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Governor's Council on Climate Change,

We are a group of leading research and teaching faculty based at The Forest School at The Yale School of the Environment with internationally-recognized expertise in forest ecology, environmental management and justice, carbon management, and carbon cycle science. We are writing to urge you to **oppose** draft recommendations of the GC3 Forests Working Sub-Group and the GC3 Science and Technology Working Group which call to prohibit timber harvesting on Connecticut's state forestlands.

Banning timber harvesting on state forestlands is not in the interest of the State of Connecticut. Each forest has unique circumstances and the amount of timber harvesting in each forest needs to be determined based upon site-specific and changing conditions through time. Active forest management through silviculture serves to promote forest health, increase growth rates of forests, maintain diverse wildlife habitat, and reduce impacts from disturbance such as fire. As part of carbon management, we should want to harvest forests into the future to maximize the amount of carbon forests can draw out of the atmosphere [1]. An outright ban on timber harvesting could turn our forest assets into liabilities and limit our state's ability to steward these important natural resources.

Connecticut has long been a leader in forest conservation. The science of forest management (i.e. silviculture) has been developed and studied here for over 100 years. The silvicultural systems now in place have allowed both public and private forests in our region to function naturally and thrive while supporting renewable resource needs and clean water [2, 3]. Connecticut's state forests did not recover from the destructive agricultural practices of the 1700 and 1800s and the extraction period of the early 1900's through "benign neglect [4]". **Forest conservation in Connecticut is a story of active conservation of forests, working lands, and shared leadership among the state, foresters, and forest scientists [5-7]**. That story is something we can learn much from today as we plan for the future of Connecticut's forests.

We consider ourselves privileged to live, educate, and practice in a region where the science of silviculture has been developed to allow foresters to regenerate forests naturally, grow resilient mature forests, maintain habitat diversity, provide clean drinking water, and contribute to human renewable resource needs [2, 8-13]. The work of forestry professionals to conduct multiple-use forest management should be supported with policy because it is supported by science. However, forest management is under attack in our state and hence, so is the health and sustainability of our forestlands and the many ecosystem services they provide.

Proforestation, on which the working group recommendations are based, is a recent political movement that aims to prevent forest management in the United States under the assumption that excluding humans from forests will serve as a climate change mitigation tool [4, 14, 15]. It also omits important aspects of forest carbon science [16]. It appears to be premised on a single opinion article published in an academic journal last year [14]. The reality is that forest carbon science is complex [17]. **Excluding silviculture from Connecticut's forests could result in them sequestering less atmospheric carbon over time, due to future losses from catastrophic disturbances (such as windstorms, invasive species, and fire) and lack of carbon benefits derived from forest products**.

We lack a clear scientific answer to major questions related to forest carbon. These include:

- How do forest carbon dynamics change with forest succession, species composition, climate, and site characteristics? **Disturbance events make future forest carbon dynamics, and the longevity**

of carbon stored in today's forests, unpredictable [16, 18-23]. These events, which release vast amounts of forest carbon, are predicted to increase with climate change [24]. Appropriate and even optimized forest management can mitigate the risk of disturbance and reduce forest carbon lost in those events [25, 26].

- What is the lifecycle of carbon in forest soils and how does this relate to disturbance, climate, species composition, forest succession, and human activity [18, 22, 27-32]?
- Under what circumstances might unmanaged forests store more carbon than managed forests, and how do time and natural disturbances factor in to this comparison?
- How do methane emissions from forests differ between sites, species composition, and age structure [33-35]?
- What are the climate implications of multiple-use forest management which includes harvested forest products, compared to proforestation? **Storage of carbon in forests and/or wood products are climate mitigation components, and wood can also serve as a fossil fuel reduction mechanism** [1, 16, 36-38]. System level forest carbon accounting is complex and dynamic which highlights a need for comprehensive, and product specific, wood life cycle analyses and comparisons with non-renewable alternatives and market forces [39]. Woody biomass generated in forest management activities can bring additional climate benefits by either storing carbon in forest products [37] and/or replacing fossil-based counterparts [40]. **Proforestation does not account for system level carbon dynamics related to forest products and misleads us to conclude that its adoption would be the most carbon positive of all forest policy choices.**

Given such questions, proforestation is an undemonstrated, unwise approach as a climate solution while active management provides a suite of approaches that can be tailored to find solutions to known and emerging threats to forest carbon storage and health. The proforestation movement misleads us to believe that people are not part of natural forests, a belief based on a dichotomy of nature and culture that has been shown to promote environmental degradation instead of conservation [41]. Indeed, for thousands of years before European colonists arrived, Indigenous peoples stewarded and actively managed Connecticut's forests, through prescribed fire and harvesting of wood for a variety of uses. This active management by people still influences the forests we see today. The myth of a "pristine" unmanaged forest being the natural state of Connecticut's forests is just not accurate or necessarily desirable for carbon sequestration, biodiversity, or other ecosystem services. Active forest management has been crucial through time for ensuring that our forests are healthy and resilient while meeting society's needs.

What the proforestation movement gets right is that poor land management can decimate the biodiversity and ecosystem services of forests. Just as sound management has conserved our contemporary forest after a period of destructive agriculture in the 18th and 19th centuries, we now need to rely on ongoing management to steward these forests through multiple threats, including more frequent and intense weather events such as droughts and storms, and losses due to invasive pathogens. These increasing threats reflect the fact that Connecticut's forests are human influenced, they have been for millennia and this is even more true today due to climate and other environmental changes. **Keeping forests healthy and growing under conditions of multiplying and intensifying threats will require the ongoing human intervention that management offers.** Management allows us to maintain growing forests, and growing forests sequester carbon.

Silviculture enables us to facilitate successional trajectories that will make forests more resilient to ongoing and emerging threats from global change, while supporting rural livelihoods and sustaining biodiversity. The science of silviculture in Connecticut is **not** about cutting primary forests, planting monocultures, or other such extractive practices which deliver only short-term gain. **Outdated caricatures of forestry professionals are detrimental and threaten the resiliency of our state's forests**. Silviculture is about sustaining healthy forestlands, which involves anticipating and responding to disturbances that threaten long-term forest health, through science- and practice-informed strategies.

There are also broader issues at play here relating to sustainable rural economies and environmental justice and responsibility. For example, 'preservation' of a wealthy society's resources leads to greater exploitation of forest resources in places where less regulation and scientific knowledge exist to ensure sustainable management. This concept has been described as the illusion of preservation [42]. We are loath to be drawn into the nuances of these arguments, but suffice to say that meeting energy and wood demands must involve globally-coordinated initiatives with consideration to the differences between biogenic carbon emissions and fossilized carbon emissions [17, 37, 43, 44]. In Connecticut, we have restored our state forestland through management which can continue to maintain - and even enhance - the carbon, other environmental, and rural community benefits of our forestlands. Exporting demands for forest products to regions without our rich scientific and practitioner expertise is damaging to both our state and the planet. Connecticut needs to support the DEEP Forestry Division by providing them with enough resources to fully, and appropriately, steward our State forestlands.

We end by stating that we are ProForests, ProBiodiversity, ProClimate and ProRuralCommunities. In Connecticut, that necessitates being ProManagement.

Sincerely,

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Faculty who were on GC3 Working Groups were not included due to their position on the committees

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