

Design Workshop for Resilience Attributes for Oregon's Lands and Waters

Summary Notes

March 10-12, 2026

Oregon Department of Fish and Wildlife
Salem, OR

BACKGROUND

The Design Workshop for Resilience Attributes was a 3-day consultative process to support Oregon's natural resource agencies in defining key resilience attributes for Oregon's lands and waters. Oregon Watershed Enhancement Board (OWEB) and Oregon Department of Fish & Wildlife (ODFW) were the lead agencies tasked in [Executive Order 25-26](#) (EO 25-26) to develop definitions for resilience attributes for Oregon's Lands and waters. The design workshop was facilitated by Oregon Consensus (OC) with support from OWEB and ODFW teams.

Prior to the workshop, OWEB and ODFW drafted a background memo with support from OC to help level set workshop participants prior to the workshop. Following the workshop, a second draft of resilience attributes will be posted to OWEB's website on or before April 10, 2026, with a two-week feedback process from April 10-24. Following that, feedback will be incorporated, and a final version will be published and shared with the Governor's Office in early May 2026.

[OWEB Executive Order Resource Webpage:](#)

<https://www.oregon.gov/oweb/resources/Pages/EO-25-26.aspx>

[Resilience Design Workshop Background Memo:](#)

<https://www.oregon.gov/oweb/Documents/EO-25-26-ResilienceDesignWorkshop-Background-Memo.pdf>

Workshop Attendance

See Appendix A

MEETING NOTES

[Day 1 - March 10](#)

Welcoming, Introductions & Frame for the Workshop

The workshop opened with opening remarks from key leadership, including Geoff Huntington (Senior Natural Resources Advisor, Governor's Office), Debbie Colbert (Executive Director, Oregon Fish & Wildlife), and Sara O'Brien (Director, Oregon Watershed Enhancement Board). The framing discussion centered on the [Governor's Executive Order \(EO\) No. 25-26](#), and the opportunity for state agencies to align around a shared definition of resilience for Oregon's lands and waters, especially in the face of climate change.

The Governor's Office emphasized that the EO does not rely on new funding but instead provides direction and guidance for existing agency actions. By defining clear attributes of resilient lands and

waters, agencies can better prioritize actions, coordinate across jurisdictions, and more proactively plan for a changing climate.

Themes from the opening discussion:

- *Intentional planning for the future*: The EO creates an opportunity for agencies to consider long-term climate resilience.
- *Intersection of people and nature*: While the Workshop focused primarily on resilient lands and waters, human communities are inseparable from ecological systems.
- *Adaptability and uncertainty*: Climate change is causing conditions to continue to shift. Resilience must therefore include ongoing adaptability.

The speakers discussed what “success” looks like to them. Some expressed concerns about declining snowpack and wildfire risks, suggesting that resilient landscapes should reduce vulnerability to these threats. Others emphasized that success may not mean restoring ecosystems to historical states but enabling them to function and adapt under new climatic conditions.

Key ideas:

- Landscapes that can adapt to future climate conditions.
- Habitats that support refugia, migration, and gene flow for species to adapt
- Management approaches guided by data, scenario planning, and long-term thinking.
- A focus on flexibility rather than fixed ecological baselines.

Facilitators clarified the distinctions between attributes, indicators, and metrics:

- Attributes: Broad qualities describing resilient landscapes and waters.
- Indicators: Observable characteristics demonstrating those attributes.
- Metrics: Specific measurements used to track indicators.

Virtual Open House: Vision & Values

Workshop facilitator Bobby Cochran, Oregon Consensus, invited participants to imagine standing within a resilient landscape, whether in mountains, estuaries, deserts, or forests, and to describe what they see.

Responses emphasized ecological health, cultural connection, and humility. One person described a resilient landscape as one that is “noisy”-- filled with birds, wildlife, and rushing water. Another called out the importance of functioning working landscapes in climate resilience. And others noted that discussions about resilience should incorporate Tribal values around reciprocity and intergenerational stewardship.

Workshop participants were encouraged to:

- Recognize the deep cultural relationships between people and landscapes.
- Bring humility and historical awareness into decision-making.
- Consider both ecological integrity and cultural significance.

Participant Reflections

Participants discussed how to design resilience attributes that could guide state agencies. The group sought to:

1. Define what qualifies as an attribute.

2. Brainstorm attributes that define a “north star” for climate resiliency for Oregon’s natural resource agencies.
3. Begin to establish indicators for evaluating attributes.

Facilitators cautioned not to prematurely draw strict distinctions between attributes, indicators, and metrics. For example, the presence of native vegetation could be an indicator, whereas the percentage of native grasses might be a metric.

Participants discussed the role of animals and ecological processes in defining resilient systems. While the Workshop focused on lands and waters, participants acknowledged that species interactions are inseparable from ecosystem health.

Breakout Sessions: Discuss Attributes (Part 1)

The background memo had presented eight potential attributes taken from the literature, and used those attributes as a starting point for the conversation. On day one, the in-person and virtual participants were divided into small groups to identify priority resilience attributes, and then shared their brainstorming discussions.

Yellow Group

This group conceptualized and organized attributes into broad categories:

- Connectivity
- Diversity
- Functioning ecosystems
- Stewardship
- Adaptive capacity

They discussed how working landscapes fit within these categories and suggested removing the word ‘intact’ to avoid implying an undisturbed state. This group also flagged that the urgency around climate impacts should be more clearly reflected.

Green Group

This group organized attributes into key categories:

- Diversity
- Connectivity
- Ecosystem complexity
- Functional processes

This group emphasized making attributes that are statewide and scalable. They noted that some attributes overlapped and could be combined to reduce redundancy. They also highlighted the importance of incorporating Tribal and Indigenous perspectives.

Blue Group

This group focused on proactive rather than reactive resilience strategies and felt that the latter tends to be typical in resiliency discussions. Participants discussed shifting from traditional restoration approaches toward allowing natural processes to shape landscapes. For example, instead of heavily engineering streams, restoration might involve removing constraints and allowing natural channel evolution. Participants discussed governance (e.g., enforcing existing

laws, who participates in decisions, etc.), but it was viewed as an operational approach rather than an ecological attribute.

Online Group

This group emphasized:

- Diversity
- Connectivity
- Redundancy

They wrote, “Collaborate to ensure that our actions and management strategies support ecosystem diversity, connectivity, and redundancy.” They highlighted the importance of collaboration and acknowledged challenges posed by mixed land ownership for the state in approaching and managing this work.

Whole Group Discussion

Across groups, three themes consistently emerged:

1. Diversity
2. Connectivity
3. Redundancy

Participants agreed that resilient systems must have the capacity to respond to both short-term disturbances (i.e., fires, heat dome events, etc.) and long-term climate trends (i.e., rising temperatures, increasing drought). There was also interest in a clear definition of “redundancy,” which had not explicitly been included in the background materials, but participants felt like it was an important concept to include.

Breakout Sessions: Discuss Attributes (Part 2)

Groups reconvened, each focusing on a specific attribute from the earlier session, and starting to explore potential indicators in more depth.

Yellow Group

Proposed attribute: Capacity to adapt. Definition: Lands and waters can absorb, adapt to, and recover from both short-term shocks and long-term stressors. Participants stressed that disturbance should not be framed as a negative, but rather as an essential part of ecosystem function over time.

Indicators discussed:

- Species composition
- Vegetation structure
- Spatial heterogeneity
- Floodplain connectivity
- Healthy soils

Blue Group

Reframed “adaptive capacity” as the capacity to respond to natural disturbances. They also suggested including an attribute encompassing stewardship, human well-being, and governance.

Green Group

Discussed how agencies would implement attributes in real-world decision-making. Noted that indicators need to be applicable statewide, and metrics can be eco-region specific. They asked, “How are state agencies going to take these and change what they’re doing?” Focused on:

- Diversity (species, genetics, ecological roles).
- Connectivity (movement of species, sediment, and water).

Online Group

Recommended replacing the attribute of complexity with functionality, arguing that ecological complexity alone does not necessarily indicate ecological health.

Questions for Tribes and Agency Drafting Team

Participants concluded Day 1 by identifying questions for Tribal representatives and state agencies presenting on Day 2. Below is a sampling of the questions posed by the group.

Questions generated for Tribal representatives included:

1. How do Tribes define healthy and resilient ecosystems?
2. How should the concept of First Foods influence resilience indicators?
3. What barriers exist within state systems that hinder Tribal stewardship? Barriers in the state government that could be addressed in this process.
4. What is the Tribal vision for co-stewardship for resilient habitats in the future?
5. How best to use the structures (natural resources and cultural resources groups) that currently exist to support this work?

Questions generated for state agencies included:

1. How can agencies implement resilience work without additional funding?
2. How are individual agencies and the state measuring success? What are the barriers impeding them? And how is this Executive Order (EO) addressing those barriers to achieve success?
3. How can resilience principles apply to urban environments?
4. What partnerships are needed for implementation (local governments, nonprofits, private land ownership, etc.)?
5. How do you engage your partners to fill service gaps? Do state agencies have a framework to bring to this work?
6. Thinking strategically, what are the areas that have durability to structure the work that will allow it to persist over the time horizons (staffing, work, etc.)?

Key Takeaways - Day 1

1. The Executive Order provides the guiding framework for this work (“North Star”). The Governor’s Executive Order (EO) 25-26 should guide state agencies toward a shared approach to climate resilience for natural and working lands and waters. The EO does not rely on new funding but instead aligns existing programs and decisions around resilience goals.

2. Resilience must focus on adaptability.

Participants emphasized that ecosystems will continue to change under climate pressures, so resilience should prioritize adaptability, flexibility, and long-term ecosystem functioning rather than returning landscapes to past conditions as a sole priority.

3. Clear distinctions were established between attributes, indicators, and metrics.

The EO Leadership team established a hierarchy for measuring resilience:

- Attributes: Broad qualities of resilient landscapes
- Indicators: Observable characteristics showing those qualities
- Metrics: Measurable data used to track indicators

4. Several core ecological themes emerged across breakout groups.

Most small groups independently identified similar resilience concepts:

- Diversity
- Connectivity
- Ecosystem function
- Adaptive capacity
- Stewardship

The concepts below formed the foundation for later attribute development during the Workshop.

- Natural ecological processes should guide restoration and management. Shifting away from highly engineered restoration approaches toward allowing natural processes (fire, hydrology, sediment movement) to shape landscapes.
- Disturbance is not inherently negative. Healthy ecosystems rely on disturbance cycles (fire, floods, erosion). Resilience frameworks should recognize disturbance as a natural and, at times, beneficial process.
- Resilient attributes must integrate Tribal perspectives and knowledge. Participants identified questions for Tribal partners to ensure the framework reflects Traditional Ecological Knowledge, First Foods systems, and cultural relationships with landscapes.

Day 2 – March 11

Tribal Perspectives and Representatives

Guest presenters included Steve Rondeau, Natural Resources Director, The Klamath Tribes; Anton Chiono, Confederated Tribes of the Umatilla Indian Reservation; Kelly Coates, Director of Natural Resources for the Cow Creek Band of Umpqua Tribe of Indians; and Troy Baker, Water Resources Program Manager, Confederated Tribes of the Umatilla Indian Reservation. The speakers emphasized that Indigenous communities have long practiced land management strategies that support ecological resilience.

Key themes:

- Traditional ecological knowledge has always stewarded for resilience, but change is happening on a faster timescale now. Tribal representatives emphasized the importance of continuing restoration efforts and adapting management practices to changing conditions.
- The importance of clean water and First Foods such as salmon, berries, and roots, and the interconnected ecological systems that support their growth and harvest.
- Working to support functioning ecosystem *processes*, rather than for isolated outcomes (i.e., population of a single species).
- The importance of consistently implementing existing authorities and efforts, ensuring a strong foundation before taking on new responsibilities.

Tribal representatives described ongoing challenges:

- Declining numbers of culturally- and ecologically-significant species, as well as less protected species.
- Increasing wildfire and drought impacts on Tribal lands.
- Limited staffing, capacity, and funding for Tribal resource management and projects. Grant cycles are often shorter than the long-term stewardship that Tribes want to do, and seasonal layoffs are especially disruptive in rural or under-resourced areas where there may not be other opportunities.

Presentation of Draft Attributes

Agency staff and facilitators presented the potential resilience attributes developed during Day 1, including: diversity, connectivity, ecosystem function, adaptive capacity, and stewardship.

Participants noted that ecological processes (in addition to function) might deserve a central role within the framework. Tribal representatives emphasized that resilience depends on healthy ecosystem processes such as hydrology, fire cycles, and nutrient flows.

Several additional themes emerged:

- Access to ancestral lands and waters, and people stewarding those lands and waters, should be considered within resilience frameworks.
- Resilient systems must support cultural relationships with the land.
- Ecological processes and human stewardship should not be treated as separate concepts.

Participants debated whether ecological processes should be placed at the center of the framework or integrated across all attributes.

Tribal Feedback, Recommendations, and Discussion

Tribal representatives identified several barriers to managing landscapes for resilience:

- Limited funding and staffing capacity.
- Regulatory constraints and challenges with the consistent implementation of existing laws and authorities.
- Insufficient monitoring data or measuring activities in the short term that are not reflective of long-term impact (i.e. # of ceremonies held might not capture how profound an impact that has).
- Challenges in navigating processes and engaging across all natural resource agencies.

They stressed the importance of long-term and temporal thinking. Ecological restoration often takes decades or generations, meaning that success cannot always be measured or seen immediately in ways typically employed by non-Tribal agencies.

Several participants suggested that monitoring ecological processes, not just species outcomes, could provide earlier indicators of intervention or restoration success. They also stressed the importance of qualitative data collection in telling comprehensive stories, which can help explain the importance of land, water, and natural environments for Tribal and non-Tribal communities.

Representatives repeatedly emphasized the concept of reciprocity between humans and ecosystems. Tribal perspectives frame humans as part of ecological systems rather than separate or apart from them. The presence of people on the land, in a reciprocal and mutual relationship, is vital for stewardship and managing the landscape.

Working Lunch and Attribute Refinement

Participants continued refining resilience attributes based on the feedback from Tribal representatives.

Five major attributes emerged:

1. Ecological Processes
2. Diverse and Complex Habitats
3. Connectivity
4. Capacity to Sustain Communities and Lifeways
5. People, Nature, and Environment in Place-Based Relationships

Participants discussed how to develop indicators and metrics under each attribute. For example:

- Ecological processes might include indicators such as fire regimes, hydrological cycles, and disturbance recovery.
- Diversity could include species diversity, genetic diversity, and habitat complexity.
- Connectivity could include migration corridors and sediment movement.

These attributes are interconnected, suggesting that visual frameworks like Venn diagrams might better represent their relationships.

Key Takeaways - Day 2

1. Human communities and ecosystems are inseparable.

Tribal representatives described long-standing stewardship practices that maintain holistic ecosystem health, such as cultural burning and management of First Foods species, lands, and waters. A central theme was reciprocity between people and nature: Healthy landscapes depend on people actively stewarding them, rather than separating human and ecological systems.

3. Ecological processes should be central to the resilience framework.

Participants widely agreed that healthy ecological processes (water cycles, fire regimes, nutrient flows, etc.) are foundational to landscape resilience and may need to sit at the center of the attribute framework.

4. Restoration and resilience require long time horizons.

Ecological restoration often takes decades or generations. Success should not be judged only by measuring short-term indicators (i.e., crop production, species populations) but by whether processes are being restored and systems are moving toward long-term resilience (measured through soil health, groundwater recharge, species diversity, etc.).

5. Monitoring and data gaps are major barriers.

There are limitations in monitoring systems, such as a lack of water-use metering or particular ecological monitoring, which could make it difficult to measure resilience progress in the metrics reporting process.

6. Structural barriers limit resilience work. Key barriers discussed included:

- Funding limitations
- Staff capacity shortages
- Regulatory complexity
- Incomplete implementation of existing laws

Day 3 – March 12

Recap and Attribute Review

Day 3 began with a review of the proposed resilience attributes and their potential indicators. Within the draft attributes, agency representatives suggested adjustments to language and scope, such as:

- Including urban environments within connectivity frameworks, i.e., stepping stones, greenways, etc.
- Recognizing the role of time in ecological and landscape recovery. As an example, early succession after a wildfire is an important part of biodiversity, adding not only species richness but also different age classes.
- Ensuring aquatic systems are represented alongside terrestrial landscapes.
- “Place-based relationships” language was an attempt to recognize the reciprocal aspect of this work, but also recognizing that a foundation of good governance needs to be present.
- Calling attention to the fact that resilient landscapes tend to sequester more carbon, making them important not only for adaptation but also for future mitigation.
- Noting that while we don’t know how climate change impacts will unfold, we also don’t know what innovations or potential solutions will be developed in the future.

Participants asked how the resilience framework interacts with other statewide initiatives, and in particular, the “Plan for a Resilient Oregon.”¹

Scientific Information and Policy Implications

Participants reflected on how findings from the Workshop might inform policy decisions. Participants discussed potential conflicts between resilience goals, for example, wildfire mitigation efforts that might reduce habitat complexity. Several thoughts were raised:

- Too many indicators could make implementation difficult or unworkable.
- Cultural indicators related to stewardship and traditional practices might need greater emphasis.
- Metrics should track change over time, not static conditions.

Implementation Discussions

Participants considered how agencies might implement the resilience framework. They identified the following implementation needs:

- Better coordination across agencies.
- Improved data sharing systems.
- Streamlined permitting for restoration projects.
- Stronger partnerships with local governments and communities.
- Clear communication and storytelling to explain resilience initiatives to the public.

Virtual Open House: Reflections

Public participants shared reflections on the Workshop process. Ideas and thoughts noted:

- The importance of accountability and transparency in this process.
- The need for strong interagency coordination across efforts.

¹ Plan for a Resilient Oregon, <https://www.oregon.gov/gov/policies/pages/pro.aspx>

- Ensuring agricultural and rural communities are included in resilience planning and implementation.
- Recognizing the role of soil health and carbon sequestration in resilient landscapes.

Participants also emphasized the importance of maintaining the aspirational vision of resilience while moving toward measurable implementation steps.

Closing Reflections

Participants concluded that the process had generated strong consensus around key resilience principles. However, many felt that significant work remains to translate these principles into operational metrics and policies moving forward.

Next steps include:

- Finalizing the resilience attributes and indicators
- Facilitating a wider feedback process on the draft developed during the workshop
- Aligning agency programs with the Executive Order (EO) 25-26

Participants emphasized that resilience planning must remain iterative and adaptive. While the Workshop produced a valuable foundation, the work of implementing and refining resilience strategies will continue into the foreseeable future.

The Workshop concluded with optimism from the participants that stronger collaboration across agencies, Tribes, and communities could help Oregon build resilient landscapes capable of adapting to climate change.

Key Takeaways - Day 3

1. The Workshop reached a general consensus on the resilience framework and suggested attributes, along with draft indicators, many of which are outlined in the draft Resilience Attributes for Oregon's Lands and Waters draft report. Participants largely agreed on the major resilience attributes but acknowledged that significant work remains to operationalize them through indicators and metrics.

2. Attributes are interdependent rather than independent.
Participants emphasized that resilience attributes overlap and influence each other.

3. Implementation will require strong interagency coordination.
The successful application of the resilience attributes framework will depend on:

- Data sharing between agencies
- Coordinated funding and grant programs
- Cross-agency communication and collaboration

4. Metrics must be flexible and adaptable to changing conditions.
Metrics should track changes over time rather than fixed ecological targets, allowing agencies to respond to climate shifts and evolving landscapes.

5. Cultural and social indicators should be included. Indicators should incorporate qualitative indicators reflecting human relationships with landscapes, such as:

- Cultural practices
- Community stewardship
- Access to traditional resources

6. Balancing competing resilience goals will be necessary.

Some resilience actions may conflict with others. For example, wildfire mitigation versus habitat complexity. Decision-making and resiliency frameworks must account for these trade-offs.

7. The Executive Order (EO) 25-26 creates an opportunity for agencies to align programs.

Because new funding requests must be tied to the Executive Order, this resilience framework may help agencies justify programs and prioritize projects that advance resilience goals.

Appendix A Workshop Attendees (First name alphabetical, Organization)

Alexa Schmidt, *Oregon Watershed Enhancement Board*
Alexis Cooley, *Oregon Department of Environmental Quality*
Ali Ryan Hansen, * *Oregon Department of State Lands*
Andrea Hanson, *Oregon Parks and Recreation Department*
Andy Maggi, *Pew Charitable Trust*
Annette Liebe, *Oregon Water Resources Department*
Anton Chiono, * *The Confederated Tribes of the Umatilla Indian Reservation*
Becky Flitcroft, *USDA Forest Service, PNW Research Station*
Beth Haley, *Oregon Health Authority*
Bill Ryan, *Oregon Department of State Lands*
Bobby Hayden, * *Pew Charitable Trust*
Brett Dickson, *Conservation Science Partners*
Catherine Macdonald, *Oregon Climate Action Commission*
Chandra Ferrari, * *Governor's Natural Resource Office*
Christine Appleby, *Oregon Department of Geology & Mineral Industries*
Christine Shirley, *Oregon Department of Land Conservation & Development*
Claire Fiegenger, * *Oregon Department of Land Conservation & Development*
Crystal Grinnell, *Oregon Water Resources Department*
Dallas Hall Defrees, *Sustainable NW*
Darlene Weaver, * *Oregon Department of Transportation*
Debbie Colbert, *Oregon Department of Fish & Wildlife*
Eleanor Gaines, *Institute for Natural Resources, PSU*
Garshaw Amidi-Abraham, * *Environmental Defense Fund*
Geoff Huntington, *Governor's Natural Resource Office*
Gway Rogers-Kirchner, * *Oregon Department of Fish & Wildlife*
Heather Tallis, *University of California, Santa Cruz*
Herb Winters, *Gilliam County Soil and Water Conservation District*
Jamshed Suntoke, * *Oregon Department of Energy*
Jane Rombouts, *Oregon Department of State Lands*
Jason D. McClaughy, * *Oregon Department of Geology & Mineral Industries*
Jason Sauer, *Oregon Department of Energy*
Jeff Snyder
Jennifer Wigal, * *Oregon Department of Environmental Quality*
Jessi Kershner, *Oregon Sea Grant & OSU Extension*
Jessica Homyack, *Weyerhaeuser*
John Tokarczyk, *Oregon Department of Forestry*
John Fischer, * *Pew Charitable Trust*
John Raasch, * *Oregon Department of Transportation*
Jonathan Sandau, *Oregon Department of Agriculture*
Josh Seeds, *Oregon Department of Environmental Quality*
Kara Analuf-Dunn, * *Oregon Department of Fish & Wildlife*
Kelly Coates, * *The Cow Creek Band of Umpqua Tribe of Indians*
Kelsey Harpham, *WSP*
Kim Tham, *Oregon Health Authority*
Kirstin Greene, *Oregon Department of Land Conservation and Development*
Lisa Naas Cook, *Columbia River Gorge Commission*
Lise Comte, * *Conservation Science Partners*
Marc Hudson, * *Pacific Forest Trust*
Mark Webb, *Blue Mountains Forest Partners*
Meg Reed, * *Oregon Conservation Development, DLCD*
Mike Hudson, *U.S. Fish and Wildlife Service*
Nell Scott, *Trout Unlimited*
Nicole DeCrappeo, *Marys River Watershed Council*
Nicole Czarnomski, * *Oregon Department of Fish & Wildlife*
Nils Christoffersen, *Wallowa Resources*
Pete Caligiuri, *The Nature Conservancy*
Peter Harkema, *Farmers Conservation Alliance*
Rachael Wheat, *Oregon Department of Fish & Wildlife*
Randy Wiest, * *Oregon Department of State Lands*
Ryan Haugo, *The Nature Conservancy*
Sara O'Brien, *Oregon Watershed Enhancement Board*
Sarah Dyr Dahl, *American Rivers*
Sarah Reif, *Oregon Department of Fish & Wildlife*
Sarah Reich, *ECOnorthwest*
Scott Groth, * *Oregon Department of Fish & Wildlife*
Spencer Sawaske, *Oregon Department of Fish & Wildlife*
Stephanie Page, *Oregon Watershed Enhancement Board*
Steve Rondeau, *The Klamath Tribes*
Susan Chambers, * *West Coast Seafood Producers*
Tim Holschbach, *Oregon Department of Forestry*
Troy Abercrombie, *Oregon Department of Agriculture*
Troy Baker, * *The Confederated Tribes of the Umatilla Indian Reservation*
Whitney Dorer, * *Oregon Department of Environmental Quality*

Public attendees:
James Fraser*, *Trout Unlimited*
Kimberly Priestley*, *WaterWatch*
Nell Scott*, *Trout Unlimited*
Sophie Els*, *Oregon Climate and Agricultural Network*
Stacey Detwiler*, *Wild Salmon Center*

*Virtual attendance