Agenda Item No.:	4
Topic:	Our Search for Climate-Smarter Forestry: Accelerating the Transition
Contact Information:	Ryan Gordon, Planning Branch Director 503-945-7393, Ryan.P.Gordon@odf.oregon.gov Danny Norlander, Forestry Climate, Carbon, and Health Analyst 503-508-3797, danny.norlander@odf.oregon.gov

SUMMARY

Peter Hayes and Dean Moberg facilitated four forest-based sessions to work with a diverse set of individuals representing forest practitioners, forest advocates, policy makers, and end-product users to consider what climate-smarter forestry could look like in Oregon. The intent of these sessions was to establish what current considerations and barriers are for the implementation of climate-smarter forestry and create a broad conversation to inform decision-making and policy development. Overall, there was much agreement among the four groups, though some areas of concern emerged. This is an informational topic intended to provide a high-level overview of the discussion and outcomes. There may be an opportunity for a panel discussion at a future Board meeting.

CONTEXT

Natural climate solutions present an opportunity for adaptation and mitigation as the world experiences deepening climatic changes. These are resulting in longer and more extreme fire seasons, increased weather volatility, and greater overall risk to the forest sector, much of which may not be fully understood at this time. Utilizing climate-smart or climate-smarter forestry can help to reduce these risks and develop a landscape more resistant and adaptable to climate change.

The Board approved the department's Climate Change and Carbon Plan (CCCP) in November of 2021. The CCCP is built around three pillars of climate-smart forestry: Adaptation, Mitigation, and Social (broken into communities and economy). The sessions, held at Hyla Woods in NW Oregon, continue the conversation around this concept and help inform ongoing work toward the development of a new strategic plan for the department.

ATTACHMENT

- Summary of workshops developed by Hayes and Moberg (available before the meeting)

Our Search for Climate-Smarter Forestry: Accelerating the Transition

Summary Report

By Peter Hayes – Hyla Woods,
and Dean Moberg – Director, Tualatin Soil and Water Conservation District

Cover photograph: The “general” group in discussion July 19, 2022 Climate-Smarter Forestry workshop.

Contents

Executive Summary

During the summer of 2022, sixty-six Oregonians with diverse experiences, perspectives, and priorities participated in climate-smarter forestry (CSF) workshops in a western Oregon forest. CSF was defined as practices that help forests to mitigate climate change and/or to become more resilient to climate-related stresses. Participants represented the design/build sector, elected and appointed leaders, forest practitioners, and advocates from non-profit organizations, and each group attended a separate workshop. Thus, there were four workshops, which were each structured essentially the same in order to facilitate comparisons between the different groups. Peter Hayes (Hyla Woods) and Dean Moberg (Director, Tualatin Soil and Water Conservation District) facilitated the workshops.

Participants generally agreed that climate-related stresses were negatively impacting western Oregon forests and that it is important to accelerate adoption of CSF practices. Participants considered fourteen CSF strategies and, on average, rated the following strategies as most likely to advance CSF without causing significant negative side effects:

- Increase accountability for results
- Reduce the conversion of forestland to other land uses
- Increase the ecological complexity of forests
- Increase forests' ability to catch and hold carbon
- Enhance forest soil quality
- Improve forest hydrology
- Keep and care for older forests
- Re-establish forests on land that used to be but no longer is forested
- Store carbon in long-lived wood products
- Implement careful thinning of existing forests

Strategies that received lower average ratings included:

- Implement assisted migration of tree species or genotypes
- Reduce the risk of wildfire
- Improve forest roads
- Address diseases and insect pests

Participants were widely split on whether carbon offset trading should be a component of climate-smarter forestry.

Participants identified seven categories of solutions to barriers for CSF: collaboration, direct financial incentives, education and communication, labor and technology, market evolution and development, public policies, and research.

In addition to this document, the facilitators have presentations planned to share workshop results with various groups. For more information, contact Peter Hayes: peter_hayes@comcast.net

The Workshops

What?

Oregonians with diverse experiences, perspectives, and priorities participated in a series of climate-smarter forestry (CSF) workshops. CSF was defined as practices that help forests to mitigate climate change and to become more resilient to climate-related stresses. Although many of the strategies discussed in the workshops could pertain to forests across Oregon, the focus of this project was western Oregon forests. Each workshop followed the same process and structure in order to allow comparison of results between groups.

Why?

The workshop goals were to work together to accelerate the pace and scale of the transition toward CSF, to find useful common ground where possible, and to honor inevitable differences where necessary.

Who?

A separate four-hour workshop was held for each of four forestry and wood product interests: design/build professionals (architects, contractors, and mill managers), appointed and elected leaders (also referred to as "general"), practitioners (forest managers and owners), and advocates/non-profits. In total, 66 people enthusiastically engaged in the process with commitment and positive spirit. Some who were invited to the workshops were either unable or unwilling to participate, which resulted in incomplete representation of all forest interests. The workshops were facilitated by Peter Hayes - Hyla Woods and Dean Moberg - a director of the Tualatin Soil and Water Conservation District.

When?

The workshops were held in the summer of 2022.

Where?

To ground the explorations in the specific realities of a working forest, the workshops were held in Hyla Woods' Mt. Richmond Forest in the north Coast Range, west of Gaston, Oregon.

Given the large number of topics explored in each workshop in a limited time by a healthy diversity of perspectives, readers should be aware that what follows is a record of what took place during the workshops and not a consensus-based plan of action. This report should be viewed as a window into the perspectives and priorities offered by participants. Many participants expressed interest in working together to use the workshop results as a foundation for future coordinated action.

Note: The term "climate-smarter" is used, as opposed to "climate-smart," in hopes of encouraging a continuum mindset as opposed to a potentially divisive binary mindset, and to acknowledge that climate resilience and mitigation is one of multiple dimensions of responsible forest stewardship.

Results

Guiding Questions

Participants in each workshop explored and answered the following questions:

1. Who are we? What do we bring and what do we hope to gain?
2. What basic understandings are critical to engaging with CSF issues?
3. In what ways are western Oregon forests being influenced by climate-related changes and stresses?
4. What strategies are most appropriate and important to accelerate the pace and scale of the transition toward CSF?
5. What are the barriers to implementing CSF strategies?
6. How will we work together to reduce and remove barriers?
7. What will we each do to advance CSF in the coming months and years?

Each workshop began with facilitators presenting a simple vision of a desirable future resulting from CSF strategies in Oregon, showing increases over time for three variables: 1) average amount of carbon stored per acre, 2) capacity of forests to be resilient to climate-related stress, and 3) improved vitality, resilience and opportunity in rural, forest-dependent communities. Though there was no process to ask for official endorsement of this vision, participants appeared to embrace it.

Key Outcomes and Accomplishments

- Almost all participants appeared to be committed to advancing CSF.
- Participants increased their understanding of CSF strategies while learning from the perspectives, priorities, and concerns of others.
- Participants generally agreed that climate-related stresses were negatively impacting western Oregon forests.
- Facilitators presented fourteen CSF strategies, and participants offered no additional strategies when offered that opportunity.
- Figures 1-14 show how participants ranked the relative importance of each strategy. Strategies M1 through M7 are ways CSF can mitigate climate change (e.g., by sequestering carbon) and strategies A1 through A7 are approaches to improving forest adaptation to climate change.
- Some participants stressed that the relative appropriateness and importance of strategies will vary dependent on a specific forest's ecological, cultural, and economic context, much of which is affected by the landowner's goals.
- Participants identified and prioritized barriers to implementing the strategies as well as solutions to those barriers.

Common Ground – Areas of Apparent Agreement:

1. It is important to incentivize Oregon forests that store more carbon per acre, are more resilient to climate-related stresses, and support the vitality of Oregon communities.
2. There are important opportunities and responsibilities to accelerate adoption of CSF practices.
3. Climate-related stresses on Oregon forests will increase.
4. Success in accelerating the pace and scale of CSF adoption depends on motivating and supporting those people whose decisions directly shape forests.
5. Implementation of CSF strategies depends on Oregonians working together to identify and remove barriers. This will require more work as well as a blend of economic, policy, and cultural approaches.
6. Education, understanding, and ongoing research are critically important.
7. Success depends on people becoming better at working together across boundaries to achieve common goals.
8. There is much excellent and important work related to CSF already being done – and more investment, engagement, and effort is required.
9. The urgency of climate change calls for thoughtful but expedient action.
10. Exploring new procurement practices that can allow purchasers to know where their wood comes from and can play a key role in rewarding and cultivating CSF practices.
11. Ongoing learning and accountability for results should be a high priority.

Uncommon Ground – Areas of Disagreement

1. **Adaptation vs. Mitigation** - While all participants appeared to agree that investment focused on adaptation (increased climate resilience) and mitigation are both important, some advocated for greater emphasis on adaptation while others advocated for greater emphasis on mitigation. See Figure 15.
2. **Carbon Offset Trading** – While all participants appeared to acknowledge complications and challenges related to carbon offset trading in forestland, some supported and others opposed this strategy. See Figure 16.
3. **Leakage** - While many participants acknowledged that decreases in Oregon's lumber production could contribute to increased production in other regions, participants did not agree on whether this should affect the adoption of CSF in western Oregon forests.

Observed Climate-Related Impacts on the Mt. Richmond Forest

The following climate-related changes have been observed in the Mt. Richmond Forest where the workshops were held. Many participants in each workshop affirmed that they had observed similar changes in other western Oregon forests.

- **Temperatures:** Mt. Richmond Forest records document increased daytime high temperatures, increased nighttime low temperatures, extended hot periods, and occasional abnormally low temperatures. Key events include high temperatures in 2014 and 2015, the record 116° F heat in 2021, and unusual freezing temperatures in April 2022.

- **Accelerating Tree Die-off:** Some tree die-off is scattered across the Mt. Richmond Forest and has occurred in several tree species, while other die-off is concentrated in areas of widespread mortality. While some die-off is understandable given variable soils and complex hydrology, other cases are harder to explain. Die-off in young Douglas-fir plantations and varying age classes of western redcedar are of particular concern.

- **Hydrology:** Annual water cycles in the Mt. Richmond Forest are changing. Creeks that historically flowed continuously have begun to dry up in the summer. More intense precipitation events and abnormally high runoff is overwhelming road drainage infrastructure that worked well for years.

- **Wildfire:** While connections to changing conditions are uncertain, scope and scale of wildfire in and near the forest has increased and remains a serious concern.

Strategy Ratings

Participants discussed and prioritized fourteen CSF strategies, including those that aim to increase forest resilience or adaptation (Strategies A1-A7) and those that contribute to climate mitigation (Strategies M1-M7). Participants rated each strategy on a 1 to 5 scale, with "1" indicating that a strategy had very significant problems and few if any benefits, and "5" indicating that a strategy had very significant benefits and few if any problems. Benefits were defined as probable outcomes that would be especially effective at addressing adaptation or mitigation and/or would have positive side effects. Problems were defined as probable outcomes that would not be effective at addressing adaptation or mitigation and/or would have significant negative side effects. Examples of side effects to consider were impacts on historically underserved communities, impacts on hydrology, and impacts on wildlife.

The facilitators asked participants to disregard potential barriers in their strategy ratings and explained that barriers would be addressed in a separate exercise. For example, if a participant thought a strategy would be highly effective but expensive, they were instructed to temporarily disregard the expense and thus give that strategy a rating of 4 or 5. Participant ratings of the 14 strategies are illustrated in Figures 1-14, which also include the average ratings for each strategy and participant suggestions of solutions to barriers for that strategy.

Facilitators briefly mentioned strategies to reduce greenhouse gas emissions from forest operations, for example by substituting electrically operated equipment for some operations that typically rely on internal combustion engines. Though participants expressed interest in these strategies, there was insufficient time to discuss or prioritize them.

Table 1. Summary of adaptation (A1-A7) and mitigation (M1-M7) climate-smarter forestry strategies.

Code	Name	Description
A1	**Wildfire Risk**	Reduce the incidence, severity, and extent of catastrophic forest fires.
A2	**Thinning**	Carefully reduce the density of trees when needed to improve forest health.
A3	**Forest Complexity**	Manage forests to encourage a diverse mix of tree species, tree age classes, and understory vegetation.
A4	**Pests**	Plant and manage trees to minimize the risks and impacts of diseases, insect pests, and invasive species.
A5	**Water (hydrology)**	Manage forests to increase the infiltration rate of precipitation, increase soil water holding capacity, and decrease the rate of runoff.
A6	**Forest Roads**	Construct and/or modify forest roads and associated bridges, culverts, and water bars in order to reduce erosion during runoff events.
A7	**Assisted Migration**	When indicated by scientific data, carefully explore planting tree species and genotypes adapted to future climate conditions.
M1	**Keep the Forest in Forest**	Reduce the conversion of forest to other land uses.
M2	**Catch and Hold Carbon**	Increase net carbon sequestration in forest vegetation and soils.
M3	**Soil Health**	Improve forest soil biological, physical, and chemical characteristics in order to store carbon, improve forest health, and improve hydrology.
M4	**Older Trees**	Ensure that forests contain healthy older trees.
M5	**Long-Lived Wood Products**	Store carbon in wood products with a long useful life.
M6	**Afforestation**	Establish forests on sites where trees are adapted but are not now growing due to deforestation in the past.
M7	**Accountability**	Ensure individuals and organizations working toward climate-smarter forestry goals are accountable for achieving those goals.

High Priority Strategies (Average Ratings Greater than 4.0)

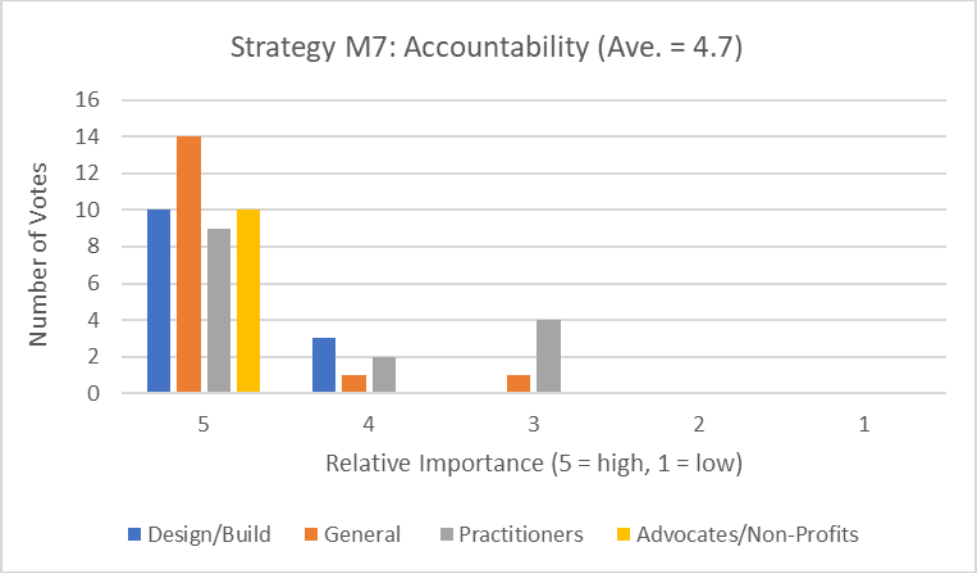

Fig. 1. Accountability – ensuring that individuals and organizations working toward CSF goals are accountable for achieving those goals. Most participants rated this strategy as highly important (average = 4.7 out of 5.0). Participants thought most of the barrier/solution types (see following section on Barriers and Solutions) applied to this strategy: collaboration, direct financial incentives for forest owners, education and communication, market evolution and development, public policies, and research.

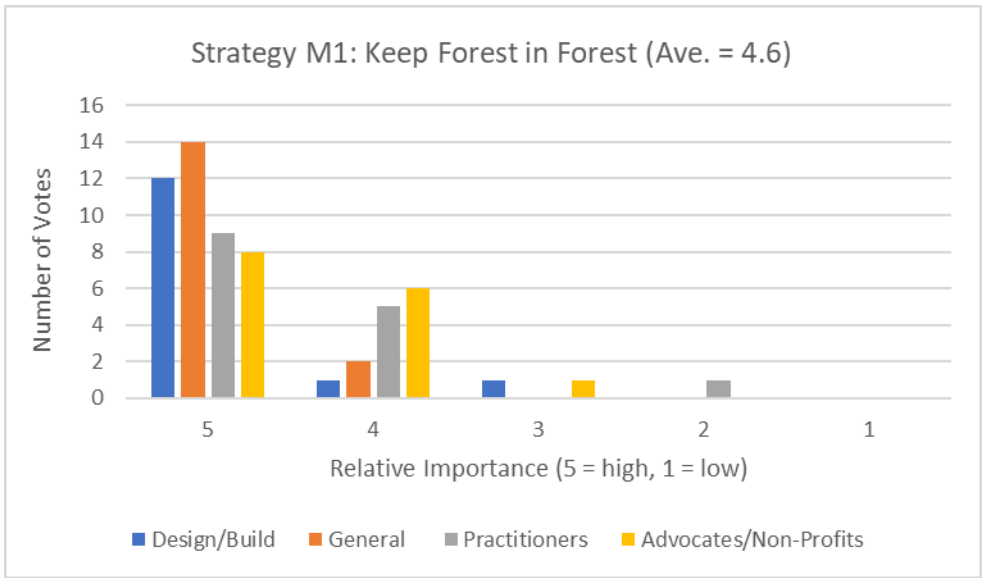

Fig. 2. Keep forest in forest – reducing the conversion of forestland to other land uses. Participants identified public policy as the main barrier/solution category that applies to this strategy.

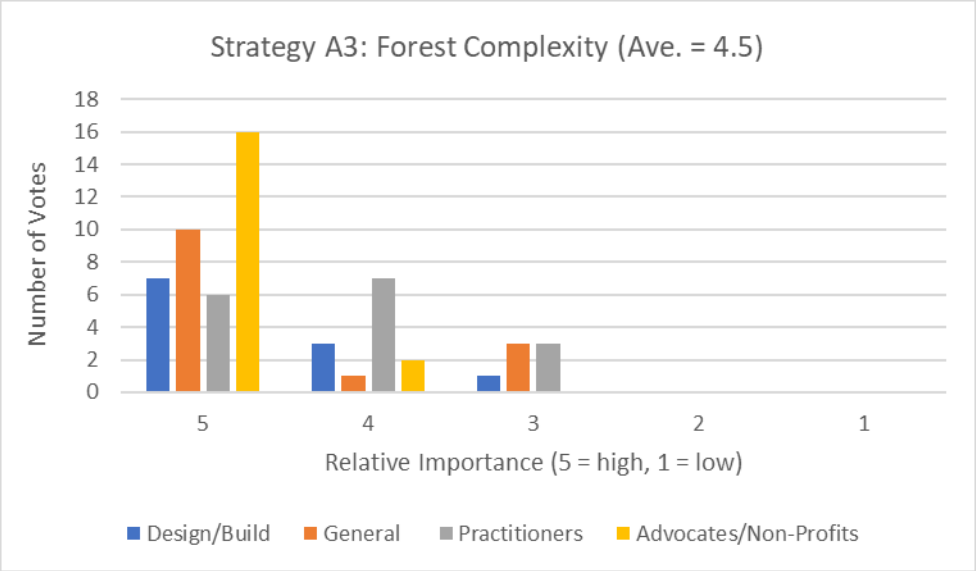

Fig. 3. Forest complexity – manage forests to encourage a diverse mix of tree species, tree age classes, and understory vegetation. Participants identified the following barrier/solution classes for this strategy: education and communication, labor and technology, market evolution and development, public policies, and research.

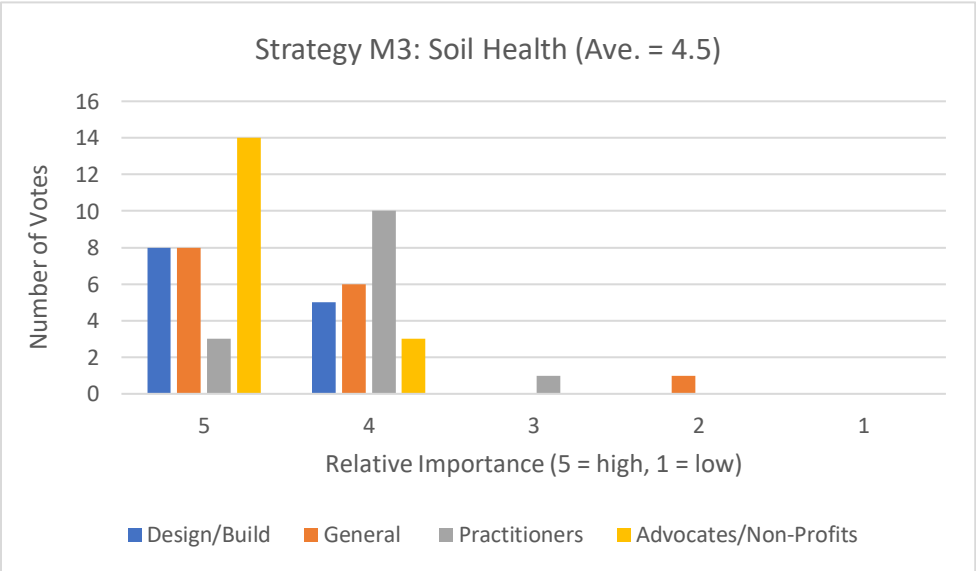

Fig. 4. Soil health – improve forest soil biological, physical, and chemical characteristics in order to store carbon, improve forest health, and improve hydrology. Participants identified research as the main barrier/solution category that applies to soil health.

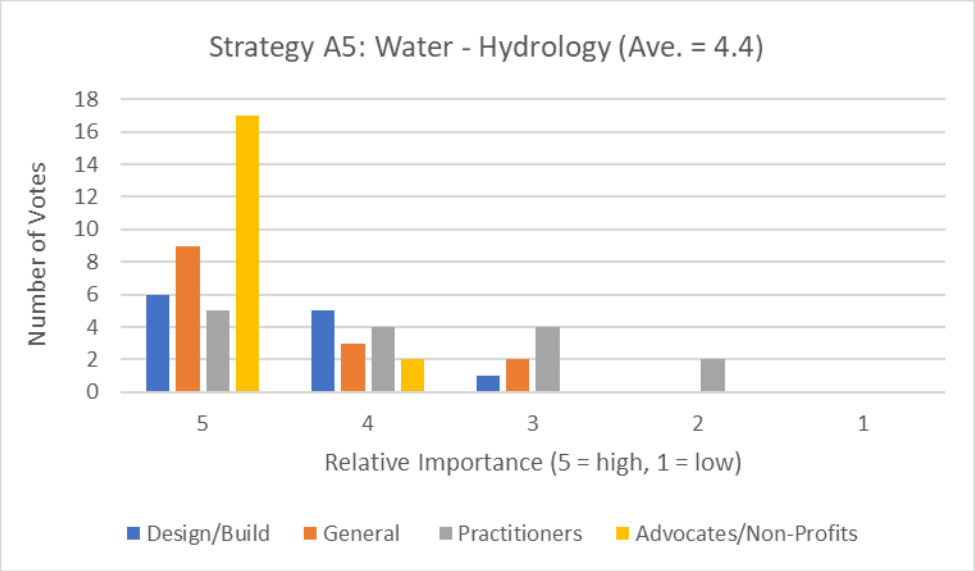

Fig. 5. Water, hydrology – manage forests to increase the infiltration rate of precipitation, increase soil water holding capacity, and decrease the rate of runoff. Participants did not identify barriers and solutions to this strategy, but it is reasonable to assume that those might be similar to the barriers/solutions for forest complexity, older trees, and soil health.

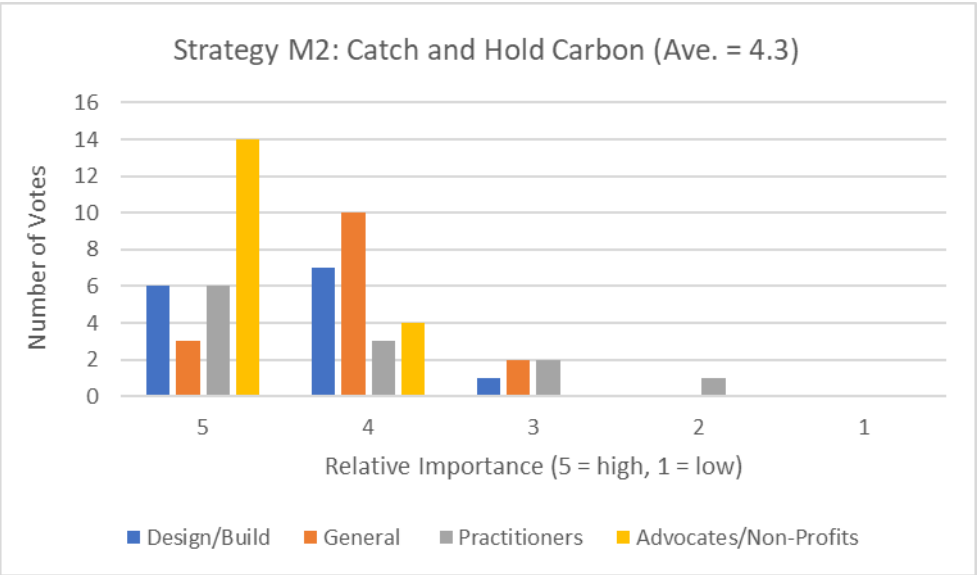

Fig. 6. Catch and hold carbon – increase net carbon sequestration in forest trees and soils. Participants identified market evolution and development, and public policies as the barrier/solution categories for this strategy.

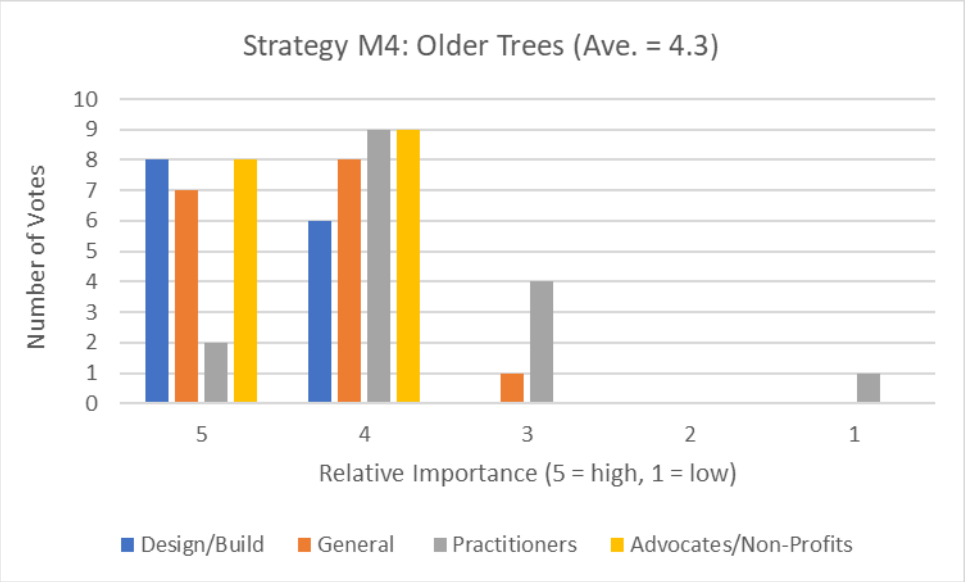

Fig. 7. Older trees – ensure that forests contain healthy older trees. Participants identified direct financial incentives and market evolution and development as the barrier/solution categories applicable to this strategy.

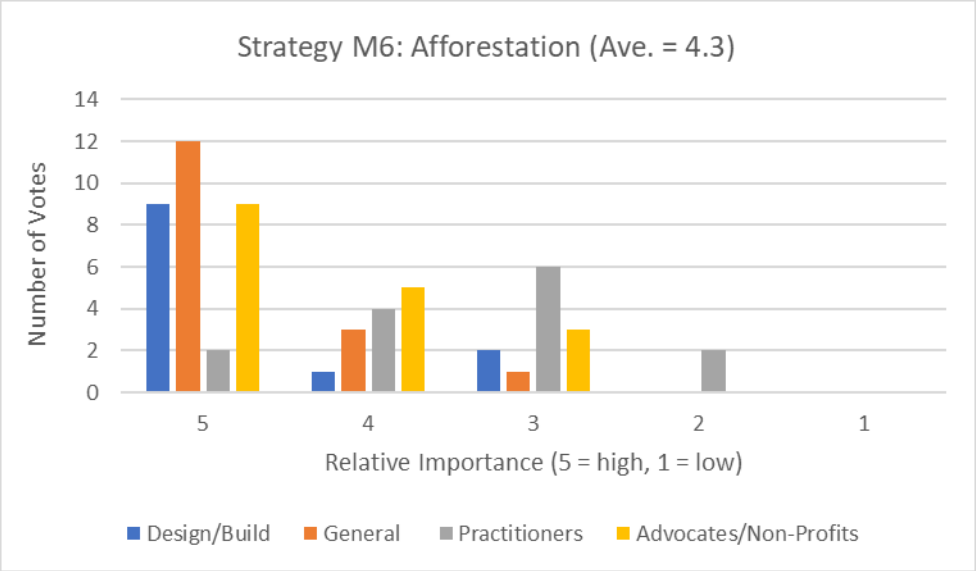

Fig. 8. Afforestation – establish forests on sites where trees are adapted but are not now growing due to deforestation in the past. Participants thought that direct financial incentives and market evolution and development were the main barrier/solution categories that apply to this strategy.

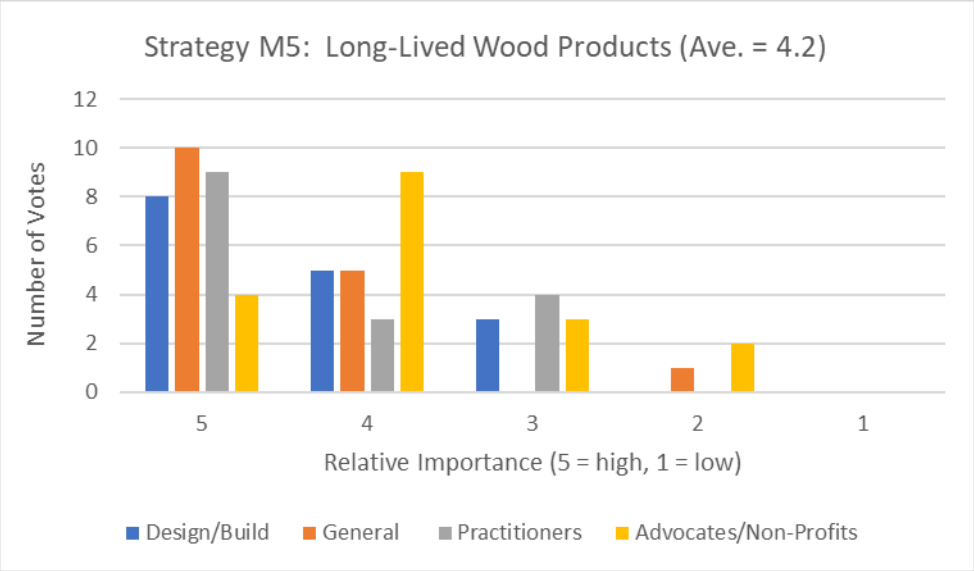

Fig. 9. Long-lived wood products – store carbon in wood products with a long useful life. Participants though the barrier/solution category of education most applied to this strategy.

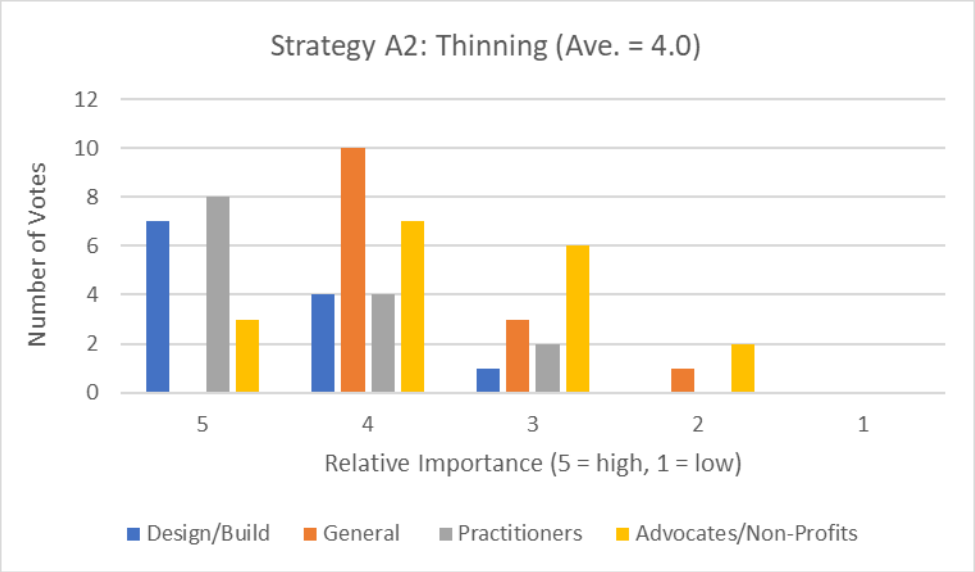

Fig. 10. Thinning – carefully reduce the density of trees when needed to improve forest health. Participants identified the barrier/solution categories of labor and technology, and market evolution and development as applicable to this strategy.

Medium and Low Priority Strategies (Average Ratings 3.2 – 3.6)

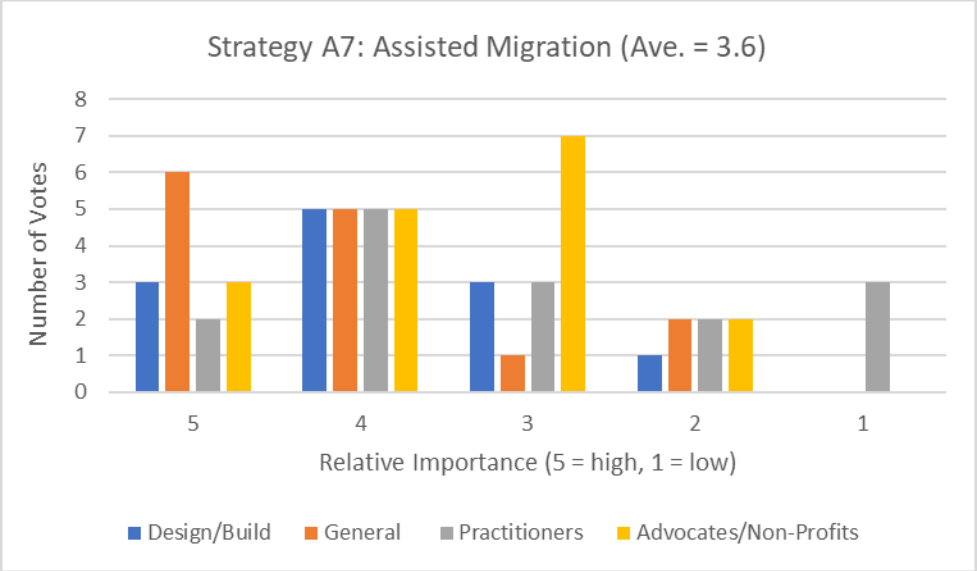

Fig. 11. Assisted migration – when indicated by scientific data, carefully explore planting tree species and genotypes adapted to future climate conditions. Participants did not identify barrier/solution categories for this strategy, but it is logical to assume that the category of research would apply.

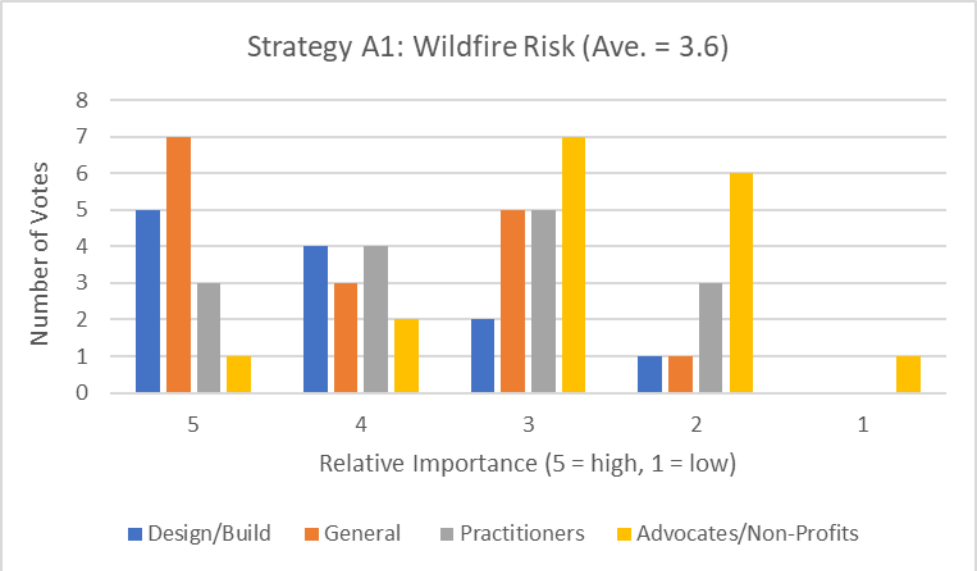

Fig. 12. Wildfire risk – reduce the incidence, severity, and extent of catastrophic forest fires. Participants did not identify barrier/solution caterogires to this strategy, but it is logical to assume that public policy, labor and technology, and collaboration would play a role.

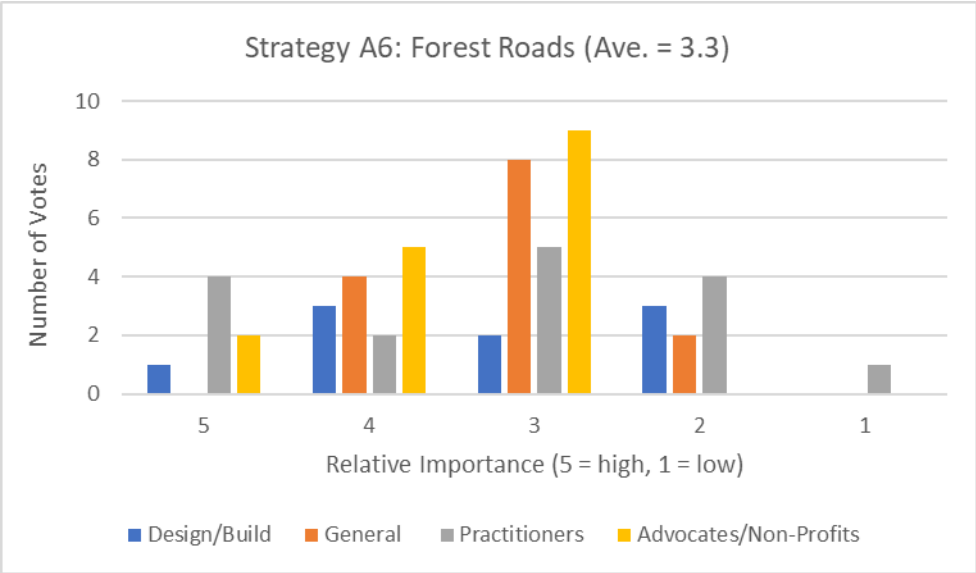

Fig. 13. Forest roads – construct and /or modify forest roads and associated bridges, culverts, and water bars in order to reduce erosion during runoff events. Participants did not identify barrier/solution categories to this strategy, but it is logical to assume that labor and technology, and direct financial incentives would play a role.

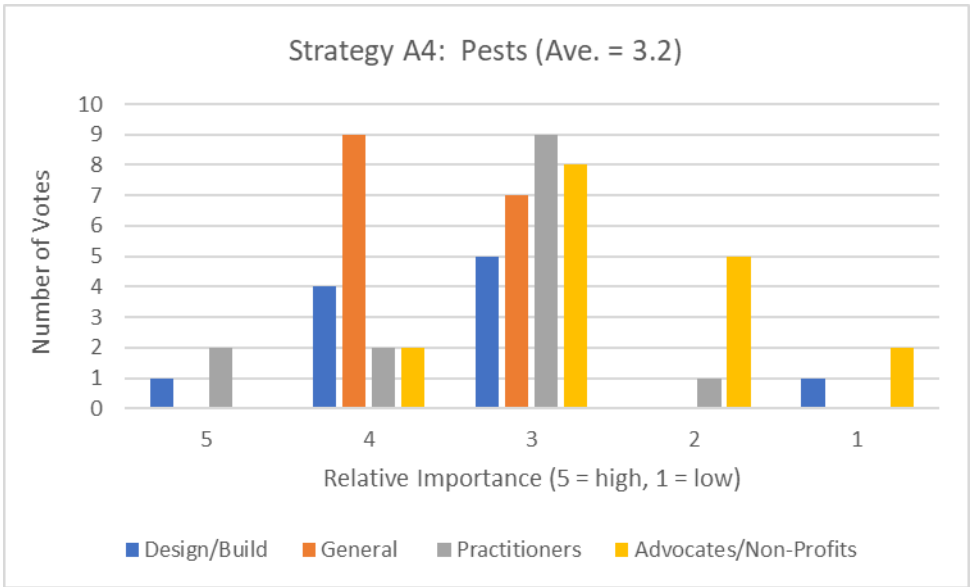

Fig. 14. Pests – plant and manage trees to minimize the risks and impacts of diseases, insect pests, and invasive species. Participants did not identify barrier/solution categories to this strategy, but it is logical to assume that labor, technology, and research would be applicable. Several participants voiced concern over the discovery of emerald ash borers and the likely devastation to ash trees across western Oregon.

Barriers and solutions

As noted in Figures 1-14, participants identified a variety of barriers and solutions for CSF strategies. Barriers and solutions can be sorted into the following categories and examples provided by participants:

- Collaboration:
    - Better define goals and priorities.
    - Acknowledge the importance of working in ways that don't harm those who are least advantaged.
    - Make better use of public/private partnerships.
    - Investigate, agree upon, and implement a high-quality system for assessing and tracking net carbon sequestration through a working lands inventory process.
    - Develop more accurate baselines for carbon inventories.
    - Develop a set of regional best practices for climate-smarter forestry

- Direct financial incentives:
    - Increased funding for conservation easements on forestland.
    - Increased funding for implementing CSF practices.

- Education and communication:
    - Do a better job of building and using common ground between factions.
    - Increase attention to connections between CSF and wildlife habitat.
    - Increase the public's awareness of where their wood comes from and the consequences of growing it.
    - Help people develop a stronger conservation ethic.
    - Educate architects about choices for where wood is produced.
    - Use forests to forge better links between urban and rural communities.
    - Strengthen people's connection to trees and forests.
    - Educate voters and elected officials about CSF.

- Labor and technology:
    - Improve the capacity of nurseries to provide needed planting stock.
    - Draw new workers into forestry work with conditions that encourage and support their involvement and ongoing professional growth.
    - Support the development of innovative forestry equipment.

- Market evolution and development:
    - Increase incentives for localized, transparent markets for quality products from CSF forests (e.g., Build Local Alliance).
    - Strengthen Forest Stewardship Council (FSC) markets and provide a better link between CSF and FSC.
    - Diversify wood markets and milling capacities to incentivize growing old and big trees and the diverse mix of species that come from complex native forests.
    - Shift architectural design specifications to encourage the use of wood from CSF forests.

- Public policies:
    - Modify taxation systems to incentivize CSF.
    - Change building codes and zoning to encourage use of CSF wood products.
    - Establish policy that supports the use of mass timber.
    - Keep and strengthen land use laws to prevent the development of forestland.
    - Increase compensation to legislators to attract candidates who will implement public policy needs for CSF.
    - Consider a carbon tax.
    - Address resource problems caused by remote forestland investors.

- Research:
    - Commit more resources to forest soils research and education.
    - Create forest management models that protect and enhance forest soils.

Qualitative perspectives

Participants shared their perspectives on two couplets of questions in a unique exercise in which each participant expressed their view using a wooden disk. The facilitators laid two ropes on the ground at a 90° angle to form four quadrants. In both couplets, the horizontal axis reflected answers to the question "do you know enough to have an opinion on this topic?" Participants were instructed to place their disk to the right side of the quadrants if they did know enough and to the left if they felt they didn't know enough.

The vertical axis reflected participant feelings about an aspect of CSF. In the first couplet, the vertical access indicated a participant's perception of the relative importance of forest adaptation to climate change (lower quadrants) versus mitigation (upper quadrants). In the second couplet, participants expressed their view on the appropriateness of carbon offset trading as a viable CSF component in western Oregon forests (assuming verifiable additionality and a minimum level of cheating). Participants placing their disk in the upper quadrants felt carbon offset trading should be used, while disks placed in the lower quadrant indicated offset trading should not be used.

Although neither the horizontal nor the vertical lines had scales, participants could express their relative perspective on a question by placing their disk closer to or further from the intersection of the two ropes. For example, participants who felt strongly that they knew enough to answer a question placed their disk far to the right of the intersection, while those with less strong feelings placed their disks closer to the intersection. Photographs of the quadrants after participants placed their disks are provided in Figures 15 and 16.

Fig. 15. Adaptation versus mitigation. Each participant placed one disk on the ground. Disks placed to the right of the vertical line indicate sufficient knowledge to judge the relative importance of adaptation versus mitigation. The vertical axis represents a participant's judgment of the relative importance of adaptation to mitigation. Disks placed above the horizontal line indicate the participant felt mitigation was more important than adaptation. Disks placed below the horizontal line indicate the participant favored adaptation over mitigation.

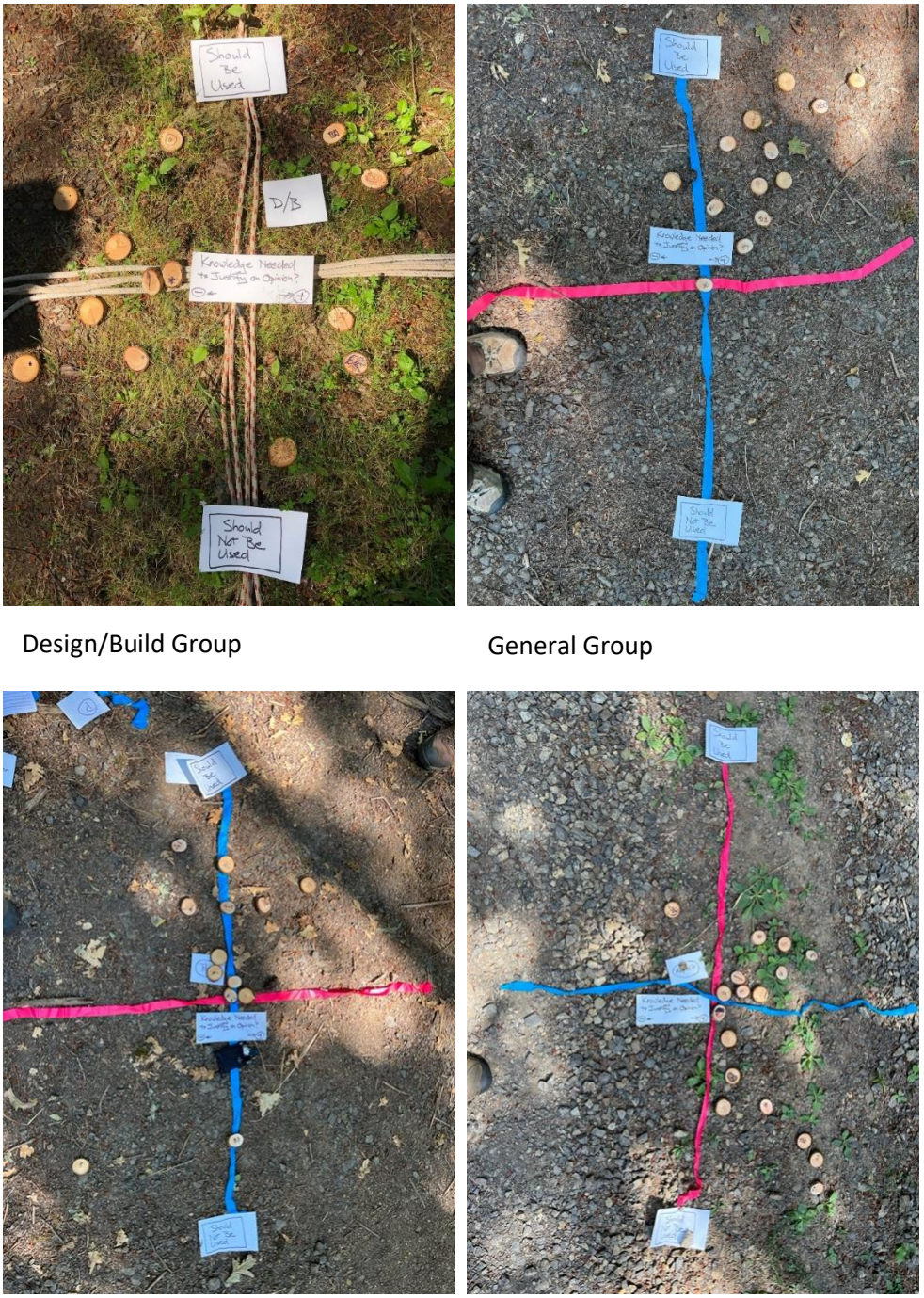

Fig. 16. Use of Carbon Offset Trading. Each participant placed one disk on the ground. Disks placed to the right of the vertical line indicate sufficient knowledge to judge whether carbon offset trading is a viable CSF strategy in western Oregon forests. Participants who believed offset trading should be used placed their disk above the horizontal line, while participants who opposed the use of offset trading in forests placed their disk below the horizontal line. The question of offset trading was perhaps the place of least agreement between groups.

Conclusion and Next Steps

Workshop participants brought a wide diversity of experience and perspectives on the topic of climate-smarter forestry (CSF). The four workshops varied in size from 13 (design/build group) to 18 (non-profit/advocate). Workshops of this size appeared optimal for providing a diversity of opinions while also allowing each participant time to express their views. Not surprisingly, results varied from one group to another, but average ratings for strategies involving increased accountability, reducing the conversion of forestland to other land uses, increasing the complexity of forests, increasing the forests' ability to catch and hold carbon, enhancing forest soil quality, improving forest hydrology, keeping and caring for older forests, establishing forests on land that used to be but no longer is forested, storing carbon in long-lived wood products, and implementing careful thinning of existing forests were viewed overall (average of all groups) as important CSF strategies. Strategies that received lower average scores included implementing assisted migration of tree species or genotypes, reducing the risk of wildfire, improving forest roads, addressing diseases and insect pests. The use of carbon offset markets as a component of CSF had perhaps the widest range of responses.

Because various groups have requested a chance to learn from and discuss these results, the following presentations and discussions have been discussed, planned or committed to: Oregon Board of Forestry, Oregon Global Warming Commission, NW Innovative Forestry Summit, national-scale webinar for the Forest Stewards Guild, briefing for Oregon legislators coordinated by Senator Golden, and a session for regional architects to be coordinated by Lever Architects.

A group comprised of one or two participants from each workshop is currently meeting to discuss next steps, which might include bringing the groups together in a social event, inviting others to participate in additional workshops, or asking forest practitioners to dive more deeply into some of the strategies to determine and increase their feasibility.

The success of this project hinged on the valuable contributions and commitments made by many. Of these, three stand out: 1) the time, thought, care, and energy brought by each participant; 2) the critical role played by our anchor co-hosts (identified with an asterisk in Table 2), particularly in attracting and engaging with such a diverse range of Oregonians; and 3) the impressive engagement by the Oregon Department of Forestry, thanks to State Forester Cal Mukumoto, and by OSU Forestry Extension, thanks to Associate Dean Holly Ober.

The CSF workshops were facilitated by Dean Moberg (Director, Tualatin Soil and Water Conservation District) and Peter Hayes (Hyla Woods). For more information, contact Peter Hayes: peter_hayes@comcast.net

Participants

Table 2. Participants in the 2022 Climate-Smarter Forestry workshops. Asterisks identify co-hosts of the workshops.

Participant	Representing
Jacob Dunn*	Architect, ZGF
Laila Seewang*	Professor, PSU Architecture
Ryan Temple*	President, Sustainable NW Wood
Athena Shepard	Student, PSU Architecture, Siletz tribal member
Sergio Palleroni	Professor, PSU Architecture
Aline Van Driessche	Visiting scholar from Belgium
Christine Ying Lu	Visiting scholar from Taiwan
Scott Mooney	Architect, Bora Architecture & Interiors
Rosemary Hill	Architect, Horst Architects
Ralph DiNola	Architect, New Buildings Institute
Josh Cabot	Architect, Sera Architects
Annabel Shephard	Student, PSU Architecture
Laura Taylor	Forest Specialist, West Multnomah Soil and Water Conservation Dist.
Cal Mukumoto*	State Forester, ODF
Jim Kelly*	Chair, Oregon Board of Forestry
Holly Ober	Associate Dean, Forestry Extension, OSU
Brenda McComb	Board of Forestry, OSU Emerita Professor
Mike Cafferata	District Forester, ODF
Ben Deumling	Board of Forestry, Zena Forest Products
Tom DeLuca	Dean, OSU College of Forestry
Bettina Von Hagen	President, EFM Investments and Advisory
Josh Bernhard	Forest Resources Division Head, ODF
Ryan Gordon	Planning Branch Director, ODF
Cherie Kearney	Columbia Land Trust
Tom Tuchmann	US Forest Capital
Sarah Deumling	Zena Forest
Danny Norlander	ODF
Mike McKibbin	Director of Western Lands, Stimson Lumber Co.
Pam Hayes	Hyla Woods
Aaron Shaw	Tualatin Soil and Water Conservation District
Barry Sims*	Trout Mountain Forestry
Scott Hayes*	Family forestry
Brandy Saffell	Forest Specialist, Tualatin Soil and Water Conservation District
Mike Messier	Trout Mountain Forestry

Table 3, cont'd. Participants in the 2022 Climate-Smarter Forestry workshops. Asterisks identify co-hosts of the workshops.

Participant	**Representing**
Christine Buhl	Entomologist, ODF
Dave Ehlers	Family forestry
Kyle Smith	Forestry Director, The Nature Conservancy, Washington
Glenn Ahrens	Extension Forester
Steve Fitzgerald	Director of OSU Forests
Alex Gorman	Extension Forester
Don Everingham	State Forests, ODF
Edie Knight	Mason, Bruce & Gerard Natural Resource Consultants
Ed Easterling	Family forestry
Mark Harmon	OSU Professor Emeritus
David Bugni	Family forestry
Ken Nygren	White Oak Natural Resource Services and OSWA
Debby Garman	350 Washington Co.
Lynn and Paulette Wittwer	Family forestry
Ralph Bloemers	Green Oregon
Brenna Bell*	350 PDX
Lisa Arkin*	Beyond Toxics
Lauren Anderson*	Oregon Wild
Kaola Swanson	The Conservation Fund
Sean Jacobson	Sunrise Movement PDX
Kahn Pham	State Representative
Ryan Huago	The Nature Conservancy, Oregon
Rose Graves	The Nature Conservancy, Oregon
Ryan Moore	Attorney
Mark Gamba	Mayor, City of Milwaukee
Josie Koehne	Family forestry
Cara Christofferson	Bark
Misha VanEaton	Bark
Christina Stephenson	Candidate, Labor Commissioner

Abbreviations:

- ODF = Oregon Department of Forestry
- OSU = Oregon State University
- PSU = Portland State University

Fig. 17. Design/build group. The workshop for this group was held on July 13, 2022.

Fig. 18. Practitioner group. The workshop for this group was held on August 16, 2022.

Fig. 19. Non-profit/Advocate Group. The workshop for this group was held on August 26, 2022.

No group photo was taken for the General Group, which met on July 19, 2022.