to complete so that fire risk is reduced around the campground. The entire project is also important to complete as further work in continuing and completing the Myles Standish restoration project.

Sincerely,

William N Hill, CF

Massachusetts Licensed Forester #388

Thank you for your comments.

From: Michael Kellett <kellett@restore.org>
Sent: Wednesday, September 1, 2021 5:14 PM
To: Rowcroft, Jessica (DCR); Forestry Comments (DCR)
Subject: Comments on Seven 2021 DCR Proposed Forest Management Projects [with corrections]
Attachments: DCR 7 2021 logging projects final corr 20210831.pdf

Jessica A. Rowcroft
Bureau of Planning, Design & Resource Protection
Department of Conservation and Recreation
251 Causeway St. Suite 600
Boston, MA 02114
jessica.rowcroft@state.ma.us

Dear Ms. Rowcroft:

Attached are comments on seven 2021 DCR proposed forest management projects signed by a number of interested organizations and citizens — **with the correction of a few typos**. We apologize for any inconvenience.

If you have questions, feel free to contact me directly at kellett@restore.org.

Thank you for the opportunity to comment on these projects.

On behalf of the signers,
Michael Kellett

****

Michael J. Kellett
Executive Director
RESTORE: The North Woods
P.O. Box 1099
Concord, MA 01742
(978) 392-0404 off
(978) 618-8752 cell
kellett@restore.org
www.restore.org

August 31, 2021 [with corrections September 1, 2021]

Submitted via email to: Jessica Rowcroft jessica.rowcroft@state.ma.us and Forestry.comments@mass.gov

Jessica Rowcroft, Project Manager
Massachusetts Department of Conservation and Recreation
251 Causeway Street, Suite 700
Boston, MA 02114

RE: Comments on Seven 2021 DCR Proposed Forest Management Projects

Dear Ms. Rowcroft,

We are writing to comment on seven forest management projects that are being proposed by the Massachusetts Department of Conservation and Recreation (DCR) in six state forests.[1] The projects include: Old House Lot[2] (Chester-Blandford State Forest), Cattle Barn Lot[3] (Mt. Washington State Forest), Birnam Road Lot[4] (Northfield State Forest), Beaman Pond Lot[5] (Otter River State Forest), Willis Road North[6] and Willis Road South[7] (Lawton State Forest), and Charge Pond Campground Complex[8] (Myles Standish State Forest).

DCR has issued an individual proposal for each logging project. These proposals include a number of claims regarding the purported benefits of logging, most of them presented in more than one project plan. These comments cite some of the major claims made in the DCR proposals and our response to these claims.

There may be some legitimate need for some of these logging activities, such as the removal of hazard trees. However, we are concerned that in most cases the claimed benefits of these logging projects are either questionable or not supported by the facts.

Carbon Capture and Storage

DCR claim: DCR contends that its logging projects will be beneficial in *"maintaining structural and species diversity, providing positive benefits to wildlife, and using silvicultural techniques to help forests adapt to climate change and enhance carbon stock management."* (Cattle Barn Lot) and that this logging will *"[enhance] carbon sequestration and storage"* (Birnham Lot).

On its website, DCR expands on these claims:

> *[T]he Department of Conservation and Recreation's Bureau of Forestry leads in delivering carbon benefits on state lands for future generations.…*

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[1] Department of Conservation and Recreation. 2021. Forest Management Projects Proposed 2021. Commonwealth of Massachusetts https://www.mass.gov/guides/forest-management-projects#-forest-management-projects-proposed-2021-
[2] https://www.mass.gov/doc/old-house-lot-proposal/download
[3] https://www.mass.gov/doc/cattle-barn-lot-mwsf-southern-berkshire-proposal/download
[4] https://www.mass.gov/doc/birnam-road-lot-nsf-proposal/download
[5] https://www.mass.gov/guides/mid-state-forest-management-projects#-beaman-pond-lot-2,-otter-river-state-forest-
[6] https://www.mass.gov/doc/willis-road-north-lsf-mid-state-proposal/download
[7] https://www.mass.gov/doc/willis-road-south-lsf-mid-state-proposal/download
[8] https://www.mass.gov/doc/charge-pond-campground-mssf-southeast-proposal/download

The Commonwealth has made it a priority to permanently protect forest land from development and keep forests as forests. The DCR alone has acquired around 116,000 acres of land in the last 60 years. In contrast since the early 1990s, 4,800 acres of forest land are permanently lost to development in Massachusetts each year. The State Parks and State Forests protected lands, which will remove and store carbon dioxide….

While it is important to have older stands that hold large amounts of carbon, these carbon stocks are at risk from severe weather, diseases, and pests…. [M]anaging [i.e., cutting down trees] for diverse conditions locally and across the landscape allows for adaptation to a changing climate and provides a level of resiliency to events and issues attributed to climate change such as weather, fire, or invasive species….

There has been a continual accrual of total carbon on the DCR's forest land since 1960. Not only has total carbon increased but carbon stocks per acre on the DCR's lands have nearly doubled as well…. [T]imber harvesting timber harvesting has a minimal impact on our overall carbon portfolio. ***In fact, carbon in trees harvested represents less than one-half of one percent of the total tree carbon stocks.*** *[Emphasis in original.]*[9]

Response: DCR maintains that it is a leader in fighting climate change. There are several serious flaws in this claim.

A recent report co-authored by a University of Massachusetts forestry faculty member states flatly: "All harvesting reduces carbon storage of a forest below the maximum potential for the site."[10] DCR does not deny this. Indeed, in a 2018 presentation to the Department of Conservation and Recreation Stewardship Council, DCR Management Forestry Supervisor, William Hill stated, "It's obvious that the choice of leaving a forest uncut sequesters more carbon. We accept that."[11]

DCR repeatedly touts the fact that carbon stocks are increasing on forest lands it administers and implies that its forest "management" (logging) program is contributing to this increase. In fact, the increase is happening *despite* the logging done by DCR, not because of it.

America's forest carbon stocks have already been depleted by about 60% due to past logging and clearing.[12] Continued logging is releasing more carbon and further reducing the potential carbon sink.[13]

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[9] Department of Conservation and Recreation. 2020. Managing Our Forests ... For Carbon Benefits. Commonwealth of Massachusetts. https://www.mass.gov/info-details/managing-our-forests-for-carbon-benefits

[10] Catanzaro, Paul and Anthony D'Amato. 2019. Forest Carbon: An Essential Natural Solution for Climate Change. University of Massachusetts Amherst and University of Vermont. https://masswoods.org/sites/masswoods.org/files/Forest-Carbon-web_1.pdf

[11] William Hill. From transcribed excerpts of recording of presentation by DCR Management Forestry Supervisor William Hill to Department of Conservation and Recreation Stewardship Council Meeting, October 12, 2018.

[12] McKinley, Duncan C., Michael G. Ryan, Richard A. Birdsey, Christian P. Giardina, Mark E. Harmon, Linda S. Heath, Richard A. Houghton, Robert B. Jackson, James F. Morrison, Brian C. Murray, Diane E. Pataki, And Kenneth E. Skog. 2011. A Synthesis of Current Knowledge on Forests and Carbon Storage in the United States. Ecological Applications, 21(6), 2011, pp. 1902–1924. doi: 10.1890/10-0697.1.

Since 1600, logging and other forest clearing have dramatically reduced carbon storage in the forests of New England.[14] However, because of their tremendous ability to recover from past abuse, Massachusetts forests are now among the most carbon-dense in the eastern U.S.[15] In addition, because these forests grow fast, decay slowly, and have an average age of only 75 years, they have centuries of growth ahead. Research has shown that the greater the amount of logging, the less carbon that is stored in the forest. If protected from logging, New England forests are capable of storing 2.3 to 4.2 times more carbon than they do currently.[16] If these forests are allowed to grow back and kept intact to reach their ecological potential — termed proforestation — there is enormous potential for additional carbon storage.[17]

DCR contends that its logging program has an infinitesimal effect on climate disruption. This is highly misleading. In the northern United States, including New England, logging accounts for about 86% of the carbon emitted by forests each year — far greater than releases by development and other land uses.[18] Moreover, logging directly emits carbon from fuel burned by logging and hauling equipment, as well as by the decomposition of trees after they are cut.[19] Because overall forest growth has yet to absorb the emissions from forest loss and degradation over the last several centuries, more logging further sets back recovery of original carbon stocks.

The claim of DCR that the carbon released by its logging program is insignificant ignores the long-established concept of cumulative effects.[20] When the impacts of logging by DCR are added to the thousands of other logging operations in New England, the United States, and around the world, the impact is massive. One study concluded that if logging were phased out across America's public lands — including state-owned lands — it could result in as much as a

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[13] Hudiburg, Tara W., Beverly E. Law, William R Moomaw, Mark E. Harmon, and Jeffrey E. Stenzel. 2019. Meeting GHG Reduction Targets Requires Accounting for All Forest Sector Emissions. Environ. Res. Lett. 14 (2019) 095005. https://doi.org/10.1088/1748-9326/ab28bb

[14] Duveneck, Matthew J., Jonathan R. Thompson, 2019. Social and Biophysical Determinants of Future Forest Conditions in New England: Effects of a Modern Land-Use Regime. Global Environ. Change 55, 115–129. doi: 10.1016/j.gloenvcha.2019.01.009

[15] Zheng, Daolan, Linda S. Heath, Mark J. Ducey, Brett Butler. 2010. Relationships Between Major Ownerships, Forest Aboveground Biomass Distributions, and Landscape Dynamics in the New England Region of USA. Environmental Management (2010) 45:377–386 DOI 10.1007/s00267-009-9408-3 https://www.ncrs.fs.fed.us/pubs/jrnl/2010/nrs_2010_zheng_001.pdf

[16] Keeton, William S., Andrew A. Whitman, Gregory C. McGee, and Christine L. Goodale. 2011. Late-Successional Biomass Development in Northern Hardwood-Conifer Forests of the Northeastern United States. Forest Science 57(6) 2011 https://www.uvm.edu/giee/pubpdfs/Keeton_2011_Forest_Science.pdf

[17] Moomaw William R., Susan A. Masino, Edward K. Faison. 2019. Intact Forests in the United States: Proforestation Mitigates Climate Change and Serves the Greatest Good. Front. For. Glob. Change, 11 June 2019 | https://doi.org/10.3389/ffgc.2019.00027 https://www.frontiersin.org/articles/10.3389/ffgc.2019.00027/full

[18] Harris, N. L., S. C. Hagen, S. S. Saatchi, T. R. H. Pearson, Christopher W. Woodall, Grant M. Domke, B. H. Braswell, Brian F. Walters, S. Brown, W. Salas, A. Forek, and Y. Yu. 2016. Attribution of Net Carbon Change by Disturbance Type Across Forest Lands of the Conterminous United States. Carbon Balance and Management. 11(1): 24. 21 p. http://dx.doi.org/10.1186/s13021-016-0066-5

[19] Law, Beverly E., Tara W. Hudiburg, Logan T. Berner, Jeffrey J. Kent, Polly C. Buotte, and Mark E. Harmon. 2018. Land Use Strategies to Mitigate Climate Change in Carbon Dense Temperate Forests. PNAS April 3, 2018 115 (14) 3663-3668. https://doi.org/10.1073/pnas.1720064115

[20] NEPA.gov. 2020. Considering Cumulative Effects Under the National Environmental Policy Act. Chapter 2: Scoping for Cumulative Effects. https://ceq.doe.gov/docs/ceq-publications/ccenepa/sec2.pdf

43% increase over current carbon sequestration levels.[21] This would be a major contribution to climate stabilization efforts.

Likewise, although some carbon may be stored in forest products, this is far less than if the forest were left standing. Studies have shown that even considering conversion to wood products, most of the original carbon in a logged forest will be released to the atmosphere within a relatively short time.[22],[23] Recent analyses have found that the benefits of cutting trees and storing carbon in wood products have been greatly overestimated by forestry advocates.[24],[25]

While a young forest recovering from logging will capture and store carbon, the amount stored in the forest will be much less than if the existing trees were allowed to grow.[26] Recent studies show that large, old trees actively fix large amounts of carbon compared to smaller trees, and a single big tree can add the same amount of carbon to the forest within a year as is contained in an entire mid-sized tree.[27] A global survey found that the largest 1% of trees store 50% of the carbon in a forest, and that old forests have far larger carbon stocks than young forests.[28] This is consistent with a recent study, which found that living trees in an intact eastern white pine forest in Massachusetts can accumulate aboveground carbon a high rate — especially in the largest trees — and can continue to accumulate high amounts of carbon in live trees for well over 150 years.[29] By cutting many, if not all, mature trees at each site, the proposed logging

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[21] Depro, Brooks M. Brian C. Murray, Ralph J. Alig, Alyssa Shanks. 2008. Public Land, Timber Harvests, and Climate Mitigation: Quantifying Carbon Sequestration Potential on U.S. Public Timberlands. Forest Ecology and Management 255 (2008) 1122–1134 http://naldc.nal.usda.gov/download/21039/PDF

[22] John Talberth, Dominick DellaSala, and Erik Fernandez. 2015. Clearcutting our Carbon Accounts: How State and Private Forest Practices are Subverting Oregon's Climate Agenda. Center for Sustainable Economy and GEOS Institute. November 2015 http://sustainable-economy.org/wp-content/uploads/2015/11/Clearcutting-our-Carbon-Accounts-Final-11-16.pdf

[23] Ann L. Ingerson. 2009. Wood Products and Carbon Storage: Can Increased Production Help Solve the Climate Crisis? The Wilderness Society, Washington, DC. https://www.sierraforestlegacy.org/Resources/Conservation/FireForestEcology/ThreatsForestHealth/Climate/CI-Ingerson-TWS2009.pdf

[24] Leturcq, Philippe. 2020. GHG displacement factors of harvested wood products: the myth of substitution. Scientific Reports Vol. 10, No. 20752. https://www.nature.com/articles/s41598-020-77527-8

[25] Hudiburg, Tara W., Beverly E. Law, William R Moomaw, Mark E. Harmon, and Jeffrey E. Stenzel. 2019. Meeting GHG Reduction Targets Requires Accounting for All Forest Sector Emissions. Environ. Res. Lett. 14 (2019) 095005. https://doi.org/10.1088/1748-9326/ab28bb

[26] Law, Beverly E., Tara W. Hudiburg, Logan T. Berner, Jeffrey J. Kent, Polly C. Buotte, and Mark E. Harmon. 2018. Land Use Strategies to Mitigate Climate Change in Carbon Dense Temperate Forests. PNAS April 3, 2018 115 (14) 3663-3668. https://doi.org/10.1073/pnas.1720064115

[27] Stephenson, N.L., A. J. Das, R. Condit, S. E. Russo et al. 2014. Rate of Tree Carbon Accumulation Increases Continuously with Tree Size. Nature: doi:10.1038/nature12914 (2014). https://doi.org/10.1038/nature12914

[28] Lutz, James A., Tucker J. Furniss, Daniel J. Johnson, Stuart J. Davies, David Allen, Alfonso Alonso, Kristina J. Anderson-Teixeira, Ana Andrade, Jennifer Baltzer, et al. 2018. Global Importance of Large-diameter Trees. Global Ecology and Biogeography. Volume 27, Issue 7, July 2018 pp. 849-864 https://doi.org/10.1111/geb.12747

[29] Leverett, Robert T., Susan A. Masino, and William R. Moomaw. 2020. Older Eastern White Pine Trees and Stands Sequester Carbon for Many Decades and Maximize Cumulative Carbon. https://doi.org/10.1101/2020.10.27.358044

projects would release massive amounts of carbon and set back the amount of new carbon sequestration for decades.

Soils in the Northeastern United States account for at least 50% of total ecosystem carbon storage, with mineral soils comprising the majority of that storage.[30] A recent study examining the effects of clearcutting on carbon storage in a northern hardwood forest indicates that mature tracts of forest store significantly more soil organic carbon in strongly mineral-bound and stable carbon pools than soils from forest tracts that are cut.[31] Furthermore, logging can cause a gradual release of carbon from soils, lasting for decades after the logging is complete.[32]

DCR asserts that cutting down trees diversifies the forest and increases resiliency to climate change impacts related to weather, fire, or invasive species. This claim is disputed in a paper published by Harvard Forest faculty.

> *[T]here [is] sparse evidence that such approaches achieve their goals of increasing resistance and resilience [and] little evidence suggests that natural disturbances yield negative functional consequences. Therefore, current management regimes aiming to increase long-term forest health and water quality are ongoing "experiments" lacking controls. In many situations good evidence from true experiments and "natural experiments" suggests that the best management approach is to do nothing.[33]*

Other studies also indicate that logging for "protection" is ineffective and counterproductive. Instead, there is growing recognition that stable older forests are more resistant to climate change than younger forests, particularly regarding carbon storage, timber growth rate, and species richness.[34]

Although the DCR website proclaims that "active management" (i.e., logging) increases carbon storage, only two of the 2021 DCR logging project proposals even mention climate change or

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[30] Fahey, T. J., T. G. Siccama, C.T. Driscoll, G.E. Likens, J. Campbell, C.E. Johnson, J.J. Battles, J.D. Aber, J.J. Cole, M.C. Fisk, P.M. Groffman, S.P. Hamburg, R.T. Holmes, P.A. Schwartz and R.D. Yanai. 2005 The Biogeochemistry of Carbon at Hubbard Brook. Biogeochemistry, **75**, 109– 176. https://www.researchgate.net/publication/226474596_The_Biogeochemistry_of_Carbon_at_Hubbard_Brook

[31] Lacroix, Emily, Chelsea L. Petrenko, and Andrew J. Friedland. 2016. Evidence for Losses from Strongly Bound SOM Pools After Clear Cutting in a Northern Hardwood Forest. Soil Science 181(5) DOI: 10.1097/SS.0000000000000147
https://www.researchgate.net/publication/301680144_Evidence_for_Losses_From_Strongly_Bound_SOM_Pools_After_Clear_Cutting_in_a_Northern_Hardwood_Forest

[32] Petrenko, Chelsea L and Andrew J. Friedland. 2015. Mineral Soil Carbon Pool Responses to Forest Clearing in Northeastern Hardwood Forests. GCB Bioenergy (2014), doi: 10.1111/gcbb.12221. http://onlinelibrary.wiley.com/doi/10.1111/gcbb.12221/abstract

[33] Foster, David R. and David A. Orwig. 2006. Preemptive and Salvage Harvesting of New England Forests: When Doing Nothing Is a Viable Alternative. Conservation Biology Volume 20, No. 4, 959–970 DOI: 10.1111/j.1523-1739.2006.00495.x
http://harvardforest.fas.harvard.edu/sites/harvardforest.fas.harvard.edu/files/publications/pdfs/Foster_ConservationBio_2006.pdf

[34] Thom, Dominik, Marina Golivets, Laura Edling ,Garrett W. Meigs, Jesse D. Gourevitch, Laura J. Sonter, Gillian L. Galford, William S. Keeton. 2019. The Climate Sensitivity of Carbon, Timber, and Species Richness Covaries with Forest Age in Boreal–Temperate North America. Global Change Biology, Volume 25, Issue 7, Pages 2446-2458.
https://doi.org/10.1111/gcb.14656https://onlinelibrary.wiley.com/doi/10.1111/gcb.14656

carbon capture and storage. They provide no information on current carbon stocks, the amount of carbon that will be released by the project, the impact of the project on future carbon capture and storage, the cumulative impacts of releasing carbon year after year from multiple logging projects, or how the potential benefits of the project outweigh any negative impacts on climate change.

Indeed, we are concerned that DCR officials do not seem to have an adequate awareness or understanding of recent science on climate change forest carbon. In comments on DCR's 2020 proposed logging projects submitted by a number of signers of these comments, we pointed out the importance of proforestation in decisions on the management of our public forests. In its response to our comments[35], DCR contended that

> *the reference to "proforestation" as a way to increase carbon stocks is, at best, an untested hypothesis; the cited reference for this approach contains questionable assumptions and interpretations of referenced literature as well. It ignores the fundamental mathematical tradeoff that comes with maximization of stock of a growing resource, in that average annual sequestration is less than maximum average sequestration.*

This response is illogical and perplexing. Proforestation is not a "hypothesis," but a term for a well-documented and widely accepted reality — that growing existing forests intact to their ecological potential is an effective, immediate, and low-cost approach to absorb and store carbon from the atmosphere. The original peer-reviewed paper synthesized data that compared "managed" forests to "passive" or "unmanaged," (i.e., areas such as Massachusetts state reserves, National Parks, wilderness areas, Adirondack preserve) and included copious up-to-date scientific references.[36] It has a special focus on New England and Massachusetts concerns. Hundreds of leading climate scientists, ecologists, and conservation biologists worldwide recommend proforestation to help achieve climate mitigation goals.[37] It is disturbing that DCR would greet this paper and its discussion of this important climate change solution with derision.

Equally perplexing is that the five references DCR cited in its criticism of proforestation are not even relevant to the issue. On the contrary, they are old papers published in the 1960s, 70s, and 80s, with the newest in 1988 — more than 30 years ago. They are focused on the mid-1900s concept of maximizing timber production through "sustained yield" logging. None of the references anticipated the climate crisis and they do not even mention forest carbon capture and storage. Most are based on traditional silvicultural and economic models, not on-the-ground empirical data. Moreover, none of these sources are specific to issues in Massachusetts or New England. The closest they come to Massachusetts is a 45-year-old paper by the MIT economist, Paul Samuelson, on whether or not "sustained-yield" forestry is a viable economic model.

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[35] DCR. 2020. Forest Management Project Comments And Responses – Winter Proposals 2020. https://www.mass.gov/doc/forest-management-proposal-comments-and-responses-for-2020-projects/download

[36] Moomaw William R., Susan A. Masino, Edward K. Faison. 2019. Intact Forests in the United States: Proforestation Mitigates Climate Change and Serves the Greatest Good. Front. For. Glob. Change, 11 June 2019 | https://doi.org/10.3389/ffgc.2019.00027
https://www.frontiersin.org/articles/10.3389/ffgc.2019.00027/full

[37] Letter from Global Scientists to Members of the European Parliament ITRE Committee, ENVI Committee, and AGRI Committee. 22 May 2020. https://sites.tufts.edu/gdae/files/2020/05/EU-Forest-Letter-3.pdf

In this context, DCR's claim that it "leads in delivering carbon benefits on state lands for future generations," rings hollow. We are seriously concerned that DCR does not have the knowledge, expertise, or commitment to protecting and managing our state lands to maximize their contribution to fight the looming threat of climate change.

These concerns come at a critical time. The 2008 Massachusetts Global Warming Solutions Act (GWSA) called for dramatic reductions in greenhouse gas emissions beginning in 2020. The 2021 report of the UN Intergovernmental Panel on Climate Change (IPCC) warns that we need to dramatically address climate change by 2030, which will require not only reducing greenhouse gas emissions from energy production, but also absorbing and storing carbon from the atmosphere.[38] Forests are a critical part of this solution. In 2019, Governor Baker recognized this by reaffirming a commitment with 24 other governors in the U.S. Climate Alliance to the goal of capturing and storing more carbon in forests as a way to mitigate climate change.[39]

DCR has an opportunity to act on Governor Baker's commitment by implementing an approach that ensures that our forests are managed to minimize carbon emissions and maximize carbon capture and storage. Instead, we are distressed to see that the seven forest projects at hand take a business-as-usual approach toward these critical issues while the global climate crisis continues to worsen.

"Treatment" for Insects and Disease

DCR Claim: The logging proposals claim that cutting down trees and other intrusive management is needed to "treat" a wide range of insect infestations and diseases. These supposed threats to forest "health" include the emerald ash borer, wooly adelgid, and hemlock looper (Old House Lot) and red pine scale and needle cast disease (Beaman Lot). The primary "treatment" is to cut down more trees through clearcutting and other intensive management.

Response: DCR contends that its logging program protects forests — and carbon stocks — from diseases and pests. On the contrary, there is little evidence to support the assumption by foresters that logging will reduce insects and disease.[40] Moreover, insects and disease are a natural part of healthy forest ecosystems. They help decompose and recycle nutrients, build soils, maintain genetic diversity within tree species, and provide homes and food for wildlife.

Emerging studies find that cutting down trees to "save" the forest from insects and disease does not solve the "problem," but makes it worse.

There is also increasing evidence that logging reduces the natural resistance of a forest to insects and disease. In one study, researchers found that after "thinning" of forest plots, 50%

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[38] IPCC, 2021: Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press. In Press.

[39] United States Climate Alliance. 2020. Natural & Working Lands Challenge (Updated: January 14, 2020) http://www.usclimatealliance.org/nwlchallenge

[40] Black, Scott Hoffman. 2005. Logging to Control Insects: The Science and Myths Behind Managing Forest Insect "Pests." A Synthesis of Independently Reviewed Research. The Xerces Society for Invertebrate Conservation, Portland, OR https://www.xerces.org/wp-content/uploads/2008/10/logging_to_control_insects1.pdf

of the genetic diversity of the trees of that species had been lost. Of particular concern was the loss of rare alleles, which plants and animals rely upon to deal with new challenges.[41] Studies are finding that, despite an outbreak of the emerald ash borer that killed most ash trees, some trees "lingering ash" persisted, and offer options for breeding or reforestation.[42],[43] Cutting down ash trees that have not been infected or are still "lingering" can cause the loss of trees that could potentially have resistant genes that will be be critical in allowing the species to survive and recover.

Fire Prevention

***DCR Claim*:** Logging is needed to reduce fire risk (Charge Pond Campground Complex). Specifically:

> *The primary goal is to reduce the fuel load in and around the Charge Pond Campground Complex to protect campers in the event of a wildfire. Thinning between campground loops will occur on approximately 34 acres…. Reducing the canopy cover will result in an open habitat benefiting a variety of rare, declining, and common species…. Large diameter trees will be removed to meet the retention/spacing guidelines above by whole-tree harvesting and chipping, with all logs and chips removed from the site…. Approval from the DCR Commissioner will be required for openings above 1/3 acre that harvest all merchantable trees….*

Response: The primary goal of this project is "to protect campers in the event of a wildfire." This is a legitimate goal for public land managers. However, the strategy described in the Charge Pond Campground Complex project proposal is based on scientifically questionable assumptions regarding wildfire and wildfire mitigation.

The project would remove large diameter trees and "reduce canopy cover." However, removing large trees can increase the rate of fire spread by opening up the forest to desiccation of vegetation and soils, greater wind velocity, and increased temperatures, which increase the risk and intensity of fire.[44] Large trees are also important for carbon storage when alive and they take many decades to rot away, losing their carbon gradually during that time.[45]

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[41] Six, Diana L., Eric Biber, and Elisabeth Long. 2014. Review Management for Mountain Pine Beetle Outbreak Suppression: Does Relevant Science Support Current Policy? Forests 2014, 5, 103-133; doi:10.3390/f5010103 forestsISSN 1999-4907 https://www.researchgate.net/publication/259714120_Management_for_Mountain_Pine_Beetle_Outbreak_Suppression_Does_Relevant_Science_Support_Current_Policy

[42] Koch, Jennifer L., Mary E. Mason, David W. Carey, Kathleen Knight, Therese Poland, and Daniel A. Herms. 2010. Survey for Tolerance to Emerald Ash Borer within North American Ash Species in Proceedings of the Symposium on Ash in North America. U.S. Forest Service Forest Service, Northern Research Station. General Technical Report NRS-P-72 https://www.fs.fed.us/nrs/pubs/gtr/gtr_nrs-p-72r.pdf

[43] Steiner, K.C., Graboski, L.E., Knight, K.S. et al. 2019. Genetic, spatial, and temporal aspects of decline and mortality in a Fraxinus provenance test following invasion by the emerald ash borer. Biol Invasions 21, 3439–3450. https://doi.org/10.1007/s10530-019-02059-w

[44] Moritz, Max A., Enric Batllori, Ross A. Bradstock, A. Malcolm Gill, John Handmer, Paul F. Hessburg, Justin Leonard, Sarah McCaffrey, Dennis C. Odion, Tania Schoennagel, and Alexandra D. Syphard. 2014. Learning to coexist with wildfire. Nature 515: 58-66. doi:10.1038/nature13946

[45] Moore, David J. P., Nicole A. Trahan, Phil Wilkes, Tristan Quaife, Britton B. Stephens, Kelly Elder, Ankur R. Desai, Jose Negron, Russell K. Monson. 2013. Persistent reduced ecosystem respiration after

Indeed, a recent, large-scale analysis confirmed that logged forests tend to have more intense fires than unlogged forests that are supposedly "overgrown" with "fuel".[46]

DCR also plans to thin the forest between campground loops. Thinning can help to reduce the intensity of wildfire. However, research has shown that an average of only 1% of forests thinned by the U.S. Forest Service actually experience wildfire each year.[47] Because the effectiveness of thinning "treatments" lasts about 10 to 20 years, this means that most of these logged sites will not experience wildfire during that period. Considering how challenging and expensive fuel reduction thinning is, this raises questions regarding whether this is a wise management strategy for DCR to pursue.

An exhaustive analysis of wildfires in the United States from 1992 to 2012 found that 84% of these wildfires were started by humans, either accidentally or on purpose.[48] This indicates that the most effective strategy for reducing the risk of wildfire at the Charge Pond Campground Complex may be to prohibit or carefully regulate the use of fire by campers, rather than logging the surrounding forest.

Ecosystem Restoration

***DCR Claim*:** Intensive logging is needed to "restore" native ecosystems. For Old Town House Lot:

> *Within the state forest several small plantations were removed around 2005 creating early successional habitat, followed in 2015 by a heavy regeneration harvest on private land adjacent to the project area. As these previously harvested areas progress through natural succession their early successional habitat value is slowly being lost. The clearcutting of five acres of the red pine-red maple-aspen stand will replace some of this habitat loss.*

For Charge Pond Campground Complex:

> *[R]estore and maintain native pitch pine and scrub oak natural communities…. Reducing the canopy cover will result in an open habitat benefiting a variety of rare, declining, and common species….*
>
> *Future treatments will be mowing and/or prescribed fire to kill white pines that typically regenerate in such areas and to stimulate sprouting and growth of native shrubs.*

Response: DCR claims that it is restoring "native ecosystems" with the clearcutting and other intensive logging proposed for these projects. However, there is ample evidence that the native

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insect disturbance in high elevation forests. Ecology Letters 16(6): 731-737. https://doi.org/10.1111/ele.12097

[46] Bradley, Curtis M., Chad T. Hanson, and Dominick A. DellaSala. 2016. Does Increased Forest Protection Correspond to Higher Fire Severity in Frequent-Fire Forests of the Western United States? Ecosphere 7(10):e01492. 10.1002/ecs2.1492 https://doi.org/10.1002/ecs2.1492

[47] Schoennagel, Tania, Jennifer K. Balch, Hannah Brenkert-Smith, Philip E. Dennison, Brian J. Harvey, Meg A. Krawchuk, Nathan Mietkiewicz, Penelope Morgan, Max A. Moritz, Ray Rasker, Monica G. Turner, and Cathy Whitlock. 2017. Adapt to more wildfire in western North American forests as climate changes. Proceedings of the National Academy of Sciences of the USA 114: 4582–4590. https://www.pnas.org/content/114/18/4582

[48] Balch, Jennifer K., Bethany A. Bradley, View ORCID ProfileJohn T. Abatzoglou, R. Chelsea Nagy, Emily J. Fusco, and Adam L. Mahood. 2017. Human-started wildfires expand the fire niche across the United States. PNAS March 14, 2017 114 (11) 2946-2951. https://doi.org/10.1073/pnas.1617394114

ecosystems of Massachusetts before 1600 were dominated by dense, old-growth forests with a closed canopy.[49],[50] There were limited open areas, largely where there were cliffs and scree slopes, ridge tops, wetlands, beaver meadows, avalanche tracks, river margins, pond and lake margins, and coastline bluffs.

Natural disturbances such as hurricanes and tornadoes, ice storms, insect infestations and disease, beaver impoundments, and fires also caused forest openings. However, these did not cover a significant portion of the landscape of New England.[51] Moreover, these openings did not at all resemble a clearcut. Instead, they were a chaotic jumble of dead and damaged, downed wood, tip-ups, downed log dams in streams and water bodies, and snags and downed logs in forests. The ground was shaded by surviving and rapidly recovering trees. There was no bare ground or scarified soil and nothing was removed.[52],[53],[54]

Before 1600, the plants DCR is focusing on for "restoration" lived in these extreme and rare sites.[55] Today, DCR is attempting to reconstruct the human-created landscape of the mid-1800s to early 1900s, when most of the forest had been cleared and early-successional habitat was common on abandoned farms and other areas that were left alone. During this period, populations of early-successional species exploded, only to begin returning to their natural levels in recent years.[56],[57],[58]

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[49] Foster, David R., Glenn Motzkin, Debra Bernardos, and James Cardoza. 2002. Wildlife Dynamics in the Changing New England Landscape. Journal of Biogeography, 29, 1337–1357 https://pdfs.semanticscholar.org/56d4/afbb6a1b80b25fae122ba80885d6fe240448.pdf

[50] Oswald, W. Wyatt, David R. Foster, Bryan N. Shuman, Elizabeth S. Chilton, Dianna L. Doucette, and Deena L. Duranleau. 2020. Conservation Implications of Limited Native American Impacts in Pre-contact New England. Nat Sustain 3, 241–246 (2020). https://doi.org/10.1038/s41893-019-0466-0

[51] Lorimer, Craig G. and Alan S. White. 2003. Scale and Frequency of Natural Disturbances in the Northeastern US: Implications for Early Successional Forest Habitats and Regional Age Distributions. Forest Ecology and Management 185 (2003) 41–64. https://www.sciencedirect.com/science/article/abs/pii/S0378112703002457

[52] Foster, David, Frederick Swanson, John Aber, Ingrid Burke, Nicholas Brokaw, David Tilman, and Alan Knapp. 2003. The Importance of Land-Use Legacies to Ecology and Conservation. BioScience, Volume 53, Issue 1, January 2003, Pages 77–88. https://doi.org/10.1641/0006-3568(2003)053[0077:TIOLUL]2.0.CO;2

[53] Cooper-Ellis, Sarah, David R. Foster, Gary Carlton, and Ann Lezberg. 1999. Forest Response to Catastrophic Wind: Results from an Experimental Hurricane. Ecology 80 (8) 2683-2696. http://www.jstor.org/stable/177250

[54] D'Amato, Anthony W., David A Orwig, David R Foster, Audrey Barker Plotkin, Peter K Schoonmaker, and Maggie R Wagner. 2017. Long-term structural and biomass dynamics of virgin Tsuga canadensis-Pinus strobus forests after hurricane disturbance. Ecology 98(3):721-733. https://doi.org/10.1002/ecy.1684

[55] Marks, P.L. 1983. On the Origin of the Field Plants of the Northeastern United States. The American Naturalist, Vol. 122, No. 2 pp. 210-228. http://www.jstor.org/stable/2461231

[56] Foster, David R. 1995. Land-Use History and Four Hundred Years of Vegetation Change in New England. In: Turner, B. L., Sal, A. G., Bernaldez, F. G., DiCastri, F., Global Land Use Change: a Perspective from the Columbian Encounter, SCOPE Publication, Consejo Superior de Investigaciones Cientificas, Madrid. https://harvardforest.fas.harvard.edu/sites/harvardforest.fas.harvard.edu/files/publications/pdfs/Foster_GlobalLandUseChange_Chapter_10.pdf

[57] Foster, David R., Glenn Motzkin, Debra Bernardos, and James Cardoza. 2002. Wildlife Dynamics in the Changing New England Landscape. Journal of Biogeography, 29, 1337–1357 https://pdfs.semanticscholar.org/56d4/afbb6a1b80b25fae122ba80885d6fe240448.pdf

There may be a few places where intensive logging to "restore" a habitat is appropriate. In terms of these seven projects, not enough information is provided to judge that question. The Myles Standish Resource Management Plan describes recent history and the current situation and prescribes management actions, but it provides little information on how clearcutting and other extreme logging is necessary, what the potential negative impacts would be, and whether there are other less-intrusive alternatives.[59] The issue of intensive human intervention to create early-successional habitats needs far more scientific research, fact-based analysis, and public involvement than has thus far been provided by DCR.

Whether or not there is some potential benefit to ongoing human intervention to "restore" early successional habitats, it is dubious to assume this strategy is feasible in the long term. Maintaining these early successional habitat habitats requires clearcutting or other intensive clearing of each site as often as every 10-12 years, a significant undertaking.[60] This requires a permanent, never-ending commitment to logging, mulching, mowing, herbiciding, and burning over a large area.

For example, according to DCR, several small pine plantations in the vicinity of the Old Town Lot project were clearcut in 2005, creating early successional (i.e., shrubby recovering forest) habitat, and a "heavy regeneration harvest" (i.e. forest liquidation) was done on an adjacent private tract in 2015. Any benefits to wildlife are already being lost as the forest recovers, so DCR proposes another 5-acre clearcut, only 16 years after the first clearcutting operation.

This kind of intensive habitat manipulation is very expensive to maintain in terms of personnel, equipment and facilities, and fossil fuel consumption.[61] DCR's budget has been declining in recent years and there is little sign of this trend being reversed. There is a very real possibility that after the current surge of early-successional habitat logging projects, there will be inadequate funds for "treatments" to maintain the open habitat in the future. This would leave a fragmented and degraded landscape that is less, not more, biodiverse. DCR provides no information on how it can ensure that this intensive logging program can be continued indefinitely.

Liquidation of Plantations

***DCR Claim*:** Larch, red pine, white pine, Norway spruce, red pine, and Scots pine plantations need to be removed because their "health and vigor…have been declining steadily," they "are at high risk of mortality," or they suffer from other ailments. Depending on the particular plantation, the list of disorders includes fungus, insects, disease, wind damage, overcrowding, or "growth stagnation." (Cattle Barn Lot, Willis Road North, Willis Road South, Beaman Pond Lot).

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[58] Thompson J.R., Carpenter D.N., Cogbill C.V., Foster D.R. 2013. Four Centuries of Change in Northeastern United States Forests. PLoS ONE 8(9): e72540. https://doi.org/10.1371/journal.pone.0072540

[59] DCR. 2011. Myles Standish Planning Unit Resource Management Plan. https://www.mass.gov/files/documents/2016/08/xc/rmp-mssf.pdf

[60] DeGraaf, Richard M. and Yamasaki, Mariko. 2003. Options for Managing Early-Successional Forest and Shrubland Bird Habitats in the Northeastern United States. Forest Ecology and Management. 185: 179-191. https://www.nrs.fs.fed.us/pubs/6765

[61] Oehler, J. D. 2003. State efforts to promote early-successional habitats on public and private lands in the northeastern United States. Forest Ecology and Management, 185(1-2), 169–177. doi:10.1016/s0378-1127(03)00253-6

Response: The plantations targeted for logging tend to be about 85 to 100 years of age. In many cases these plantations have already been thinned by previous logging or through natural mortality and disturbances. In most cases, there is already an understory of native trees and herbaceous plants, which are gradually replacing the plantation trees as they die over time. Liquidation of plantations may speed up this process, but there is no evidence that it is necessary to ensure the eventual recovery of the native forest.

DCR plans to log plantations to "salvage" the commercial value of trees before they die. However, as discussed above, this comes at a major cost to the forest. Cutting down these trees causes major disturbance of forest ecosystems due to fragmentation of interior forest, scarification of soils, and degradation of water and air quality. It can also increase susceptibility to invasive species, spread harmful insects and disease, and worsen the risk of fire. In addition, it removes dead trees that provide vital habitat for numerous birds and other species.[62]

Perhaps the greatest cost is that liquidating plantations will worsen climate change. As noted previously, cutting down these trees will release most of their carbon, along with a significant amount soil carbon, into the atmosphere within a relatively short period of time. On the other hand, studies indicate that if these trees were left alone, even after they die they would continue to store most of their carbon for decades, releasing it slowly and gradually.[63] This is especially important because, as the IPCC warns, minimizing carbon emissions over the next decade is critical if we are to avoid catastrophic climate change.

We do not object to the appropriate use of tree removal where it is shown to be necessary for public health and safety purposes. However, DCR does not provide substantive evidence that this is the case. Regarding Beaman Pond Lot, DCR acknowledges that commercial logging is not a priority because the area is classified as a "parkland." The project proposal claims that commercial logging is justified for the sake of "public safety" or "to restore ecologically significant communities," but it provides no specific evidence to support this claim.

DCR estimates that the trees in the stands slated for logging at Beaman Pond Lot are 85 to 104 years of age. At this age, even a plantation develops ecological complexity that DCR seems to make little effort to assess. What we do know is that cutting and removing trees disrupts this balance, leading to a loss of resiliency and stability just when these things are most needed to resist the impacts of climate disruption.

Conclusion

We oppose all seven of the proposed logging projects in their current form. We believe that the people of Massachusetts want their publicly owned forests to be left uncut and intact, similar to our current reserve areas.

We believe citizens want our public forests to recover their old-growth characteristics, once again providing habitat for the full range of native plants and wildlife, with an ecological balance determined by natural processes, not by human manipulation based on a limited understanding of the natural world. We believe that our public forests should be preserved as

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[62] Thorn, Simon, Sebastian Seibold, Alexandro B. Leverkus, Thomas Michler, Jörg Müller, Reed F. Noss, Nigel Stork, Sebastian Vogel, and David B. Lindenmayer. 2020. The living dead: acknowledging life after tree death to stop forest degradation Front Ecol Environ. https://doi.org/10.1002/fee.2252

[63] Moore, David J. P., Nicole A. Trahan, Phil Wilkes, et al. 2013. Persistent Reduced Ecosystem Respiration After Insect Disturbance in High Elevation Forests. Ecology Letters, (2013) 16: 731–737 doi: 10.1111/ele.12097 http://onlinelibrary.wiley.com/doi/10.1111/ele.12097/abstract

nature sanctuaries for the health and well-being of our people, not as “working” timberlands. This is how DCR can manage our state-owned forest lands for the greatest public good.

Accordingly, we recommend that DCR cancel these seven logging projects. We urge the agency to rethink its focus on timber production, artificial wildlife “management,” and other intrusive activities. Instead, the agency should preserve more large tracts of forest for maximum long-term carbon capture and storage, the recovery of old-growth forests that are home to all of our native species, and the opportunity for people across the state to enjoy green and healthy public forests that are free of resource extraction and development.

Although many of us have submitted comments over the last several years, we have not received timely or constructive responses from DCR. We have not seen that DCR has altered any of its plans in response to our comments. It was particularly troubling to read DCR's response to our comments on the 2020 logging projects that we feel are not science-based or reflective of the intertwined emergencies of climate crisis, loss of biodiversity, and threats to public health.

We are concerned about the current state of the relationship of DCR with the citizens of Massachusetts. We are invited by DCR to comment on these logging projects, yet we receive no notice of the response by the agency to us, only to discover it posted online after we searched for it. The purpose of public participation is an honest and transparent exchange of information and viewpoints, and the revision of agency management direction in response to changing public needs and priorities. We believe the time is long overdue for DCR to create a new public process and management that meets this important purpose.

You can reach Michael Kellett of RESTORE: The North Woods with a response or questions at kellett@restore.org or 978-392-0404.

Sincerely,

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Thank you for your comments. Please see our detailed responses with the first version of these comments submitted earlier in this document; and to general themes raised by these comments, throughout this document.

From: VIRGINIA HASTINGS <hastingsv@aol.com>
Sent: Wednesday, September 1, 2021 7:38 PM
To: Forestry Comments (DCR)
Subject: Northfield MA forestry area

To whom it may concern, please do not thin the Northfield MA Forest area. Let the growth naturally take care of this forest. Letting the trees naturally grow is better in severe weather situations. If you need local folks to go into this area to clean up the lard, I am sure a local crew would come together.
Leave the Northfield Ma. forest area alone!
We need all the trees we can protect for our planet.
Thank you, Howard & Virginia Hastings

Sent from my iPad

Thank you for your comments.

From: Bill Vickstrom <wrvick@comcast.net>
Sent: Friday, September 3, 2021 9:22 AM
To: Forestry Comments (DCR)
Subject: Charge Pond Restoration

I have spent much time in the forest and have reviewed your proposal for the next phase around Charge Pond and also the 10 year plan. I have also received numerous comments from forest users. Many of them have been very negative to the extensive clearing done to MSSF and surrounding areas. The phrase I have heard numerous times is "the horrible forest destruction". Forest thinning, not clear cutting would be a much more preferred action, such as was done a few years ago along Mast Road.

I fully am aware of past fire events of 1900, 957 and 1964 and am aware of potential dangers of the Charge Pond Area in summer camping season in case of another major fire. I am also fully aware that MSSF has more endangered species than any other area in Massachusetts. That said, I think this project is way too extensive and is totally altering the wonderful forests that this area has to offer. White Pines are a major part of the landscape in Eastern Mass and Mast Road was named for the huge White Pines in the area. I has been truly heartbreaking to see these majestic trees removed in favor of Pitch Pine and Scrub Oak which are not as attractive. In many areas of the forest, these species co-exist. The tremendous clearing that has occurred has also left the remaining pitch pines alone and very vulnerable to storm damage. In times of climate change, carbon absorbing trees have never been more valuable. Instead the vast areas already been cleared have turned into an undesirable heat islands. With the rapid development of the Southeastern Mass area and the Eastern Seaboard, keeping remaining forested areas preserved should be a huge priority. People come to Myles Standish State Forest for the beautiful forests and kettle ponds. Forest preservation, not removal should be your top goal.

Other random thoughts:The last round of clearing last winter and early Spring severely damaged parts of 4 hiking paths with immense amount of debris left on roads and trails and huge deep truck trails tearing up trails in some areas. Some deep rutted areas pose dangers for forest users, in particular the equestrian community. The contractors appeared to have done nothing to repair the damage. Spring Road was a foot deep in debris. Nothing was done to improve the heavily damaged hiking trails. The Friends of Myles Standish spent $1000 to rent a Dingo to clear and open parts of the Charge Pond Loop, Pine Barrens Path and two trails leading down to Abner Pond. What was lost were several sign posts and numerous trees with trail blazes. With most of the trees removed, we will now have to spend money on sign posts and other trail marking methods to keep users from getting lost on our formerly blazed trails. Some of the areas resemble clear cut, so quite a few posts will be needed. We have also been told that each post location will need archaeological approval. I suggest that on future clearing sections, closer review of trails be taken and any blazed trees be spared.

Removal of almost all of the woods around Charge Pond will totally change the character of the pond and campground. I am sure many yearly users will be very disappointed to see this change. A fifty

foot buffer zone around the trees is very absolutely minimal and will not hide the forest destruction nearby. It is truly sad that DCR seems to have a policy of removing larger trees that are the most impressive and also store the most carbon. I have heard from many equestrians and they are appalled at how their beautiful wooded trails have been ruined as they bake in the open exposed areas when riding. In a recent summer walk in a "Restored area" we were exposed for such a long time with no shade protection. What about the wildlife that formerly lived in those woods?

As part of the enormous debris left behind, I am sure there are a massive amount of pine cones that will surely hatch. There is also a huge amount of material that will decompose and add enrichment and layers to the thin sandy the soil. I am seeing many changes to the areas where the Red Pines were removed a few years back. I would expect the same evolvement to happen over the 2500 proposed acres in the future for this project.

Is there any way this project can be scaled back? I think you have achieved your objective of restoring past Pine Barrens habitat. A vast forested area has already been cleared. Now that many have observed what has been done, our thoughts are enough, enough! With heavy development pressures in surrounding areas in Plymouth and Wareham. we need as much forest saved as possible.

Thank you for your comments.