



# Natural Climate Solutions for Wisconsin: Critical Considerations & Strategies

A Consensus Report by the Wisconsin Academy of Sciences, Arts & Letters  
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## Executive Summary

Natural climate solutions (NCS) are a broad suite of land conservation, restoration, and management practices that store carbon and/or avoid greenhouse gas emissions from landscapes and wetlands. Between October 2018 and May 2020, the Wisconsin Academy convened a powerful network of leaders working to advance NCS in Wisconsin and the Great Lakes region. This network, including 50 active participants representing academia, public agencies, nonprofits, tribal nations, farms, and forestry, discussed and fleshed out a wide variety of cross-cutting strategies for advancing NCS in Wisconsin. While hundreds of specific ideas were raised over the course of ten meetings (see the Appendices), several common threads and critical considerations emerged. This report highlights these critical considerations and promising strategies for advancing NCS and equitably addressing climate change in Wisconsin.

First and foremost, participants highlighted the urgent need to **center equity** in order to build the foundation for a more just and resilient future for Wisconsin. They also highlighted opportunities to build a broad base of support for NCS by **emphasizing co-benefits** as equally important to—if not more important than—the carbon sequestration potential of NCS. The group stressed that protecting our baseline of natural lands by **safeguarding existing significant carbon sinks** through coordinated policy, planning, and action must be a top priority for Wisconsin to achieve long-term climate change mitigation goals and protect these crown jewels for future generations. **Localizing systems for community and climate resilience** emerged frequently as a rejoinder to the many shortcomings, inequities, and risks of our large-scale supply chains and systems laid bare by recent societal upheavals. Similarly, the group discussed the importance of investing in forestry- and agriculture-related **NCS in urban lands**, not only for their carbon storage capacity, but also for their many vital co-benefits to communities. To support agricultural NCS, participants conceptualized a tool illustrating a **spectrum of practices** to guide individualized farmer or land manager decision-making about how to optimize their practices for sustainability, and **financial incentives for farmers and land managers** to engage in NCS. Across all critical considerations, conducting **ongoing research and data collection, leveraging existing information**, and **developing tailored educational and communication initiatives** will support NCS.

The primary purpose of this network was to drive dialogue around advancing NCS in Wisconsin, and we gathered a wealth of information and generated dynamic collaboration around this transformative opportunity. We view the synthesis of expert knowledge and nuance in this report as a key pivot towards advancing these critical considerations and strategies. A next logical step would be rigorously mapping out and then pursuing their realistic pathways to implementation, and continuing to engage diverse stakeholders in equitable strategic development processes. As part of this, many of these ideas need actors ascribed to them – that is, the agency, organization, community, or leader who could move them forward. Given the wide scope of these ambitious discussions, this was not possible, but it is our hope that this report can be used as a source document for those seeking bold, transformative solutions to gain greater understanding of this real and powerful opportunity for climate action in Wisconsin. Given the urgency of the climate crisis and need for societal transformation, it is imperative that our state move forward with bold, equitable solutions.

# Natural Climate Solutions Leadership Network Overview

## Context and Goals

Natural climate solutions (NCS) are a broad suite of land conservation, restoration, and management practices that store carbon and/or avoid greenhouse gas emissions from natural landscapes and wetlands. While natural carbon storage alone cannot fully address greenhouse gas (GHG) levels in the atmosphere, there is growing interest in how natural solutions can contribute to the larger suite of climate change mitigation strategies. As such, this project investigated opportunities for meaningful NCS in Wisconsin and the Great Lakes region – a region with extensive forests, natural wetlands, agricultural lands, and other landscapes well-suited for NCS.

For example, Wisconsin's large stock of agricultural land provides the opportunity for large-scale implementation of carbon-storing practices such as cover cropping, no-till agriculture, and crop perennialization. In forestry, carbon storage can be increased dramatically by practices such as extending rotations between harvest cycles to allow trees to grow larger and reforestation and afforestation efforts to increase tree populations in both urban and rural areas. By contrast, protecting wetlands (which store carbon-rich compounds that can be released as GHGs under certain conditions or disturbances) from development is a key strategy for avoiding the release of these sequestered greenhouse gases into the atmosphere. Typically, NCS practices such as these yield a variety of co-benefits and can support equity-related goals.

## Process

Between October 2018 and May 2020, the Wisconsin Academy convened a diverse network of leaders working to advance NCS in Wisconsin and the Great Lakes region. This network included 50 active participants representing academia, public agencies, nonprofits, tribal nations, farms, and forestry. Within this leadership network, our goal was to develop an analysis of the knowns and unknowns and identify promising opportunities for advancing NCS in Wisconsin. To accomplish this, network members convened several times as a full group, and met several times in three topically-specific working groups:

- 1) **Agriculture** (including urban agriculture) **and working lands**;
- 2) **Forestry** (including public and private forests, reforestation, urban tree planting, etc.) **and other critical conservation lands** (including wetlands, prairies and grasslands, and other lands not covered by the latter, such as public parks, private landholdings, natural lands at risk of development, etc.); and
- 3) **Equity**, including the socioeconomic, racial, cultural, political, geographic, age, scale, and other conditions that impact people differently.









Please see Appendix A for further details on process and methods.



## Natural Climate Solutions for Wisconsin: Critical Considerations

While our network initially set out with the ambition of identifying several top recommendations within each working group, we quickly realized the many complexities, challenges, and drawbacks of establishing a uniform, robust set of criteria for ranking these recommendations. For instance, while one strategy may rank highly from a “greenhouse gas mitigation” standpoint, it may receive a poor rank in terms of its impact on social equity; conversely, a different strategy may represent an excellent opportunity from an equity perspective even if its relative carbon impact is low. We ultimately decided that ranking in this way was not meaningful for understanding the overall value of a given strategy, as it held the potential to exclude many promising cross-cutting NCS strategies.

Rather, we felt it was important to include as many of the strategies—and their many nuances—as we were able to capture in this report. Many of these strategies fall into clear thematic areas that emerged from our network meetings. These include the following critical considerations:

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	Emphasize co-benefits (not just carbon reduction)	p. 4-5
	Safeguard existing significant carbon sinks	p. 5-6
	Localize systems for community & climate resilience	p. 6-7
	Embrace urban lands for carbon storage opportunities & important co-benefits	p. 7-8
	Support agricultural improvement through a spectrum of practices	p. 8-9
	Provide financial incentives for farmers & land managers	p. 9-10
	Conduct ongoing research & data collection & leverage existing information	p. 10-11
	Develop tailored educational & communication initiatives for farmers, land owners, consumers	p. 11-12

These critical considerations, illustrated by a sampling of specific strategies and recommendations discussed by participants, are discussed below. **All critical considerations presented here reflect consensus of the group.** In addition, we recommend referring to Appendix B for a more comprehensive list of strategies, as the examples listed below clarify the types of ideas falling under each critical consideration but are not intended to be elevated above the rest. As possible, we have elaborated on these strategies in Appendix B to provide context behind more in-depth conversations.

### = Center equity as a component of all strategies

Communities most impacted by climate change and historical marginalization, and those who stand to gain or lose significantly from a given NCS project, must be included in NCS project design and implementation to ensure that potential ramifications are fully understood and that project investments and benefits are equitably distributed. We acknowledge that our process for inviting diverse perspectives to the discussion was not perfect. However, participants strived to evaluate each critical consideration through an equity lens as part of our solution-crafting process.

Equity herein refers to the socioeconomic, racial, cultural, political, geographic, age, scale, and other conditions that impact people differently (either positively or negatively). As a geographic example, some rural farmers may be excluded from urban markets because they are too geographically distant; on the other hand, these farmers may enjoy greater access to affordable agricultural land than urban residents. If these farmers were then able to implement NCS on their land and, in turn, sell carbon on the carbon offset market, they would also enjoy a financial benefit not available to urban residents.

Given that most decisions involve tradeoffs, disproportionately affecting certain groups, decision-making processes must examine, evaluate, and adapt all potential strategies through an equity lens. This includes considering all possible stakeholders, inviting and seeking diverse perspectives, and centering impacted communities in climate change planning and action. **This approach will ultimately result in more complete, sustainable, and effective strategies for advancing NCS—and will build the foundation for a more equitable, resilient future for Wisconsin’s diverse communities.**

Indigenous perspectives, including a definition of “community” that is broader than just “people,” should be incorporated when considering possible solutions. Lands and living beings must be involved in planning and action towards community and climate resilience. Integrating indigenous principles such as balance, interdependence, cooperation, moderation, and long-term stewardship for future generations will add strength and sustainability to NCS processes and projects. These principles provide a holistic, community-oriented approach to weighing the benefits and tradeoffs of a given solution.

Transformative, equity-oriented solutions as well as changes to existing programs to incorporate equity are needed, but understanding the difference is important to holistically tackling the issue of equity. For example, while supporting farmers to engage in NCS through financial incentives is important, this solution does not necessarily address the fundamental barriers new farmers face in accessing agricultural land – particularly for those with socioeconomically or otherwise disadvantaged backgrounds. While introducing new financial incentives would support farmers who currently own land (certainly a positive outcome), extending this opportunity to a wider group of people by making additional fundamental changes that enable equitable access to agricultural land is essential to building a strong foundation of equity.

Similarly, urban tree planting (which can strongly support equity by mitigating the urban heat island effect while providing other benefits such as reduced crime rates in greener areas) is an excellent NCS opportunity, but represents a truly equitable solution only if tree planting programs ensure that efforts are focused in areas of highest need first. (See “urban lands” section below for more details.) **To center equity, it is critical to both pursue the more easily obtainable changes that can be made and create programs that address structural barriers and cycles of oppression head-on.**

#### **+** **Emphasize co-benefits (not just carbon reduction)**

The co-benefits of natural climate solutions are often equally important to, if not more important than, carbon sequestration potential. Many activities that help to decrease greenhouse gas (GHG) emissions or sequester carbon also contribute to co-benefits such as better public and soil health, clean water, urban and rural flood abatement, and community self-sufficiency. Co-benefits are typically valued across cultural and political ideologies. However, many climate mitigation programs currently frame their outcomes and messaging primarily around carbon reduction, an often polarizing topic.

**Transforming the narrative can be a powerful way to advance NCS; rather than focusing on carbon storage as the primary outcome, programs can be framed in terms of common ground issues such as clean water or soil health and secondarily include goals for carbon sequestration.** This alternate framing (i.e., naming carbon sequestration as one of several co-benefits) holds great potential for building a broad base of support for implementing NCS while unifying people over shared goals. However, if carbon is a secondary benefit and is therefore not measured, it becomes challenging to monetize or provide payment for carbon storage.

Especially given the economic fallout caused by COVID-19, programs aiming to accomplish multiple goals simultaneously are more likely to be given funding priority over programs that only focus on one or two goals – making this multi-focal approach even more promising. A notable example of this is the Managed Forest Law (discussed in greater depth in the “financial incentives” section below). This landowner incentive program is currently centered on outcomes including landowner objectives, timber harvesting, wildlife management, water quality, and recreation. It does not include carbon sequestration as an outcome. However, making a small change to the law to include carbon sequestration as an outcome would maintain the original spirit and goals of the program while empowering landowners to incorporate carbon-sequestering practices if they so choose. Such a small change to an existing program could be far more cost-effective, and likely more politically feasible, than creating a whole new program that focused specifically on carbon sequestration.

One Wisconsin farmer-led watershed group, Dodge County Farmers for Healthy Soil & Healthy Water, exemplifies beneficial reframing. The group was originally created with the goals of collectively improving the area’s water quality, soil health, and natural ecosystems. Since then, members of their group have experienced detrimental effects of climate change, notably flood damage, to their farms. In response, they have incorporated carbon sequestration and GHG mitigation as a goal of their group. For some members, however, this framing is contentious, so the group focuses instead on the common goal of promoting soil health practices (which are also effective at carbon storage). In this example, if the core value is generally articulated as *healthy and resilient farms who are building soil health and contributing to their watershed’s overall cleanliness for current and future generations*, carbon sequestration represents one of many co-benefits of NCS-based practices. **By tailoring a program’s focus, and framing around co-benefits and values that resonate with diverse communities’ unique concerns and worldviews, it is possible to engage diverse stakeholders in NCS efforts and enhance equity through an inclusive approach.**

### Safeguard existing significant carbon sinks

While increasing natural carbon sinks is important, so too is instituting strong protections for existing sinks—which are often sequestration powerhouses. Wisconsin’s conservation lands – including forests, wetlands, and prairies – represent nationally significant carbon sinks. However, a deregulatory environment, market incentives, and the lack of an integrated assessment of the value of their ecosystem services threaten their protection. Furthermore, existing protections, resources, advocates, and regulators for carbon-sequestering lands often lack coordination (and an explicit focus on carbon) and, as such, strategic NCS collaboration and educational efforts could be improved.

**The efficacy of NCS as a whole depends on both A) coordinating NCS efforts with an eye towards the principle to “first, do no harm” in terms of protecting the carbon sink baseline, and B) providing information to key decision-makers so they can easily understand the importance of protecting**



**natural carbon sinks and strategies for doing so.** Ultimately, this demands a big-picture, landscape-level, and balanced approach to planning, policymaking, management, and carbon accounting. Such an approach requires building a diverse, multi-level, and multi-stakeholder coalition to fill these various niches, and coordinating efforts among coalition members. This coalition may be most effective by focusing on messaging to policymakers and the public that connects the dots between issues of importance to individual stakeholder groups and protecting natural carbon sinks (as discussed in the “co-benefits” section above) as a strategy for advancing NCS.

From the policymaking perspective, establishing strong state-level protections for carbon-rich natural lands is critical. Consider, for instance, the Environmental Protection Agency’s recent narrowing of the “Waters of the United States” definition to exclude many waters previously protected under the Clean Water Act, imperiling more than half of the United States’ wetlands and 18% of its streams. In effect, this change eliminates the federal backstop that formerly existed to protect wetlands in the case of weakened state-level protections. While Wisconsin’s current state-level policies still protect many of these waters, there is a crucial need to ensure that strong, holistic state-level protections for wetlands continue into the future to safeguard these vital lands. This is an agenda perhaps best advanced not by focusing on their carbon-storing capacity, but rather on their invaluable co-benefits (e.g., flood attenuation, water filtering, infrastructure protection, habitat, broader ecosystem health and community resilience). Such an approach would encourage consideration of not just the wetlands themselves but also the development of areas surrounding wetlands and other threats that could cause wetland degradation or drainage, thereby enhancing the overall efficacy and equity of this policy.

Reauthorizing the Knowles-Nelson Stewardship Program is another possibly effective tool for safeguarding existing significant carbon sinks, especially if it targets key conservation lands including forests and wetlands.

From an equity perspective, safeguarding existing significant carbon sinks, which tend to be large-scale natural lands, represents a significant opportunity to advance equity goals and center marginalized perspectives. Many of these lands are the places where indigenous communities practice culturally-significant traditions such as gathering food and other resources – practices which require clean water and healthy ecosystems – or they are state or national lands protected for the benefit and enjoyment of all in perpetuity. **To safeguard these lands is to protect those who rely on them in a range of ways, from sustenance to the sustained opportunity to experience the unique and precious natural environments of our state. This is a powerful way to honor voices that are too often unheeded.**

### 🕒 Localize systems for community and climate resilience

Now more than ever before, localizing our systems is paramount to community and climate resilience. Rapid, major societal upheavals in recent months have revealed the brittle and unwieldy nature of large-scale supply chains and systems, which have struggled to adapt quickly to shifting needs. **Not only would localizing systems—especially food—reduce risks associated with current political, economic, and general societal uncertainties, but it also has the potential to address many equity issues and deliver greater benefit to more people while reducing GHG emissions and building systems that sequester more carbon.** This approach also champions local farmers and land managers – positioning them as heroes in the narrative (neighbors helping neighbors and providing food for their communities), a strategic reframe given the sentiment and resentment that they are often blamed for environmental woes. For localization-related efforts to be successful, there is acute need for funding and technical

support, as well as community engagement inspired by appropriate, tailored messaging delivered by trusted sources. Many farmer-led watershed groups, such as the one described in the “co-benefits” section above, are engaged in efforts that could result in localized systems; groups such as these could certainly benefit from financial support for their investments.

From an equity perspective, **localizing systems encourages more community-oriented design and action, presenting a transformative opportunity to ensure that the needs of all community members are met first and foremost.** In such a transformation, there is potential to establish new, resilient systems that value small scale, diversity, and distributed resources and operations, rather than rewarding large scale, uniformity, and centralization. Ultimately, this would support fulfilling the needs of local communities first before shipping any excess resources away to more distant markets. This values system aligns strongly with indigenous principles and examples that the group recommended as highly instructive for localization efforts, including balance, interdependence, cooperation, orientation towards community, and moderation.

Localizing food systems would require a shift away from large-scale, mechanized, conventional production (typically focused on maximizing yields) to more diversified agricultural systems focused on soil-building and broader ecosystem health (i.e., balancing many goals beyond maximizing yields). Diversified agriculture tends to require more labor, which the group pointed out could be a significant opportunity for local job creation. Meanwhile, community members would reap the benefits of localized food systems through increased access to fresh, healthy, local foods, and their purchasing would mean greater recirculation of local dollars in local economies. With more direct supply chains, farmers would receive a greater portion of each dollar spent on their food while experiencing greater independence and resilience, and eliminating the economic risks associated with commodity market volatility.

Illustrating the importance of thinking holistically and equitably about this strategy, several possible equity tradeoffs need to be addressed: for instance, prices for locally-produced products could increase due to increased labor and production costs, placing burden on the end consumer, or more intense labor needs for agricultural production could exclude less able-bodied individuals from accessing these new job opportunities.

### **Embrace urban lands for carbon storage opportunities and important co-benefits**

While large-scale, primarily rural lands may represent the greatest potential in terms of carbon storage, **urban lands also provide significant carbon sequestration opportunities and several essential co-benefits that should not be overlooked when considering NCS.** One example is urban tree planting, which stores some carbon – but perhaps more significantly, strongly mitigates the urban heat island effect, provides shade and higher air quality for residents, and increases community safety. For efforts such as urban tree planting, objective tracking methods, such as GIS mapping, should **ensure equitable deployment throughout communities and neighborhoods and focus first on areas of greatest need.** Furthermore, these efforts must include funding and support for maintenance to ensure that planting programs continue to be successful and sustainable community assets over time.

Urban agriculture is another important NCS for both its co-benefits and carbon storage potential. Though the carbon storage potential is likely relatively small for urban agriculture, the co-benefits are significant. In both urban agriculture and urban forestry, there are significant opportunities for community members to engage in hands-on, experiential education and skill-building. These activities

can build positively to future education, employment, and more generally to increased community health, independence, and resilience. In the case of urban agriculture, local food production can also provide fresh, healthy, and culturally relevant produce for areas that are food deserts. Increased access to healthy, local food has been well documented to strongly support other positive health and community outcomes. **While investments in urban lands may include heavy financial commitments upfront and are often initially disqualified for this reason, participants emphasized that these investments may later result in lower healthcare costs, increased access to job opportunities, and enhanced quality of life and community.**

### ↔ Support agricultural improvement through a spectrum of practices

Given the wide variety of agricultural operations in Wisconsin, it is key to help producers understand the spectrum of practices and relevant individualized opportunities they can pursue to incrementally improve their sustainability. Carbon storage and GHG emissions related to agricultural operations and working lands management are intensely variable due to many factors: what is being produced, scale, longevity of operation, historical land use, geography and soil composition, weather, water, fertilizer and other applications, farm equipment used, individual goals, equity-related issues, and others. Meanwhile, practices are highly individualized to suit the needs of individual land managers and producers, who are making management decisions based on the variable economic drivers, tools, information, risks, and constraints at hand.

Thus, it is not meaningful to assign overly simplistic judgements to particular practices as “bad” or “good” with respect to climate mitigation. Many “good” practices for annual crop production still release some carbon into the atmosphere (though less than alternatives), so perhaps they can more appropriately be framed as “better.” It is also not necessarily helpful to prescribe certain practices or systems as paragons of sustainable agriculture since there is much variability within these practices. Rather, **it is vital to acknowledge that all producers and land managers can improve their practices in terms of sustainability, including (but certainly not limited to) carbon sequestration and GHG emissions reduction.** Consider confined animal feeding operations (CAFOs) versus grass-fed beef operations: from a carbon perspective, the *management* in each of these types of operation – not just whether or not the animals are confined or not – is critical, and can be improved in both. Given this reality, it is key to situate each agricultural operation on a spectrum of agricultural practices that tend to support greater or less carbon storage (and limiting life-cycle GHGs).

Producers’ need for tailored information about carbon-storing practices could be addressed through the development and deployment (in partnership with producers) of a versatile tool or program for different types of farm, operation, or land use. There are many possible formats for such a tool or program. Possible tools range from a simple checklist or flowchart for decision-making to an interactive, informational website. Programs could provide agricultural carbon management specialists for one-on-one site visits or consultations. In any format, this tool could include a spectrum of key strategies and specific opportunities for incremental improvement for land managers and producers in terms of GHG impact, sequestration, and other factors such as water quality, soil health, biodiversity, and climate resilience. It would also facilitate weighing potential tradeoffs with practices that mitigate climate impact, such as those on water quality. This empowers producers to identify meaningful and achievable opportunities for individualized, incremental improvement. For example, systems diversification could look very different for different producers. For some, introducing cover crops and alternating crop

rotation increases their system's diversity and carbon storage. For others, improvement could mean a complete shift to perennial agriculture, further increasing their carbon storage and enhancing co-benefits, from soil building to increased resilience. **Adopting such a step-wise approach may ultimately enable greater adoption and engagement, and lead to longer-term, longer-lasting, and more resilient outcomes.**

## **\$ Provide financial incentives for farmers and land managers**

**Farmers' and land managers' participation in carbon-storing and offsetting practices and emissions mitigation will be bolstered by compensating them for their efforts.** These efforts require at least a shift in practices—involving more time, energy, and possible risk—and likely also monetary or other resource investment. Current market forces do not incentivize carbon-smart practices; for instance, current federal subsidies incentivize large-scale, conventional agriculture, which typically involves GHG-intensive inputs and practices, while only minimal federal funding is available for sustainable agriculture. This means that engaging in carbon-smart practices must be voluntarily initiated. Given the current economic climate, asking farmers and land managers to do more work without compensation is even more difficult than in the pre-pandemic era. Moreover, financial incentives for farmers and land managers engaging in climate-smart practices may provide a boost for those struggling to stay economically afloat. Conversely, resources, budgets, and demand for carbon offsets are constrained economy-wide, posing a challenge for this strategy.

There are various opportunities to create financial incentives for farmers and land managers, although these are accompanied by many challenges due to economic fallout from the pandemic. **Carbon pricing could be a key driver of wider adoption of NCS practices.** A carbon fee and dividend policy is one possible pricing strategy. There is also significant potential for farmers and landowners to sell carbon offsets. While many carbon offset programs exist across the US, the highest US demand is currently concentrated in coastal states, particularly in California where strong climate change regulation drives a robust carbon offset market. However, there are tradeoffs to enabling emissive practices in geographically distant locations versus preserving Wisconsin's carbon storage opportunities for meeting its own climate-related goals. One possible solution to this is to establish a new regional carbon offset market (either market-driven or regulation-driven). While this could prove challenging in the near-term due to constrained resources, including decreased demand for offsets, it would position Wisconsin for long-term success in meeting goals and increasing sustainability and resilience. Importantly, though, **some people are opposed to offsets because they fundamentally enable some to “buy their way out” of their emissions, burdening others with rectifying the problem.**

For carbon offsets, scale is a key consideration, as a critical number of acres is required to meet the minimum viable threshold for a unit of saleable carbon. Most smaller-scale land managers do not meet this threshold, so are excluded from participating in carbon markets. However, several recently launched programs around the US, such as The Nature Conservancy's Working Woodlands Program and American Forest Foundation's Family Forest Carbon Program (neither is available yet in Wisconsin), are addressing this issue by aggregating smaller landholdings into a larger pool that meets acreage requirements for participating in the carbon offset market. The next step—connecting carbon-sinking lands to markets—is also essential to the viability of any and all carbon pricing strategies.

Several other possible financial incentives exist. These include, notably, a change to the Managed Forest Law (MFL), a landowner incentive program administered by the Wisconsin Department of Natural Resources that encourages sustainable forestry practices on private woodlands. Currently, MFL does not

list carbon as a “forest product,” but doing so would enable enrolled landowners engaged in carbon-storing practices to pay reduced property taxes—in essence, paying these landowners for storing carbon. Wood product substitution (using long-lived wood products as structural building materials instead of carbon-intensive materials like cement) also holds significant potential both for carbon storage and for increasing the economic value of wood products for landowners. This could be promoted through a low-income housing tax credit or building scoring system, such as LEED v4, that incentivizes the use of wood as a building material. Many stakeholders are investigating new applications and avenues for advancing this strategy.

Finally, there is great opportunity to engage with and learn from a diverse array of partners, including some Tribal stakeholders in Wisconsin, who are already exploring new carbon product markets and practicing traditional forest management that excels at carbon storage. Involved stakeholders must be treated as equal partners in NCS efforts, valued for their time and the local knowledge and expertise they provide.

### Conduct ongoing research and data collection, and leverage existing information

Within nearly every critical consideration, there is a substantial need for continued collection of research and data to better understand various aspects of NCS, from soil carbon metrics and measurement to best forestry management practices to capacity and longevity of carbon storage in soils and forests to public health outcomes. While ongoing data and research is necessary, much information is already available. This existing information should be synthesized and leveraged as practitioners work to swiftly advance NCS efforts in Wisconsin. It is important to ensure that this research and information directly addresses the specific needs and priorities of stakeholder groups, particularly if these groups are engaged in supporting the research process. In other words, consistently addressing who the research supports, and ensuring that those identified groups are engaged throughout the research process, is paramount to the long-term equity, viability, and impact of NCS.

For example, many existing forestry-related NCS efforts are being pursued in other states, but data from these efforts is scattered and disparate due to the variety of efforts and the sheer number of organizations, governments, and institutions working on this issue. An efficient way to address this would be to **write a synthesis paper inventorying existing efforts in other states and assessing NCS opportunities, needs, and gaps in knowledge for Wisconsin, including state-specific regulatory measures to protect sensitive ecosystems and lands**. Sharing this resource among project partners would enhance robustness and coordination, and providing a small amount of funding for this effort (for example, to an interested graduate student) could greatly advance NCS in Wisconsin.

Additionally needed data includes resolving carbon accounting questions, mapping/inventorying significant carbon sinks in Wisconsin and potential sites for reforestation or afforestation, and a large-landscape perspective on management for carbon in the Great Lakes region. Additionally, organizing climate and soil audits for land managers to establish a baseline could be a clear way to inform future management decisions and help researchers better understand the relative effects of different practices and environmental variables on carbon sequestration. In the case of agriculture, this information could strongly support the development and implementation of the “spectrum of practices” tool described above.

Not only is there a need to track and collaborate on not just *known* information, but also the identifiable *unknowns* as well. **It is important for researchers to clearly communicate about what information is**



**still unknown in relation to carbon storage potential and carbon measurement for a variety of landscapes.** A host of research-related challenges stand in the way of developing a robust body of information around these topics. For example, carbon storage and associated metrics are extremely site-specific and dependent on many variables, from specific management practices to soil type to local climatic conditions (as described in the “spectrum of practices” section above). Conducting research that resolves these questions would inform best practices for carbon storage and activities such as monetizing carbon sequestration. It is crucial to ensure the metrics and numbers are correct to create a defensible, robust case for carbon markets and certify that additional carbon is actually being stored.

Another priority for research and data is **understanding and fleshing out how to best balance and manage landscapes for multiple, varied land use needs – including, but not limited to, carbon storage.** This is a complex question that involves making long-term decisions and value judgements based on a constantly changing set of variables: political influences, economic forces, development pressures, natural habitat needs, climate priorities, environmental disasters, and many others. There is urgent need for research, data, and synthesis of what already exists for individuals making land management decisions, from land owners to urban planners to foresters. Making proactive, holistic, landscape-scale management decisions (as opposed to a more typical piecemeal, short-term approach to decision-making) is key to the long-term efficacy of NCS. Continued research and data as described above can inform this holistic decision-making process.

#### **Develop tailored educational and communication initiatives for farmers, land owners, and consumers**

Educational and communication initiatives should accompany and amplify the impact of the various NCS efforts described above. While there are many educational and communication initiatives around the general topic of NCS, **more materials and access to experts are needed, and should be accessible, holistic, and tailored to the needs and values of specific stakeholder groups based on the end goals of a given NCS effort. Such initiatives present the opportunity to build broad support for NCS through strategic framing that strongly ties NCS to their co-benefits (e.g., economic, health, environmental and community resilience).** In particular, there is a distinct opportunity to create a group that collects and shares individual stories of successful NCS projects and the positive impacts of associated co-benefits.

**Recruiting appropriate, trusted community messengers to assist with the development and deployment of NCS-related educational and communication initiatives is critical.** This represents an excellent opportunity to create jobs for such messengers and liaisons, ensuring that their time, unique knowledge, and expertise are valued. Key messengers can provide guidance on how to appropriately tailor materials and programs to meet the needs, priorities, and values of the stakeholder groups they represent while clearly illustrating the potential value of NCS to these groups. Ultimately, effective engagement in NCS relies on A) effective messaging of why NCS is relevant to each stakeholder group in turn and B) credible messengers to speak to how each group can realistically participate in the implementation of relevant NCS strategies. The other key role messengers often play is distilling information down to the most relevant takeaways. As integrated members of their communities, they have a sense of what resources their peers are already aware of, and are therefore able to mitigate information overload and filter out irrelevant or culturally inappropriate material.

One possible educational initiative could target landowners to inform them of the suite of carbon-storing opportunities and practices that they could choose to engage in and provide resources to

support NCS efforts of interest. The “spectrum of practices” tool (described in above sections) could be one offering of this initiative, as could a site visit and carbon audit of a landowner’s property. The latter could include an individualized, collaborative assessment of site-specific NCS opportunities. This educational toolbox has the potential to increase a landowner’s long-term investment and engagement in an NCS project while providing them with direct benefit. In this example, framing is key. While some landowners may be interested in NCS specifically because they want to participate in climate change mitigation, not all landowners are likely to share this value. Messaging for the former group might highlight carbon storage opportunities of NCS strategies, but dialogue with the latter group might instead frame NCS practices primarily in terms of other benefits and shared values: clean water, soil building, supporting habitat, or flood mitigation, for example. An alternative educational angle of possible interest to landowners could address how to manage lands (whether forested, agricultural, or otherwise natural) as systems. For many farmers, simply surviving climate change is becoming a top priority, which could be an entry point for a more pragmatic and less polarizing dialogue around motivations for pursuing NCS.

Simultaneously, there is an important opportunity to **create messaging and education around NCS for a variety of consumers, who in turn have power to create demand for carbon-smart products and practices**. This demand may incentivize land managers and producers to make management changes or pursue NCS practices that they were previously unsure about. This could be accomplished through developing an NCS-focused certification or carbon scoring system (such as in the wood products substitution example presented in the “financial incentives” section) to guide business and industry decision-making around product choice. This is another example of a tailored messaging tool designed to meet the needs of a particular stakeholder group, and could apply to a range of landscapes and land uses, from agriculture to forestry to conservation lands.

In the realm of agriculture, educational resources for consumers could be developed to help individuals learn more about a variety of topics: different kinds of agriculture; the ways different production systems and practices either exacerbate or mitigate climate change; the value of supporting local farmers as they face significant threats to their livelihoods due to climate change; and a spectrum of choices they can make to lower their food-associated carbon footprint. A simple food labeling system could clearly and succinctly communicate this information. Through resources like these, consumers are empowered to make informed decisions about their purchasing. This could reveal the carbon benefits of shifting from high meat consumption to more plant-based diets and the varying environmental impacts of different production practices within certain types of food (e.g., in the case of meat, confined animal feeding operations vs. free-range have differing environmental, including carbon, impacts).

There are several possible equity-related consequences of new certification programs. Depending on how these programs are designed, they can exclude producers from participating if there are prohibitive costs or time requirements associated with becoming certified, or they can push producers to increase their product prices, placing more burden on end-consumers or excluding those who cannot afford to pay premiums. On the other hand, a certification program could be designed so that any premiums could be returned to producers to compensate them for NCS practices.

## Appendix A: Process and Methods Details

Network participants initially met twice to share information about the current state of knowledge around NCS in Wisconsin, explore cross-cutting opportunities for advancing NCS, and connect with each other to understand the depth and collaborative potential for the network. Participants then divided into three working groups:

- 1) **Agriculture** (including urban agriculture) **and working lands**;
- 2) **Forestry** (including public and private forests, reforestation, urban tree planting, etc.) **and other critical conservation lands** (including wetlands, prairies and grasslands, and other lands not covered by the latter, such as public parks, private landholdings, natural lands at risk of development, etc.); and
- 3) **Equity**, including the socioeconomic, racial, cultural, political, geographic, age, scalar (e.g., small vs. large operations), and other conditions that impact people differently.

Each working group met twice to discuss, prioritize, and flesh out topic-specific strategies for advancing NCS in Wisconsin. While we encouraged all groups to consider equity as a core criterion for all strategies, the equity working group was specifically responsible for applying an equity lens to the strategies outlined by the other two groups and strengthening them by naming and testing key assumptions, poking holes, and seeking structural opportunities to reframe strategies with an eye towards impacted communities. Other key considerations for strategy development included: greenhouse gas impact, co-benefits, barriers to implementation, incentives for implementation, metrics for tracking (carbon) impact, and pathways to implementation. To conclude this process, the entire network convened once more to share common critical considerations from the working group discussions, affirm commitment to future collaboration with this unique and deeply knowledgeable group, and share ideas from the process that most resonated with participants.

## Appendix B: Additional considerations and strategies

This appendix includes ideas and possible strategies raised by the three working groups. To the degree as possible, all text reflects the original intent and meaning of each idea. Note that while ideas are sorted into their general topic area, many of them are cross-cutting and could also apply to one or both of the other areas. We invite you to refer to this as a source document for ideas on possible NCS strategies in Wisconsin and beyond.

### Agriculture and Working Lands:

#### In-depth strategies:

1. Green farm or product certification with a focus on carbon
  - a. Including pricing based on total carbon footprint, with portion of revenue from high-carbon products/components being redirected to farmers doing NCS practices
  - b. Could tie into the “Wisconsin-Made” label, or could be a marketable “Farm Carbon Score” system to guide business and industry decision-making
2. Collaborative research with farmer input on research questions, protocol, implementation, including:
  - a. Real-world economics
  - b. Whole-system greenhouse gases and environmental services (including reframing the margins—fence lines, woodlots, tree lines—as valuable assets to the system)
  - c. Consider entire community of stakeholders
3. Stay abreast of and find ways to influence national policy on funding, including:
  - a. Removing existing barriers such as commodity programs (biases toward large, mono-cropping systems), crop insurance, and misfires such as NRCS’s EQIP program
  - b. Addressing implementation problems by fulfilling needs for conservation compliance, good technical assistance, and farmer-involved research/demos

#### Other mentioned strategies and considerations:

- A. Markets for new products of perennial agriculture
- B. Mitigating loss of more small dairy farms
- C. Assigning value for biomass that exceeds cost of collecting it
- D. Infrastructure to support perennial cropping systems—using existing and accessing new
- E. Incentivizing ecosystem services
- F. Insurance and other mechanisms for supporting small farm survival in climate chaos
- G. Increase compost availability and application
- H. Indigenous connection to land
- I. Land tenure and ownership challenges (incl. for beginning farmers)
- J. Whole-systems perspective on climate change—not just about sequestration
- K. Better understand livestock best practices (e.g., rotational or managed grazing)
- L. Increase adoption of farms engaged in soil-building practices, incl. cover crops
- M. Rural economic infrastructure needs
- N. Small grains crop rotations
- O. On-farm woodlots and ag/forestry intersection
- P. Low-carbon menu
- Q. Expedite transition from annual to perennial crops

- R. Strategies for recruiting farmers as allies, leaders in NCS efforts
  - a. E.g., education initiative: better land practices tend to benefit water quality, profitability (stability, resilience), healthy and resilient soil, climate, etc. in the longer term
- S. Behavior change nudges for consumers to choose low-carbon products
- T. Systems for measuring on-farm carbon footprint (“Whole Farm Carbon Audits”) and cost of production, including financial and technical support for making these measurements
- U. Liaison between farmers, aggregators, consumers
- V. Building trust between farming communities and academia
- W. How to build support for long-term, multi-disciplinary systems research that compensates farmers and includes useful intermediate evaluation measures
- X. Establish feedback loops between policymakers and researchers
- Y. Long-term state funding pool (e.g., former “pass-through” on cover crops)—could consider a 5-year cooperative agreement with Senator Baldwin’s office
- Z. Models that include land management, livestock, ag practices, and effects on net carbon balance
- AA. Use-value assessment
- BB. Tool for weighing sequestration approaches: <https://nature4climate.org/u-s-carbon-mapper/>
- CC. Agriculture may not be a silver bullet for carbon sequestration, but grazing management is a top option within agricultural options; perennial crops and systems also promising
- DD. Reducing and avoiding emissions are crucial considerations for agriculture and forestry
- EE. Reducing meat consumption is key
- FF. Important to resolve lack of clarity around grazing practices and emissions vs. sequestration
- GG. Bottom-up approaches, including sharing farmer knowledge; farmer-led watershed conservation groups
- HH. 3<sup>rd</sup> party sustainable certification as model for other organizations/business to follow?
- II. Payments for landowners engaged in NCS
- JJ. Incentive-based vs cap-and-trade payments in agriculture
- KK. Grasslands 2.0 concept
- LL. Perennial agriculture that includes grazing, small grains, indigenous species
- MM. Note that soils are not infinite carbon sinks and have a total capacity
- NN. Increasing prices on carbon products, with dividend going equitably back to public. Could consider equity-oriented design. Might garner bipartisan support
- OO. Not broad agreement among farmers on what practices sequester carbon/impact climate change
- PP. Some climate-smart practices like no-till can be challenging even for organic/sustainable farmers
- QQ. LCAs
- RR. Consider factors that farmers can and can’t control (e.g., electric grid mix)
- SS. Need to make a “clean packet of resources” for farmers, but this depends on what each farmer’s practices actually are
- TT. Soil/carbon audit: What would motivate a farmer to seek such an audit?” Think through strategy
  - a. Jeff Creque in California - Marin Carbon Project. Work with NRCS, large dairies (incl. OV producers). Sequestration benefits from spreading manure on grazing lands. Labs involved, UC Berkeley. Jeff + team auditing farms and setting up plans. <https://www.marincarbonproject.org/about/jeff-creque>
  - b. MOSES also provides resources: orgs, foundations, USDA.
- UU. NRCS Regional Conservation Partnership could be good resource
- VV. Extension and MOSES for educational resource creation and central clearinghouse?
- WW. Vetting information for farmer relevance: community advisory boards could help



- XX. Cultural relevance for different farmers/different types of farmers (e.g., conventional grain farmer vs. organic diversified veggie farmer). Messengers important.
- YY. Counties looking for clear messaging to communicate with stakeholders. Pilot with Dane County?
- ZZ. Start with early adopters of sustainability—people buying from CSAs/co-ops on consumer side
- AAA. Work with NRCS to recognize and communicate benefits of silvopasture as viable solution
- BBB. Using existing groups such as FairShare CSA Coalition and farmers market associations to disseminate information and provide their perspectives
- CCC. Important consideration: Incentive to greenwash practices when certification tied to higher price and becomes more popular. Incentive to keep price down and cut corners.

### Forestry and Other Critical Lands (Wetlands, Conservation Lands, and Prairies):

#### In-depth strategies:

1. Resolve carbon accounting issues and questions, including:
  - a. Economics
  - b. Establishing demonstration projects
  - c. Wood products with emerging markets (unknown how this will develop)
  - d. Resolving net emissions and sequestration associated with other aspects of forest life cycle: harvest, transportation, paper plant energy, final fate of products
  - e. Relative costs and benefits of different management practices, particularly for different forest types
  - f. Details for incentives: Tax breaks, direct payments, and carbon offsets
  - g. Additionality
2. Make it possible for landowners to receive payment for carbon; classify carbon as a forest product
  - a. Resolve: where in state statute or administrative rules are forest products defined? Can lands be enrolled in carbon markets and stay in Managed Forest Law (MFL)? Or, could introduce this as a companion program to MFL to make more politically palatable
  - b. Dispel perception of carbon as threat to forest industry in current legislature and industry
  - c. Conduct outreach to help public understand the complexities of carbon markets
  - d. Add well-managed but currently not tracked acreage to program
  - e. Wood product substitution value
3. Create management plans to balance carbon sequestration with other needs (of people, animals, plants), including:
  - a. Tax breaks to help incentivize not cutting (MFL specifically)
  - b. Shifting to longer rotations (pulpwood to saw timber)
  - c. Finding ways to create agreement on what desired future conditions should be and decision model for determining optimal path
  - d. Managing for diversity and different habitats
  - e. Reconciling for ever-evolving landscape, scalar issues, known forest productivity issues (deer, pest infestations) and unknown
4. Connect lands to markets and provide compensation for carbon to landowners (opportunity to establish voluntary markets, arising from lack of compliance market), including:
  - a. How and who to aggregate smaller parcels and operate in economies of scale? UW-Extension? Commercial carbon developers? Private funding to assess/aggregate?

- i. How to engage DNR and Forest Service in assuming role of communicating and facilitating best practices?
- b. How to connect land with interested markets (e.g., companies that want to go carbon-neutral) in Wisconsin?
- c. Addressing concerns of Menominee Nation: How to ensure that others are not “let off the hook” by passing burden of sequestration on to other parties?
- d. Advertising existing opportunities to participate in carbon markets
- e. Measuring impact, tracking market growth, establishing secondary services that support carbon markets
- f. Great Lakes regional carbon market

Other mentioned strategies and considerations:

- A. Understand and promote urban tree planting and co-benefits (e.g., trees for stormwater management; public health and wellbeing)
- B. Address disparities in urban tree planting distribution
- C. Concern that those most interested in carbon issues are those with financial freedom to not have to care as much about selling products
- D. Gaps in program eligibility
- E. Address equity in terms of big vs small landowners benefits—need equal incentives to adopt practices
- F. Engage other partners, including land trusts and tribes, in establishing and participating in new forest products market
- G. Address backlog of acres in need of reforestation
- H. Engage insurance agents in discussions about best management practices for forestry and water quality (i.e., more costly solutions that last longer might be better over the longer term)
- I. Statewide high-density LIDAR as tool
- J. Support Forest Carbon Cooperatives (with The Nature Conservancy as broker)
- K. Focus on state laws for isolated wetlands
- L. Waters: Avoided degradation (from nutrient addition)
- M. Waters: Ash replacement
- N. Waters: Promote beaver ponds
- O. Wetlands: resolve if significant difference between restoration vs prevented conversion, such that loss prevention should be prioritized
- P. Carbon credits for cities/communities for urban tree canopy
- Q. Monitor co-benefits (to wildlife, etc.) of carbon management
- R. Large landscape protection
- S. Outreach: landowner contact, education, encouragement; what messaging/information will help inform landowners to manage with a climate change lens?
- T. What lands are appropriate for what kind of management? Checklist/criteria for reforestation or prairie restoration
- U. State land acquisition
- V. UW M.S. program in carbon accounting
- W. Carbon accounting, inventory, monitoring over time
- X. Modified silviculture
- Y. Protection for prairies and grasslands
- Z. Incentives to encourage grazing for carbon storage
- AA. Co-location of wind and solar with prairies

- BB. Major policy issue to protect Wisconsin wetlands (huge carbon sink, many ecosystem services)
- CC. Great Lakes/larger regional planning opportunities? How to lead longer and larger conversations about global ecological treasures and protect these ecosystems to do what they do best to save the earth?
- DD. Payments for landowners engaged in NCS
- EE. Understanding tools and spatial planning for evaluating landscape approaches
- FF. Resilient landscapes: Consider role of invasive species and woody invasives
- GG. To conserve land: could forward policy to tax all land at current use—significant incentive for landowners to keep land out of development
- HH. Do not take lands like CRP for granted; create strong policies to protect these lands and understand assumptions underlying science (e.g., increase in corn price could increase value of land, resulting in conversion from natural to agricultural land)
- II. How to get the ball rolling and identify champions and capacity for NCS work in prairies, conservation lands, grasslands, agriculture sectors? (DNR is champion for forestry)
- JJ. Identifying and quantifying key carbon stocks and sinks in Wisconsin
- KK. Important to consider community- and state-level urban forestry solutions
- LL. Possible sharing with Governor’s Council on Forestry
- MM. Possible shift to longer rotations (though not necessarily getting away from pulpwood)
- NN. Create young forests to balance portfolio of C sequestration in landscape
- OO. Demo projects as part of effort, which could help with educating and forming a network of interested land managers
- PP. Silviculture guides
- QQ. DNR as aggregator of landowners for carbon markets
- RR. Carbon pricing and connecting sink lands to markets maybe a supply chain issue: large companies can drive/accelerate action
- SS. Put unproductive lands into productivity in terms of carbon storage: big bang for buck. Can put into natural cover: forest, prairie, cover crop, etc.
- TT. Resolve research questions around young forests vs old forests sequestration
- UU. Examine key threats: e.g., Emerald Ash Borer decreasing productivity. Can’t lose productivity: need carbon accounting and management assessment to get baseline and understand dynamics
- VV. Wetlands are less nuanced than forests—they more passively store carbon and provide ecosystem services. Key to protect them as early restoration efforts show that this may be less effective than “old” wetlands. Short term, protection is most important. Big CH<sub>4</sub> exchange that offsets carbon sequestered.
  - a. Tax incentives as opportunities
- WW. Wetlands: federal regulatory rollbacks in wetlands protections and state-level legislative decline in protections are concerns. How to bolster at state level?
- XX. Reauthorize state stewardship fund for wetlands and other critical lands
- YY. Wetlands: Focus on ecosystem services like flood abatement. Opportunities to piggyback on ecosystem markets and stack credits (carbon + water quality) or add value/recognize carbon storage.
- ZZ. For urban forestry, GHG impact lower, but mix with other co-benefits means high feasibility because broad coalition of stakeholders/supporters. On other hand, cost relative to managing rural forests is substantially higher.
- AAA. Urban forestry: Local scale is best for enabling. Challenge is that urban forestry relies heavily on actions of individuals
- BBB. 30% forest land in state is publicly held; in urban areas this is only 10-20%
- CCC. Tribal forestry demonstration projects? Might be happening already

DDD. Significant traditional ecological knowledge on climate change impacts and adaptation. Important to learn from these examples.

### Equity Working Group:

#### What do people value?

- a. Relationships, respect, pride, responsibility, collaboration
- b. Land ethic and stewardship
- c. Recognition strategy: state registry of people sequestering carbon
- d. Opportunities for leadership
- e. Accountability→affecting others
- f. Sense of community→behavioral changes, builds over time
  - a. A sense that ‘others are in this with me’, and of belonging (especially important with increasing climate change impacts)
- g. Being heard
- h. Impact: Seeing that their voice matters (important for rural and urban Wisconsin)
- i. Monetary incentives, cost-sharing, cooperation, honorarium, underwriting, crop sharing

#### Other mentioned strategies and considerations:

- A. Shifting focus and narratives from economics to health and wellbeing and ecosystems
- B. Focus on perennials and native plants
- C. Healthy food access
- D. Human movement and migration—how to include mobile people in community, sense of collective belonging and shared purpose?
- E. Shift focus from yields to resilient varieties and impact on carbon sequestration
- F. How to combat loss of (feeling of) community in order to foster collective effort towards stewardship of land and future-looking behavior that benefits community and environment
  - a. New opportunities like coming together around climate change issues, like cooperative carbon credits
  - b. Autonomy in agriculture: leads to accountability to local community rather than disproportionate outsider/corporate influence
- G. How to foster sense of connection to land
- H. Ways to provide community support for changing values (e.g., shifting to a less meat-oriented diet)
- I. How to redistribute power to combat cycles of wealth and poverty
- J. Change market drivers to aggregate for scale to enter supply chain. Establish regional market structures (e.g., cooperatives)
- K. Incentivize corporations to use regional/localized supply chains
- L. Educational and communication strategies for producers/landowners on their role in carbon sequestration (e.g., pasture walks)
- M. Increase opportunities for ownership and access—equity (e.g., co-ops; collaborative, invested, localized efforts; define common needs; address income inequality)
- N. Agrivoltaics—convert marginal farmland to solar farms and prairie; strategic siting
- O. Align agriculture with Native American management practices to establish true sustainability
- P. Address challenge of high conservation land tax (recreational value) to incentivize NCS practices
- Q. State could define forests, wetlands, prairies, conservation lands for use-value tax
- R. Establish community models that encourage working together towards common goals of resilience and sequestration

- S. Grassland 2.0
- T. Managing for multiple uses—how to weigh and balance?
- U. Address inequities in urban tree planting—current system rewards people who know about tree planting programs, who tend to have more resources
- V. Focus on co-benefits for urban forestry (rather than carbon sequestration potential)
- W. Provide fair process for establishing equity and crafting solutions: Consult with the beneficiaries of a given solution, get consent with the “losers”
  - a. But what about when those who “lose” have the power? Provide incentives to compensate for losses? How to reframe conversation not only about money? Present long-term consequences of less equitable alternatives
- X. How to engage overstretched local government staff, include elected officials and community?
- Y. Voluntary/non-monetary reward programs: Landowner Incentive Program (for native and threatened species protection), farmer-led watershed program, Green Masters (WSBC) and GTLC (DNR) programs, citizen science
- Z. Develop key metrics for addressing climate change—30-year protocol data
- AA. Recognize efficiency in transportation for decreasing emissions
- BB. Consider population changes and land conversion as filter for discussion
- CC. Consider implications of carbon offsets: does the offset mindset undermine the whole value of sequestration and keep the burden on the burdened?
- DD. Conceptualize advantages of localization for statewide carbon neutrality: strengthens rural economies and communities, including local food, less transportation, energy democracy
- EE. Holistic approach to adaptation, mitigation, sequestration, resilience conversation—look more at win-win opportunities that maximize co-benefits
- FF. How to ensure equitable, long-term land preservation for carbon storage practices?
- GG. How to avoid competing/undermining policies among different agencies?
- HH. How to communicate big state policies to the local level? Role for Extension?
- II. Integrated planning at local and county level? Planning checklist for a carbon- and climate-friendly way for local and landowner levels
- JJ. Statewide planning to maximize resilience and mitigation strategies at same time—not just reacting to disasters ad hoc
- KK. Recommendations for landowners about what to do in face of catastrophic events and natural disaster damage
- LL. Spread message about co-benefits of NCS
- MM. Could there be collective strategies to help smaller land owners cooperate around NCS implementation?
- NN. Ensure that not adding premiums/passing costs along for foods that exclude certain consumers from purchasing/making that choice
- OO. Absentee land owners—big issue. Opportunity to widen the net to engage these people or encourage them to allow others to lease/caretake their lands?
- PP. Support farmers by increasing SNAP/EBT purchasing at farmers markets; also positive for consumers
- QQ. Balance in harvesting and ag approach: “use some, save some.” Similarly, balance individual and collective needs (advice from Tribal elders)
- RR. Access to communication/learning opportunities could still be a barrier for certain groups (e.g., people who prefer face-to-face communication or don’t have reliable internet access)
- SS. Ag approaches that require more physical labor might favor those more physically able. On other hand, some tech like GPS-enabled may enable greater access, but is cost-prohibitive for many



- TT. Conventional farmers often have lots of invested assets in current systems. Important to keep in mind when asking for change.
- UU. Opportunities for increased land ownership? Or to produce food on land you don't own? E.g., Madison land trusts. Could be wonderful opportunity for many more people/cultures
- VV. Grazer broker program—somebody else can rent a land owner's land to graze it. If hands off, can be equitable.
- WW. Framing in industry of # jobs creates vs. # of families farmer can support (less labor). Diversified operations require more labor. Ex. Cuba during Special Period (post Soviet collapse). Could benefit more people.
- XX. Deinstitutionalize, more community efforts. Social policy - aim toward national/global markets, but focus first on local community and institutions. Self-reliance (we should be able to make our own TP!).
- YY. Community seen as entity that benefits (not the individual), then paradigm shifts because everyone can contribute as able.
- ZZ. Paying land owners for carbon storage: could be a role for government and private institutions, but they can't do everything. Schools, religions can also support. Look cross-sector for collaboration.
- AAA. Keep rural America in mind—by many measures has extremely low concentration of wealth and need to engage these geographies too.
- BBB. Analog to community solar: community forestry? Carbon fee + dividend benefits all. This would help distribute to residents.
- CCC. Paying land owners for carbon storage a good idea economically—need to shift more wealth into large land areas that can manage carbon
- a. But must consider that owners can access, while renters can't
  - b. And people of color less represented in rural settings, less access to this opportunity for funding
- DDD. When making land management plans, remember to consider who is going to lose out and how (e.g., grazing and grassland birds) and how to best mitigate this dynamic
- a. "We can't control things, but we can influence them. The balance determines your culture."
  - b. Shape society in more equitable ways - in line with this vision. Open doors for this kind of thinking as reassessing our systems right now. Huge potential for equitable regime.
- EEE. Urban forestry:
- a. Higher cost per unit C stored - best way to decrease GHG overall (which impacts everyone) given limited resources?
  - b. Poorer neighborhoods tend to have less tree cover - would tree planting continue this trend, or be designed to help address intraurban inequity by targeting less green neighborhoods?
- FFF. How governments/institutions use influence? Roles of different institutions? Rule/force of law? vs. education.
- GGG. Emphasize value in local institutions, and fund and lead with local institutions
- HHH. Tendency for support to go to big ag.
- III. Losing many farms in WI every year, tend to be smaller farms.
- JJJ. Larger producers also hurt by markets/supply chains (during pandemic)
- KKK. Scale: small farmers don't have same/any access to markets (C credits). Offset markets also suffering.
- LLL. Impact on small farms, workers, reliance on local vs. larger markets. Limited worker/capacity to access markets, and not attractive enough to them.