



# Friends of Minnesota Scientific & Natural Areas

March 6, 2023

Representative Rick Hansen, Chair, and  
House Environment and Natural Resources  
Finance and Policy Committee

VIA E-MAIL ONLY  
[Peter.Strohmeier@house.mn.gov](mailto:Peter.Strohmeier@house.mn.gov)

Re: Support of Lowland Conifer Carbon Reserve (HF 2353)  
For Committee Hearing, Wednesday, March 8, 2023

Dear Chair Hansen and Committee Members:

Friends of Minnesota Scientific and Natural Areas (FMSNA) is a Minnesota non-profit, tax-exempt [“501(c)(3)”] corporation organized to protect and enhance Minnesota’s Scientific and Natural Areas (SNAs). SNAs are the crown jewels of Minnesota’s state land base, protecting some of Minnesota’s rarest and most sensitive plant and animal species and the ecosystem upon which they depend.

We support the establishment of the Lowland Conifer Carbon Reserve (HF 2353) as an important effort to mitigate the impacts of climate change and protect ecologically unique areas.

In addition, the Lowland Conifer Carbon Reserve will contain selective high-quality old-growth lowland conifer lands, identified by the Minnesota Biological Survey as being ecologically significant - and are located in areas under-represented in the SNA program. These lands should also be considered for designation as Scientific and Natural Areas, which would add another layer of legal protection – and help to achieve the SNA acquisition goals as stated in the 2014 Scientific and Natural Area (SNA) Strategic Land Protection Plan.

On behalf of FMSNA, I **thank you** in advance for your kind consideration. Please contact me any time, if you have questions or comments.

Very truly yours,

*Thomas E. Casey*

Thomas E. Casey  
Board Chair  
Friends of Minnesota Scientific and Natural Areas, Inc.

Please send correspondence to:  
2854 Cambridge Lane  
Mound, MN 55364  
telephone: (952) 472-1099  
e-mail: [tcasey@frontiernet.net](mailto:tcasey@frontiernet.net)



DATE: March 8<sup>th</sup>, 2023  
TO: Environment and Natural Resources Finance and Policy  
FROM: Nadia Alsadi, Water Policy Associate, Minnesota Center for Environmental Advocacy  
RE: HF 2353 (Pursell) Lowland Conifer Carbon Reserve Program Established

Chair Hansen and Members of the Committee:

Minnesota Center for Environmental Advocacy (MCEA) is a nonprofit organization with almost 50 years of experience using law and science to protect Minnesota's environment and the health of its people.

MCEA supports HF 2353 (Pursell) and the necessary protections it provides to Minnesota's significant peatland areas. The Lowland Conifer Carbon Reserve is an effort to formally address and mitigate climate change impacts from harmful peatland destruction while protecting important wetland habitat. According to the MPCA, estimated carbon emissions from peatland mining are around 11 million metric tons (mmt) each year – this is far greater than any other sector contributing to carbon emissions in Minnesota.<sup>1</sup> There are currently over 4 billion tons of carbon stored in Minnesota's peatland areas, and over 800,000 acres have already been drained for agriculture.<sup>2</sup> This bill establishes a necessary record on lowland peatland areas that have already been degraded from agricultural purposes, that up until now has been missing. It is our duty as a state to ensure that the stored carbon remaining in our lowland conifer and peatland areas does not continue to exacerbate climate change.

Minnesota statute has so far failed to adequately account for the stored carbon in our peatland areas and the harmful impacts that result from their destruction. There is currently no formalized definition for peatlands in Minnesota statute, allowing for a multitude of opportunities for degradation, intentional or otherwise. As climate change is likely to continue to dry out these lowland carbon storage areas, they will be susceptible to further threats from development. This bill aims to establish conservation and appropriate protections for these areas now before they are degraded any further.

This bill is a critical step to address the ever-growing issue of climate change and would make Minnesota a leader for exceptional protections for our carbon storage lands. For all these reasons, we strongly urge you to support the proposed bill.

Thank you for your time.

Nadia Alsadi  
Water Policy Associate  
Minnesota Center for Environmental Advocacy  
[nalsadi@mncenter.org](mailto:nalsadi@mncenter.org)

Andrea Lovoll  
Legislative Director  
Minnesota Center for Environmental Advocacy  
[alovoll@mncenter.org](mailto:alovoll@mncenter.org)

---

<sup>1</sup> Board of Water and Soil Resources Board Meeting Minutes. September 28, 2022.  
[https://bwsr.state.mn.us/sites/default/files/2022-09/Day\\_of\\_Packet\\_September\\_2022.pdf](https://bwsr.state.mn.us/sites/default/files/2022-09/Day_of_Packet_September_2022.pdf)

<sup>2</sup> MN DNR. February 2008. The Potential for Terrestrial Carbon Sequestration in Minnesota  
<https://files.dnr.state.mn.us/aboutdnr/reports/carbon2008.pdf>.

## Lowland Carbon and Habitat Reserve (LowCaHR)

- **Two-Pronged Approach to Climate** – Addressing the climate crisis (getting to Net Zero by 2050) requires a two-pronged approach of mostly stopping climate pollution, but also protecting and expanding natural carbon sequestration. Both must be done equitably.
- **Our “Rainforest” in MN** – Preserving the Amazon Rainforest in Brazil is the biggest global example of carbon sequestration. Minnesota isn’t as big as Brazil, but our local equivalent of the rainforest are specific lowland areas that already sequester a huge amount of carbon.<sup>1</sup>
  - Carbon stored in lowland conifer forest lands: ~40 tons/acre. Approximately half is above and half is below ground.
  - Carbon stored in Minnesota peatlands: ~813 tons/acre
- **Biodiversity & Habitat** – These lowlands are wet and relatively undisturbed areas in the northernmost 1/3 of Minnesota ([see map](#)). They include trees and peatlands, which store carbon AND provide crucial habitat. Both the climate crisis and the biodiversity crisis require us to protect these areas.
  - "30 x 30" is a goal of effectively protecting and conserving at least 30% of the earth’s land, sea and freshwater ecosystems by 2030. This target has been endorsed by both the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services and the Intergovernmental Panel on Climate Change.
  - MN is [falling short on 30x30](#). MN ranks 17th among states with 18% of lands with some level of protection but only 7% in the highest category of protection.
- **Future Threats** – Since these lowlands are wet and inaccessible to vehicles, both logging and harvesting of peat is currently limited. But that could change as the climate heats up and population or development increase.
  - If these lowlands are degraded, they can degrade neighboring lands and waters that run through and underneath them.
  - The time to protect these lowlands is **now** before they become attractive to industry.
- **Benefits** – preserving these lands, many of which are held in school trust, has multiple benefits:
  - Carbon sequestration
  - Wildlife habitat
  - Lands for hunting and gathering, reinforcing treaty rights
  - Lands protected from future pipelines
  - Protecting water quality
  - Reimbursing the School Trust to benefit funding for education

---

<sup>1</sup> [Nature & Climate Solutions for MN](#), Nature Conservancy, [The Potential for Terrestrial Carbon Sequestration in Minnesota](#), DNR

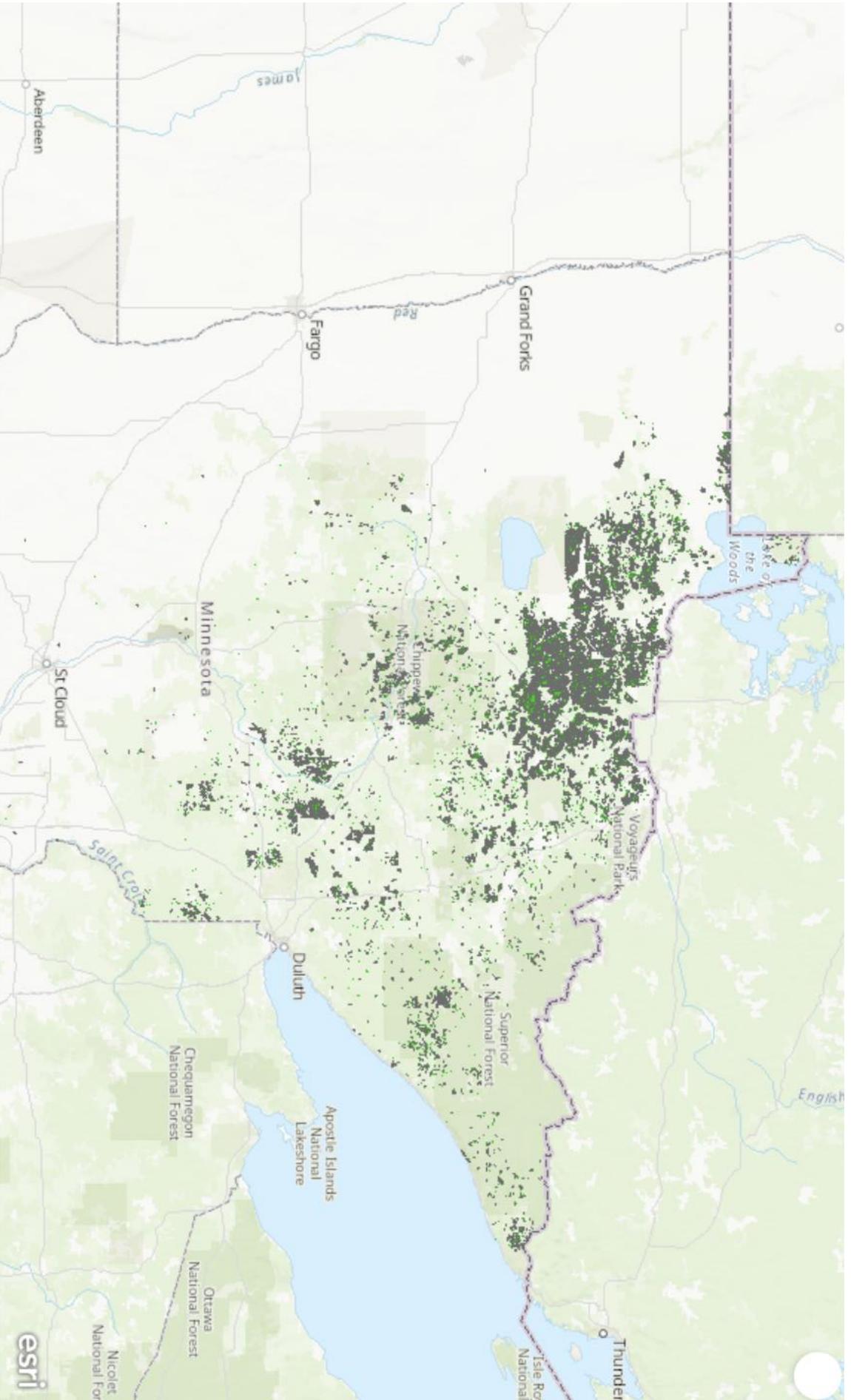


Figure 1. Minnesota lowland conifer forest lands map

Representative Rick Hansen  
407 State Office Building  
House Environmental and Natural Resources Committee  
St. Paul, MN 55155

Feb. 7, 2023

Chair Hansen:

I have some unanswered questions and concerns with HF 2353 as written. The stated purpose of the Lowland Conifer Reserve is (from line 3.2) to mitigate climate change and protect ecologically unique areas”.

We know each other because I took over for you in the Dept. of Agriculture while I continued coursework for a license as Professional Soil Scientist. My immediately prior work was in wildfire prevention and suppression at Wannaska. I first worked for the DNR as Student Forester for the former Link Lake District, moved six times in 9-months as Inventory Forester for Kabetogama and Pine Island State Forests, then landed at Waskish for 4.5 years as District Forester. I provided logistical support and reviewed the work for permanent Inventory Foresters at Waskish and many professionals who were temporarily assigned there as Hotshot Firefighters or on Regional Inventory Projects. I later participated in Regional Inventory projects out of Baudette, Warroad, and Middle River. During this time, I also had the opportunity to study forest policy and regional silviculture in Scandinavia. I have experience from Waskish at planning the annual timber sale workload at a time when the inventory was in transition from the old “land use cards” to the new Phase 2, stand-level inventory. I was certified as a state timber appraiser and Forest Officer. I have since been certified in cruising for the Forest Service and for individual tribal fixed-plot contracts and DNR, Resource Assessment, stand level (CSA and Dayton-era) contracts. I have read contract solicitations and viewed webinars on the new Plot Based Inventory system.

I thought that I sent some background information to Representative Persell last night, but I had to resend it this morning. As background for the Committee, the central management questions for large property owners like the DNR are

- 1.) How much to cut?
- 2.) How to allocate this in time?
- 3.) How to allocate this in space?

The fixed plot inventory systems have sampled standing volumes over time, which allows for estimating mortality, harvests, volume increment, and in-growth from lesser ages or sizes. This provides a cap for Question 1, assuming some sort of sustained yield. Under Question 2, Area Control involves evening out the age-classes of different cover types over what would be their, respective average rotations. For example, one percent of the spruce timberland would be harvested each year if the rotation is 100 years. This is the system that was used prior to the Dayton inventory. In practice, the calculations are repeated every decade so that

age class imbalances are not actually evened out over only one rotation. The fixed plots can be post classified by cover type so that the system can be applied without a stand level inventory. The Phase 2 inventory, however, was a great aid in answering Question 3 (Where). Digital mapping allowed the cover types to be stored and transferred independently from the aerial photos that were used for the stand reconnaissance's.

Meanwhile, the Forest Resources Council established their Landscape program. This was an opportunity for at least the large property owners to offset each others age class imbalances to either offer more timber or improve practices that require lower timber yields, such as wildlife, soil, or visual quality management. You may be familiar with the Generic EIS that was prepared for the Environmental Quality Board in the early 1990s. The DNR put out more flexible, ten-year cut lists that were then pared down through what field personnel could actually implement. These were presented as ecological Subsection Plans.

George Deegan and Alan Ek revised the field cruise design for Phase 2 using what is called VBAR. In theory, this could be repeated to measure standing volume growth of **stands** over time, using data recorders with processing capability. Another advance was the use of linear programming to optimize the answer to Question 3 (Where), under Governor Dayton. They did not apply this across ownerships or by mill zone, however. Data limitations involved loss of some of the damage information and less flexibility for field personnel to deviate from the larger stand boundaries that were used for these cruises. Field personnel re-gained some flexibility though a second level of mapping for Ecological Classification.

You can see that a great deal of data of various qualities already exists, along with planning groups and processing platforms. What has been lost of late is the stereo (3-dimensional) aerial photography that can be best used to extend mapping across ownerships and onto currently, unmapped areas. This was supplied previously at cost to contractors working through the Forest Stewardship Program. It was also used by agencies to plan their sales and reforestation efforts.

My first question is whether the legislative committees and DNR Divisions need and will use the information that is requested in HF 2353?. The carbon storage will be there whether it is reported or not.

If so, choose one system or the other: Cover Types or ECS. I recommend Cover Types (line 2.28) because this is what has been cruised through VBAR and would be most easily updated through LIDAR. The ECS mapping for the pertinent areas was through the snow.

Then decide if you want only State Forests and only state land **in** State Forests (line 3.3).

Line 3.16 says 90 years. This could encourage premature harvest of the stands that have only marginal growth rates. Stand volumes and carbon sequestration of undisturbed stands follows a sigmoidal pattern - leveling off as stand age. Stands that are over age 90 are likely to be at the level or declining tail

of growth over time (especially when rot is deducted from gross volume). This is contrary to your goal if the harvested wood goes into products that off-set the use of fossil fuels or have long product lives. Further, protection of young, fast growing stands from dwarf mistletoe is already complicated by land ownership fragmentation, spatial variation in growth rates, and other disturbances. An additional, arbitrary age criteria is not helpful.

The five year mandate on line 3.19 seems overly ambitious. Only disturbances will be evident at that fine a resolution. Forty years, as for some of the management inventories, is too long.

I am in agreement with the first “Productive Stands Harvest Report (line 3.38). Peat depths can be measured (if they are shallow) during regeneration surveys. I am not sure how involved the Committee and other Divisions need to be in ensuing years.

Line 4.1: I think that this is intending to identify naturally regenerated stands that have never been harvested. The reality is that most of the productive land has at least been selectively harvested for tamarack mine timbers, cedar poles, or jack pine railroad ties.

Line 4.2: The land that is most likely to support logging equipment is the wettest. This is because there will be enough water to form hard frost, but only in years when the snow is late. Dense vegetation like cattails precludes this. Unfortunately the snow timing isn’t known in advance, regardless of whether it is by the Commissioner. Logging equipment doesn’t have to be heavy. The \$2,900/acre sale (today’s dollars) that I mentioned to Representative Pursell was cut by hand using the “strip cutting” system and a shortwood forwarder towed by a small crawler. Many farmer loggers took the air out of their tractors tires to lessen the weight.

Line 4.5: Will this affect the state forest nursery system?

Lines 4.9 through 4.11: I question the probability of success when regenerating stands on feather moss sites naturally. As expressed to Representative Pursell, this can be approximated west of Hwy. 71 by spruce site index greater than 40 feet at a base of 50 years. There are also losses of economy of scale through rim-cutting, particularly if the stand is remote from plowed roads. The modern logging equipment is better at leaving slash on site, which provides more options for prescribed burning to expose seed beds below the dry mosses. Direct seeding should be used as a timely back-up in case the seed remained at the level of the fire, was eaten by rodents, or wasn’t viable that year. This can be done inexpensively by air. The other option is more expensive. That is to hand plant containerized stock.

Lines 4.12 through 4.16: Europeans have learned that a minimum of 6’ drop per mile is needed to keep ditches open. The rice growers near Waskish have had success with as little as 3’, but they have to clean their appropriation ditches every 15 to 20 years. The Consolidated Conservation lands also include mineral uplands. The state has already sold the timber from many of these, especially the

aspen. There is some chance that descendants of land that was forfeited by Judicial Ditch taxes would go back to farming, but it would be a rare occurrence.

The Judicial Ditches were constructed by barges. The same technology would not be available in reverse order to restore them. Peat that is in the ditch-grades went through the rapid, oxidation and settling phase long ago. These are part of the cultural history of the area and often are the only evidence that is left from the 1800s Public Land Survey. The grades provide air for beavers to winter, which provides food for the wolves that live there now, maintaining a diverse ecosystem.. My suggestion is to inventory the grades and to see which are tree covered and whether the trees could be managed with the adjoining stands on that side of the ditch. If not that side, then if they could be managed with the other side. Where grades are needed for access, the trees could be cleared while evening out beaver cavities. It may be worth questioning the townships in advance as to their intentions regarding the beavers.

Glacial rebound is still changing ditch gradients, as are raised bogs. Rebound, unfortunately increases the watershed area of the south flowing ones and lessens the gradient of the north-flowing ones. The SNA portions of the Agassiz bog do not have sufficient gradient and now have moss across the ditch portions. There is minimal hydrologic effect unless beavers are using the grades as dams or these are now on the wrong side of the ditch. I agree with removing them to prevent hold-over peat fires, but at what expense? Invasive plants could be a problem with disturbing the grades. Phragmites (cane grass) is native, but it is also invasive. Reed canary grass is also at bay. There are likely to be hybrid cattails and buckthorns as well.

School Trust Lands: The University System should get used to the fact that State Forests are managed for multiple benefits, not only timber revenue.

I hope that my input incites more thought and discussion among your committee members.

Sincerely,

William Haugan  
705 Forest Ave. SE  
Staples, MN 56479  
218 894-3440



**SIERRA CLUB**  
NORTH STAR CHAPTER

Sierra Club North Star Chapter  
2300 Myrtle Avenue, Suite 260  
Saint Paul, MN 55114

March 7, 2023

To: Chair and Members of the Environment and Natural Resources Finance and Policy Committee

Re: HF 2353 Lowland Carbon and Habitat Reserve, Section 1 – School Trust Land Compensation

Dear Representatives,

On behalf of the Sierra North Star Chapter which is providing in-person testimony in support of HF 2353, I am writing to give additional background information on Section 1 of the bill pertaining to School Trust Land compensation.

Section 1 implements a proven, long-standing approach to funding state obligations identified in law. It is sometimes referred to as a “sweep” of surplus funds identified by the Commissioner of Management and Budget in future budget forecasts to fund these obligations in priority order. The sweep is proposed at the “end of the line” of existing priorities already in law.

HF 2353 Section 2 proposes protection management of certain lowland conifer complexes already publicly-owned; most of which are also obligated to the School Trust Fund. To compensate the School Trust Fund for this management, the bill proposes to buy out the School Trust interest in the lands (while retaining public ownership and DNR management).

The legislature, as a fiduciary of the School Trust, has the ability to determine fair compensation for this buyout via statute. The \$500/acre figure for land without commercial timber harvest value has been recognized as a fair “ballpark” figure in conversations with Trust employees. A final value could be established by an appraisal of the lands in bulk, should the committee wish to take that approach.

Importantly, the future surplus funds allocated to this buy-out will be deposited in the Permanent School Fund, a portion of which is allocated to K-12 funding every year. The sweep money is not “spent”, rather, it is used to cancel revenue generation obligations of fragile public lands, and is invested to support public education in perpetuity. This is a two-way public benefit.

Sincerely,

Don Arnosti, Forests and Wildlife Stewards  
Sierra Club North Star Chapter