



SIERRA CLUB

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Minnesota Climate Action Framework Project Team
Minnesota EQB, Environmental Quality Board

RE: Ideas for Climate Action Framework Feedback – 2025, Natural and Working Lands

Founded in 1968, The Sierra Club is the nation's oldest and largest grassroots environmental organization, representing over 50,000 members and supporters in Minnesota. The Sierra Club works to safeguard the health of our communities, protect wildlife, and preserve our remaining wild places through grassroots activism, public education, lobbying, and litigation. We participate in the administrative process to encourage environmental health and sustainability, long term wildlife and habitat protection, and biodiversity goals.

In response to solicitation of ideas to achieve a carbon-neutral, resilient, and equitable future, the

Sierra Club strongly recommends that the Climate-Adapted (CA) silvicultural scenario in the Forest Carbon Report* be installed for Minnesota public working forests as summarized in Table 4.2 pg. 28-29. *Overview of management definitions by forest type for four silviculture scenarios simulated using the Forest Vegetation Simulator.*

The simulation spans 100 years and produces estimates of carbon attributes. It is important to note that predicted changes in the MN climate over the next 100 years are **not** included in the Report's modeling.

In doing this, CA would replace BAU (Business as Usual) and EI (Economic Incentive) beginning immediately and then, as harvest continues, over the next 40-70 years, depending on tree species. While there are currently some climate-adapted experimental-scale implementations in Minnesota, they are very small and piecemeal. Sierra Club recommends that CA silviculture be installed in a planned and much more widespread manner on Minnesota public working forests.

While we are primarily concerned with carbon sequestration and the long-term health of our forests, we recognize that state forest lands provide wood needed by Minnesota forest products industries. Thus, it is especially encouraging to see that the Climate-Adapted models predict the ability to harvest wood quantities comparable to or greater than Business as Usual or Economic Intensive management strategies for most of the forest types (See Table 9.10 pgs. 177-182); while still maximizing total stored carbon.

Key reasons for this recommendation are the following:

1. Supporting this recommendation for the climate-adapted scenario is that at the end of 100 years it stores the same amount of carbon as the no-management model and exceeds other management options when considering all forest types together, that is, total sequestered/stored carbon. Refer to Figure 1.8, pg. xvii. *FVS projected (2017-2021 to 2123) HWP and in-forest above ground carbon stocks.*

* "Estimating current and future carbon stocks and emissions in Minnesota forests and forest products under multiple management scenarios" (referenced as Forest Carbon Report), Minnesota Forest Resource Council, 2024

“Forests that saw No management had the greatest carbon storage throughout the simulation. By year 100, Carbon-adapted and No management scenarios contained the largest amount of carbon storage...”, pg. 33 of the Forest Carbon Report.

The MFRC Forest Carbon Report, among other matters, compared four types of forest management: No-Management, Climate-Adapted (CA), Business-as Usual (BAU), and Economic Intensive (EI) focused on the ability of each type to sequester and store carbon absorbed from the atmosphere. Figure 1.6 (p. xiv) shows the total tons of carbon stored in the forest and in forest products by each of the four management scenarios summed across eight forest types. This chart appears no less than three times in the Carbon Study report and confirms each time the central finding of the study.

The modeling results show that by the end of 100 years, the Climate Adapted Forest management model has sequestered and stored as much total carbon (in forest and forest products) as the No-management model and more than either the BAU model or the EI forest management models!

This means that the Climate Adapted model sequesters and stores more carbon emissions from the atmosphere than the other forest management types, an important result to the work of the [Climate-smart natural and working lands](#) goals of the Minnesota Climate Action Framework. This is reason enough for the MFRC Policy Committee to recommend, at the top of its list, a call to require the Climate Adapted Forest management model be established in the Minnesota State Forest as the most effective working forest management carbon sink.

Sierra Club recommends adding an initiative to the Minnesota Climate Action Framework:

GOAL 2: CLIMATE-SMART NATURAL AND WORKING LANDS

Initiative 2.1.5 Establish “Climate-adapted” silviculture across Minnesota public working forests.

2. The Climate Adapted resilience model is not only the best at capturing emissions, but it is also the best hope for maintaining healthy, thriving and bio-diverse ecosystems in our Minnesota State Forests far into the future.

The CA model is intrinsically, perhaps uniquely, a working forest resilience model that is fully incorporated with the best science-based multiple silviculture features designed to protect the forest against climate change and the resulting effects. The CA model employs numerous variations of forest silviculture: increasing species diversity by planting numerous climate adapted species; inducing multi-species stands; multi-aged stands; varied harvest plans, etc., all of which serve to increase stand complexity with the goal, ultimately, of producing a working forest resilient to climate change and its effects.

All features of the CA model make the intervention on behalf of wild species more effective. For example, inducing a two aged aspen/birch model guarantees that there will always be a component of commercial aspen over sixty years of age which is vital for cavity dwelling birds and mammals. The choice of white spruce to diversify aspen/birch stands, and which is used by forest product industries, provides resilience to forest wildlife as well.

Life on Earth faces unprecedented, intensifying, and urgent threats. The two most urgent challenges threatening everything society depends on are the climate crisis and the loss of biodiversity. Just for reference - there has been a catastrophic 73% decline in the average size of monitored wildlife populations over just 50 years (1970-2020).

Our forest ecosystems are natural living organisms with a diversity of species large and small, plant and animal. Forests are a totality of interdependent and interconnected organisms – far more than a collection of trees. Interdependence among its members including its trees, soil, insects and other invertebrates, fish, birds, mammals, amphibians, reptiles, herbs, grasses, shrubs, mosses, lichens, and fungi creates a place of enormous complexity that is still not well understood, even by forest scientists. Forest ecologist Chris Maser refers to the forest with awe as “a trillion-piece jigsaw puzzle.” With his viewpoint in mind, we believe it is very important that we not consider and discuss our forests simply as if they were a crop of trees but remember that much of the wondrous wildlife biodiversity that Minnesotans value is supported by our forests.

The Living Planet Report 2024 indicates that monitored populations of vertebrates—or amphibians, birds, fishes, mammals, and reptiles—have declined in abundance by an average of 73% globally, up from 60% in 2018; and for freshwater species globally: 84% decline, up from 83%. In other words, our nonhuman relatives are vanishing at an extraordinary scale and pace. But that tragedy is not yet registering in our collective imagination.

<https://livingplanet.panda.org/en-us/>

The Climate-Adapted silviculture recommended in this letter will require many climate-adapted seedlings, some of them containerized. Therefore, Sierra Club supports building additional nursery capacity to ensure an adequate supply.

In summary: The recommendation for Climate-Adapted (CA) silviculture would be an important “Initiative” to be incorporated into the Minnesota Climate Action Framework’s plans for addressing climate change for Minnesota’s future. By its nature, we expect CA management to lead to better forest health and productivity over that time span, even as our climate changes.

Thank you for the opportunity to offer comments on this critically important subject of climate change and Minnesota’s forests. As the Forest Carbon Report recognizes, this is a topic of tremendous importance to Minnesota for both the threats that climate change presents to our forests and because of the opportunity it offers for Minnesota to play an important role in reducing climate change in the future through appropriate management of Minnesota’s forest ecosystems.

Sincerely,

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