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**Submitted via email to: Jessica Rowcroft jessica.rowcroft@state.ma.us and
Timber.Comments@state.ma.us**

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Massachusetts Department of Conservation and Recreation
251 Causeway Street, Suite 700
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RE: Comments on Seven 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 seven state forests.¹ The projects include Balance Rock Lot (Balance Rock State Park)², Cold River Lot (Florida State Forest)³, OMSF Day Use Area (October Mountain State Forest)⁴, Horse Valley Lot (Huntington State Forest)⁵, Erving Red Pine (Erving State Forest)⁶, Hubbard River East Lot (Granville State Forest)⁷, and Goodale-Chipman Lots (Marlborough-Sudbury State Forest).⁸

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 Sequestration

DCR claim: DCR contends that logging will “sequester carbon in retained overstory trees, permanent forest products produced from the harvest, and in the vigorous regenerating forest [with] a more diverse forest structure that is resilient to disturbance” (Balance Rock Lot, Cold River Lot, Goodale-Chipman Lot, Hubbard River East Lot). On its website, DCR expands on these claims:

Using current science and up-to-date data from our own lands, the Department of Conservation and Recreation’s Bureau of Forestry leads in delivering carbon benefits on state lands for future generations.

¹ Department of Conservation and Recreation. 2020. Forest Management Projects Proposed 2020. Commonwealth of Massachusetts <https://www.mass.gov/guides/forest-management-projects#-forest-management-projects-proposed-2020->

² <https://www.mass.gov/doc/balance-rock-forest-management-proposal/download>

³ <https://www.mass.gov/doc/cold-river-lot-forest-management-proposal/download>

⁴ <https://www.mass.gov/doc/omsf-day-use-area-forest-management-proposal/download>

⁵ <https://www.mass.gov/doc/horse-valley-forest-management-proposal/download>

⁶ <https://www.mass.gov/doc/erving-red-pine-hq-forest-management-proposal/download>

⁷ <https://www.mass.gov/doc/hubbard-river-east-lot-forest-management-proposal/download>

⁸ <https://www.mass.gov/doc/goodale-chipman-lots-forest-management-proposal/download>

Since 1960, the DCR has monitored forest growth and conditions on its land through a continuous forest inventory (CFI)... 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... DCR's practice of utilizing different forest management strategies — active management on some lands, passive management on other lands — not only provides that diverse carbon portfolio discussed above, it also ensures DCR can provide a variety of forest benefits to our Commonwealth and our neighboring states. The CFI data confirm that 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.]

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. A diverse forest includes younger stands that grow vigorously and rapidly accrue carbon along with older stands that store large amounts of carbon, creating a balance between short-term benefit and long-term gain.⁹

Response: On its website, DCR claims that, “Using current science and up-to-date data from our own lands [the agency] leads in delivering carbon benefits on state lands for future generations.” Yet, these logging project plans provide only a short statement about carbon sequestration with 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 sequestration and storage, or how the potential benefits of the project outweigh any negative impacts on climate change. This lack of any substantive information seriously undermines the credibility of the agency’s claim of leadership on “carbon benefits” and calls into question its commitment to address this vital issue beyond mere rhetoric.

The 2008 Massachusetts Global Warming Solutions Act (GWSA) called for dramatic reductions in greenhouse gas emissions beginning in 2020. The 2018 report of the UN Intergovernmental Panel on Climate Change (IPCC) warned that we need to dramatically address climate change by 2030, including not only reducing greenhouse gas emissions from energy production, but also absorbing and storing carbon from the atmosphere — with forests playing a critical role.¹⁰ In 2019, Governor Baker reaffirmed a commitment with 24 other governors in the U.S. Climate Alliance to the goal of sequestering more carbon in forests as a way to mitigate climate change.¹¹ The logging projects considered here are inconsistent with this growing consensus.

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.

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 Intergovernmental Panel on Climate Change. 2018. Global Warming of 1.5° C: Summary for Policymakers https://www.ipcc.ch/site/assets/uploads/sites/2/2018/07/SR15_SPM_version_stand_alone_LR.pdf

¹¹ United States Climate Alliance. 2020. Natural & Working Lands Challenge (Updated: January 14, 2020) <http://www.usclimatealliance.org/nwlchallenge>

Although widespread clearing in the past has significantly reduced carbon storage in Massachusetts forests, they are among the most carbon-dense in the eastern U.S.¹² In addition, because these forests grow fast, decay slowly, and have an average age of only 75 years, they have centuries of growth ahead. 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.¹³ Indeed, these forests are capable of storing 2.3 to 4.2 times more carbon than they do currently¹⁴

DCR would have us believe that its logging program has an infinitesimal impact on climate disruption. This is highly misleading, because it ignores the long-established concept of cumulative effects.¹⁵ 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. In just 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.¹⁶ One study concluded that if logging were phased out on America's public lands it could result in as much as a 43% increase over current carbon sequestration levels.¹⁷ This would be a major contribution to climate stabilization efforts.

Likewise, although some carbon may be sequestered 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.^{18,19}

¹² 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

¹³ 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>

¹⁴ 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

¹⁵ 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>

¹⁶ 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>

¹⁷ 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>

¹⁸ 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>

¹⁹ Ann L. Ingerson. 2009. *Wood Products and Carbon Storage: Can Increased Production Help Solve the Climate Crisis?* The Wilderness Society, Washington, DC.

While a young forest recovering from logging will sequester carbon, the amount stored in the forest will be much less than if the existing trees were allowed to grow.²⁰ Recent studies show that forests increase the rate of carbon sequestration as they age.²¹ By cutting many, if not all, mature trees, the proposed logging projects would release massive amounts of carbon and set back the amount of new carbon sequestration for decades. Furthermore, logging can cause a gradual release of carbon from soils, lasting for decades after the logging is complete.²²

DCR contends that its logging program protects forests — and carbon stocks — from severe weather, diseases, and pests. However, a study by the Harvard Forest found that:

*there [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.*²³

Other studies also indicate that logging for “protection” is the opposite of what we need, and that increasing the representation of stable, older forest conditions at landscape scales will help sustain healthy, resilient forests.²⁴

“Improvement” of Wildlife Habitat

DCR Claim: According to DCR, the clearcutting and other intensive logging that would be implemented by these projects would:

- “Increase biological diversity, improve wildlife habitat, and introduce more complexity into existing stands [which will] install gaps within existing stands and enlarge those gaps that already exist” (Balance Rock Lot, Cold River Lot).

<https://www.sierraforestlegacy.org/Resources/Conservation/FireForestEcology/ThreatsForestHealth/Cli mate/CI-Ingerson-TWS2009.pdf>

²⁰ 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>

²¹ N. L. Stephenson, 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). <http://www.nature.com/nature/journal/vaop/ncurrent/abs/nature12914.html>

²² 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>

²³ 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_C onservatio nBio_2006.pdf

²⁴ 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.14656><https://onlinelibrary.wiley.com/doi/10.1111/gcb.14656>

- “Improve wildlife habitat, specifically browse and cover [to] establish gaps...in order to ensure the recruitment of a new age class [replacement of old trees with young trees] and reduce the opportunity for beech to dominate the opening [including through logging and the use of chemical herbicides] (Cold River Lot).
- “Release established regeneration thus increasing species and age diversity [and] opening up the forest canopy [to] allow grasses, forbs and other forms of browse to become more plentiful [thereby] increasing species and age diversity” (Goodale-Chipman Lots).

Response: What DCR calls “improving” wildlife habitat and “increasing biological diversity” by cutting down old trees and clearcutting forests to create “browse and cover,” is called “forest fragmentation” by forest ecologists. There is no objective evidence provided to support DCR’s claims that its logging would be beneficial to forest ecosystems. In fact, the BioMap2 report compiled by the Massachusetts Department of Fish and Game and The Nature Conservancy provides strong evidence that the opposite is true. This report states:

Forest interior habitat is widely recognized as critically important for species sensitive to forest fragmentation and is becoming increasingly scarce in highly populated regions of the country like Massachusetts.... Many bird species that breed in Massachusetts are sensitive to forest fragmentation, including Ovenbirds, Scarlet Tanagers, and many woodland warblers. Negative results of fragmentation include edge effects such as nest predation by species associated with development such as skunks, raccoons, and house cats; and nest parasitism by species such as the Brown-headed Cowbird that lay their eggs in the nests of other bird species and reduce their reproductive success. Forest interior habitats also support a wide range of native plants, animals, and ecological processes sensitive to other edge effects such as noise and light pollution from roads and development, invasive species establishment, and alterations to wind, heat, and other climate variables.²⁵

Virtually every day brings new evidence of just how complex and interconnected forests actually are and how both complexity and connectedness increase with forest age. Logging to supposedly enhance biodiversity should be understood as an experiment in eco-engineering. Moreover, as the Harvard Forest found, this is an experiment lacking controls because there are no large tracts of natural, intact forest in Massachusetts with which to judge whether the effects of a proposed logging project are beneficial or harmful.²⁶

In light of this current lack of adequate information, projects that propose to use logging for wildlife should be subject to the same scrutiny as other engineering projects. This should include a comprehensive environmental impact statement based on such evidence as needed to show that the proposed logging actually has an ecologically beneficial effect.

As Aldo Leopold wrote, “To keep every cog and wheel is the first precaution of intelligent tinkering.” But logging for biodiversity is tinkering on a grand scale while keeping track of only

²⁵ Natural Heritage Endangered Species Program. 2010. Forest Core BioMap2 Components. Core Habitat: Forest Core Critical Natural Landscape: NA. Massachusetts Division of Fisheries & Wildlife. <http://www.mass.gov/eea/docs/dfg/nhesp/land-protection-and-management/forest-core.pdf>

²⁶ 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

a tiny fraction of the living diversity involved. The diversity of life in forests is poorly documented outside of a few charismatic groups, even here in Massachusetts. Consequently, logging interventions supposedly designed to enhance biodiversity are based on very limited data focused on a very small number of target taxa, while ignoring the far greater diversity that would be evident in a broader sample. Just two of many examples of diversity that are ignored in these and other DCR logging projects are bryophytes and lichens.²⁷²⁸

Most of Massachusetts is now covered by forests, as it was long before European settlement. Forests are our most important biome by far, and the preservation of large, contiguous areas of mature forest should be the first priority of biodiversity protection in the Commonwealth. Such expansive intact forests sustain native biodiversity by providing essential habitats, not only in growing live trees, but also in old trees, standing snags, downed wood, diverse understories, and fertile soils.²⁹ These forests are shaped by natural processes, such as hurricanes and tornadoes, ice storms, insect infestations and disease, beaver impoundments, and fires. Such natural disturbances provide structural diversity, including forest interior habitats as well as gaps and tracts of young forest – without the need for human intervention.³⁰³¹

A recent study found that wilderness areas are far more valuable for biodiversity than previously believed, and that if protected, they will cut the risk of species extinctions in half.³² The 1-million-acre Boundary Waters Canoe Area Wilderness of Minnesota exemplifies the high level of biodiversity in large protected natural areas. This wildland was found to have a greater total density of birds, total number of bird species, and abundance of individual bird species than adjacent logged national forest lands. Moreover, the richness of species that favor young forests, such as the chestnut-sided warbler, was as great in the wilderness as outside it.³³ This

²⁷ Selva, S. B. 1994. Lichen Diversity and Stand Continuity in the Northern Hardwoods and Spruce-fir Forests of Northern New England and Western New Brunswick. *The Bryologist*, 97: 424-429.
<https://www.jstor.org/stable/3243911?seq=1>

²⁸ Boch S, J. Müller, D. Prati, S. Blaser, and M. Fischer. 2013. Up in the Tree – The Overlooked Richness of Bryophytes and Lichens in Tree Crowns. *PLoS ONE* 8(12): e84913.
<https://doi.org/10.1371/journal.pone.0084913>

²⁹ D'Amato, Anthony W., David A. Orwig, David R. Foster. 2009. Understory Vegetation in Old-Growth and Second-Growth *Tsuga Canadensis* Forests in Western Massachusetts. *Forest Ecology and Management* 257 (2009) 1043–1052
https://harvardforest.fas.harvard.edu/sites/harvardforest.fas.harvard.edu/files/publications/pdfs/Damato_ForestEcology_2009.pdf

³⁰ Anderson, Mark, Susan Bernstein, Frank Lowenstein, Nancy Smith, Sigrid Pickering. 2004. *The Nature Conservancy and Sweet Water Trust*. Boston, MA.
<https://www.sweetwatertrust.org/images/DeterminingtheSizeofEasternForestReserves-SweetWaterTrust.pdf>

³¹ Askins, Robert A. 2015. *The Critical Importance of Large Expanses of Continuous Forest for Bird Conservation in Connecticut State of the Birds: Protecting and Connecting Large Landscapes*. Connecticut Audubon Society. (pages 24-28) http://www.ctaudubon.org/wp-content/uploads/2015/12/StateoftheBirds_2015_Final_Correct.pdf

³² Di Marco, Moreno, Simon Ferrier, Tom D. Harwood, Andrew J. Hoskins, and James E. M. Watson. 2019. Wilderness Areas Halve the Extinction Risk of Terrestrial Biodiversity Loss. *Nature* Volume 573 Pages 582–585. <https://doi.org/10.1038/s41586-019-1567-7>

³³ Zlonis, Edmund J. and Gerald J. Niemi. 2014. Avian Communities of Managed and Wilderness Hemiboreal Forests. *Forest Ecology and Management* 328:26–34 · September 2014 DOI: 10.1016/j.foreco.2014.05.017
https://www.researchgate.net/publication/263202573_Avian_communities_of_managed_and_wilderness_hemiboreal_forests

is also true of eastern national parks, which tend to have larger trees, older forests, and more deadwood standing and on the ground than surrounding managed forests³⁴, as well as greater species richness and a higher percentage of rare species.³⁵

There is a broad scientific consensus that we need to expand protected areas to encompass from 30%³⁶ to 50%³⁷ of the Earth, if we are to avoid massive global plant and animal extinctions. The Harvard Forest's Wildlands and Woodlands program has called for a modest 7% of New England to be "formally protected" as "true wildlands, in which all active management is precluded and nature prevails."³⁸ Yet only a little more than 1% of the Massachusetts land base is designated legally as nature preserves that provide for proforestation.³⁹ This increases to 3% of the state if one includes state-owned reserves that are off-limits to commercial logging — but these have only administrative, not statutory protection.⁴⁰

The fragmentation of natural forest ecosystems not only releases carbon and diminishes biodiversity, but it can also threaten human health. Forest exploitation can drive animals, including zoonotic vectors, into nearby human-occupied areas. For example, it is hypothesized that SARS-CoV-2, the virus responsible for the current Covid-19 pandemic, jumped species from bats to humans.⁴¹

The same is true almost anywhere on earth. One example in New England regards bat species that normally roost in tree cavities, but will relocate to manmade structures when their forest roosts are destroyed — with a resultant increased probability for human rabies of bat origin.

³⁴ Miller, Kathryn M., Fred W. Dieffenbach, J. Patrick Campbell, Wendy B. Cass, James A. Comiskey, Elizabeth R. Matthews, Brian J. McGill, Brian R. Mitchell, Stephanie J. Perles, Suzanne Sanders, John Paul Schmit, Stephen Smith, Aaron S. Weed. 2016. National Parks in the Eastern United States Harbor Important Older Forest Structure Compared with Matrix Forests. *Ecosphere* 7:e01404. doi: 10.1002/ecs2.1404 <https://esajournals.onlinelibrary.wiley.com/doi/pdf/10.1002/ecs2.1404>

³⁵ Miller, Kathryn M., Brian J. McGill, Brian R. Mitchell, Jim Comiskey, Fred W. Dieffenbach, Elizabeth R. Matthews, Stephanie J. Perles, John Paul Schmit, Aaron S. Weed. 2018. Eastern National Parks Protect Greater Tree Species Diversity Than Unprotected Matrix Forests. *Forest Ecol. Manag.* 414, 74–84. doi: 10.1016/j.foreco.2018.02.018 <https://irma.nps.gov/DataStore/DownloadFile/598344>

³⁶ UN Convention on Biological Diversity. 2020. Zero Draft of the Post-2020 Global Biodiversity Framework. CBD/WG2020/2/3 <https://www.cbd.int/doc/c/efb0/1f84/a892b98d2982a829962b6371/wg2020-02-03-en.pdf>

³⁷ Dinerstein, Eric et al. 2017. An Ecoregion-Based Approach to Protecting Half the Terrestrial Realm. *BioScience*, Volume 67, Issue 6, June 2017, Pages 534–545, <https://doi.org/10.1093/biosci/bix014>

³⁸ Foster, David R et al. 2017. Wildlands and Woodlands, Farmlands and Communities: Broadening the Vision for New England. Harvard Forest. Petersham, MA. [https://www.wildlandsandwoodlands.org/sites/default/files/Wildlands and Woodlands 2017 Report.pdf](https://www.wildlandsandwoodlands.org/sites/default/files/Wildlands%20and%20Woodlands%202017%20Report.pdf)

³⁹ 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>

⁴⁰ Department of Conservation and Recreation. 2012. Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines <http://www.mass.gov/eea/docs/dcr/ld/management-guidelines.pdf>

⁴¹ Zhang, Yang, Chengxin Zhang & Wei Zheng. 2020 11 April. More Evidence Suggests Pangolins May Have Passed Coronavirus From Bats to Humans The Conversation. <https://www.sciencealert.com/more-evidence-suggests-pangolins-may-have-passed-coronavirus-from-bats-to-humans>

Research also shows that in the eastern U.S., the risk of contracting Lyme disease is higher in fragmented forests.⁴² Other examples could be cited, but the main point to be made is that undisturbed ecosystems are less likely to disrupt normal zoonosis cycles within wild animal populations that could result in etiologic agents jumping species to the human population.

The Commonwealth of Massachusetts needs far more large tracts of forest that are off-limits to commercial logging, artificial wildlife “management,” and other intrusive activities. This would be possible by providing stronger protection of existing state-owned lands and acquiring additional public holdings. An expanded reserve system would be the envy of the world, not only safeguarding native biodiversity, but also providing many other benefits to people.

“Treatment” for Insects and Disease

DCR Claim: The logging proposals claim that cutting down trees and other intrusive management is needed to “treat” fungus, insect infestations, and disease. 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: 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. Moreover, there is little evidence to support the assumption by foresters that logging will reduce insects and disease.⁴³

Emerging studies find that cutting down trees to “save” the forest from insects and disease actually makes the “problem” worse. For example, a biological analysis done by Acadia National Park, where logging is prohibited, found that logging elsewhere does not appear to have prevented the spread of the red pine scale. Moreover, it was found that moving trimmed or harvested materials in spring through fall had the potential to actually spread the insect.⁴⁴

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.⁴⁵ An

⁴² Cary Institute of Ecosystem Studies. 2018, 9 July. Forest Ecology Shapes Lyme Disease Risk in the Eastern US. Science Daily. <https://www.sciencedaily.com/releases/2018/07/180709132727.htm>

⁴³ 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

⁴⁴ Acadia National Park. 2014. Invasive Insect Contributing to Red Pine Die-off on Mount Desert Island. National Park Service <https://www.nps.gov/acad/learn/news/invasive-insect-contributing-to-red-pine-die-off-on-mount-desert-island.htm>)

⁴⁵ 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;

annual inventory by the U.S. Forest Service found that, despite an outbreak of the emerald ash borer that killed most ash trees, some trees persisted, and offered options for breeding or reforestation.⁴⁶ Cutting down ash trees that have not been infected would cause the loss of trees that could potentially have resistant genes that could be critical in restoring the forest.

DCR seeks “control” of “beech proliferation” because it is deemed “excessive.” This would largely be done through five-acre “openings” (small clearcuts) and herbicide “treatment.” The most commonly used herbicide, Roundup (glyphosate), has been implicated in harmful effects that range from causing cancer in animals to killing honeybees.⁴⁷ Concerns have been raised about other herbicides. DCR does not provide any information in these plans on which herbicide would be used and what the potential impacts would be on the health of animals and humans.

DCR has acknowledged that, “natural stands dominated by sugar maple are not common in Massachusetts.” Yet, one of its goals of several of the logging projects is to artificially create such sugar maple-dominated stands. This will be done by cutting down naturally occurring native tree species, such as American beech, yellow birch, black birch, white birch, red maple), and white ash.

There are a number of serious problems with this strategy. Sugar maple decline is a generalized set of symptoms of trees suffering a wide range of different stressors and DCR provides no scientific evidence to show how this logging operation will address the issue.⁴⁸ The logging project would also release significant amounts of carbon and set back carbon sequestration for decades in the future. Furthermore, these tracts provide valuable interior forest habitat that would be fragmented by the creation of artificial openings.

Liquidation of Plantations

DCR Claim: Red pine and Norway spruce plantations need to be removed because they are “declining due to fungus, insects, disease, wind damage, or overcrowding, or are susceptible to these factors” (Cold River Lot, Erving Red Pine- HQ, OMSF Day Use Area). This will also allow the “release” of native species in the understory and promote the “restoration” of native forest ecosystems.

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

⁴⁶ 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

⁴⁷ Balter, Michael. 2019 7 May. Bee Alert: Is a Controversial Herbicide Harming Honeybees? Yale Environment 360. <https://e360.yale.edu/features/bee-alert-is-a-controversial-herbicide-harming-honeybees>

⁴⁸ Houston, David R. 1999. History of Sugar Maple Decline un: Horsley, Stephen B.; Long, Robert P., eds. Sugar maple ecology and health: proceedings of an international symposium; 1998 June 2-4; Warren, PA. Gen. Tech. Rep. NE-261. Radnor, PA: U.S. Department of Agriculture, Forest Service, Northeastern Research Station: 19-26. <https://www.fs.usda.gov/treesearch/pubs/13134>

Response: The plantations targeted for logging tend to be 80 years old or more. In many cases the plantations have been thinned by previous logging or through natural mortality. 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.

The goal of DCR is clearly to maximize commercial timber value by cutting down plantations to “salvage” the trees before they die. However, this comes at a major cost to the forest. Logging would cause major disturbance of forest ecosystems due to fragmentation of interior forest, scarification of soils, and degradation of water and air quality. Logging also can also increase susceptibility to invasive species, spread harmful insects and disease, and worsen the risk of fire. Dead trees also provide important habitat for numerous birds and other species.⁴⁹

Perhaps the greatest cost is that liquidating plantations will worsen climate change. As noted above, this will release most of the carbon in the trees, and 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.⁵⁰ 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.

There are some cases where there is a reasonable need to remove trees that are a hazard to public health or safety. This largely appears to be the case with the OMSF Day Use Area project. DCR should be commended for treating the entire project areas as “parkland,” including some acreage classified as “woodlands.” We do not object to the appropriate use of tree removal where it is shown to be necessary for public health and safety purposes.

“Improvement” of Recreational Experiences

DCR claim: Logging will “improve recreational experiences primarily associated with hunting and wildlife viewing,” presumably because it will increase “browse and cover” (Cold River Lot).

Response: The logging that is proposed would fragment the forest and create artificial openings. The resulting “browse and cover” (i.e., brush interspersed with forest) would benefit game species that favor these habitats, such as white-tailed deer, ruffed grouse, American woodcock, turkey, and ring-necked pheasant. However, these are all common species, which are in no need of additional habitat.

DCR provides no evidence that additional opportunities for hunting are needed. In fact, hunting demand has decreased across America. Only about 2% of New Englanders are hunters — a number that has dropped by 50% over the last 5 decades.⁵¹

⁴⁹ Wuerthner, George. 2018. In Praise of Dead Trees. CounterPunch. <https://www.counterpunch.org/2018/12/24/in-praise-of-dead-trees/>

⁵⁰ 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>

⁵¹ U.S. Department of the Interior, U.S. Fish and Wildlife Service, U.S. Department of Commerce, U.S. Census Bureau. 2018. 2016 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. <https://www.census.gov/content/dam/Census/library/publications/2018/demo/fhw16-nat.pdf>

There is no evidence presented that shows there is unmet demand for viewing early-successional species that are not hunted. On the contrary, the state suffers from an excessive deer population, which is overbrowsing vegetation, helping to spread Lyme disease, and causing deer-car collisions⁵² It is well documented that fragmented forests support higher deer populations than large tracts of interior forest.⁵³ Instead of minimizing forest fragmentation, DCR is making this problem worse by increasing habitat for deer through its logging program – and calling it a recreational “improvement.” The public could gain far greater benefits from the opportunity for “viewing” more intact forests, which are increasingly rare.

“Sustainable” Wood Products

DCR claim: Logging will provide for “sustainable production” of “locally grown products for the locally grown forest products to the local economy.” (Balance Rock Lot, Cold River Lot, Goodale-Chipman Lots).

Response: There is no agreed-upon scientific definition of “sustainable” forestry. DCR’s own management guidelines state that, “Sustainable forest management [is an] evolving concept [which] has several definitions.”⁵⁴ The contribution of this logging to the “local forest products industry” is highly dubious, since the agency acknowledges that more than 80% of logs cut on state lands are shipped out of state for processing. Moreover, timber values are so low that local towns receive only a few thousand dollars, at most, as their share of revenue from these sales.

Logging on DCR-administered lands is not essential for the health of local economies. The forest products industry is a very small component of the Massachusetts economy, even in towns with large state land holding. Furthermore, 80% of the state’s forest base is privately owned, offering ample opportunity for logging and wood production where there is demand.

Conclusion

We believe that the people of Massachusetts want our publicly owned forests to be left uncut and intact, as is the goal for areas now designated as reserves. We believe they want opportunities for sanctuary and a sense of wildness, where nature is the manager, not us. We believe this is a basic human need. We would welcome a decision by DCR to refrain from implementing any actions proposed in these management plans that would diminish these values.

Thank you for the opportunity to comment on these seven forest management projects. We look forward to your timely response. You can reach Michael Kellett of RESTORE: The North Woods with questions or a response at kellett@restore.org or 978-392-0404.

⁵² Massachusetts Department of Conservation and Recreation. 2020. Deer Management. <https://www.mass.gov/service-details/deer-management>

⁵³ Alverson, William S., Donald M. Waller, Stephen L. Solheim. 1988. Forests Too Deer: Edge Effects in Northern Wisconsin. Conservation Biology Vol. 2, No. 4 (Dec., 1988), pp. 348-358. <http://www.jstor.org/stable/2386294>

⁵⁴ Massachusetts Department of Conservation and Recreation. 2012. Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines, p. 59 <https://www.mass.gov/files/documents/2016/08/qq/management-guidelines.pdf>

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