



Oregon Board of Forestry
Wednesday and Thursday, September 3-4, 2025
Public Meeting Agenda

Revised
August 21, 2025

Public Meeting Information

The meeting will be open to the public, allowing for both in-person and virtual attendance. An opportunity for the public to provide live testimony will be available. Instructions to sign up for a live testimony slot can be found on our website by following the link below.

<https://www.oregon.gov/odf/boar/Pages/bofmeeting.aspx>.

Written testimony may be submitted by emailing the following address:

boardofforestry@odf.oregon.gov and will be accepted prior to the meeting date and up to two weeks after the meeting has ended. Submissions should include meeting date and agenda item number and topic header with the written submission.

In-Person Location

Oregon State University College of Forestry
3100 SW Jefferson Way, Corvallis, OR 97331
Peavy Hall PFSC 315 (Wednesday, September 3, 2025)
Peavy Hall PFSC 302 (Thursday, September 4, 2025)

Virtual Meeting Link

<https://www.youtube.com/c/OregonDepartmentofForestry>

*** General meeting information can be found on pages 7 & 8 of this agenda ***

Wednesday, September 3, 2025

Consent Agenda

A. Financial Dashboard for June, July, August

James Short (Chief Financial Officer)

An executive financial report and summary will be captured monthly to ensure the Board of Forestry has up-to-date information for oversight of the Department's financial condition. This report will include the financial and budgetary status of the Department as well as other ancillary topics as appropriate.

This is an information item



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B. Annual Performance Progress Report 2025

Sabrina Perez (Strategic Advisor for Agency Administration)

This item provides the Board with the Department's Annual Performance Progress Report for 2025 based on the agency's legislatively approved biennial key performance measures. The report will be submitted to LFO and CFO before the October 2025 deadline.

This is an information item

C. Emergency Fire Cost Committee Appointments

James Short (Chief Financial Officer)

Nancy Hirsch (Emergency Fire Cost Committee Administrator)

The purpose of this agenda item is to recommend to the Board appointments to the Emergency Fire Cost Committee (EFCC).

This is a decision item

D. Regional Forest Practices Committee Appointments

Kyle Abraham (Deputy Division Chief, Forest Resources Division)

This agenda item recommends appointments of new candidates and the reappointment of existing committee members to the Regional Forest Practice Committee.

This is a decision item

E. Rangeland Protection Association Formation: Expansion of Petersburg RFPA Boundary

Stacy Savona (Wildfire Prevention and Policy Manager)

The purpose of this agenda item is to obtain Board approval to proceed with bringing 103,262 acres of Wasco County into the Petersburg Rangeland Protection Association.

This is a decision item

F. Legislative Session Outcome: Protection Division Rulemaking

Levi Hopkins (Wildfire Prevention and Policy Manager)

Placeholder for discussion of any rule changes that the Board needs to be aware of in light of legislative session.

This is an information item



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G. Vision for Oregon's Forests: Rollout Update

Joy Krawczyk (Public Affairs Director)

The purpose of this agenda item is to provide the Board with an overview of the internal rollout plan for the Vision for Oregon's Forests, including where we're currently at with implementing the plan.

This is an information item

H. State Forests Harvest Accomplishments

Colleen Kiser, State Forest Planning and Operations Manager

Kevin Boyd, State Forests asset Management Unit Manager

Michael Wilson, State Forests Division Chief

The purpose of this agenda item is to provide the Board with an overview of State Forests Harvest Accomplishments.

This is an information Item

Action and Information

8:30 AM 1. Opening Comments

Chair Kelly, Interim State Forester Skinner and members of the Board

This item serves as an opportunity for the Board Chair to offer housekeeping tips and best practices, as well as opening comments from the Board Chair, agency director and members of the Board.

This is an information item

9:00 AM 2. Post Disturbance Harvest Rules*

Josh Barnard, Forest Resources Division Chief

Nicole Stapp, Forest Resources Policy Advisor

In June 2025, the Board directed the Department to reopen the public comment period for the Post-Disturbance Harvest rules on July 1 for a period of 30 days, and to return to the Board with the results of the additional public comment period and a decision regarding the rulemaking at the September meeting. The results of the additional public comment period will be reflected in board materials and this agenda item will be for Board discussion and a decision on the rulemaking.

This is a decision item, however no public comment opportunity will be available, as the public comment period closed on July 31, 2025.



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9:30 AM 3. Public Forum

Members of the Public

Sign-up instructions for providing public comments are posted on the Board's meeting webpage. Comments are limited to three minutes or less and are reserved for remarks on information items and topics off the agenda.

This is an information item

10:00 AM 4. Fire Season Update

Michael Curran, Protection Division Chief

Ron Graham, Deputy Chief, Fire Protection Division

The Department will provide the Board with an overview of the current fire situation statewide.

This is an information item

10:30 AM BREAK

10:45 AM 5. Adaptive Management Program (AMP) Budget for Approval

Josh Barnard, Forest Resources Division Chief

Terry Frueh, Monitoring Specialist, Forest Resources

Stacey Detwiler, AMPC Co-Chair

Seth Barnes, AMPC Co-Chair

The Department presents proposed budgets for the Adaptive Management Program and research projects per the Adaptive Management Program Committee's (AMPC) research agenda for the Board's consideration.

This is a decision item

11:15 AM 6. Committee for Family Forestlands (CFF) Annual report

Wendy Gerlach, CFF Chair

Mike Kroon, CFF Secretary

The Committee for Family Forestlands will be presenting their annual report on items they worked on over the past year. This is an opportunity for the Board to interact with the committee with discussion and questions.

This is a decision item

12:00 PM LUNCH



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1:00 PM 7. Modifying an Administrative Deadline in Rule

Josh Barnard, Forest Resources Division Chief

Nicole Stapp, Forest Resources Policy Advisor

Sarah Reif, Habitat Division Administrator, Oregon Department of Fish and Wildlife

This agenda item requests the Board consider a minor rule modification related to an administrative deadline, determine the type of forest practice rule being considered and direct the Department to take the next steps in rulemaking.

This is a decision item

1:30 PM 8. Legislative Session and Budget Overview

Derrick Wheeler, Legislative Coordinator

James Short, Chief Financial Officer

This item serves as an opportunity for the Department to provide an update on the 2025 legislative session and an overview of the budget.

This is an information item

2:00 PM 9. Board Retreat Planning

Board Chair

Members of the Board

Interim State Forester Kate Skinner

Interim Deputy Forester Tim Holschbach

The Department will provide key updates for the Board's awareness leading up to the Board's annual planning retreat. This item will also serve as an opportunity for the Board to discuss priorities for discussion at the retreat.

This is an information item

2:30 PM BREAK

2:45 PM 10. Department Implementation of the Forestry Natural Climate Solutions Fund

John Tokarczyk, Resource Planning Manager

Danny Norlander, forest Climate, Carbon and Health Analyst

The Department will provide the board with an update on ODF Natural Climate Solutions Fund and what the anticipation is for these funds down the road.

This is an information item

3:15 PM 11. Oregon State University College of Forestry

Tom DeLuca, Dean OSU College of Forestry



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4:00 PM 12. Closing Comments

Board Chair

Members of the Board

This item serves as an opportunity for the Board Chair to mop-up outstanding business and allow for closing comments from any of the Board members.

4:30 PM ADJOURN Day 1

Thursday, September 4, 2025

NOTE: The activities planned for the Board of Forestry field tour are offsite and hosted in terrain with minimal access to cellular connection. The second day of the Board meeting will not be livestreamed. Public in-person participation is welcomed.

Action and Information

8:00 AM 13. Field Tour “*Tethered logging in practice and discussion on next steps*”

Sign-Up and Gathering: We will meet at Peavy Hall on campus at Oregon State University. All participants must fill out the registration form found here [September BOF Field Tour](#).

8:30 AM 14. Field Tour “*Tethered logging in practice and discussion on next steps*”

Departure: We will load the vans and begin the field tour. Those attending the tour will need to wear sturdy closed-toed shoes with ankle support, long pants, hard hats, and hi-vis vests.

LUNCH (during tour)

Lunch will be provided for BOF Board members and Staff. Guests, please bring your lunch and join us.

2:30 PM 15. End of Field Tour and Closing Comments

Jim Kelly, Board of Forestry Chair

Kate Skinner, Interim State Forester

Josh Barnard, Forest Resource Division Chief

The Board Chair will mop up any outstanding work and offer closing comments.

[This is an information item](#)

3:00 PM ADJOURN Day 2

Oregon Department of Forestry
2600 State St., Salem, OR 97310
<https://www.oregon.gov/odf>



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NOTE: Times listed on the agenda are approximate. At the discretion of the chair, the time and order of agenda items—including the addition of breaks—may change to maintain meeting flow. The board will hear public testimony [*excluding marked items] and engage in discussion before proceeding to the next item. * A single asterisk preceding the item number marks a work session, and public testimony/comment will not be accepted.

PUBLIC TESTIMONY: The Board of Forestry places great value on information received from the public. The Board will only hold public testimony at the meeting for decision items. The Board generally accepts written comments on all agenda items except consent agenda items, other items specifically identified in the agenda and Work Session items [see explanation below]. Those wishing to testify or present information to the Board are encouraged to:

- Provide written summaries of lengthy, detailed information.
- Remember that the value of your comments is in the substance, not length.
- For coordinated comments to the Board, endorse rather than repeat the testimony of others.
- To ensure the Board will have an opportunity to review and consider your testimony before the meeting, please send comments no later than 72 hours before the meeting date. If submitted after this window of time the testimony will be entered into the public record but may not be viewed by the Board until after the meeting.
- To provide oral comments at an in-person meeting, register in advance using the information in the meeting agenda and sign in at the information table in the meeting room when you arrive. For virtual meetings, follow the signup instructions provided in the meeting agenda.
- Commenters have two to three minutes to make their comments. Comment on decision items is limited to 30 minutes per decision item.

Written comments for public testimony provide a valuable reference and may be submitted before, during, or up to two weeks after the meeting for consideration by the Board. Send to boardofforestry@odf.oregon.gov. All comments to the Board will become part of the official record of the meeting and made available to the public on the Board's webpage.

WORK SESSIONS: Certain agenda topics may be marked with an asterisk indicating a "Work Session" item. Work Sessions provide the Board with an opportunity to receive information and/or make decisions after considering previous public comments and staff recommendations. No new public comment will be taken. However, the Board may choose to ask questions of the audience to clarify issues raised.



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GENERAL INFORMATION: For regularly scheduled meetings, the Board's agenda is posted on the web at <https://www.oregon.gov/odf/board/Pages/bofmeetings.aspx> two weeks before the meeting date. During that time, circumstances may dictate a revision to the agenda, either in the sequence of items to be addressed or in the time of day the item is to be presented. The Board will make every attempt to follow its published schedule and requests your indulgence when that is not possible.

If you are experiencing technical issues or require accommodations, email boardofforestry@odf.oregon.gov or contact the Board Support Office at (503) 302-6344. To provide the broadest range of services, lead-time is needed to make the necessary arrangements for offsite locations. If special materials, services, or assistance is required, such as a sign language interpreter, assistive listening device, or large print material, please contact our Public Affairs Office at least seven working days before the meeting via telephone at 503-945-7200 or fax at 503-945-7212.

Agenda Item No:	A
Work Plan:	Administrative
Topic:	Financial Dashboard
Presentation Title:	Department Financial Report for June, July, and August 2025
Date of Presentation:	September 3, 2025
Contact Information:	James D. Short, Department Chief Financial Officer (503) 302-8478, james.short@odf.oregon.gov

SUMMARY AND CONTEXT

An executive financial report and summary will be submitted monthly to ensure the Board of Forestry (Board) receives current information to support its oversight of the Department's financial condition. The report will include the Department's financial and budgetary status, along with relevant ancillary topics as appropriate.

BACKGROUND AND ANALYSIS

This consent item formalizes the transparent publishing of the Department's monthly financial reports to the Board of Forestry. While executive-level in scope, the financial report provides information on topics that are either directly related to, or have a measurable impact on, the agency's financial status and other administrative functions during a given month.

The agency has already made several updates to the financial report to improve clarity, usability, and transparency. These enhancements include refined formatting, clearer narrative explanations, and more structured presentation of key financial indicators. As the agency continues to strengthen its internal processes and leverage available data, the financial report will be further refined to provide greater insight into both financial performance and operational trends.

NEXT STEPS

The Board will receive the Department's Financial Report during the third week of each month, regardless of whether a Board meeting is scheduled. This timing allows the Department to report on the prior month's activity while ensuring the fiscal month-end close process has been completed.

ATTACHMENTS

- 1) Department of Forestry Financial Report for June 2025
- 2) Department of Forestry Financial Report for July 2025
- 3) Department of Forestry Financial Report for August 2025



Oregon

Tina Kotek, Governor

Department of Forestry
State Forester's Office
2600 State St
Salem, OR 97310-0340
503-945-7200
www.oregon.gov/ODF

July 1, 2025

Sen. Kate Lieber, Co-Chair
Rep. Tawna Sanchez, Co-Chair
Joint Committee on Ways and Means
900 Court St. NE, H-178
Salem, OR 97301

Re: Oregon Department of Forestry - Monthly financial condition report

Dear Co-Chairs,

The Oregon Department of Forestry (ODF) remains focused on its mission to protect Oregon's forests and communities while maintaining sound financial stewardship. As we enter fire season 2025, ODF is actively managing fire-related costs, federal reimbursements, and cooperative funding agreements. All ODF's operating districts are officially in fire season and there are already several fires on the landscape being actively managed. Currently, the department's financial position remains stable, with ongoing efforts to ensure transparency, accountability, and preparedness in the face of evolving funding conditions.

Cash and General Fund Balances

As of June 24, 2025, ODF's principal cash account balance was \$24.8 million, and the 2023–25 Protection Division General Fund appropriation balance stood at \$209 thousand. The estimated July payroll includes \$9.3 million from the Forestry Main Cash Account, \$2.2 million from the Protection General Fund, and \$700 thousand from the Forest Resources General Fund. County distributions for the fourth quarter total \$19.4 million to date.

Figure 1 - Cash Fund Balances as of June 24, 2025.

Fund	Fund Title	Balance
02000	FORESTRY CASH ACCOUNT	\$51,834,578.28
11000	FOREST LAND PROTECTION FUND - EFCC	\$9,749,576.64
56000	URBAN FORESTRY	\$30,281.67
58000	FOREST RESOURCE TRUST	\$1,140,290.40
70000	FACILITIES MANAGEMENT	\$12,174,480.61

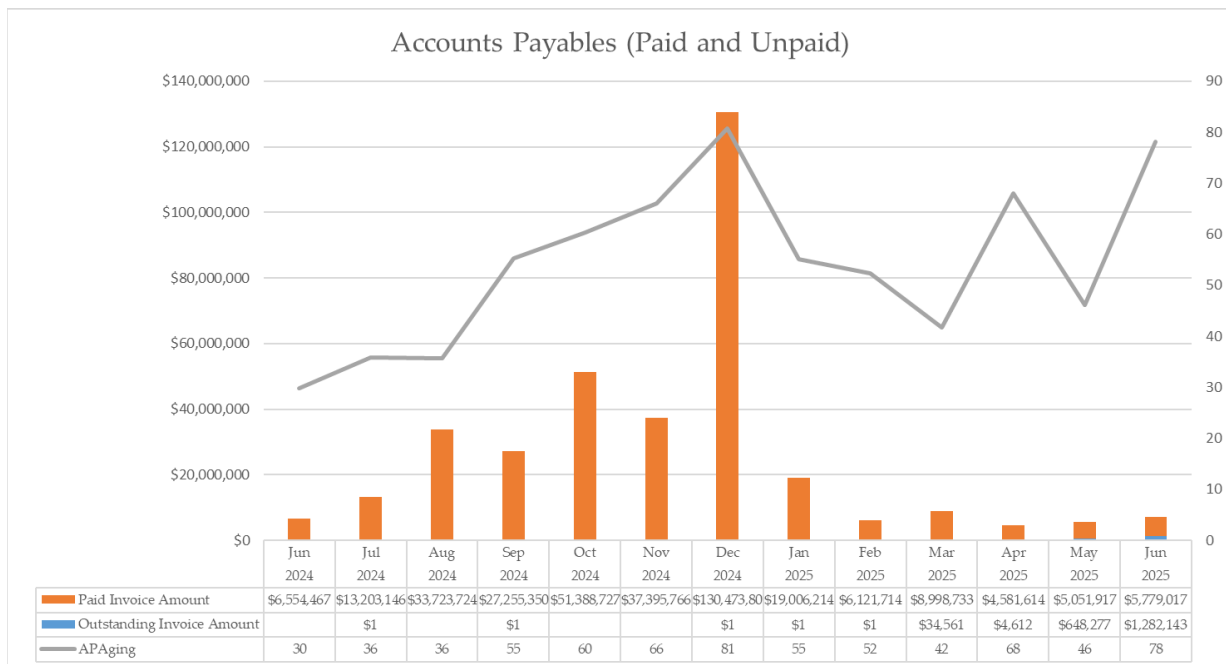
General Fund appropriations as of June 24, 2025

Appn	Appn Title	Balance
89905	PRIVATE FORESTS	\$8,143,364.21
89902	EQUIPMENT POOL GF	\$56,089.92
89920	PROTECTION FROM FIRE	\$208,945.27
89906	PLANNING BRANCH GF	\$124,965.23

Accounts Payable

Department-wide expenditure has slightly decreased since the last reporting period (Figure 2), which is consistent with normal operational patterns. The average aging increased due to a multitude of invoices submitted by vendors that were not billed in a timely manner.

Figure 2 - Accounts Payable as of June 23, 2025



Accounts Receivable

The agency invoiced \$89.2 million and has collected \$42.8 million for the fourth quarter of FY25. The number of outstanding invoices has decreased from the previous period, totaling 517, with 13% over 120 days past due, a decrease of 16% from the previous period.

Figure 3 – Accounts Receivable Aging as of June 16, 2025



Fire Protection Financial Status

Outstanding Fire Protection Assets and Liabilities Information

In addition to monitoring current agency-wide accounts payable and accounts receivable, the department also tracks estimated outstanding assets and liabilities related to the Fire Protection Division. Due to the nature of large fires and cooperative agreements—such as ODF providing resources for fires outside its protection jurisdiction—reimbursement for upfront costs incurred by ODF can take several years. Conversely, delays may also occur in receiving federal bills for resources initially paid for by federal partners, as well as in finalizing cost-share settlements that may result in ODF being billed. The table below summarizes the estimated outstanding assets and liabilities (accounts receivable and payable not yet invoiced to or from ODF).

Figure 4– Estimated Outstanding Assets and Liabilities as of June 17, 2025

Summary of Estimated Outstanding Assets and Liabilities (Costs that have not been fully reconciled or billed)		
Category	Assets (AR)	Liabilities (AP)
Coop Billable	\$17,267,489	\$13,446
Large Fire - Non-Cost Share	\$1,317,129	\$1,808,914
Large Fire - Cost Share	\$67,467,679	\$24,244,116
TOTAL	\$86,052,297	\$26,066,476

Notable updates since the last report include \$47 million in coop, non-cost share, and cost share accounts receivable invoiced. By the end of June, \$17 million will be invoiced to the USFS tied to the Battle Mountain cost share reconciliation.

FEMA Information

FEMA Public Assistance (PA) grants are awarded to the Oregon Department of Emergency Management (ODEM), which then distributes the funds to ODF. In contrast, FEMA Fire Management Assistance Grants (FMAG) are awarded directly to ODF, providing more immediate access to funds once they are obligated. The FEMA reimbursement process can take several years to fully complete. ODF strives to submit all suppression claims to FEMA and/or ODEM within one year of an eligible incident’s conclusion. Once submitted, claims undergo detailed audits by FEMA and/or ODEM before final payments are issued. Administrative claims take longer to process, as all suppression-related costs must be paid in full before ODF can submit expenses tied to administrative and financial work required by FEMA.

The table below outlines the status of claims by fire year and provides an update on payment progress for each.

Figure 5– FEMA/Public Assistance Outstanding Balances as of June 17, 2025

Summary of Outstanding FEMA FMAG/PA						
Fire Year	Claim Type	Estimate to Invoice to FEMA	Pending Review by FEMA	Amount Obligated by FEMA	Payment Amount Requested	Grand Total Due to ODF
2019	Admin - FMAG	\$0	\$215,943	\$0	\$0	\$215,943
2020	Admin - FMAG	\$85,250	\$0	\$0	\$0	\$85,250
2020	Admin - PA	\$17,017	\$0	\$0	\$0	\$17,017
2020	Fire - PA	\$0	\$297,219	\$0	\$1,151,850	\$1,449,069
2021	Admin - FMAG	\$43,950	\$0	\$0	\$0	\$43,950
2022	Admin - FMAG	\$12,000	\$0	\$0	\$0	\$12,000
2023	Admin - FMAG	\$32,500	\$0	\$0	\$0	\$32,500

2023	Fire - FMAG	\$1,000,000	\$0	\$0	\$0	\$1,000,000
2024	Fire - FMAG	\$25,553,265	\$0	\$0	\$0	\$25,553,265
2024	Fire - PA	\$34,645,827	\$7,500,961	\$0	\$0	\$42,146,788
TOTAL		\$61,389,809	\$8,014,123	\$0	\$1,151,850	\$70,555,782

Since the last report, audit work on the 2024 fire season claim documents is ongoing. \$3 million has been paid by FEMA tied to the 2023 claim. \$7.5 million has been invoiced to FEMA/ODEM tied to the 2024 claim.

Fire Season Cost Estimate Information

Fire season runs from January 1 through December 31, encompassing two partial fiscal years. Incident cost estimates are produced for every incident, no matter the size, with the data coming from the ODF district where the incident occurs. Costs are generated daily for larger incidents and smaller incidents record costs within thirty days of an incident's end. Gross incident costs are adjusted to reflect a final projected net after Federal cost share recoveries and FEMA claim reimbursements. District per day and acre EFC claim deductible costs are also reduced from cost estimates as these amounts are a district's base budget cost once claims are finalized for the fiscal year. The result is a final net incident cost that is split between EFC and General Fund based on the first \$20 million of fire costs being split 50%/50% between EFC and General Fund, with the remainder of costs above that threshold being 100% General Fund obligation.

Figure 6— Fire Season Cost Estimate as of June 16, 2025

Summary of Fire Season 2025 Estimated Costs					
Gross Costs	Other Agency Cost Recoveries	FEMA Cost Recoveries	EFC Deductibles (base budget)	Net Costs	General Fund Obligation
\$4,105,418	\$1,915,804	\$1,327,206	\$50,000	\$812,408	\$812,408

Since the last report, the largest incident is Rowena with estimated ODF gross costs of \$3.5 million and net costs of \$450,000, after USFS cost share reconciliation and FEMA cost recovery payments to ODF. *Note: Rowena is still an active fire, and the cost estimate will adjust until the end of incident.*

Federal Grants

As of today, ODF has not received any indication of changes to federal grants or other funding. Reimbursements from federal agencies for wildfire suppression and related activities are still

being processed as usual. ODF remains fully committed to protecting Oregon's forests and communities and will take all necessary steps to reduce any potential impacts if federal funding changes in the future. In the most recent quarter, ODF invoiced \$5 million and received \$4 million in federal grant reimbursements

ODF continues to manage its finances carefully while closely tracking fire-related costs and reimbursements. Cash levels remain stable, and billing and collections are progressing as planned. The agency is actively finalizing large fire cost shares and submitting claims for federal reimbursement. While the reimbursement process can take time, ODF is meeting all deadlines and staying on course.

At this time, there have been no changes to federal funding, and payments continue to be received. However, agency leadership is proactively gathering data on federally funded work to prepare for any potential changes to that funding. Together with the evolving fire season this is the primary focus for the agency in terms of fiscal management. ODF remains committed to its mission and to responsible financial stewardship on behalf of all Oregonians.

Sincerely,



Kate Skinner
Interim State Forester

c:
Legislative Fiscal Office
Chief Financial Office
Oregon State Treasury
Board of Forestry
Governor's Office



August 1, 2025

Sen. Kate Lieber, Co-Chair
Rep. Tawna Sanchez, Co-Chair
Joint Committee on Ways and Means
900 Court St. NE, H-178
Salem, OR 97301

Re: Oregon Department of Forestry - Monthly financial condition report

Dear Co-Chairs,

The Oregon Department of Forestry (ODF) remains focused on its mission to protect Oregon's forests and communities while maintaining sound financial stewardship. As fire season 2025 ramps up, ODF is actively managing fire-related costs, federal reimbursements, and cooperative funding agreements. Fully amid an active fire season, ODF has already deployed three incident management teams and responded to multiple lightning events across the state. Currently, the department's financial position remains stable, with ongoing efforts to ensure transparency, accountability, and preparedness in the face of evolving funding conditions.

Cash and General Fund balances

As of July 22, 2025, ODF's principal cash account balance was \$56.1 million, and the AY27 Protection Division General Fund appropriation balance stood at \$82.5 million. The estimated July payroll includes \$11.3 million from the Forestry Main Cash Account, \$2.9 million from the Protection General Fund, and \$700 thousand from the Forest Resources General Fund. County timber distributions for the fourth quarter total \$22 million to date.

Figure 1 - Cash Fund Balances as of July 22, 2025

Fund	Fund Title	Balance
02000	FORESTRY CASH ACCOUNT	\$56,107,184.36
11000	FOREST LAND PROTECTION FUND - EFCC	\$9,993,495.66
56000	URBAN FORESTRY	\$30,396.92
58000	FOREST RESOURCE TRUST	\$1,115,966.64
70000	FACILITIES MANAGEMENT	\$11,689,439.97

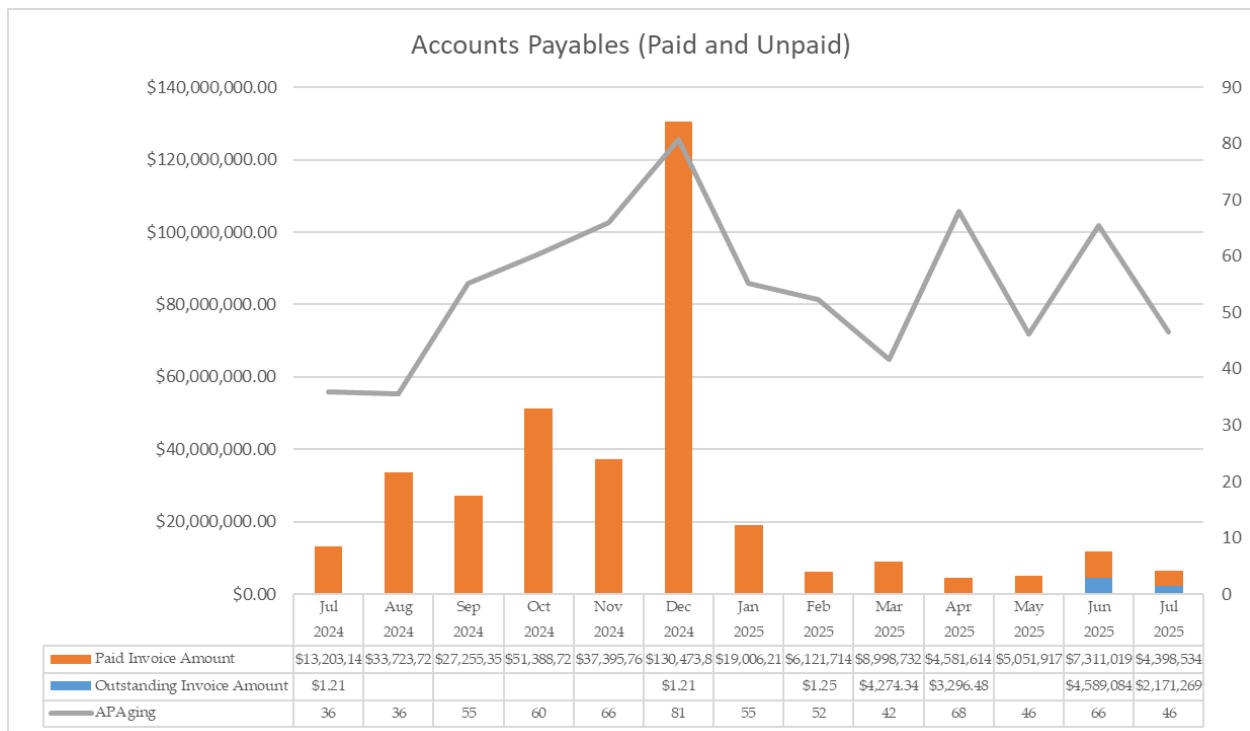
General Fund appropriations as of July 22, 2025

Appn	Appn Title	Balance
89905	FOREST RESOURCES	\$59,911,048.61
89908	ADMINISTRATION	\$758,644.00
89920	PROTECTION FROM FIRE	\$82,522,154.31

Accounts payable

Department-wide expenditures have slightly increased since the last reporting period (Figure 2), which is consistent with the start of 2025 fire season.

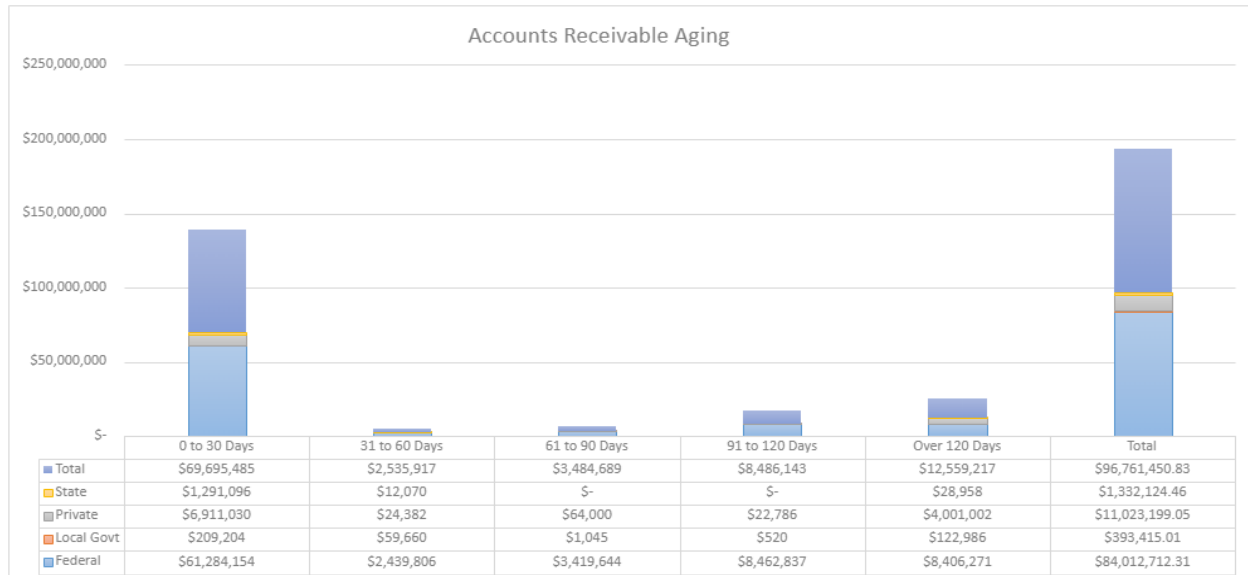
Figure 2 - Accounts Payable as of July 23, 2025



Accounts receivable

The agency invoiced \$102.9 million and has collected \$59.3 million for the fourth quarter of FY25. The number of outstanding invoices has decreased from the previous period, totaling 396, with 13% over 120 days past due, a change of 0% from the previous period.

Figure 3 – Accounts Receivable Aging as of July 21, 2025



Fire Protection financial status

Outstanding Fire Protection assets and liabilities information

In addition to monitoring current agency-wide accounts payable and accounts receivable, the department also tracks estimated outstanding assets and liabilities related to the Fire Protection Division. Due to the nature of large fires and cooperative agreements—such as ODF providing resources for fires outside its protection jurisdiction—reimbursement for upfront costs incurred by ODF can take several years. Conversely, delays may also occur in receiving federal bills for resources initially paid for by federal partners, as well as in finalizing cost-share settlements that may result in ODF being billed. The table below summarizes the estimated outstanding assets and liabilities (accounts receivable and payable not yet invoiced to or from ODF).

Figure 4– Estimated Outstanding Assets and Liabilities as of July 24, 2025

Summary of Estimated Outstanding Assets and Liabilities (Costs that have not been fully reconciled or billed)		
Category	Assets (AR)	Liabilities (AP)
Coop Billable	\$11,346,895	\$13,446
Large Fire - Non-Cost Share	\$1,188,502	\$1,551,765
Large Fire - Cost Share	\$52,075,616	\$23,497,657
TOTAL	\$64,611,013	\$25,062,868

Notable updates since the last report include \$21.4 million in coop, non-cost share, and cost share accounts receivable invoiced. With fire season heating up, ODF will continue to work on coop and cost share billings, but things will slow down as both ODF and federal agency finance staff's attention is drawn to current fires.

FEMA information

FEMA Public Assistance (PA) grants are awarded to the Oregon Department of Emergency Management (ODEM), which then distributes the funds to ODF. In contrast, FEMA Fire Management Assistance Grants (FMAG) are awarded directly to ODF, providing more immediate access to funds once they are obligated. The FEMA reimbursement process can take several years to fully complete. ODF strives to submit all suppression claims to FEMA and/or ODEM within one year of an eligible incident's conclusion. Once submitted, claims undergo detailed audits by FEMA and/or ODEM before final payments are issued. Administrative claims take longer to process, as all suppression-related costs must be paid in full before ODF can submit expenses tied to administrative and financial work required by FEMA.

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Figure 5– FEMA/Public Assistance Outstanding Balances as of July 24, 2025

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2019	Admin - FMAG	\$0	\$215,943	\$0	\$0	\$215,943
2020	Admin - FMAG	\$85,250	\$0	\$0	\$0	\$85,250
2020	Admin - PA	\$17,017	\$0	\$0	\$0	\$17,017
2020	Fire - PA	\$0	\$297,219	\$0	\$1,036,966	\$1,334,186
2021	Admin - FMAG	\$43,950	\$0	\$0	\$0	\$43,950
2022	Admin - FMAG	\$12,000	\$0	\$0	\$0	\$12,000
2023	Admin - FMAG	\$32,500	\$0	\$0	\$0	\$32,500
2023	Fire - FMAG	\$1,000,000	\$0	\$0	\$0	\$1,000,000
2024	Fire - FMAG	\$24,366,189	\$1,187,069	\$0	\$0	\$25,553,258
2024	Fire - PA	\$34,645,827	\$7,500,961	\$0	\$0	\$42,146,788
TOTAL		\$60,202,733	\$9,201,192	\$0	\$1,036,966	\$70,440,892

Since the last report, auditing work on the 2024 fire season claim documents is ongoing. \$1.2 million of completed auditing work was submitted to FEMA for review and potential payment. \$1 million of the 2020 PA claim was approved for payment by ODEM and will be adjusted on this report next month once the revenue has been sent to ODF.

Fire season cost estimate information

Fire season runs from January 1 through December 31, encompassing two partial fiscal years. Incident cost estimates are produced for every incident, no matter the size, with the data coming from the ODF district where the incident occurs. Costs are generated daily for larger incidents and smaller incidents record costs within thirty days of an incident's end. Gross

incident costs are adjusted to reflect a final projected net after Federal cost share recoveries and FEMA claim reimbursements. District per day and acre EFC claim deductible costs are also reduced from cost estimates as these amounts are a district's base budget cost once claims are finalized for the fiscal year. The result is a final net incident cost that is split between EFC and General Fund based on the first \$20 million of fire costs being split 50%/50% between EFC and General Fund, with the remainder of costs above that threshold being 100% General Fund obligation.

Figure 6— Fire Season Cost Estimate as of July 24, 2025

Summary of Fire Season 2025 Large Fire Fund (LWFF) Estimated Costs			
Gross Costs	Other Agency Cost Recoveries	FEMA Cost Recoveries	Net Costs
\$80,245,349	\$43,614,920	\$4,454,528	\$32,175,901

Since the last report, the largest incidents are Grizzly Complex, Eastside Complex, Elk, Cram, Hagelstein, and Board Shanty with estimated ODF gross costs of \$65 million and net costs of \$25 million, after federal agency cost share reconciliations.

ODF is maintaining a strong financial position through careful oversight of its expenditures and a close watch on fire-related costs and reimbursements. The agency's cash position remains steady, and billing and collection efforts are moving forward as planned. Large fire cost allocations are being finalized, and reimbursement claims to federal partners are being submitted on schedule. While federal reimbursements can take time to process, ODF continues to meet all required deadlines and maintain steady progress.

Federal funding levels remain unchanged, and the agency continues to receive payments as expected. Still, in anticipation of any future changes, ODF leadership is proactively tracking federally supported activities and associated costs. With fire activity increasing, fiscal oversight in this area has become a top priority. The agency remains focused on delivering its mission while ensuring strong financial stewardship for the people of Oregon.

Sincerely,



Kate Skinner
Interim State Forester

c:
Board of Forestry
Governor's Office
Chief Financial Office
Legislative Fiscal Office
Oregon State Treasury



Board of Forestry

Public Meeting

**Placeholder for Department of Forestry Financial
Report for August 2025**

STAFF REPORT

Agenda Item No.:	B
Work Plan:	Administrative
Topic:	Key Performance Measures
Presentation Title:	Annual Performance Progress Report 2025
Date of Presentation:	September 3, 2025
Contact Information:	Sabrina Perez, Strategic Advisor for Agency Administration (503) 945-7311, sabrina.perez@odf.oregon.gov

SUMMARY

The purpose of this agenda item is to provide the Board of Forestry with the Department of Forestry's (ODF) Annual Performance Progress Report for 2025 based on the agency's legislatively approved biennial key performance measures.

CONTEXT

Through the biennial budgeting process, each state agency in Oregon is required to develop key performance measures consistent with joint direction from the Legislative Fiscal Office (LFO) and the Department of Administrative Service's Chief Financial Office (CFO). Key performance measures proposed by state agencies must be approved by the Legislature along with their respective agency budgets. ODF is required to submit an Annual Performance Progress Report to LFO and CFO each year, reporting on the agency's key performance measures.

RECOMMENDATION

This is an informational item.

NEXT STEPS

ODF's Annual Performance Progress Report will be submitted to LFO and CFO before the October 1, 2025, due date. If modifications to the performance measures are desired, the biennial budgeting process requires agencies to be prepared to work with LFO and CFO budget analysts on proposed changes in even years with collaborative discussions in early 2026 and completed change requests submitted by the end of April 2026.

ATTACHMENT

- (1) Oregon Department of Forestry, Annual Performance Progress Report, Reporting Year 2025 (*updated August 27, 2025*)

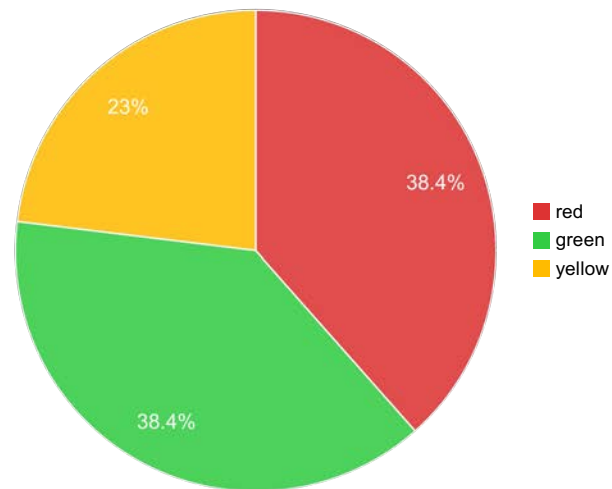
Department of Forestry

Annual Performance Progress Report

Reporting Year 2025

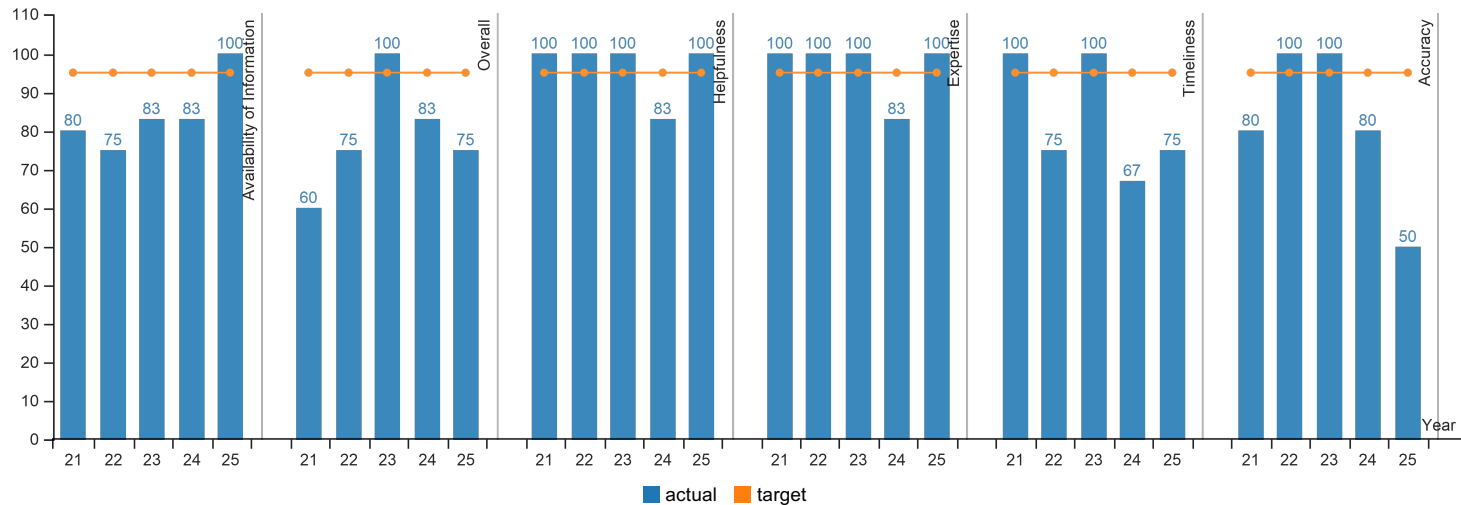
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KPM #	Approved Key Performance Measures (KPMs)
1	CUSTOMER SERVICE TO COUNTY 'GOVERNMENTS AND FOREST LANDOWNERS - Percent of Oregon's forested counties and forest protective associations rating that ODF programs collectively provide "good" or "excellent" customer service: overall, timeliness, accuracy, helpfulness, expertise, availability of information.
2	BOARD OF FORESTRY PERFORMANCE - Percent of total best practices met by the Board of Forestry.
3	FOREST PRACTICES ACT COMPLIANCE - Percent of forest operations that are in compliance with the Forest Practices Act
4	URBAN AND COMMUNITY FOREST MANAGEMENT - Percent of Oregon cities actively managing their urban and community forest resources.
5	STATE FORESTS TOTAL REVENUE - Percent increase in total revenue produced by State Forests
6	AIR QUALITY PROTECTION - Total number of smoke intrusions into designated areas per total number of units burned.
7	PERCENTAGE OF PRIVATE FORESTLAND MANAGED AT OR ABOVE FOREST PRACTICES ACT STANDARDS. - Percentage of industrial private forestlands managed under an approved certification system, stewardship agreement, or other approved management plan including wildlife habitat conservation and management plans
8	FOREST STREAM WATER QUALITY - Percent of monitored stream sites associated predominately with forestland with significantly increasing trends in water quality.
9	VOLUNTARY PUBLIC AND PRIVATE INVESTMENTS MADE TO CREATE HEALTHY FORESTS - Cumulative public and private forest landowner investments made in voluntary projects for the Oregon Plan for Salmon and Watersheds or for the Oregon Conservation Strategy.
10	STATE FORESTS NORTH COAST HABITAT - Complex forest structure as a percent of the State Forests landscape.
11	FIRE SUPPRESSION EFFECTIVENESS - Percent of wildland forest fires under ODF jurisdiction controlled at 10 acres or less.
12	PREVENTION OF HUMAN-CAUSED WILDLAND FOREST FIRES - Number of Oregon residents per human-caused wildland forest fires. (population expressed in thousands of residents) This metric measures the ability to maintain or reduce the number of human-caused wildfires as the population of Oregon increases. An upward trend indicates a positive result.
13	DAMAGE TO OREGON FORESTS FROM INSECTS, DISEASES, AND OTHER AGENTS - Percent of forest lands without significant damage mortality as assessed by aerial surveys.



Performance Summary	Green	Yellow	Red
	= Target to -5%	= Target -5% to -15%	= Target > -15%
Summary Stats:	38.46%	23.08%	38.46%

KPM #1	CUSTOMER SERVICE TO COUNTY 'GOVERNMENTS AND FOREST LANDOWNERS - Percent of Oregon's forested counties and forest protective associations rating that ODF programs collectively provide "good" or "excellent" customer service: overall, timeliness, accuracy, helpfulness, expertise, availability of information.
	Data Collection Period: Jan 01 - Dec 31



Report Year	2021	2022	2023	2024	2025
Availability of Information					
Actual	80%	75%	83%	83%	100%
Target	95%	95%	95%	95%	95%
Overall					
Actual	60%	75%	100%	83%	75%
Target	95%	95%	95%	95%	95%
Helpfulness					
Actual	100%	100%	100%	83%	100%
Target	95%	95%	95%	95%	95%
Expertise					
Actual	100%	100%	100%	83%	100%
Target	95%	95%	95%	95%	95%
Timeliness					
Actual	100%	75%	100%	67%	75%
Target	95%	95%	95%	95%	95%
Accuracy					
Actual	80%	100%	100%	80%	50%
Target	95%	95%	95%	95%	95%

How Are We Doing

The Department of Forestry strives to exceed expectations in service to Oregon's forested counties and forest protective associations. Results from this year's survey indicate that while Department employees have demonstrated local success in building strong relationships within our communities and providing service to Oregonians, the complex sociopolitical, multi-jurisdictional landscape, and challenging regulatory environment continues to challenge our ability to meet expectations in service to all.

Factors Affecting Results

To perform this annual measurement of customer service to county governments and forest landowners, the counties and protection associations across the state are divided into two "halves" and the Department surveys each half once every two years, while surveying the Forest Trust Lands Advisory Committee each year. The six-question survey requests Likert-scale ratings of service from Excellent to Poor and an additional comment field for providing specific feedback on each question. Ratings of "Excellent/Good" meet the performance measure target while ratings using "Fair/Poor" reduce the overall performance and a response of "Don't Know/(blank)" is removed from the measurement altogether. Performance measurements have a direct correlation to the number of respondents. If a respondent pool is slim, one response can sway the entire performance of this measure. The Department is currently working to expand its measurement of customer service to a broader scope of recipients and once the methodology is refined and validated, adjustments to this key performance measure may be sought out.

For this year's 2024 survey data reported in 2025, the Department surveyed twenty-five counties and associations, and four responded.

Sentiments shared this year indicate that local leadership is generally satisfied with the level of services provided by the agency, characterizing our employees as skilled, quick and timely in response to inquiries, regularly engaged in communications and local activities, and serving as good partners in their work throughout local communities. The department's local foresters and recreation staff are seen as knowledgeable experts in their field, and our firefighting response is strong, commended by one respondent as the "best firefighting force out there."

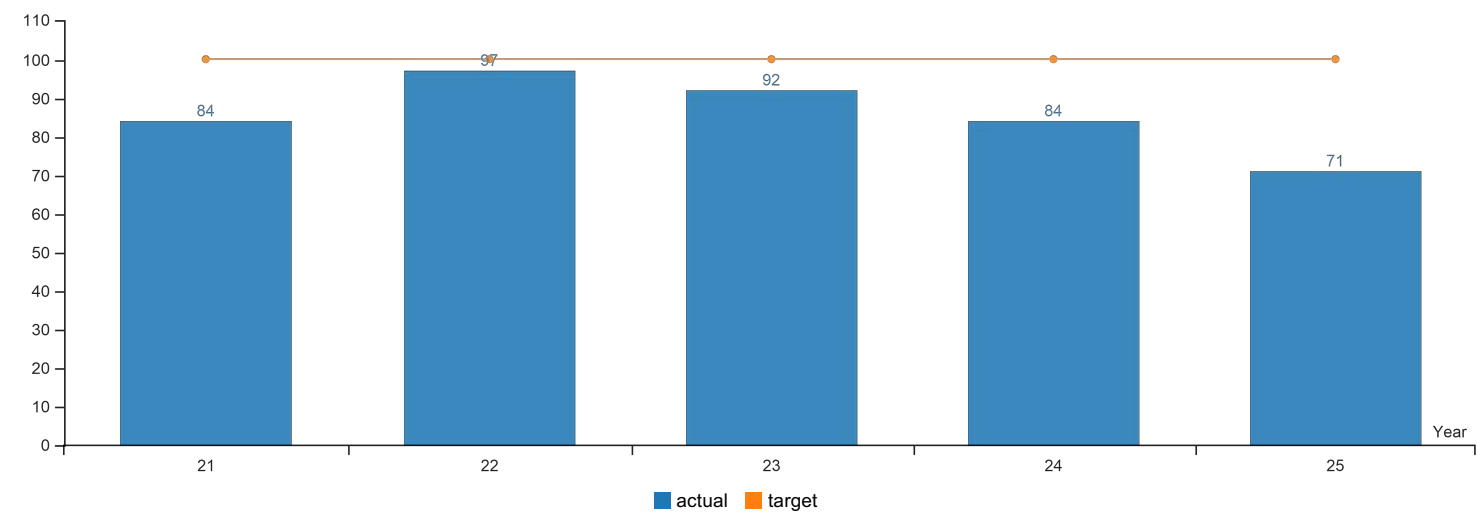
The positive results of this performance measure directly correlate to the investments made between department staff and county commissioners, county officials, forest protective associations and forest landowners to build effective working relationships across all jurisdictions and forestry programs.

Less desirable results were also shared within this year's performance evaluation, and while one respondent did not offer any additional comments or feedback to reflect upon opportunities for improvement, another shared direct concern with the accuracy of state forests revenue forecasts, impacts to the county share of revenues, and overall discontent with the financial services from Salem headquarters. Recognition of the inherent financial challenges of state forest management was offered, coupled with desire for better refinement of timber sale projections.

Maintaining balance across these sociopolitical factors is complex and the tensions embedded within this landscape will continue to be reflected in the evaluation of this performance measure. The Department of Forestry's mission is to protect and promote resilient forests that benefit all Oregonians. Public service is a core value, and the department will continue to strive to exceed expectations in service to Oregon's forested counties and forest protective associations.

KPM #2	BOARD OF FORESTRY PERFORMANCE - Percent of total best practices met by the Board of Forestry.
	Data Collection Period: Jan 01 - Dec 31

* Upward Trend = positive result



Report Year	2021	2022	2023	2024	2025
Oregon Board of Forestry Governance					
Actual	84%	97%	92%	84%	71%
Target	100%	100%	100%	100%	100%

How Are We Doing

The Board of Forestry concluded the annual board governance performance evaluation with common agreement in meeting 71 percent of the standard best-practices criteria. Results of the evaluation suggest that current board members see the board functioning in a significantly less than satisfactory manner across the majority of best practices in governance. The Board was unable to meet their performance measure target of 100 percent for the 2024 evaluation period, reported in 2025.

Factors Affecting Results

Six of the six board members serving in the 2024 calendar period completed the evaluation. The seventh member of the Board recently started their term in spring of 2025 with planned engagement in next year’s review cycle. A summary of the collective results was presented to the Board at the June 2025 board meeting, approving completion of the evaluation and common agreement in reaching 71 percent of their best practices in governance as compared to the prior year’s evaluation of 84 percent.

The Board found common agreement in meeting best practices of governance related to: completion of the Board’s strategic vision for the agency mission and high-level goals, periodic review of the agency’s key financial information and audit findings, and board members valuing public input and transparency in conducting their work through outreach and engagement of stakeholders, standing advisory committees, special ad hoc committees and panels, and external committees with board interests.

In several of the best practices, four or more board members agreed they had met the criteria, while one or two members disagreed, specifically related to: defined performance expectations for the State Forester; annual review of the agency’s key performance measures in the Annual Performance Progress Report; appropriate involvement in review of key policy communications and policy-making activities; review of the proposed biennial budget at the Agency Request Budget level; agency adherence to accounting rules and financial controls; board members responsibly serving as

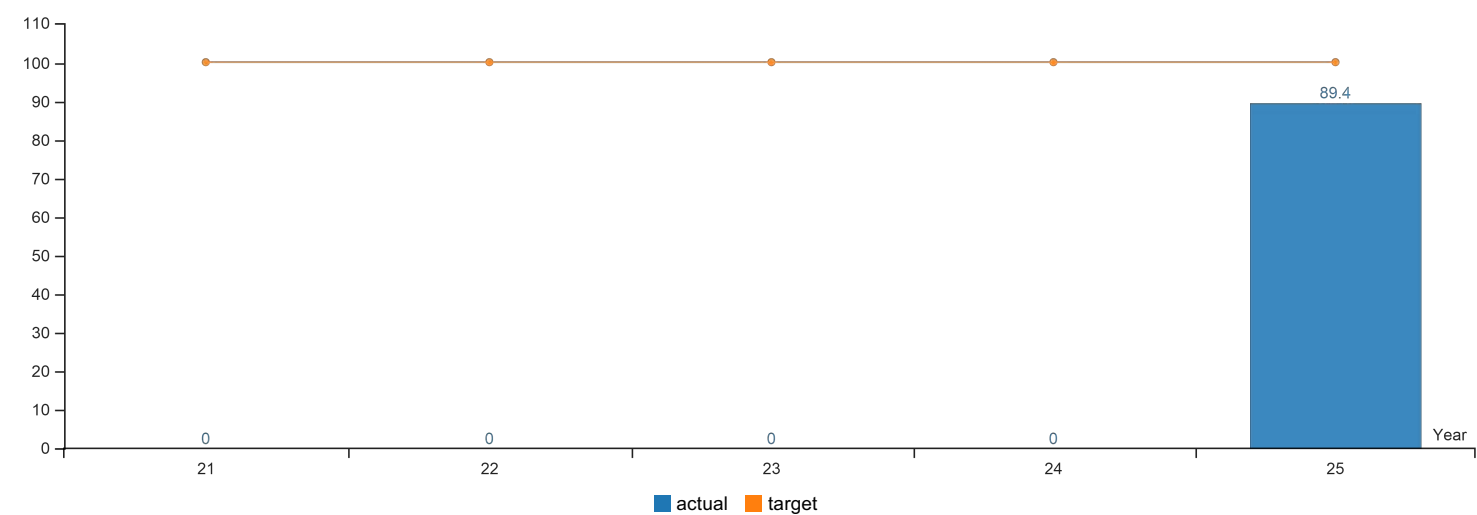
public representatives, attending appropriate training and technical information sessions; engaging in collaborative coordination and efficient work where responsibilities and interests overlap with other state and federal agencies and tribal nations; and implementing adaptive management effectively to ensure best practices are utilized beyond the planning and evaluation cycles.

Governance best practices where three or more board members disagreed with meeting the criteria include: completion of a recent performance evaluation of the State Forester; aligning the agency's policy option packages with their mission and goals through the biennial budgeting process; and appropriately accounting for resources of the agency, including engagement in critical issues relating to oversight of human, financial, material and facilities resources; and briefings on matters of succession management, vacancies, budget, or financial effects of the fire program.

Reflections from the board members indicate concern with interference and balancing of the Governor's Natural Resources Office engagement in areas of the Board's responsibility; polarization and challenges associated with controversial forest policy issues, interpersonal dynamics, and misleading media stories; limitations imposed by strict public meeting rules that affect the Board's ability to collaboratively work through complex matters; a need to operationalize the Board's Vision for Oregon's Forests; greater communication and engagement desired between the agency and Board in areas of policy-making, budgetary development, and changes in accounting for agency resources; a desire for proactive coordination with other agencies and boards; and a need for strong Board leadership and facilitation.

KPM #3	FOREST PRACTICES ACT COMPLIANCE - Percent of forest operations that are in compliance with the Forest Practices Act
	Data Collection Period: Jan 01 - Dec 31

* Upward Trend = positive result



Report Year	2021	2022	2023	2024	2025
Percent of Operations in Compliance with Oregon's Forest Practices Act					
Actual					89.40%
Target	100%	100%	100%	100%	100%

How Are We Doing

The Oregon Forest Practices Act (FPA) outlines standards of practice for forest operations on non-federal and non-tribal lands in Oregon. The FPA is administered by the Oregon Department of Forestry’s (ODF) Forest Resources Division. Within the Forest Resources Division, the Monitoring Unit is tasked with developing studies to evaluate landowner compliance with the FPA rules on a state-wide scale. The ODF Monitoring Unit contracted Mount Hood Environmental (MHE) to develop a statistical study design and complete data analysis for two ODF Compliance Monitoring efforts: 1) Reforestation study and 2) Long-Term Compliance Monitoring study. Using lessons learned from a pilot reforestation study, MHE developed a protocol for the 2023-2024 Reforestation study. The study focused on evaluating OAR 629-610-0040(4), a rule which requires landowners to have established a free-to-grow stand of trees by the end of six years after harvesting that meet or exceed the minimum stocking levels required by OAR 629-010-0020. Field surveys were conducted in 2023 and 2024 on a random sample of harvest units completed in 2016 and 2017, with results compared to the reforestation standards outlined in the Forest Practices Act. The study included 39 private industrial and 25 private nonindustrial harvest units, estimating compliance rates at 92.3% for private industrial and 76% for private non-industrial. The overall state compliance rate of 89.4% is a weighted mean of the private industrial and private non-industrial compliance rates. All sites not meeting the stocking standards did contain trees and/or evidence of reforestation but needed further assistance to reach free to grow. A sensitivity analysis was performed to address uncertainty stemming from landowner nonresponse and access refusal, ensuring a robust evaluation of compliance trends. The Monitoring Unit developed a communication plan to ensure the reforestation compliance monitoring results were used to inform real-world forestry practices. The study results were shared through presentations to both internal and external stakeholders. These findings provide valuable insights into how well landowners are meeting reforestation requirements, highlighting successes while identifying areas for improvement to ensure the long-term sustainability and health of Oregon’s forests

ODF is also working with MHE on the development of a Long-Term Compliance Monitoring study that prioritizes the following rule divisions: Division 625 Forest Road Construction and Maintenance rules; Division 630 Harvesting rules for steep slopes; and Division 643 Water Protection Rules: Vegetation Along Streams rules. ODF will conduct pilot studies, one for each prioritized rule set. The

AGENDA ITEM B

Attachment 1

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riparian buffer rules (Division 643) pilot study design and field protocol were completed in late 2024. In the summer of 2025, the Monitoring Unit will reach out to a random sample of forestland owners who completed harvest operations near waterways in 2024. Pilot study field data collection will begin in the fall of 2025. The riparian pilot study will be used to hone field methods and statistical analysis approaches for riparian buffer rules prior to conducting a larger scale long-term study.

The ODF Monitoring Unit reconvened the Compliance Monitoring Program Committee (CMPC) in 2023. Stakeholders with knowledge of the FPA rules representing varied interests were invited to participate, including industrial and family timberland owners, conservation organizations, and other state agencies such as the Oregon Department of Environmental Quality (DEQ) and the Oregon Department of Agriculture (ODA). The ODF Monitoring Unit has been convening the CMPC quarterly since, providing the committee with regular program updates and integrating their valuable feedback. In addition, the CMPC developed a charter that will be reviewed and updated annually.

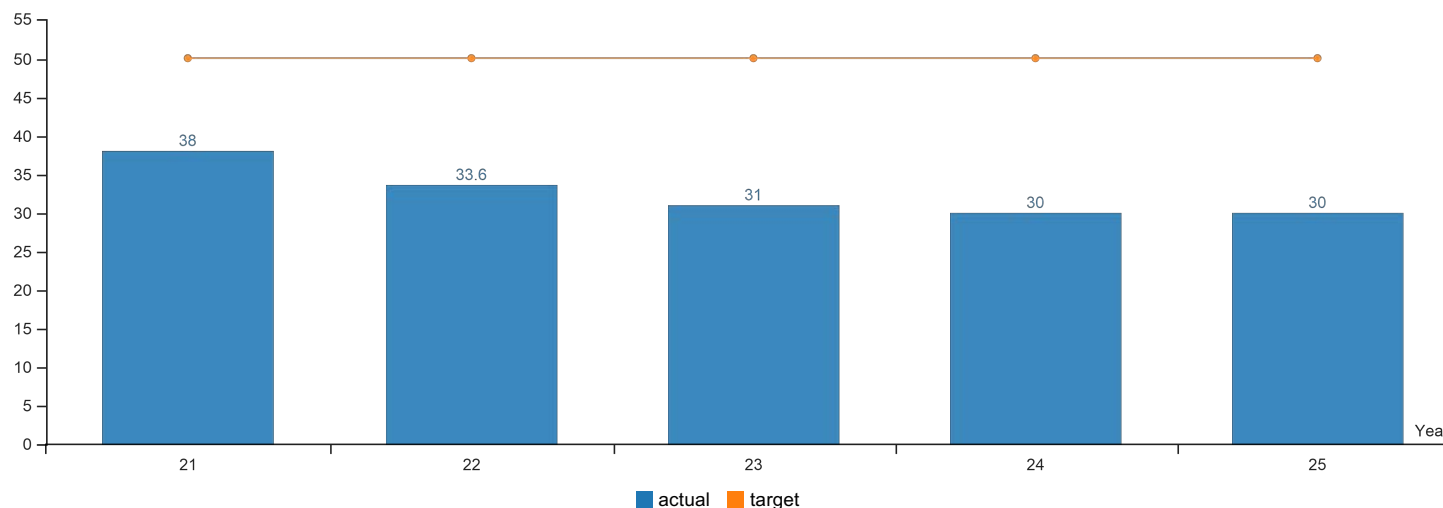
Factors Affecting Results

The 2023-2024 Reforestation compliance monitoring study evaluated stands replanted prior to the passage of the new FPA rules. Under previous rules participation in ODF's compliance monitoring studies was voluntary. Participation refusal and landowner non-response reduced the sample population for the study. However, a sensitivity analysis was performed to address uncertainty stemming from landowner nonresponse and access refusal, ensuring a robust evaluation of compliance trends. The new FPA rules were designed to improve compliance monitoring study designs, making analyses more robust, now that landowners are required to notify of activity completion and provide ODF access to their sites.

As part of the development of the Long-Term Compliance Monitoring program, ODF staff with assistance from the Compliance Monitoring Program Committee (CMPC), completed the first part of the process of reviewing the prioritized rule sets to determine the rules most suitable to include in the road and steep slope pilot studies. Ability to measure, time since activity occurred, and feasibility of effort are some of the factors being considered when determining rule inclusion. Like the riparian pilot study, the road and steep slope pilot studies will be used to inform and refine the long-term study.

KPM #4	URBAN AND COMMUNITY FOREST MANAGEMENT - Percent of Oregon cities actively managing their urban and community forest resources.
	Data Collection Period: Jan 01 - Dec 31

* Upward Trend = positive result



Report Year	2021	2022	2023	2024	2025
Percent of Oregon cities actively managing their urban and community forest resources					
Actual	38%	33.60%	31%	30%	30%
Target	50%	50%	50%	50%	50%

How Are We Doing

The mission of the Urban & Community Forestry (UCF) Program is to help all Oregonians improve their quality of life by promoting community investment in our state's urban forests. UCF Program staff assist communities of all sizes by sharing a wide range of technical, educational, and organizational "Best Management Practices" through onsite visits and training, webinars, newsletters, email and video conferencing. When funding is available, the UCF Program also provides grants and financial assistance to cities and community groups to help them build organizational capacity and support local UCF planning, maintenance, and training efforts. In 2023, the UCF Program was awarded \$26.6 million in Federal Inflation Reduction Act (IRA) funding to design and administer two distinct grant subaward programs for disadvantaged communities throughout the state. One subaward program is intended specifically for the nine Federally Recognized Tribes of Oregon, the second is intended for other qualifying entities, which includes tribal organizations or coalitions, local governmental entities such as cities/counties/special districts, academic institutions, as well as non-profit and community-based organizations. Additionally, as a result of House Bill 3409 which passed in 2023, the UCF Program was tasked with assisting the Department of Land Conservation and Development (DLCD) design and implement a \$6.5 million Community Green Infrastructure Grant Program which also focuses on helping overburdened and underserved communities in our state. HB 3409 also mandates that ODF UCF develop and maintain a statewide urban tree canopy assessment tool to help communities plan and manage their urban forests more effectively.

KPM #4 tracks the percentage of Oregon cities and county subdivisions that are deemed to be actively managing their urban and community forests, based on their attainment of at least two out of four management criteria. The four management criteria that we track are whether cities/communities have (1) trained UF professionals on staff, such as an International Society of Arboriculture-certified arborist or tree worker; (2) a tree ordinance; (3) a tree board or advisory committee; and (4) an inventory-based urban forest management plan. According to the most recent federally reported data, the percentage of cities meeting two or more of these UCF management criteria – indicating they are pro-actively managing their urban forests – has held steady at 30 percent between CY2023 and CY2024. From a population perspective, over 2/3 of Oregon residents live in cities and county subdivisions where their urban and community forests are being intentionally planned and managed.

According to a report compiled by the Arbor Day Foundation in Oregon for the 2024 calendar year, 57% of our state's residents live in a Tree City USA community, \$41,336,615 was spent on urban forestry management, and a total of 76,776 urban trees were planted throughout the state.

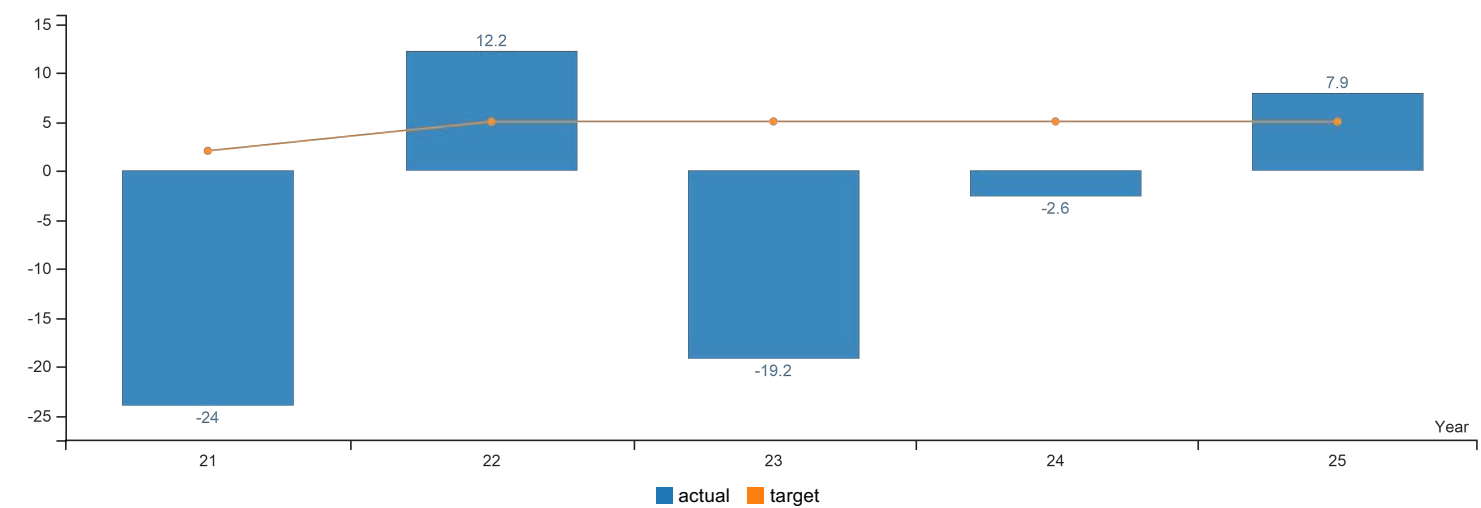
Factors Affecting Results

Over time, we expect to see fluctuations in communities' abilities to meet the four UCF management criteria listed above, based on changing budgets and economic conditions, staffing and volunteer capacity, and community priorities. Although it will take a few years for the full effects of the recent Federal and State investments in UCF to become manifest, we can say with great confidence that these impacts will be significant and long-lasting, especially in those communities that have traditionally been left behind and have experienced an "opportunity gap". Within the next two years our UCF team aims to leverage the significant IRA and HB3409 funding to get closer to our statewide target of 50% cities/counties with active UCF management.

2024 was a busy year for the UCF Program. As a result of the significant influx of Federal and State funding, the UCF team was able to increase staffing levels (from 4 FTE to 9 FTE) and provide far greater support to community partners, especially in small, rural communities. In 2024, the UCF team focused on two main endeavors. The first involved developing and administering the large grant programs described above. The second involved helping to coordinate State planning and response efforts for Emerald Ash Borer (EAB) in partnership with our Forest Health team, the Oregon Department of Agriculture, and Oregon State Extension Service. Thus far, these efforts have been quite successful. Since it was first detected in summer of 2022, EAB's spread appears to have been limited at the end of 2024 to two main pockets totaling less than 35 square miles, one that spans Washington and Yamhill counties, and one that spans Marion and Clackamas counties. In 2024, UCF Program staff provided well over 2,500 assists to private citizens, schools, colleges, and other public entities throughout the state, a marked increase from previous years.

KPM #5	STATE FORESTS TOTAL REVENUE - Percent increase in total revenue produced by State Forests
	Data Collection Period: Jul 01 - Jun 30

* Upward Trend = positive result



Report Year	2021	2022	2023	2024	2025
Percent increase in revenue produced by State Forests compared to the previous year					
Actual	-24%	12.20%	-19.20%	-2.60%	7.90%
Target	2%	5%	5%	5%	5%

How Are We Doing

The FY 2024 data show a 7.9 percent increase in total revenues from the previous year, up to \$103,269,407. The amount of revenue distributed to counties increased 12.3 percent from the previous year, \$61,178,946 to \$68,698,839. This KPM focuses on the percent change in total revenue produced from the sale of timber from State Forests. The Oregon Department of Forestry is committed to sustainable management of these lands. Harvest levels that contribute to the revenue flow for this measure are set annually by the Division at the direction of the State Forester.

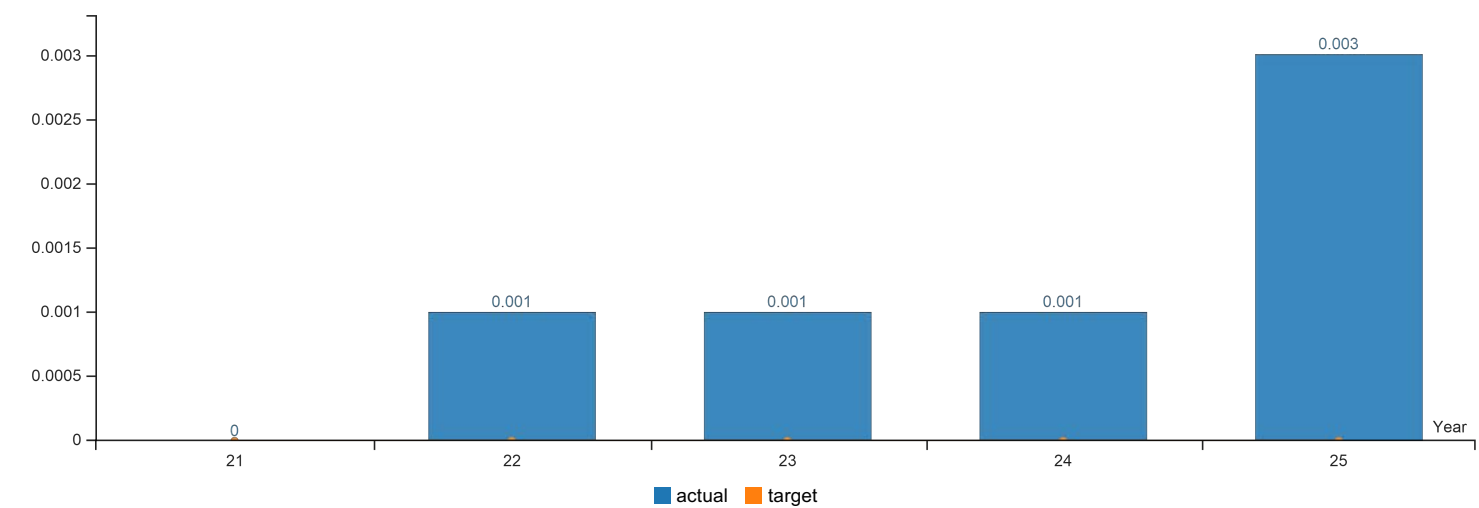
The KPM targets establish an objective for management activities to predictably generate revenue for the State.

Factors Affecting Results

The major factors affecting FY 2024 increase in timber sale revenue is a one percent increase in harvest volume from the previous year, up to 212,455 Mbf. Sold stumpage price increased 13.0 percent from the previous year, \$519/Mbf to \$586/Mbf. While ODF controls the amount of timber offered at auction each fiscal year, timber sale contracts typically run for three years and volume may be harvested at any point during the contract. The price of timber at auction is determined by market forces.

KPM #6	AIR QUALITY PROTECTION - Total number of smoke intrusions into designated areas per total number of units burned.
	Data Collection Period: Jan 01 - Dec 31

* Upward Trend = negative result



Report Year	2021	2022	2023	2024	2025
Total number of smoke intrusions into designated areas per total number of units burned					
Actual	0	0.001	0.001	0.001	0.003
Target	0	0	0	0	0

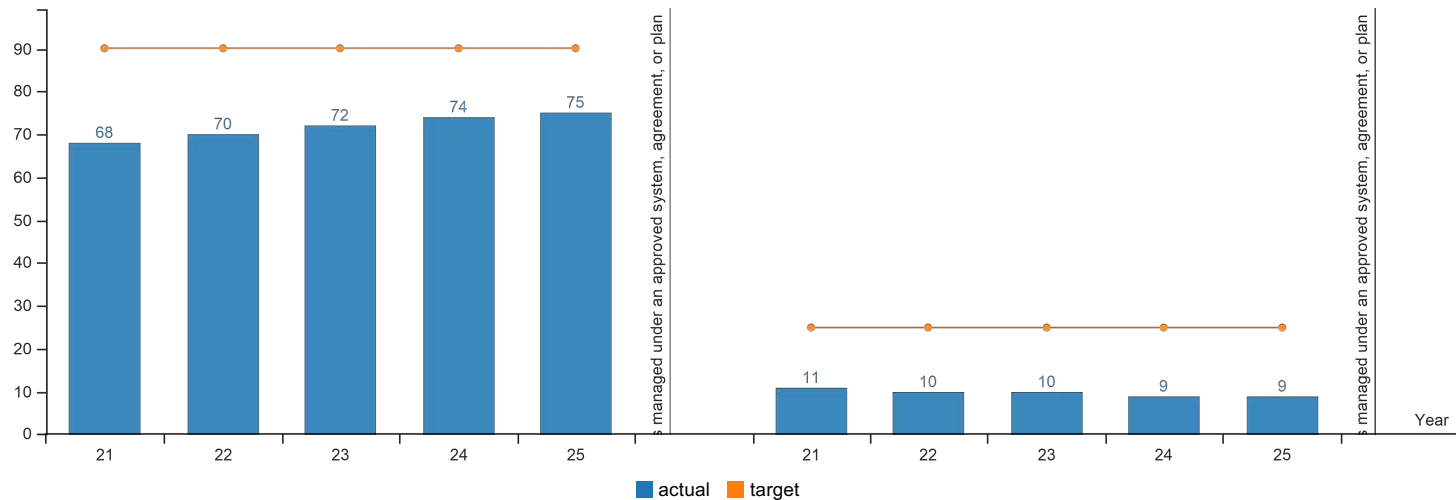
How Are We Doing

The Smoke Management Program is doing an exceptional job of protecting Oregon's air quality while, at the same time, allowing forest landowners to dispose of unwanted accumulations of forest fuel. Five intrusions occurred from 1393 units burned. The intrusion definition changed in 2019 to allow for some smoke to enter Smoke Sensitive Receptor Areas at a level that remained below 75 percent of the National Ambient Air Quality Standards. This change will allow for the increase in prescribed burning to eventually reduce the size and damage created by catastrophic wildfire.

Factors Affecting Results

In addition to restoration burning, hazard-fuel reduction, weather variations, and economic market conditions can also influence the outcome, by substantially increasing or decreasing the number of units available for burning. In 2024 heightened wildfire risk, due to persistent drought conditions, had a direct effect in reduction of the number of units burned, relative to the long-term average. Out of the five smoke intrusions that were recorded in 2024, four were a result of burning done in the "W. Bend" area and one in Coos Bay.

KPM #7	PERCENTAGE OF PRIVATE FORESTLAND MANAGED AT OR ABOVE FOREST PRACTICES ACT STANDARDS. - Percentage of industrial private forestlands managed under an approved certification system, stewardship agreement, or other approved management plan including wildlife habitat conservation and management plans
	Data Collection Period: Jul 01 - Jun 30



Report Year	2021	2022	2023	2024	2025
a. Percentage of total industrial private forestlands managed under an approved system, agreement, or plan					
Actual	68%	70%	72%	74%	75%
Target	90%	90%	90%	90%	90%
b. Percentage of non-industrial private forestlands managed under an approved system, agreement, or plan					
Actual	11%	10%	10%	9%	9%
Target	25%	25%	25%	25%	25%

How Are We Doing

Key Performance Measure #7 was modified during the 2019 Legislative Session to report as a percentage of forestland compared to previously reporting on acreage. The legislatively approved target for this measure is 90 percent of industrial private forestlands and 25 percent of non-industrial private forestlands managed under an approved system, agreement, or plan.

a. Three certification systems operate in Oregon. The American Tree Farm System (ATFS) provides certification endorsed by the Programme for the Endorsement of Forest Certification schemes (PEFC). The PEFC is an international, independent, non-profit, non-governmental organization, founded in 1999, which promotes sustainably managed forests through independent third-party certification. Forest Stewardship Council (FSC) U.S. provides certification verified by Accreditation Services International, an independent accreditation body offering international, third-party accreditation for voluntary certification schemes. The Sustainable Forestry Initiative (SFI) provides certification endorsed by the PEFC.

The Department of Forestry (ODF) approves and monitors management plans, under the USDA-Forest Service's State and Private Forestry Program and enters into Stewardship Agreements (ORS 541.423) with forestland owners, who agree to manage beyond FPA standards.

Note: To distinguish between industrial and non-industrial acres and to remain consistent with prior years KPM methods, an acreage threshold was applied to distinguish industrial (> 5,000 acres) from non-industrial (< 5,000 acres) forestland owners.

a. ODF requested information on acres of industrial private forestland certified or approved under each system, and 75 percent (4.8 of the 6.5 million acres ^[1]) of industrial private forestlands are managed under an approved certification system or stewardship agreement, as summarized below:

• Sustainable Forestry Initiative, Inc.	4,156,110 acres
• American Tree Farm System	531,755 acres
• Forest Stewardship Council U.S.	167,126 acres
• ODF Stewardship Agreements	29,395 acres
• Total	4,884,386 acres

b. ODF requested information on acres of non-industrial private forestland certified or approved under each system and 9 percent (0.3 million of the 3.5 million acres ^[1]) of non-industrial private forestlands are managed under an approved certification system, stewardship agreement, or forest management plan, as summarized below:

• ODF; USDA-FS Forest Stewardship Plan ^[2]	104,892 acres
• ODF Stewardship Agreements	2,674 acres
• American Tree Farm System ^[2]	168,265 acres
• Forest Stewardship Council U.S.	25,829 acres
• Total	301,660 acres

[1] Total private non-industrial and industrial acres are sourced from Oregon Forest Resources Institute's Oregon Forest Facts publication.

[2] The American Tree Farm System and Forest Stewardship Plan reported acres are down from last year's reporting. Although the program acres may fluctuate some due to various factors, this overall decline was predictable given the multi-year trend. If the current planning level is to be maintained or increased over the next few years, it will need to be supported either through one-time funding or the leveraging of other federal programs.

Factors Affecting Results

a. Along with forestry-related agencies and organizations, the marketplace encourages forest certification. Forestland owners wanting to sell timber increasingly find that milling facilities are requiring their log supply come from certified forests. This market access requirement is motivating landowners to obtain certification from recognized third-party systems. Industrial forestland owners generally have the capacity to develop procedures to maintain certification.

Domestically and internationally, voluntary forest certification systems are used as a mechanism to recognize forest products originating from lands meeting specific management and harvesting requirements. Certification involves observation of management and harvesting requirements and is validated through third-party review. Costs are incurred by landowners to certify lands. In turn, certified forest products can access certain markets, which are otherwise closed and/or differentiated from uncertified competing goods. Regardless of certification status, all of Oregon's private and state forestlands are subject to the requirements of the Oregon Forest Practices Act and comprehensive land use plans and as such, are held to standards that in many respects are like those of certification systems.

In 2018, Oregon achieved certification with the American Society for Testing and Materials (ASTM) standard on forest certification systems D7612-10 for wood grown and harvested under the Oregon Forest Practices Act and compliance of subject wood to the 2012 and 2015 International Code Council (ICC) International Green Construction Code (IgCC). The recognition from ASTM will provide opportunities for private and state forestlands to access additional markets for their forest products.

In 2019, the KPM was modified to reflect the percentage of industrial and non-industrial acres whose land is under an approved certification or management system. The percentage is based upon the total acres of forestland in either the industrial or non-industrial classification. This revised reporting measure may improve understanding of the overall importance of this measure.

b. Along with forestry-related agencies and organizations, the marketplace encourages forest certification. Forestland owners wanting to sell timber increasingly find that milling facilities are requiring their log supply come from certified forests. This market access requirement is motivating landowners to develop management plans, since forest certification systems require forest management planning.

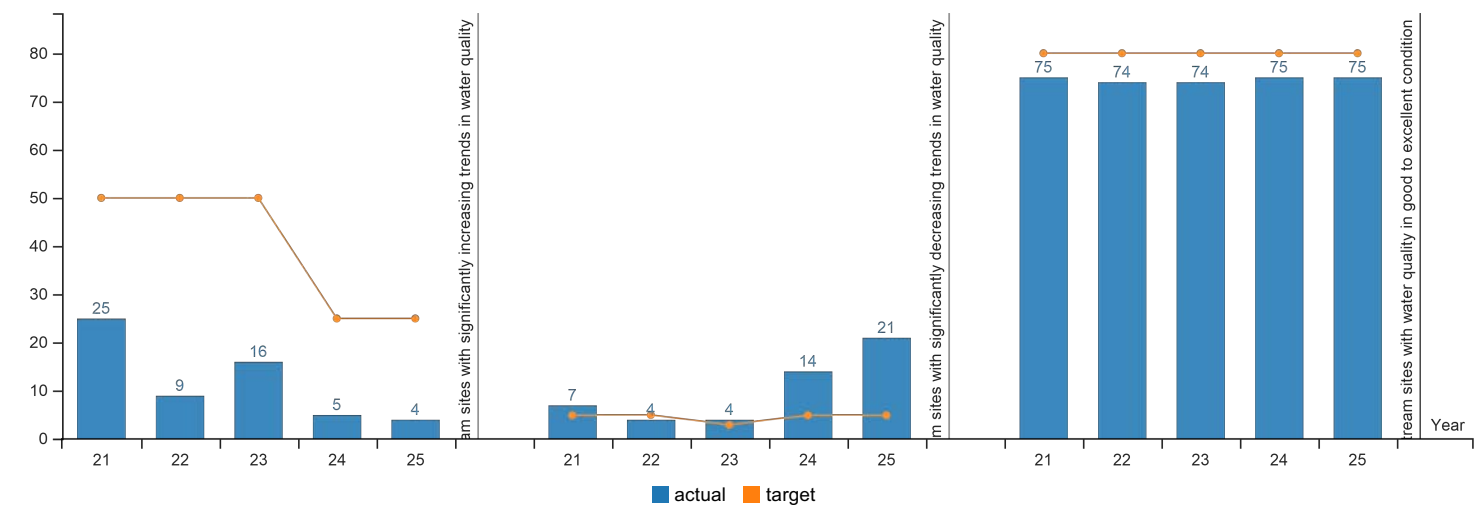
Non-industrial forestland owners often need assistance in developing inventory data and management documentation needed for certification. The cost of certification may represent a barrier for smaller ownerships. Approximately 133 thousand owners hold forestland between 1 and 9 acres in size, accounting for 328,000 acres of forests. Another 27 thousand owners have forestland holdings between 10 and 99 acres in size, accounting for 887,000 acres of family forests. The large number of owners with small holdings creates a significant challenge to achieving certification on all non-industrial forestlands.

To increase certification on non-industrial forestlands, ODF needs to provide additional technical and financial assistance to landowners for development of management plans and procedures. ODF does not receive any state support for this effort and relies solely on federal funding to conduct this work. Current federal funding uncertainties jeopardize the continuation of this effort. ODF works with multiple organizations to promote the development of forest management plans and the mutual recognition of approved plans.

In 2019, the KPM was modified to reflect the percentage of industrial and non-industrial acres whose land is under an approved certification or management system. The percentage is based upon the total acres of forestland in either the industrial or non-industrial classification. This revised reporting measure may improve understanding of the overall importance of this measure. NOTE: Collection dates varied for KPM 7 as follows:

- SFI data – Retrieved from SFI website on July 16, 2025
- ATFS data – Provided by Oregon Tree Farm System on July 10, 2025
- FSC data - Provided by FSC on July 16, 2025
- ODF; USDA-FS Forest Stewardship Plan data collected from USDA-FS SMART database on July 16, 2025

KPM #8	FOREST STREAM WATER QUALITY - Percent of monitored stream sites associated predominately with forestland with significantly increasing trends in water quality.
	Data Collection Period: Oct 01 - Sep 30



Report Year	2021	2022	2023	2024	2025
a. Percent of monitored forested stream sites with significantly increasing trends in water quality					
Actual	25%	9%	16%	5%	4%
Target	50%	50%	50%	25%	25%
b. Percent of monitored forested stream sites with significantly decreasing trends in water quality					
Actual	7%	4%	4%	14%	21%
Target	5%	5%	3%	5%	5%
c. Percent of monitored forested stream sites with water quality in good to excellent condition					
Actual	75%	74%	74%	75%	75%
Target	80%	80%	80%	80%	80%

How Are We Doing

a) In 2024, 4% percent of monitored forest stream sites showed increasing trends in water quality. While the percentage of forested streams with increasing trends in water quality has remained steady and comparable to all other land uses, (6% of all land uses show increasing trends in water quality) the target for monitored forest streams was not attained this year. However, most forested stream sites continue to remain in the good to excellent category (75%). The number of streams with good to excellent water quality has remained steady over the past eight years. No increasing or decreasing trend was observed on 71% of monitored forest stream sites. The performance is based on the Oregon Water Quality Index (OWQI). The OWQI describes general stream water quality status and trends. The OWQI also shows the general effectiveness of water quality management activities. No industry standards exist. However, 2024 data for agricultural lands in Oregon indicate 14% of monitored agricultural stream sites with increasing trends in water quality. Statewide data for 2024 for all land uses, including agricultural and forest lands, indicate 8% of monitored stream sites with increasing trends in water quality.

b) In 2024, 12 monitored sample points (21%) showed significantly decreasing trends in water quality. Statewide, this trend was prevalent on 22% of sites during this reporting period, which is slightly lower than the previous reporting year. This is the second year in a row that declining scores across all parameters has exceeded 20%. It is important to note that about half of the ambient sites statewide, and a large majority (75%) of forest monitoring sites continue to have "good" or "excellent" water quality and that has remained consistent over the last twelve years. No increasing or

decreasing trend was observed on 72% of monitored forest stream sites. The performance is based on the Oregon Water Quality Index (OWQI). The OWQI describes general stream water quality status and trends. The OWQI also shows the general effectiveness of water quality management activities. No industry standards exist. However, 2024 data for mixed land use in Oregon indicate 6 monitored stream sites showing a decreasing trend in water quality. Statewide, data for 2024 for all land uses, including agricultural and forest lands indicate 35 monitored stream sites (21%) with decreasing trends in water quality.

c) In 2024, 75% of monitored forest stream sites showed "good" to "excellent" water quality, which is just slightly below the target of 80%. For the past seven years, monitored sites on forestland did not meet the target (which increased in 2018). Prior to the change, monitored forest stream sites had met or exceeded the target every year since 2009 when the measure was established. About half of the ambient sites statewide continue to have "good" to "excellent" water quality and that has remained consistent over the last ten years. For 2024, one monitored site (2%) in forest land use has a status of very poor. This is the first time in over ten years that a monitored forest site has a very poor status. The performance is based on the Oregon Water Quality Index (OWQI). The OWQI describes general stream water quality status and trends. The OWQI also shows the general effectiveness of water quality management activities. No industry standards exist. However, 2024 data for agricultural lands in Oregon indicate about 31% of monitored agricultural stream sites with water quality in good to excellent condition. Statewide data for 2024 for all land uses, including agricultural and forest lands indicate about 50% of monitored stream sites with water quality in good to excellent condition. These comparisons demonstrate that maintaining forestlands in forest use is an effective and efficient way to maintain water quality.

Factors Affecting Results

Sites that show significant improvements may be attributed to the following: reduced levels of non-point source activity, increased education about water quality impacts, and watershed restoration efforts. Underlying all these factors are stream flow conditions as Oregon transitions between drought and wet years, changes in stream flows may indirectly affect observed water quality. A variety of activities occurring on forestlands, including forest management (timber harvesting and road construction/use), fire suppression, recreation, and livestock grazing may impact soil and water resources. Disturbances that trigger large erosion events can produce important changes in aquatic conditions. These episodic changes are critical in maintaining aquatic habitat over time, even though they may temporarily decrease water quality.

The declining trends in water quality, as indicated by Biological Oxygen Demand (BOD) and Oregon Water Quality Index (OWQI) scores in forest land use areas may be attributed to several contributing factors including:

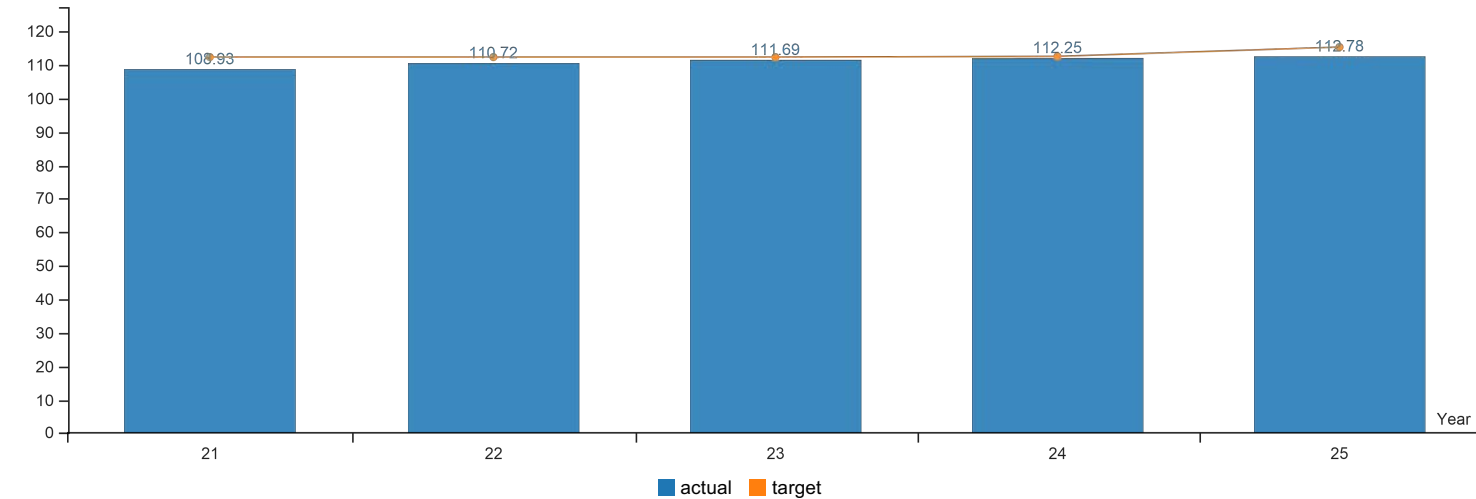
- **Increased Nutrient Inputs and Algal Growth:** Elevated nutrient levels, likely from agricultural runoff or other sources, can lead to excessive algal growth. This increases BOD as decomposing algae consume oxygen, reducing water quality.
- **Increased Ambient Air Temperatures:** Rising air temperatures, particularly in Central and Southwest Oregon, can elevate stream temperatures. Warmer water holds less dissolved oxygen, contributing to higher BOD and lower OWQI scores.
- **Reduced Flow Due to Drought:** Ongoing drought conditions in Central and Southwest Oregon reduce stream flow, concentrating pollutants and increasing water temperatures, both of which negatively impact BOD and water quality.
- **Reservoir Drawdowns:** Historically low reservoir levels in tributaries of the Willamette River over the past two years have caused increased turbidity and elevated water temperatures downstream. These conditions can raise BOD by introducing organic matter and reducing oxygen levels.

Several of the stations identified as forest land-use with declining trends over the last few years are located downstream of recent major wildfires. Wildfires are a well-documented cause for a decline in water quality, and it can take a decade or more for the area impacted by a major wildfire to recover. When plant matter is destroyed by wildfires, heavy metals and nutrients that have been sequestered by the plants or bound in the soil are released back into the environment and are easily washed into streams. Landslides resulting from the loss of established vegetation can increase turbidity, total solids, and nutrient loads downstream of the areas impacted by wildfires. A decrease in canopy cover can increase the amount of sunlight that reaches the stream, causing higher temperatures and algal blooms that can decrease DO. These changes in water quality trends are consistent with OWQI data over the last several years.

Disclaimer: The OWQI used in this KPM is one of many tools to understand Oregon water quality conditions statewide. The ambient network is not a randomly selected, statistically valid sample of water quality conditions statewide. Sampling sites were selected to reflect the integrated effects of land use and point source discharges upstream of them. The data is representative of just the sampling site and does not represent the water quality conditions of other locations in the same basin or of the whole river (DEQ, 2019).

KPM #9	VOLUNTARY PUBLIC AND PRIVATE INVESTMENTS MADE TO CREATE HEALTHY FORESTS - Cumulative public and private forest landowner investments made in voluntary projects for the Oregon Plan for Salmon and Watersheds or for the Oregon Conservation Strategy.
	Data Collection Period: Jan 01 - Dec 31

* Upward Trend = positive result



Report Year	2021	2022	2023	2024	2025
Private forestland owner investment in Oregon Plan habitat restoration projects - \$ in millions					
Actual	\$108.93	\$110.72	\$111.69	\$112.25	\$112.78
Target	\$112.50	\$112.50	\$112.50	\$112.72	\$115.50

How Are We Doing

Private forestland owners have made significant investments in improving water quality and fish habitat. Reported cumulative investments for 2024 were \$112.78 million compared to a target of \$115.5 million. The 2024 accomplishment level represents the fifth year out of eight, that cumulative private investments in Oregon Plan for Salmon and Watersheds (Oregon Plan) did not meet the target. In 2024, private forestland owners invested \$0.53 million which continues to show a high level of contribution from private forestland owners to improve water quality and fish habitat through voluntary restoration measures. The Department expected the rate of expenditures to continue to decline over time as more projects are completed and opportunities for restoration decrease. During the 2021-2024 period, restoration activities and investments increased based on the reported average annual contributions of approximately \$1.5 million per year for the current period compared to the previous period of 2004-2013.

Oregon is unique among western states in its focus on voluntary measures, which work in concert with regulatory approaches to achieve additional habitat protection and restoration. The Oregon Plan funding supports coordination with watershed councils and other groups that encourage restoration.

Voluntary restoration activities by landowners, combined with continued regulatory compliance, provide a foundation for the success of the Oregon Plan in protecting and restoring water quality and fish habitat on forestland. The Oregon Conservation Strategy provides an analogous voluntary framework for restoration of all habitat types. The Conservation Strategy emphasizes proactively conserving declining species and habitats to reduce the possibility of future federal or state listings. The strategy presents issues and opportunities and recommends voluntary actions that will improve the efficiency and effectiveness of conservation in Oregon.

The Department revised its Stewardship Agreement program to improve efficacy of encouraging forestland owners to self-regulate to meet and exceed applicable regulatory requirements and achieve conservation, restoration, and improvement of fish and wildlife habitat and water quality. The Department continues to implement a programmatic Safe Harbor Agreement for Northern Spotted Owls to provide regulatory certainty and encourage voluntary enhancement of owl habitat for landowners who choose to participate. In 2019, the stewardship agreement tool had increased interest and resulted in nearly 32,000 acres enrolled because of a new agreement with one large landowner in Northwest Oregon who focused on aquatic and terrestrial conservation strategies for listed threatened and endangered species.

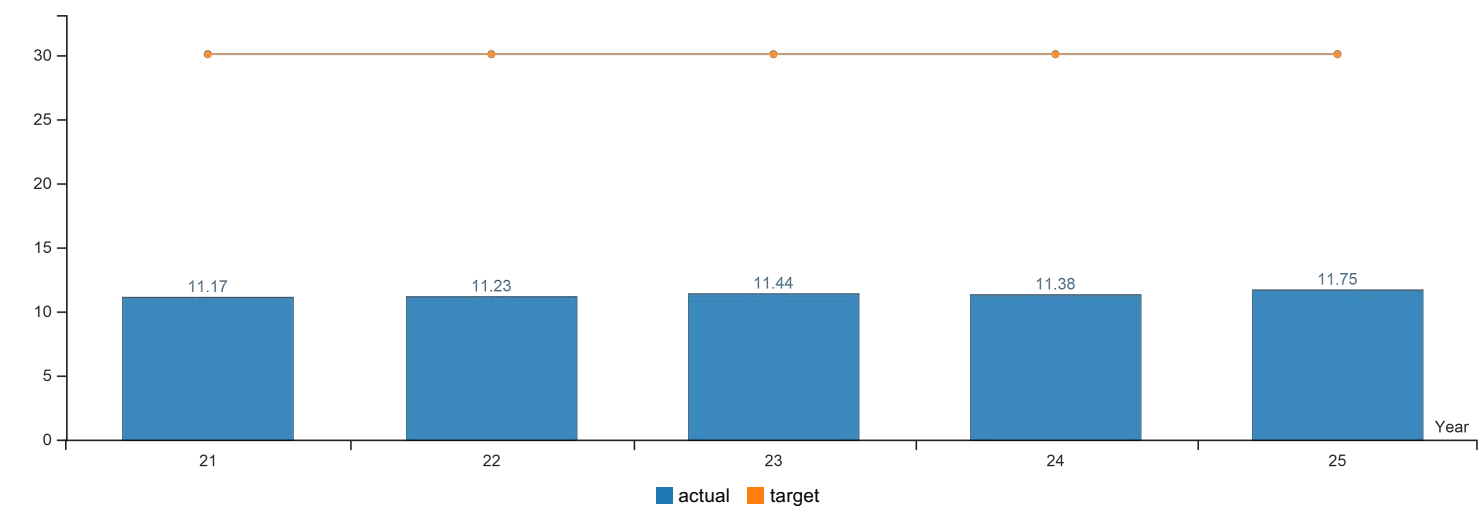
Factors Affecting Results

The Oregon Plan has been successful because of the strong forestland owner community who work with watershed councils and the Department to achieve restoration and protection goals for natural resources. There continues to be broad support for voluntary measures coupled with regulatory mandates. The Department's Stewardship Foresters provide education and technical assistance to landowners in support of restoration activities. With the start of the new decade in 2020, several negative factors created difficulties in implementing projects at the same scale as previous reporting periods prior to 2020. The 2020 Labor Day wildfires that severely impacted private forestland, the global pandemic resulting from COVID-19 resulting in uneven supply chains and demand dynamics, and instances of severe weather events, all of which shifted priorities to rehabilitation with reforestation and restoration activities focused within fire affected areas. Economic and environmental conditions have stabilized recently and should result again in steady investments and contributions to watershed restoration efforts. At the start of 2024, the Department began implementing a revised regulatory and landowner assistance program that was initiated with legislation and the subsequent adoption of more protective administrative rules for forest operations near streams and other sensitive sites.

The Department is aware that additional implementation and voluntary actions may be occurring, but due to system complexities associated with the designated reporting system at OWEB, reporting of voluntary restoration projects is not occurring at a high enough percentage or is incomplete to capture a comprehensive view or encourage additional investments by private forestland owners.

KPM #10	STATE FORESTS NORTH COAST HABITAT - Complex forest structure as a percent of the State Forests landscape.
	Data Collection Period: Jul 01 - Jun 30

* Upward Trend = positive result



Report Year	2021	2022	2023	2024	2025
Complex structure as a percent of the State Forests landscape					
Actual	11.17%	11.23%	11.44%	11.38%	11.75%
Target	30%	30%	30%	30%	30%

How Are We Doing

The amount of complex structure on State Forests demonstrates a steady or slightly increasing trend since 2018. The decrease from 2017 to 2018 was largely a result of a change in how the amount of complex structure is estimated. When considered by District, the fiscal year 2024 data show that 17.64% of Astoria district, 10.77% of Forest Grove district, and 8.99% of Tillamook district are in complex forest structure.

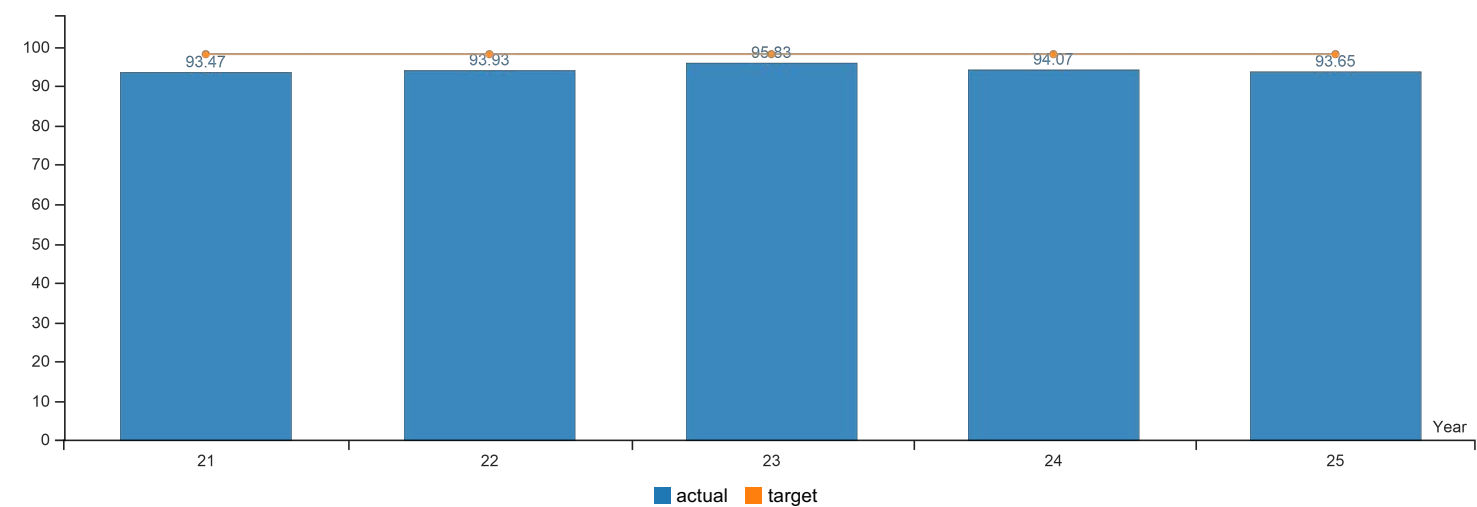
Factors Affecting Results

Complex forest structure develops very slowly, and it is anticipated to take decades to achieve the range of 30 to 50% complex structure now described in the forest management plans. ODF's Stand Level Inventory (SLI) system is not designed to report on year-to-year differences but rather reflect our updated understanding of the landscape.

The year-to-year changes in complex structure are the result of updates to SLI data as well as active management designed to enhance the development of complex forest structure over time.

KPM #11	FIRE SUPPRESSION EFFECTIVENESS - Percent of wildland forest fires under ODF jurisdiction controlled at 10 acres or less.
	Data Collection Period: Jan 01 - Dec 31

* Upward Trend = positive result



Report Year	2021	2022	2023	2024	2025
Percent of wildland forest fires controlled at 10 acres or less					
Actual	93.47%	93.93%	95.83%	94.07%	93.65%
Target	98%	98%	98%	98%	98%

How Are We Doing

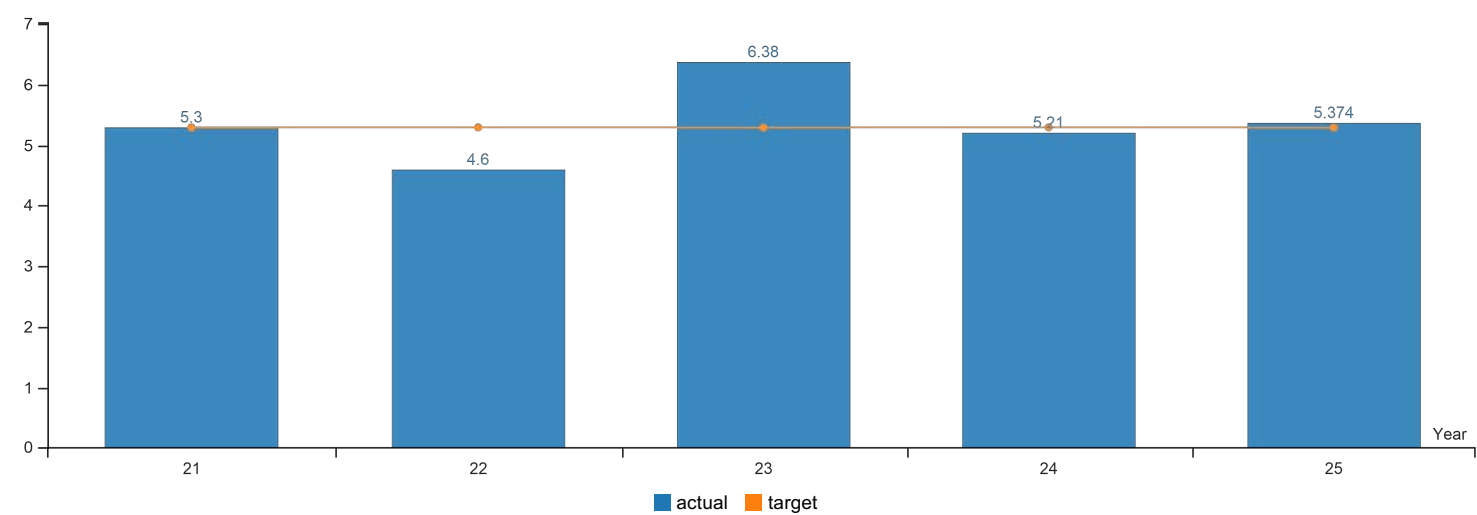
The Department came to 93.65%, which is 4.35% under the target of suppressing 98 percent of all wildfires at ten acres or less in size for the 2024 fire season.

Factors Affecting Results

Influencing factors: The 2024 fire season set a record for acres burned statewide in the last three decades. Statewide across all jurisdictions, more than 1.93 million acres burned. This is over three times the 10-year average (2014-2023) of 621,044 acres. The state experienced six megafires (fires over 100,000 acres), with the largest, the Durkee Fire, burning nearly 300,000 acres. This is one more megafire than during the 2020 Labor Day fire event, and nearly 800,000 more acres burned in 2024 compared to 2020. Twelve fires qualified for FEMA Fire Management Assistance Grants as the fire weather and fuel conditions were such that immediate evacuations occurred whenever there was a fire start.

KPM #12	PREVENTION OF HUMAN-CAUSED WILDLAND FOREST FIRES - Number of Oregon residents per human-caused wildland forest fires. (population expressed in thousands of residents) This metric measures the ability to maintain or reduce the number of human-caused wildfires as the population of Oregon increases. An upward trend indicates a positive result.
	Data Collection Period: Jan 01 - Dec 31

* Upward Trend = positive result



Report Year	2021	2022	2023	2024	2025
Number of Oregon residents per human-caused wildland fire					
Actual	5.300	4.600	6.380	5.210	5.374
Target	5.300	5.300	5.300	5.300	5.300

How Are We Doing

Key Performance Measure #12 report as a number of Oregon residents per human-caused wildfire compared to previously reporting the number of human-caused wildfires per 100,000 Oregon residents. Results for the 2024 reporting year are reflected in the following narrative (population expressed in thousands of residents).

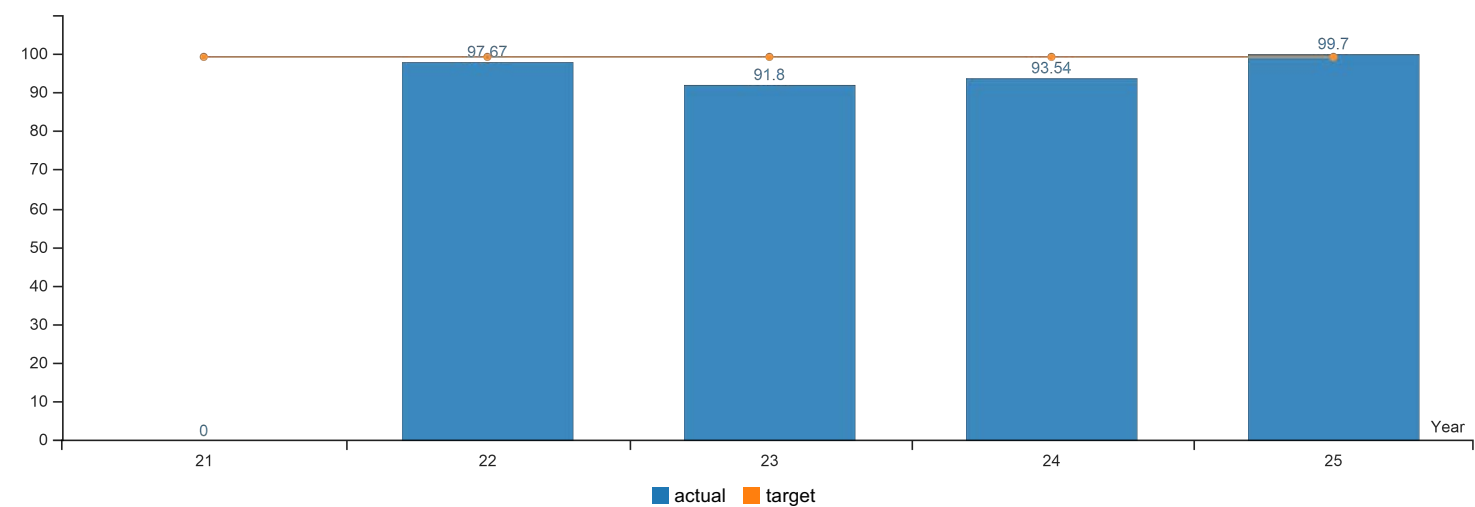
The fire prevention program continues to examine new and effective approaches to prevent human-caused wildland fires. There were 794 human-caused wildland fires in 2024. With Oregon's population in 2024 totaling 4,267,291 the resulting fire prevention rate of 5.37 thousand Oregon residents per human-caused wildland forest fire exceeded the target. The 10-year average of human-caused wildland fires is 792 fires annually on ODF protected lands.

Factors Affecting Results

Steady increase in Oregon's population and the use of forestland for recreation as well as increasing rural residential home sites are key components for these results. Heavily populated areas of the state, where weather and fuel conditions are aided by public activities, such as debris burning, equipment use, and forest recreation, drive the data.

KPM #13	DAMAGE TO OREGON FORESTS FROM INSECTS, DISEASES, AND OTHER AGENTS - Percent of forest lands without significant damage mortality as assessed by aerial surveys.
	Data Collection Period: May 01 - Oct 31

* Upward Trend = positive result



Report Year	2021	2022	2023	2024	2025
Percent of Oregon forestlands without significant damage from insects, diseases and other agents					
Actual		97.67%	91.80%	93.54%	99.70%
Target	99%	99%	99%	99%	99%

How Are We Doing

In 2024 mapping technology improved, showing improvement and exceeding the 2024 KPM. The KPM is to have 99% of forested acres free of significant damage from insects, diseases and other agents. However, the 2024 measure doesn't include acres of tree damage from hard-to-monitor agents of some diseases and direct drought stress.

In prior mapping the software included all acres within a polygon that had damage. Now, the mapping software reports only the damaged acres. The more accurate mapping means that prior-year's statistics should not be compared with this year's. For more details about the change review the 2024 Forest Health Highlights: <https://www.oregon.gov/odf/forestbenefits/documents/forest-health-highlights.pdf>.

The annual Aerial Detection Survey is how most data is collected for this KPM. This is the longest-running survey in the nation, going for more than 70 years. Changes to federal funding priorities will likely reduce the survey's coverage area by up to 50% for 2025. Historically, the annual survey includes about 38 million acres.

Most tree damage for at least the last decade has been from ongoing droughts, higher than average temperatures, and insects such as bark beetles. The department anticipates Oregon's forestlands to have more significant damage as drought persists. The department is expanding efforts to inform landowners of more climate-adapted strategies and provide technical help to mitigate losses from drought stress.

The department continues working with state, federal, and local governments to mitigate established invasive species that threaten Oregon's native tree species. Staff continue to:

- Investigate invasion pathways

- Monitor presence and spread through trapping, and aerial and ground observations
- Provide outreach to improve diagnosis and management guidance
- Work with researchers to identify efficacious treatments
- Help landowners apply these treatments

Invasive species of concern are:

- Sudden Oak Death
- Spongy moth (previously called gypsy moth)
- Emerald ash borer
- Mediterranean oak borer
- Balsam Woolly Adelgid

Factors Affecting Results

Oregon forests have endured drought for years. The loss of natural fire cycles and ongoing drought stress decreases growth, reduces resilience to insects and disease, and can ultimately kill trees. The ways to mitigate these impacts are by reducing forest density, removing tree species that have spread into fringe habitat, or shifting toward more climate-adapted species or genotypes. However, the barriers to these approaches are lack of awareness, funds, and seed stock. The department emphasizes proactive landowner outreach to encourage treatments by sharing effective management tools and resources, including technical and financial assistance. The changes in federal funding priorities will be a barrier to this work.

Agenda Item No.:	C
Work Plan:	Agency Administration Work Plan
Topic:	HB 3940 – Reappointments to Emergency Fire Cost Committee
Presentation Title:	Reappointments of current EFCC members
Date Presented to Board:	September 2, 2025
Contact Information:	James Short, Chief Financial Officer 503-302-8478, James.Short@odf.oregon.gov Nancy Hirsch, Emergency Fire Cost Committee Administrator 503-881-5255, Nancy.Hirsch@odf.oregon.gov

SUMMARY

The purpose of this agenda item is to recommend the reappointments of four current Emergency Fire Committee (EFCC) members to the new EFCC under House Bill (HB) 3940's effective date of September 27, 2025.

BACKGROUND

With the passage of [HB 3940](#) several Oregon Revised Statutes (ORS) have been updated that impact the EFCC. Key components of the house bill are summarized below with emphasis on a deadline related to the appointments:

The State Board of Forestry shall appoint:

- an Emergency Fire Cost Committee for the purpose of carrying out certain provisions of ORS 477 (477.440, 477.445, 477.450, 477.455, 477.460, 477.755, 477.760, 477.770 and 477.775).
- at least one member from each forest region established under ORS 527.640.
- the first five voting members of the Emergency Fire Cost Committee described in ORS 477.440 **on or before December 31, 2025**.
 - One shall serve for a term ending one year after the date of appointment.
 - One shall serve for a term ending two years after the date of appointment.
 - One shall serve for a term ending three years after the date of appointment.
 - Two shall serve for a term ending four years after the date of appointment.

The board may appoint to the committee persons serving on the committee on the effective date of this 2025 Act who qualify under ORS 477.440.

The EFCC shall consist of six members, including one nonvoting representative of the board and five voting members who are appointed by the board as follows:

- Two members who are, or are representatives of, large forest owners whose forestland is being assessed for forest fire protection within a forest protection district.

- One member who is, or is a representative of, a small forest owner whose forestland is being assessed for forest fire protection within a forest protection district.
- One member who is, or is a representative of, an owner of grazing land, as defined in ORS 477.205, whose grazing land is being assessed for forest fire protection within a forest protection district.
- One member appointed at large to represent one of the groups identified above.

Attachment 1 outlines the membership requirements with the proposed recommendations for reappointment. The EFCC chair is coordinating with the Oregon Department of Forestry on outreach to the grazing land owner communities to fill this new and important member of the committee by the next regular board of forestry meeting.

Attachment 2 outlines a brief biography of the four members being recommended for reappointment. The current members are:

Brennan Garrelts. Brennan's first term began in January 2020. Consistent with ORS 477.450, the EFCC elected Brennan as their chairperson at their June 2021 meeting. While serving as the EFCC chairperson, Brennan has represented the committee on multiple policy efforts that include: 2022 Co-chair of ODF's Emergency Fire Funding Task Force which resulted in draft legislative concepts, 2023 represented the EFCC on Senator Steiner's Wildfire & Forestry Workgroup and most recently was a part of the Fire 35 Wildfire Funding Working Group that resulted in the development of HB 3940.

Kathryn VanNatta. Kathryn's first term began in September 2023. Kathryn VanNatta represents all Oregon small forest owners. She is a small forest owner, and she belongs to the Northwest Oregon Forest Protective Association.

John Davis and Eric Kranzush. Both John and Erik's first term began in March 2025, and both also served on the Fire 35 Wildfire Funding Working Group.

RECOMMENDATION

The Department recommends the Board make the following reappointments effective September 27, 2025:

Reappoint Brennan Garrelts and Kathryn VanNatta to the Emergency Fire Cost Committee with terms expiring at the end of September 2029.

Reappoint John Davis to the Emergency Fire Cost Committee with a term expiring at the end of September 2028.

Reappoint Eric Kranzush to the Emergency Fire Cost Committee with a term expiring at the end of September 2026.

ATTACHMENTS

1. Emergency Fire Cost Committee Membership current and proposed
2. Biographies

HB 3940 – EMERGENCY FIRE COST COMMITTEE MEMBERSHIP REAPPOINTMENTS
September 27, 2025

	EFCC Member	Region	Landowner	Initial Term	Term
1	Brennan Garrelts	Southern	large forest	4-years	9/27/2025 - 9/30/2029
2	Kathryn VanNatta	Northwest	small forest	4-years	9/27/2025 - 9/30/2029
3	John Davis	Eastern	large forest	3-years	9/27/2025 - 9/30/2028
4	Grazing TBD		grazing	2-years	
5	Eric Kranzush		at large	1-year	9/27/2025 - 9/30/2026
6	Non voting BOF rep				

Current members

Brennan Garrelts, Chair

Southern Region

Coos, Douglas, and Southwest Oregon Forest Protective Associations

Vice President, Lone Rock Resources

Kathryn VanNatta

Northwest Region

Northwest Oregon Forest Protective Association

Small forest landowner, representing all Oregon small woodland landowners.

John Davis

Eastern Region

Klamath-Lake Forest Protective Association

Vice President and General Manager, Mountain West Timberlands, Green Diamond Resource Company

Eric Kranzush

Western Oregon

Coos, DFPA and Western Lane Forest Protective Associations

Oregon Forestry Manager, Roseburg Resources – Western Regional Office

Current members – brief biographies

Brennan Garrelts developed a passion for Oregon's forests early in his youth and spent much of his spare time exploring the public and private forestlands behind his childhood home in Southwest Oregon. In college he sought to continue that passion to a professional career and after receiving his B.A. in Environmental Science from Willamette University, he went on to earn his M.S. in Forest Science from Oregon State University's College of Forestry.

Brennan spent the first decade of his professional career working for the Bureau of Land Management as a forester in northern California and Southwest Oregon. In 2015, he transitioned to the private sector and began working for Lone Rock Resources. Today, Brennan holds the role as Vice-President overseeing Lone Rock's Timber Investments and Partnerships as well as Government Affairs and Policy.

Throughout his forestry career Brennan has consistently sought to grow his professional wildland firefighter experience and qualifications. He has spent 20 seasons fighting wildland fire in various operational positions. He has worked extensively and repeatedly with all three ODF Teams as well as numerous federal teams. Brennan has also served on several commitments, both regionally and national, concerned with wildfire management and mitigation, the Douglas Forest Protective Association's Board of Directors (2017-2025), the legislatively appointed Fire-35, and is the current elected Chair of ODF's Emergency Fire Cost Committee.

Kathryn VanNatta is a board member and budget committee member of the Northwest Oregon Forest Protective Association. She represents a small woodland landowner through Roman V Ranch, LLC (The VanNatta family's forestland) and Tie Cabin Tree Farm. Kathryn is a native fifth-generation Oregonian and a small woodland owner since 1985, residing in Hillsboro. She is a member of the Oregon Small Woodland's Association, Oregon Tree Farm System, and Oregon Farm Bureau Federation. Kathryn is the corporate managing partner of Roman V Ranch, LLC, and manager/owner-in-training of VanNatta Brothers Logging. She also formerly served as a regulatory affairs director and lobbyist for Oregon's pulp and paper industry's association. Most days you can find her teaching sewing, gardening or on the tree farm.

John Davis holds a B.S. in Forestry from Humboldt State University and is a seasoned forestry and timberlands operations professional with over 31 years of experience managing large-scale forest assets across Oregon, Montana, and California. As Vice President and General Manager of Mountain West Timberlands at Green Diamond Resource Company, he oversees 925,000 acres, including 635,000 acres of Eastside forest, ensuring sustainable harvesting, fire mitigation, and financial stewardship. Throughout his career, he has held various leadership roles, directing operations with multimillion-dollar budgets, coordinating fire prevention and suppression efforts, and fostering collaboration between industry stakeholders, regulators, and local communities. In the role in Oregon, he has worked within the complete and coordinated system on a number of large fires and Green Diamond is an active partner in the district level Fire Protective

Associations. His expertise spans strategic planning, budgeting, financial analysis, contract negotiations, and resource management, all while prioritizing safety and environmental responsibility.

With a deep commitment to forestland protection, John has been actively involved in emergency response planning, including wildfire suppression, risk mitigation, policy through participation in two recent workgroups focused on solving for State fire funding, and the national level through National Alliance of Forest Owners effort to develop MOU's with the USFS on both fire suppression and fuel breaks. His experience with long-term harvest forecasting, fire cost management, and investment in fire prevention aligns with the mission of the Emergency Fire Cost Committee (EFCC). As a dedicated representative of an Oregon forestland owner, he is passionate about ensuring equitable fire suppression funding and advancing strategic investments in fire detection and response.

Eric Kranzush currently serves as the Oregon Forestry Manager at Roseburg Resources, where he oversees the reforestation, stand management, and wildfire protection of nearly 400,000 acres of timberlands in Western Oregon. Roseburg Resources actively participates in fire protection within the Coos, Douglas, and Western Lane Forest Protective Associations.

For the past 23-years, Eric worked at Giustina Land & Timber Co, where he held various leadership roles within the Linn Forest Protective Association (LFPA), including multiple terms as President and Vice-President. He chaired the Plans & Studies Committee, overseeing the acquisition, construction, and maintenance of LFPA's motorpool and facilities projects. Eric also developed a robust understanding of local district fire protection budgets and advocated for operational efficiencies in Initial Attack systems.

He has represented LFPA on the Oregon Forest Industries Council Protection Committee and the Oregon Forest Protective Association. Currently, he served on the ODF Headquarters Services Committee and the State Forester's "Fire 35" Committee, seeking durable and equitable funding for ODF's Protection Program.

His advocacy and field experience include testifying on wildfire issues at the State Capitol, serving as a Landowner Representative and Resource Boss on numerous large wildfires, and extensive experience as a Burn Boss in prescribed fire operations. Eric holds a bachelor's degree in Forest Management from Oregon State University and an MBA from the University of Oregon. He is deeply committed to effective fire management and financial stewardship. His extensive experience in forest protection, budget management, and strategic planning aligns well with the responsibilities of the Emergency Fire Cost Committee (EFCC). Eric is eager to contribute to the sustainability and resilience of Oregon's forestlands through his role on the EFCC.

New member

Bobby Corey, of Pendleton, is a 4th generation owner of Cunningham Sheep Company and related entities in northeast Oregon that include cattle, sheep, wheat, timber and hunting enterprises within its business structure. Bobby has served as an Oregon Department of Forestry Budget Committee member in Northeast Oregon since 2013 and has also been a Director of the East Oregon Forest Protection Association. He presently oversees wildland fire operations for Cunningham Sheep Company, working very closely with Oregon Department of Forestry in Northeast Oregon, as well as Rural Fire Departments within Umatilla County. He currently is a Board Member of Cunningham Sheep Company, the Happy Canyon Company, and the Helix School District.

Bobby graduated in 2012 from the University of Idaho with a degree in Agricultural Business. After college, he returned to the family ranch and started a very successful guided hunting business, Hunt Oregon, and still oversees its operations today. Bobby also is a partner in a dryland wheat farm in Helix, OR.

Agenda Item No:	D
Work Plan Title:	Forest Resources Division
Topic:	Annual topic, Regional Forest Practices Committee
Presentation Title:	Regional Forest Practices Committee Appointments and Reappointments
Date of Presentation:	September 3, 2025
Contact Information:	Kyle Abraham, Deputy Chief – Forest Practices & Monitoring, Forest Resources Division

SUMMARY

The purpose of this agenda item is to recommend the appointment of new members and the re-appointment of existing members to the Regional Forest Practice Committees.

CONTEXT

ORS 527.650 requires the Board of Forestry to establish a forest practice committee for each forest region. Each committee shall consist of nine members, a majority of whom must reside in the region. Members of each committee shall be qualified by education or experience in natural resource management, and not less than two-thirds of the members of each committee shall be private landowners, private timber owners, or authorized representatives of such landowners or timber owners who regularly engage in operations.

ORS 527.660 states “[E]ach forest practice committee shall review proposed forest practice rules in order to assist the board in developing rules appropriate to the forest conditions within its region.” Regional committees have provided a forum for the public; at each meeting members of the public may participate and offer information and suggestions. The Forest Resources Division Deputy Chief serves as the secretary for all three regional committees.

BACKGROUND

Committee member appointments occur annually in September. The committee positions have staggered terms, and each year one-third of the committee members’ terms end. This approach ensures the continuity of committee work.

The department contacted committee members whose terms expire in 2025 about their interest in continued service. To fill pending resignations and existing vacancies, the department and committee chairs searched for qualified nominees with diverse backgrounds. Attachment 1 details the biographies of all new and reappointing members. Attachment 2 details the full roster for each committee.

The following recommendation shows current vacancies, recommended member reappointments and new appointments, and term expiration dates. The term expirations maintain the staggered term approach.

RECOMMENDATION

The department recommends the Board make the following reappointments and new appointments:

<u>Northwest Oregon Region:</u>	<u>Term Expiration (September)</u>
Mike Barnes (Chair) (r)	2028
Candace Bonner (r)	2028
Rob Van Curler (n)	2028
VACANCY	2026
VACANCY	2027

<u>Southwest Oregon Region:</u>	
Chris Arnold (r)	2028
Michael Scott (r)	2028
Hunter Kjos (n)	2028
VACANCY	2026
VACANCY	2027
VACANCY	2027

<u>Eastern Oregon Region:</u>	
Bobby Douglas (r)	2028
Tim Rude (n)	2028
Travis Erickson (n)	2028
VACANCY	2026
VACANCY	2027
VACANCY	2027

- (r) Reappointment
- (n) New Appointment
- (p) Public Member

ATTACHMENTS

- (1) Biographies for appointments
- (2) Committee rosters

BIOGRAPHIES FOR REGIONAL FOREST PRACTICE COMMITTEE APPOINTMENTS

September 2025

NORTHWEST OREGON REGION



Biography for Mike Barnes, Chair

Mike Barnes is a forest consultant where he represents several forest and timber landowners to include Richen Tree Farms, Inc. and JTF, Inc.



Biography for Candace Bonner

Candace Bonner is a small forest owner. She grew up in Hawaii and has a B.A. from University of Hawaii at Manoa, an M.D. from John A. Burns School of Medicine, board certification in Internal Medicine and Emergency Medicine, and an M.P.H. in Epidemiology from University of California Berkeley School of Public Health. She moved to Oregon in 1990 with her two young children to stay ahead of climate change. She became a small forest owner in 2002; her property crossed by a large salmon spawning stream accessed by steep hiking trails. To better manage her forest land, she enrolled as a part time student in Natural Resources Technology at the local community college, focusing on forestry and on wildlife biology, while continuing to work as a physician. In 2019, she took on a reforestation project for the Trails Club of Oregon on their Nesika property above Multnomah Falls in the total burn area of the 2017 Eagle Creek fire. She continues to manage her own property for wildlife habitat conservation, climate change mitigation, and maintenance of recreational trails.

BIOGRAPHIES FOR REGIONAL FOREST PRACTICE COMMITTEE APPOINTMENTS

September 2025



Biography for Rob Van Curler

Rob Van Curler is the Region Engineering Lead for the Willamette Region with Weyerhaeuser where he trains and mentors nine engineering specialists across Weyerhaeuser's Oregon operation. He joined Weyerhaeuser in 2018 and has held several roles including Engineering Specialist and Harvest Manager. His experience includes work as a forestry consultant with Pacific Forestry and as an Engineering Specialist for Roseburg Forest Products. He has a B.S. in Forest Engineering from Oregon State University. He is a lifelong Oregonian, growing up in the small town of Mapleton, where his family owns a small tree farm.

SOUTHWEST OREGON REGION



Biography for Chris Arnold

Chris Arnold is the Harvest Manager for Lone Rock Resources where he oversees harvesting performed across Lone Rock Resources property. He joined Lone Rock Resources in 2007 to work on one of the company yarder crews. In his time at Lone Rock Resources, he has worked as a forester, a logging administrator for their coastal ownership, and a logging administrator in the Umpqua Valley. His experience includes timber management, road layout, neighbor relations, harvest unit layout and preparation, and management of active harvest operations. He also spearheaded the salvage logging efforts on the company tree farm after the record-breaking snowstorm of February 2019 in the Umpqua Valley and managed the salvage efforts following the Archie Creek Fire. He is proud to serve on the Southwest Oregon Regional Forest Practices Committee representing private timber owners.



Biography for Michael Scott

Michael Scott manages Mason, Bruce & Girard's North Bend office. He is focused on supplying field services for their forestland owner clients along the southern Oregon coast. He has over 14 years of experience in the timber industry and a B.S. in Forestry from Humboldt State University. His first job out of college was working on a private 585,000-acre ranch in Northern New Mexico preparing and administering timber sales, cruising timber, and wildland firefighting. He then moved to Northern California to work for a private consulting firm where he managed a satellite office. His main responsibilities were timber cruising, timber marking, and timber sale layout where he led crews from Southern Oregon to the central Sierra Nevada. After that he moved to Central Arkansas and worked for a timber company as their District Forester on an 80,000-acre district. His responsibilities included harvest planning, contract administration, road maintenance and silviculture.

BIOGRAPHIES FOR REGIONAL FOREST PRACTICE COMMITTEE APPOINTMENTS

September 2025



Biography for Hunter Kjos

Hunter Kjos (Black-Priest) is a forester with Mason, Bruce & Girard (MB&G), based in the Roseburg office. She holds a Bachelor of Science in Forestry, with a Forest Management and Restoration and Fire Option from Oregon State University. Hunter brings over 7 years of experience in the forestry industry, including hands-on roles operating heavy equipment for Foglio Trucking and working at Roseburg Forest Products' Lebanon Seed Orchard. Since joining MB&G in 2021, she has been involved in a wide range of forestry operations such as harvest planning, timber sale layout, silviculture planning and implementation, road inventory, maintenance and construction, GIS mapping, data management, and contract administration. She played a role in salvage layout following the Archie Creek Fire and continues to be actively involved in silviculture planning and reforestation in the affected areas. Hunter also serves as President of the Douglas County Chapter of Oregon Women in Timber, a statewide nonprofit organization dedicated to raising awareness about the importance of forests, trees, and wood products in our daily lives. The organization promotes public understanding of sustainable forestry and its vital role in both environmental stewardship and economic health.

BIOGRAPHIES FOR REGIONAL FOREST PRACTICE COMMITTEE APPOINTMENTS

September 2025

EASTERN OREGON REGION



Biography for Bobby Douglas

Bobby Douglas has worked in the timber industry for over 16 years. He is a Timber Resource Analysts for Green Diamond Resource Company. He is a California Registered Professional Forester. He has a B.S. in Wildlife Resources from the University of Idaho and an M.B.A. with a concentration in Business Analytics from Southern Oregon University.



Biography for Tim Rude

Tim Rude is the Owner/Operator of Rude Logging LLC and Rude Land and Timber LLC, and he manages over 1200 acres of his private timber land. Since his start in 1993, he has gained experience in most aspects of logging from starting out bumping knots to owning and operating a logging company. He is knowledgeable in pre-erosion control, riparian area repair and protection, aspen restoration, road work, working near stream, and his experience includes yarder logging. Rude Logging currently specializes in steep slope mechanized logging and ground based whole tree yarding. Rude Logging has been an Oregon Professional Logging Company certified since 2004. Tim is on the Executive Board of Directors of Associated Oregon Loggers and the Natural Resource Advisory Committee for Grant County.

BIOGRAPHIES FOR REGIONAL FOREST PRACTICE COMMITTEE APPOINTMENTS

September 2025



Biography for Travis Erickson

Travis Erickson is an experienced Natural Resource Manager with over 25 years of expertise in sustainable land use, ecosystem management and conservation planning. With a strong background in environmental science and resource policy, he specializes in developing and implementing strategies that balance ecological preservation with community and economic needs. He is skilled in environmental compliance, stakeholder engagement, and the integration of scientific data into practical land management solutions. He is currently serving as the Area Forest Manager for Collins Timber Company, managing timber and other natural resource assets for sustainable forest, watersheds, wildlife habitat function. He holds a degree in Forestry from Humboldt State University, and is a California Register Professional Forester. Throughout his career, he has collaborated with government agencies, tribal entities, NGOs, and private landowners to plan and implement forest resilient and post wildfire forest restoration. His passion for mixed conifer and dry pine forest drives his commitment to landscape, cross-boundary post-wildfire forest and watershed restoration.

CURRENT REGIONAL FOREST PRACTICE COMMITTEE MEMBERSHIP

September 2025

NORTHWEST OREGON REGION

Member Name	Current Term Began	Current Term Expires	Recommended Expiration
Mike Barnes (Chair) (r)	09/2022	09/2025	09/2028
Candace Bonner (r)	09/2022	09/2025	09/2028
Rob Van Curler (n)		09/2025	09/2028
Randy Silbernagel (p)	09/2023	09/2026	
Eric Kranzush	09/2023	09/2026	
[VACANT]		09/2026	
Aaron Zweber	09/2024	09/2027	
Dave Wells (p)	09/2024	09/2027	
[VACANT]		09/2027	

SOUTHWEST OREGON REGION

Member Name	Current Term Began	Current Term Expires	Recommended Expiration
Chris Arnold (r)	09/2022	09/2025	09/2028
Michael Scott (r)	09/2022	09/2025	09/2028
Hunter Kjos (n)		09/2025	09/2028
Dana Kjos (Chair)	09/2023	09/2026	
Steve Swanson	09/2024	09/2026	
[VACANT]		09/2026	
Kale Woosley	09/2024	09/2027	
[VACANT]		09/2027	
[VACANT]		09/2027	

EASTERN OREGON REGION

Member Name	Current Term Began	Current Term Expires	Recommended Expiration
Bobby Douglas (r)	09/2022	09/2025	09/2028
Tim Rude (n)		09/2025	09/2028
Travis Erickson (n)		09/2025	09/2028
Todd Kurtz	09/2023	09/2026	
Jeremy Grose	09/2023	09/2026	
[VACANT]		09/2026	
Bob Messinger (Chair)	09/2024	09/2027	
[VACANT]		09/2027	
[VACANT]		09/2027	

(r) Reappointment
(n) New Appointment
(p) Public Member

Agenda Item No.:	E
Work Plan:	Fire Protection Work Plan
Topic:	Ongoing Topic: Rangeland Protection Association Expansion
Presentation Title:	Approval to Expand the Silver Creek Rangeland Protection Association
Date of Presentation:	September 3, 2025
Contact Information:	Stacy Savona, Wildfire Prevention and Policy Manager 971-374-3351, stacy.savona@odf.oregon.gov

SUMMARY

The purpose of this agenda item is to obtain Board approval to proceed with bringing 103,262 acres of Wasco County into the Petersburg Rangeland Protection Association.

CONTEXT

Rangeland fire protection associations are non-profit, locally governed groups of landowners which have been organized to provide fire protection to rangeland in portions of eastern Oregon. These organizations are formed under the authority of the Board and with assistance from the Department.

Currently, there are 28 Rangeland Protection Associations (RPA) that have previously been approved by the Board of Forestry. These RPAs protect over 5,130,732 acres of private land and approximately 685,902 acres of state-owned lands. These lands, including federally owned land, combine to encompass over 17.6 million acres.

Several representatives of rangeland owners in Wasco County have requested the Board hold a public hearing about providing protection from fire for additional rangeland including 103,262 acres south of the current Petersburg RPA boundary. The Board, on June 4th, 2025, authorized a public hearing on the formation request, pursuant to ORS 477.320. A hearing was held at the Dufur Fire Hall in Dufur, Oregon on June 26th, 2025.

At the hearing, strong support for the expansion of the association was evident in the immediate area per the oral comments given by the attendees.

These landowners want a way to protect their private property and actively take part in the protection of their lands. The increased level of protection for this area can be achieved by bringing it into the Oregon protection system and expanding the current rangeland association.

RECOMMENDATION

The Department recommends the Board take the following action when it meets on September 3, 2025:

Approve the inclusion of rangeland in portions of Wasco County into the Petersburg Rangeland Protection Association.

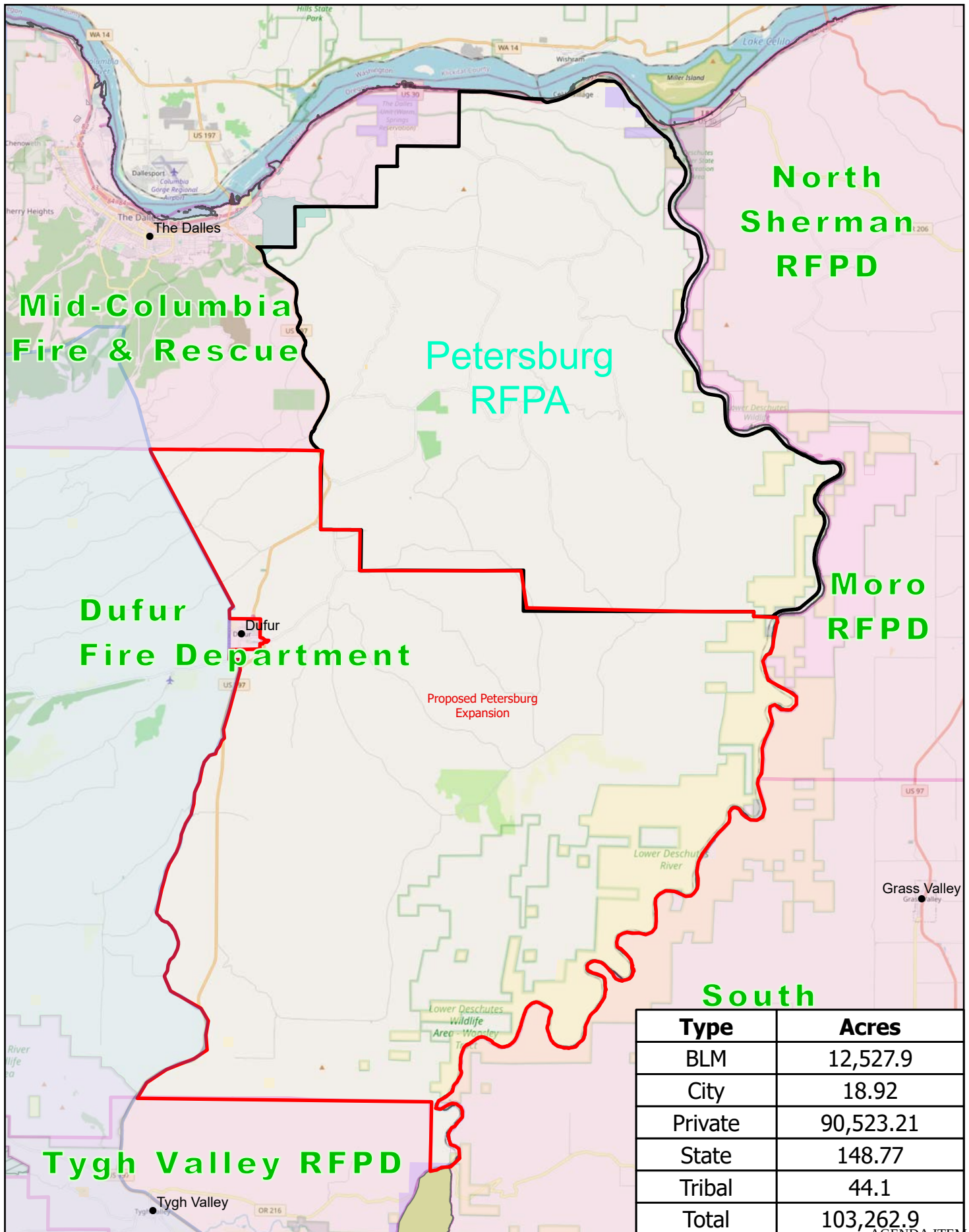
NEXT STEPS

The Department will work with local landowners in the area of the Petersburg Rangeland Protection Association. This will include developing mutual aid agreements, providing training as requested, offering FEPP equipment as available, and any other assistance as requested and feasible.

ATTACHMENTS

- (1) Petersburg Rangeland Association expansion boundary map
- (2) Petersburg Rangeland Association Formation Public Hearing sign-in sheet
- (3) Petersburg Rangeland Association Formation Public Hearing Report

Petersburg RFPA Boundary Expansion



PUBLIC HEARING PARTICIPATION RECORD
REQUEST TO EXPAND THE "Petersburg RFPA BOUNDARY" AREA INTO THE OREGON PROTECTION SYSTEM UNDER ORS
477.320

Location: _____ Dufur _____ Date: June 26th, 2025 _____ Time: 17:30 _____

PLEASE PRINT

NAME & ORGANIZATION	MAILING ADDRESS	TESTIMONY SUBMITTED	
		WRITTEN	ORAL
Steve Springston	63867 Fargher Rd Dufur OR 97024		X
Ryan Clausen	P.O. Box 1972, The Dalles, OR 97058		X
Mike May	The Dalles		X
Mike Kelly	4730 Emerson Loop Rd T.D		X
Mike Ylness	5623 Emerson Loop Rd T.D.		X
JK (X)	60277 Tygh Ridge Rd. Dufur		X
James Ylness	63653 Center Ridge Rd		X
Bob Flanning	7075 15 th Ave Rd The Dalles		
Joe Lowell	4879 Mill Creek Rd The Dalles		
Bob Hamme	62250 Tygh Ridge Rd		

PUBLIC HEARING PARTICIPATION RECORD
REQUEST TO EXPAND THE "Petersburg RFPA BOUNDARY" AREA INTO THE OREGON PROTECTION SYSTEM UNDER ORS
477.320

Location: _____ Dufur _____ Date: June 26th, 2025 _____ Time: 17:30 _____

PLEASE PRINT

NAME & ORGANIZATION	MAILING ADDRESS	TESTIMONY SUBMITTED	
		WRITTEN	ORAL
Shawn Brumby	64891 Long Hollow Rd		X
Dave Wagenvlas	6330 Kelly Cat Off Rd TD 97058		
Camilla Gast	60540 Tygh Ridge Rd Dufur, OR 97058		X
Jeremy Gast	"		

PUBLIC HEARING PARTICIPATION RECORD

Location: _____ Dufur, _____

Date: June 26th, 2025.Time: 17:30

PLEASE PRINT

[illegible]

Date: June 27, 2025

To: Oregon Board of Forestry

From: Allison Rayburn, ODF Rangeland Fire Program Coordinator

Subject: Hearing Officer's Report on Petersburg Rangeland Fire Protection Association boundary expansion ORS 477.320(1)

Hearing Information

Proposed Area: 103,262 acres south of current Petersburg RFPA, in Wasco County
Hearing Date & Time: June 26, 2025 @ 5:30 PM
Hearing Location: Dufur Fire Hall, Dufur Oregon
Written Comments Due: June 26, 2025 5:30 p.m.
Hearing Authorized: Board of Forestry meeting, June 4, 2025
Hearing Officer: Allison Rayburn, ODF Rangeland Fire Program Coordinator

The Public Hearing on the proposal to expand the Petersburg RFPA boundary and bring those additional lands into the Oregon Protection System was formally convened at 5:33 p.m. at the Dufur Fire Hall, after a discussion regarding the proposal. Registration forms were available for people who wished to provide oral comments on the proposed formation. The hearing was closed at 5:39 PM.

15 members of the public representing the area landowners attended the hearing. 9 people who signed the Public Hearing Participation Record form provided oral comments. There was a discussion before the hearing to obtain further information on how the RFPA is funded and the agreements they have in place to work with the Wildland fire agencies.

Summary of Oral Comments

Steve Springston was very much in favor of the expansion. His land is all within the proposed new boundary. Insurance dropped two years ago and took a lot of money to get coverage back, and this should help lower costs. Here tonight to show support for the expansion.

Ryan Clausen currently has land that is within the current boundary and the new proposed boundary so is supportive of the move to expand.

Mike May is outside of the current boundary but is supportive of it happening.

Mike Kelly is in favor of the expansion.

Mike Urness is in favor of the expansion. He mentioned that the membership of Petersburg voted for the expansion. We go there anyway currently to help fight the fires with the proposed expansion.

Charlie Dickerson is in favor of the expansion. He mentioned that we currently are helping each other on both sides currently.

James Gibson is in favor of the expansion. It seems smart to make it one big fire district because we fight fire on both sides already.

Shawn Brumlay is in favor of the expansion. He is currently in an unprotected area, but it is a two-way street where we help Petersburg, and they help us, this will benefit both sides.

Amy Kaser is in favor of the expansion, has fought fire on both sides and is hoping this helps with call outs from dispatch with fires now that it will be protected from wildfires.

Summary of Written Comments

None submitted.



Allison Rayburn
ODF Rangeland Fire Program Coordinator
Eastern Oregon Area

Agenda Item No.:	F
Work Plan:	Fire Protection Work Plan
Topic:	Rulemaking
Presentation Title:	Legislative Session Outcome: Protection Division Rulemaking
Date of Presentation:	September 03, 2025
Contact Information:	Ryan Miller, Protection Division-Senior Policy Analyst 541-620-0341, ryan.miller@odf.oregon.gov

SUMMARY

The purpose of this agenda item is to seek approval from the Board of Forestry to commence rulemaking processes to repeal and modify rules as directed by 2025 legislation.

CONTEXT

The 2025 Legislature passed SB 83 and HB 3349, both amending and/or repealing Oregon Revised Statutes. The corresponding Oregon Administrative Rules must now be corrected to align with the new altered statutes.

BACKGROUND AND ANALYSIS

SB 83 repealed ORS 477.490 that established the Statewide wildfire hazard map and rules relating to it. OAR chapter 629, Division 44 is the set of rules that resulted from ORS 477.490 setting the guidelines for its implementation. With the passage of SB 83, ORS 477.490 has been fully repealed, negating the rules set forth in OAR Chapter 629, Div 44. Additionally, OAR chapter 629, Division 01 rules will be amended to remove references in procedural rules to the hazard map.

HB 3349 amended ORS 477.406 to include “mitigation” in the list of allowable activities in this statute alongside “prevention” and “suppression”. The context of this statute change is that mitigation activities are now included in cooperative contracts and agreements for forest protection. OAR chapter 629, Division 41-0100(1) and (6) must now be amended to match the referenced ORS. The word “mitigation” will be added to both (1) and (6) of this ruleset.

ALTERNATIVES CONSIDERED

- No alternatives considered

RECOMMENDATION

The Department recommends the Board of Forestry authorizes the Department to commence the rulemaking processes to repeal and amend Oregon Administrative Rules as described.

NEXT STEPS

With BOF approval, the Department will begin the rulemaking process as described in ORS Division 183 and the Administrative Procedures Act to repeal and

amend the OAR's as described. Following notice to the Secretary of State, a public comment period will be held as required in the APA. Next the BOF will be presented with Draft Rules representing the changes for final approval and filing.

ATTACHMENTS

1 attachment with draft rules and draft rule filing notice.

NOTICE OF PROPOSED RULEMAKING

CHAPTER 629

DEPARTMENT OF FORESTRY

FILING CAPTION: Repeal and amendment of rules relating to wildfire hazard map.

LAST DAY AND TIME TO OFFER COMMENT TO AGENCY: 09/15/2025 5:00 PM

NEED FOR THE RULE(S):

2025 Legislative session, Senate Bill 83, repealed statutes relating to wildfire hazard designations. The included set of rules are being repealed and/or amended to reflect the statute changes. House Bill 3349 added "mitigation to activities allowed in addition to "prevention" and "suppression" that are already identified.

DOCUMENTS RELIED UPON, AND WHERE THEY ARE AVAILABLE:

2025 Senate Bill 83, House Bill 3349

STATEMENT IDENTIFYING HOW ADOPTION OF RULE(S) WILL AFFECT RACIAL EQUITY IN THIS STATE:

N/A

FISCAL AND ECONOMIC IMPACT:

N/A

COST OF COMPLIANCE:

(1) Identify any state agencies, units of local government, and members of the public likely to be economically affected by the rule(s). (2) Effect on Small Businesses: (a) Estimate the number and type of small businesses subject to the rule(s); (b) Describe the expected reporting, recordkeeping and administrative activities and cost required to comply with the rule(s); (c) Estimate the cost of professional services, equipment supplies, labor and increased administration required to comply with the rule(s).

N/A

DESCRIBE HOW SMALL BUSINESSES WERE INVOLVED IN THE DEVELOPMENT OF THESE RULE(S):

N/A

WAS AN ADMINISTRATIVE RULE ADVISORY COMMITTEE CONSULTED? NO IF NOT, WHY NOT? Repeal and amendment of rules based on the repeal and/or amendment of statutes in legislation.

CONTACT:

Ryan Miller

541-620-0341
ryan.miller@odf.oregon.gov
2600 State Street
Salem, OR 97310

RULES PROPOSED:

629-001-0015, 629-001-0020, 629-001-0045, 629-041-0100, 629-044-1000, 629-044-1005, 629-044-1011, 629-044-1016, 629-044-1021, 629-044-1026, 629-044-1031, 629-044-1036, 629-044-1041

AMEND: 629-001-0015

RULE TITLE: Rules of Procedure for Contested Cases; Applicability

RULE SUMMARY: Wildfire hazard rules repeal. Repeal reference to hazard designation appeals.

RULE TEXT:

The rules of procedure in this Division, OAR 629-001-0010 to 629-001-0055, apply to all contested cases before the board and State Forester, unless otherwise provided by law, and are in addition to the procedural requirements of the Attorney General's Model Rules adopted in 629-001-0005. Contested cases covered by these rules include, but are not limited to the following:

- (1) Appeal of civil penalties assessed under ORS 527.687;
- (2) Appeal of "any finding or order" under ORS 527.610 through 527.770 and 527.992;
- (3) Hearings requested by persons adversely affected or aggrieved by an operation requiring a written plan under ORS 527.700(3) through (9);
- (4) Appeal of temporary orders to cease further activity under ORS 527.680(3) and 527.680(4);
- (5) Appeal of repair orders issued under ORS 527.680(2)(b) and 527.690(1);
- (6) Appeal of orders prohibiting new operations under ORS 527.680(5);
- (7) Review of State Forester's proposal to conduct repair work at state expense under ORS 527.690(2);
- (8) Appeals of decisions on land exchanges under OAR 629-033-0055
- ~~(9) Appeals of all property assignments on the wildfire hazard map, including high hazard zones as provided under ORS 477.490(7)(d).~~

STATUTORY/OTHER AUTHORITY: ORS 526.016(4), 527.687(3), 527.715

STATUTES/OTHER IMPLEMENTED: ORS 183.310 - 183.550

AMEND: 629-001-0020

RULE TITLE: Requesting Hearings

RULE SUMMARY: Wildfire hazard rules repeal. Repeal reference to hazard designation hearings requests.

RULE TEXT:

- (1) All requests for hearing shall be made in writing, within the time period provided by statute or rule.
- (2) All requests shall specifically state the issues to be addressed and the relief sought.
- (3) Requests for hearing involving civil penalties shall comply with OAR 629-670-0310.
- (4) Requests for hearing involving a finding or order of the State Forester issued under ORS 527.610 to 527.770 shall comply with OAR 629-672-0200.
- (5) Requests for hearing by persons adversely affected or aggrieved by an operation approved under ORS 527.670(3) shall comply with OAR 629-672-0210.
- (6) Requests for hearing involving land exchanges shall comply with OAR 629-033-0055.
- ~~(7) Requests for hearing involving the wildfire hazard map shall comply with OAR 629-044-1041.~~

STATUTORY/OTHER AUTHORITY: ORS 526.016(4), 527.687(3), 527.715

STATUTES/OTHER IMPLEMENTED: ORS 183.310 - 183.550

AMEND: 629-001-0045

RULE TITLE: Final Orders in Contested Cases

RULE SUMMARY: Wildfire hazard rules repeal. Repeal reference to hazard final orders.

RULE TEXT:

(1) Following hearing, the administrative law judge will prepare the record and proposed order for filing with the board as expeditiously as possible. In the case of hearings related to orders of the State Forester pursuant to ORS 527.700, the record and proposed order shall be filed with the board within five working days of the close of hearing unless an extension has been agreed to by the parties and State Forester. Except as provided in section (2) of this rule, no less than a majority of the board shall then review and consider the proposed order and record, hold a meeting or telephone conference, and take final action as provided for in this rule.

(2) If upon a determination by the board chairperson, the board cannot complete a final order within applicable statutory time limits, the chairperson may delegate authority to issue a final order to the administrative law judge.

(3) After reviewing and considering the proposed order and record, the board may do any of the following:

(a) Schedule written or oral argument from the State Forester and any party that filed exceptions to the proposed order. The board chairperson shall determine whether oral argument, written argument, or both will be permitted after consulting with the board members.

(A) Oral argument shall be allowed only if the board determines it is necessary or appropriate to assist in the proper disposition of the case, and shall be:

(i) Limited to matters raised in written exceptions; and

(ii) Conducted under such time limits as the board chairperson determines are appropriate.

(B) The board chairperson shall notify the agency and parties of the form of argument, if any, to be allowed.

(b) Remand the matter to the administrative law judge for further hearing on such issues as the board specifies, and to prepare a revised proposed order as appropriate, under OAR 137-003-0655(2).

(c) Enter a final order adopting the recommendation of the administrative law judge.

(d) Enter an amended proposed order or final order that modifies or rejects the recommendation of the administrative law judge. If the board decides to modify or reject the proposed order, the board must comply with OAR 137-003-0655 and 137-003-0665.

~~(4) Final orders regarding the wildfire hazard map will be issued in accordance with OAR 629-044-1041.~~

STATUTORY/OTHER AUTHORITY: ORS 526.016(4), 527.687(3), 527.715
STATUTES/OTHER IMPLEMENTED: ORS 183.310 - 183.550

AMEND: 629-041-0100

RULE TITLE: Procedures for Contracts, Agreements and Renewals

RULE SUMMARY: Rule amended (1) and (6) to add "mitigation" to activities allowed.

RULE TEXT:

(1) Pursuant to ORS 477.406(2), all agreements entered into by the forester or by a forest protective association, with each other, with a federal or state agency, political subdivision, corporation, responsible organization or responsible landowner or group of landowners for the prevention, **mitigation**, and suppression of fire shall be negotiated in accordance with the requirements and limitations of ORS 477.406 to 477.412 and this rule.

(2) All negotiations for contracts or agreements pursuant to section (1) of this rule shall be:

(a) Limited to matters provided in ORS 477.406(1).

(b) Conducted by representatives authorized to act on behalf of their organization, where applicable, and that are knowledgeable in wildland fire protection systems or a relevant specialty addressed in the contract or agreement.

(c) Conducted in good faith with the intention of maintaining a complete and coordinated forest protection system for the State of Oregon that is effective in carrying out the policies of ORS Chapter 477 and is economically efficient.

(3) Upon completion of negotiations and agreement by the parties, the contract or agreement will be timely reviewed (though not necessarily prior to its effective date) for adherence to the requirements of relevant statutes and rules according to the following:

(a) The Board shall review any base level contract or agreement between the forester and a forest protective association.

(b) The State Forester or designated representative shall review:

(A) Any contract or agreement that is supplemental to an existing base level agreement between the forester and a forest protective association; or

(B) Any contract or agreement with any other governmental agency or cooperator that affects areas outside a forest protection district or more than one forest protection district.

(c) The district warden or designated representative shall review any contract or agreement with any other governmental agency or cooperator that affects lands only within the warden's jurisdiction.

(d) Notwithstanding this section, any other applicable provision of law requiring a different standard of review or approval shall still apply.

(4) Notwithstanding section (3) of this rule, the Board may, at any time it is aware that a contract or

agreement is to be negotiated under this rule, require the contract or agreement to be approved by the Board before its becoming effective.

(5) Any contract or agreement negotiated in accordance with this rule shall include a provision allowing the timely and prospective correction of deficiencies that may be found as a result of the review required in section (3) of this rule, or termination of the contract or agreement.

(6) The State Forester may advertise to solicit bids or proposals for agreements or contracts with corporations, responsible organizations, responsible landowners or groups of landowners for the prevention, **mitigation**, and suppression of fire on forestland or on land other than forestland, or both. With the exception of judicial review procedures, the procedures specified in OAR chapter 137, divisions 046 and 047 (2008), including protest procedures, apply to solicitations for agreements or contracts with corporations, responsible organizations, responsible landowners, or groups of landowners for the prevention, **mitigation**, and suppression of fire on forestland or on land other than forestland, or both, but not to agreements or contracts with federal or state agencies, political subdivisions, or forest protective associations. Judicial review of a decision by the State Forester regarding a solicitation specified in this rule is governed by the Oregon Administrative Procedures Act, ORS Chapter 183. This section applies to solicitations issued on or after February 1, 2009. The amendments to this section shall become effective on September 21, 2009.

STATUTORY/OTHER AUTHORITY: ORS 526.016(4), 526.041

STATUTES/OTHER IMPLEMENTED: ORS 477.406

REPEAL: 629-044-1000

RULE TITLE: Purpose

RULE SUMMARY: Wildfire Hazard rules repeal

RULE TEXT:

(1) The purpose of OAR 629-044-1000 to 629-044-1040 is to implement the provisions of ORS 477.027 and ORS 477.490.

(2) The purpose of OAR 629-044-1010 to 629-044-1015 is to establish criteria by which the wildland-urban interface shall be identified and classified pursuant to ORS 477.027.

(3) The purpose of OAR 629-044-1020 to 629-044-1026 is to set forth the criteria by which a statewide wildfire hazard map must be developed and maintained pursuant to ORS 477.490.

(4) The purpose of OAR 629-044-1030 is to set forth the process for notification to property owners pursuant to ORS 477.027.

(5) The purpose of OAR 629-044-1035 is to set forth the process of integrating public input into the statewide wildfire hazard map pursuant to ORS 477.490.

(6) The purpose of OAR 629-044-1040 is to set forth the process of how a property owner or local government may appeal the assignment of wildfire hazard pursuant to ORS 477.490.

STATUTORY/OTHER AUTHORITY: ORS 477.015 - 477.027, ORS 526.016, ORS 477.490

STATUTES/OTHER IMPLEMENTED: ORS 477.015 - 477.027, ORS 477.490

REPEAL: 629-044-1005

RULE TITLE: Definitions

RULE SUMMARY: Wildfire hazard rules repeal. Definitions

RULE TEXT:

- (1) The definitions set forth in ORS 477.001, shall apply.
- (2) The following words and phrases, when used in OAR 629-044-1000 to 629-044-1040, shall mean the following:
 - (a) "Geographical area" means an area of land with similar characteristics that can be considered as a "unit" for the purposes of classification of the wildland-urban interface.
 - (b) "Intermingles with wildland or vegetative fuels" means a minimum of 50% coverage of wildland or vegetative fuels.
 - (c) "Meets with wildland or vegetative fuels" means located within a 1.5-mile buffer from the edge of an area greater than 2 square mile with a minimum of 75% cover of wildland or vegetative fuels.
 - (d) "Occluded geographical area" means an area with a minimum of one structure or other human development per 40-acres within 1.5 miles of an area greater than 1 square mile but less than 2 square miles with a minimum of 75% cover of wildland or vegetative fuels.
 - (e) "Other human development" means essential facilities, special occupancy structures, or hazardous facilities as defined in ORS 455.447 that support community functions, public communication, energy, or transportation.
 - (f) "Structure" means any building that is at least 400 square feet.
 - (g) "Unincorporated community" has the meaning provided in OAR Chapter 660, Division 22.
 - (h) "Urban growth boundary" has the meaning provided in OAR Chapter 660, Division 15.
 - (i) "Vegetative fuels" means plants that constitute a wildfire hazard.
 - (j) "Wildland fuels" means natural vegetation that occurs in an area where development is essentially non-existent, including grasslands, brushlands, rangelands, woodlands, timberlands, or wilderness. Wildland fuels are a type of vegetative fuels.
 - (k) "Wildfire Hazard" is a numerical value describing the likelihood and intensity of a wildfire, based on specific factors or conditions of weather, climate, topography, and vegetation, as modeled for a given pixel.
 - (l) "Wildland-Urban Interface" means a geographical area where structures and other human development meets or intermingles with wildland or vegetative fuels.

STATUTORY/OTHER AUTHORITY: ORS 477.015 - 477.027, ORS 526.016, ORS 477.490, ORS 477.001

STATUTES/OTHER IMPLEMENTED: ORS 477.015 - 477.027, ORS 477.490

REPEAL: 629-044-1011

RULE TITLE: Wildland-Urban Interface Identification Criteria

RULE SUMMARY: Wildfire Hazard rules repeal. Wildland Urban Interface Definition.

RULE TEXT:

(1) The Wildland-Urban Interface is a geographic area comprised of tax lots, or portions of tax lots that includes an average density of one structure or other human development per 40 acres and either:

(a) meets with wildland or vegetative fuels; or

(b) intermingles with wildland or vegetative fuels; or

(c) is an occluded geographical area.

(2) The Wildland-Urban Interface also includes:

(a) lands identified within an urban growth boundary or unincorporated community boundary by local comprehensive plans that meet the criteria in (1)(a); or

(b) a planned development, within the urban growth boundary or unincorporated communities, that is not identified in 1(a) but that is approved for development that meets the criteria in 1(a).

(3) If multiple structures or other human developments are located on a single tax lot, then the totality will be considered a single structure or other human development.

(4) Each tax lot in the State of Oregon shall be assigned a wildfire hazard zone in accordance with 629-044-1021.

STATUTORY/OTHER AUTHORITY: ORS 477.015-027, ORS 526.016, ORS 477.490

STATUTES/OTHER IMPLEMENTED: ORS 477.015-027

REPEAL: 629-044-1016

RULE TITLE: Periodic Wildland-Urban Interface Lands Identification and Classification

RULE SUMMARY: Wildfire hazard rules repeal.

RULE TEXT:

Tax lots wholly or partially identified as within the Wildland-Urban Interface shall be reviewed in conjunction with updates to the statewide wildfire hazard map in accordance with OAR 629-044-1026.

STATUTORY/OTHER AUTHORITY: ORS 477.015-477.027, ORS 526.016, ORS 477.490

STATUTES/OTHER IMPLEMENTED: ORS 477.015-477.027

REPEAL: 629-044-1021

RULE TITLE: Wildfire Hazard Rating

RULE SUMMARY: Wildfire hazard rules repeal. Hazard zones definitions.

RULE TEXT:

(1) Wildfire hazard zones are established as follows:

(a) Low Wildfire Hazard. A hazard value less than 0.001911.

(b) Moderate Wildfire Hazard. A value between 0.001911 to 0.137872.

(c) High Wildfire Hazard. A value greater than 0.137872 .

(2) It is recognized that natural vegetation is highly variable and that the fuel models used in subsection (1) of this rule may not always accurately reflect expected wildfire behavior, due to variations in local species and vegetation conditions. Therefore, consistent with peer reviewed methods, modifications may be made to the hazard rating to ensure accuracy.

(3) Each wildfire hazard zone assignment shall be based on the average pixel-level wildfire hazard values within each tax lot.

(4) Each wildfire hazard zone shall consist of a net value change range. The value ranges that correlate to a given wildfire hazard zone shall be determined using a statistically objective methodology.

STATUTORY/OTHER AUTHORITY: ORS 477.490, ORS 526.016

STATUTES/OTHER IMPLEMENTED: ORS 477.490

REPEAL: 629-044-1026

RULE TITLE: Wildfire Hazard Map

RULE SUMMARY: Wildfire hazard rules repeal. Hazard Map methodology.

RULE TEXT:

(1) Oregon State University shall develop and maintain the Statewide Wildfire Hazard Map in a publicly accessible format. The map shall be developed:

(a) using current, peer reviewed data sets when calculating wildfire hazard;

(b) calculating wildfire hazard as a combined hazard rating value incorporating annual burn probability and wildfire intensity;

(c) and utilize the most representative fuel characteristics practical;

(d) to include a layer that geospatially displays the locations of socially and economically vulnerable communities; and

(e) to include adjustments for irrigated agricultural, in locations identified as irrigated at least one of five years within the most recent IrrMapper dataset, prior to updates in accordance with Section 2 of this rule.

(2) Oregon State University shall update the map and other publicly available web-based tools shall be updated in consultation with the State Forester and other agency partners, within 12 months after updates to the most current wildfire hazard assessment data sets are available.

STATUTORY/OTHER AUTHORITY: ORS 526.016, ORS 477.490

STATUTES/OTHER IMPLEMENTED: ORS 477.490

REPEAL: 629-044-1031

RULE TITLE: Notification

RULE SUMMARY: Wildfire hazard rules repeal. Noticing rules.

RULE TEXT:

- (1) The State Forester shall provide written notice to the owners of properties classified as high hazard zone within the Wildland-Urban Interface.
- (2) The written notice shall be sent to the property owner address included in the county assessor records.
- (3) The written notice shall include:
 - (a) the wildfire hazard zone assignment;
 - (b) where a map of the property can be found in the publicly accessible mapping portal;
 - (c) information regarding what the wildfire hazard assignment means for the property owner;
 - (d) information regarding available wildfire related resources and programs; and
 - (e) information about how a property owner may appeal the assignment of wildfire hazard zone.
- (4) Prior to the effective date of updates to the Statewide Wildfire Hazard Map, the Department shall hold regional public meetings.
- (5) The Department shall provide a notice of the times and places of all statewide and regional meetings, and the other ways by which comments may be submitted, using a variety of notice methods designed to reach diverse audiences, both statewide and within each region.
- (6) The Department, in consultation with Oregon State University, shall present anticipated changes to the Wildland-Urban Interface boundary and Wildfire Hazard Zone assignments at a county scale.
- (7) The meeting shall allocate time to receive input from any interested persons relating to the proposed wildfire hazard zone assignments.
- (8) The Department shall establish and publicize a place where electronic and written comment may be received.
- (9) Following the public meeting the Department, in consultation with Oregon State University, may make changes in the proposed wildfire hazard zone assignments, hold additional meetings, and thereafter shall make final wildfire hazard zone assignments.

STATUTORY/OTHER AUTHORITY: ORS 477.490, ORS 526.016

STATUTES/OTHER IMPLEMENTED: ORS 477.490

REPEAL: 629-044-1036

RULE TITLE: Locally Developed Wildfire Plans

RULE SUMMARY: Wildfire hazard rules repeal. Wildfire plans.

RULE TEXT:

(1) The following types of locally developed wildfire plans may be integrated into the wildfire hazard mapping portal if the local jurisdiction chooses.

(a) Community Wildfire Protection Plans developed under the Healthy Forests Restoration Act;

(b) Natural Hazard Mitigation Plans developed under the Robert T. Stafford Disaster Relief and Emergency Assistance Act;

(c) Firewise USA Action Plans developed under the Firewise USA Program administered by the National Fire Protection Association.

(2) Information in the types of locally developed wildfire plans identified in subsections (1)(a) thru (c) above, may complement, but does not supplant or supersede the Statewide Wildfire Hazard Map.

STATUTORY/OTHER AUTHORITY: ORS 477.490, ORS 526.016

STATUTES/OTHER IMPLEMENTED: ORS 477.490

REPEAL: 629-044-1041

RULE TITLE: Appeal of Wildfire Hazard Assignment

RULE SUMMARY: Wildfire hazard rules repeal. Appeal process.

RULE TEXT:

(1) Any affected property owner or local governments may appeal the assignment of properties to the wildfire hazard zones. All appeals of the assignment shall be referred for a contested case hearing in accordance with ORS Chapter 183, OAR 629-001-0003 to OAR 629-001-0055, and this rule. The Administrative Law Judge assigned the matter shall be authorized to issue a Proposed Order. The State Forester shall issue the Final Order.

(2) The notification described under OAR 629-044-1031 shall serve as a Notice of Proposed Agency Action for property owners in the high hazard zone and also within the Wildland-Urban Interface. The posting of the hazard map on the Oregon Explorer Map Viewer website shall serve as the agency's Notice of Proposed Agency Action for all other property owners who have a right to appeal under ORS 477.490.

(3) An affected property owner may appeal the assignment of a wildfire hazard zone to property by submitting a written hearing request to the Department. Such request must be made within 60 days of the following events, whichever is later:

(a) The date that the wildfire hazard map or an update to the hazard map is posted on Oregon Explorer Map Viewer website; or

(b) The date that a correctly addressed notice, issued in accordance with OAR 629-044-1031(2), is deposited with the postal service for mailing to the affected property owner.

(4) A local government may appeal the assignment of a wildfire hazard zone by submitting a written hearing request to the Department. Such request must be made within 60 days of the following events, whichever is later:

(a) The date that the wildfire hazard map or an update to the hazard map is posted on Oregon Explorer Map Viewer website; or

(b) The date that a correctly addressed notice, issued in accordance with OAR 629-044-1031(2), is deposited with the postal service for mailing to the local government.

(5) The written hearing request must specifically state:

(a) the issues to be addressed;

(b) The criteria of the hazard map being contested; and

(c) the relief sought.

(d) Additionally, the appeal must include the following contact information for referral:

(A) Property owner name;

(B) Mailing address;

(C) Property address and tax lot number; and

(D) Phone number

(6) This specific response is required based on the agency's determination that, due to the complexity of the program and category of cases involved, a more specific response is warranted. The requester may amend their response, except when doing so would be unduly prejudicial. Failure to raise an issue as provided in this rule shall constitute a waiver of the opportunity to raise the issue in a contested hearing.

(7) Upon receipt of a written request for hearing under this section, the Department may contact the property owner or local government to seek additional information and attempt to informally resolve the appeal.

(8) The Department shall provide information to the public describing changes to the map that result from appeals. The information shall be posted on the Department's public website.

(9) The State Forester will issue a Final Order resolving appeals under this section, based on the record established through the contested case hearing. The Forester's Final Order is subject to appeal as prescribed by ORS 183.482.

STATUTORY/OTHER AUTHORITY: ORS 477.490, ORS 526.016

STATUTES/OTHER IMPLEMENTED: ORS 477.490

STAFF REPORT

Agenda Item No.:	G
Topic:	Vision for Oregon's Forests: Rollout Update
Contact Information:	Joy Krawczyk, Public Affairs Director

SUMMARY

This consent agenda item is intended to provide an overview of the internal rollout plan for the *Vision for Oregon's Forests*, which was adopted by the Board of Forestry in January 2025, with board members.

COMMUNICATION OBJECTIVES

For this initial phase of rollout activities, the communication objectives are:

1. **Shared understanding:** Develop a shared understanding of the Vision for Oregon's Forests (VFOF) and the context in which it guides our work. Everyone at ODF should understand the mission, vision and values (MVV) as well as the five priorities (Resilient Forests, Resilient Communities, Address the Wildfire Crisis, Climate Leadership and Organizational Excellence).
 - a. All managers should understand the intent and expectations from the Board of Forestry and agency leaders and actively promote those expectations among their staff.
 - b. All programs and teams should seek opportunities to align their activities with the VFOF.
 - c. All employees should broadly understand the VFOF's purpose and know where to readily find the document.
2. **Create change champions:** In addition to understanding and accepting the VFOF, agency leaders and managers support its adoption and look for opportunities to align operations.
3. **Enable operation alignment:** Staff should be coached and empowered to align their program objectives, strategies and decisions to realize the updated MVV and the VFOF.

TIMELINE

Intent	Action	Timing
Initial introduction	Agencywide email	July 14, 2025
Initial introduction	Virtual all-staff meeting	July 23, 2025
Build understanding	More in-depth discussions with Leadership Team members by Executive Team members during small group/one-on-one meetings	August & September 2025

Intent	Action	Timing
Build understanding Create change champions	Facilitated Leadership Team discussion during quarterly meeting	September 23-25, 2025
Build understanding Create change champions	In-depth discussions with subordinate managers by Leadership Team members during small group/one-on-one meetings	October & November 2025
Build understanding Create change champions	In-depth discussions with direct reports by managers in team/one-on-one meetings	November & December 2025
Maintain understanding Encourage operational alignment	Incorporation of MVV and priorities into quarterly performance accountability and feedback meetings for all levels of ODF	January 2026
Maintain understanding Encourage operational alignment	Reinforcement of VFOF through discussions in various groups and one-on-one	Throughout 2026

ATTACHMENTS

- None

Agenda Item No.:	H
Work Plan:	State Forests Work Plan
Topic:	State Forests Management
Presentation Title:	State Forests Harvest Accomplishments
Date of Presentation:	September 3, 2025
Contact Information:	Colleen Kiser, State Forests Planning and Operations Manager Colleen.Kiser@odf.oregon.gov Kevin Boyd, State Forests Asset Management Unit Manager Kevin.M.Boyd@odf.oregon.gov Michael Wilson, State Forests Division Chief Michael.Wilson@odf.oregon.gov

CONTEXT

State Forest lands are managed for the Greatest Permanent Value (GPV) to the people of Oregon (ORS 530.050). The Board of Forestry has further defined Greatest Permanent Value to mean “healthy, productive, and sustainable forest ecosystems that over time and across the landscape provide a full range of social, economic, and environmental benefits to the people of Oregon” (OAR 629-035-0020(1)), and specifically lists, among other benefits, “sustainable and predictable production of forest products that generate revenues for the benefit of the state, counties, and local taxing districts” (OAR 629-035-0020(1)(a)) as one of the benefits from managing for GPV.

To ensure State Forest lands are managed in a sustainable and predictable manner, the State Forests Division implements a robust inventory and modeling system to determine the Annual Harvest Objective (AHO) for each management district. Each fiscal year (FY), Division planning staff develop Annual Operations Plans that contain activities for the upcoming FY that include a list of timber sale operations to auction to achieve Annual Harvest Objectives contained in Implementation Plans (IPs). Timber sales are typically auctioned with a three-year contract term, allowing purchasers some flexibility with respect to the timing of timber harvest and harvest-related project work (e.g., road construction and maintenance, landing construction). This also allows purchasers to time their timber harvest decisions in response to short-term market conditions. This flexibility results in higher bid prices, but does trade-off with some fluctuation in annual harvest patterns. Because these timber sales are sold on a recovery basis (i.e., ODF is paid for timber delivered to the mill), the flow of revenues can fluctuate based on choices purchasers make in harvest timing.

Certainty with respect to the amount of timber the State Forests Division is planning to sell, along with forecasts for the estimated revenues associated with the timber sale program is of great importance to the counties, timber industry, and the state. State Forests Division staff closely monitor timber sale progress, ensuring sold timber sales are on schedule to be completed before contract expiration, tracking timber deliveries to mills, and ensuring merchantable timber is utilized to meet contract specifications. Staff also create quarterly revenue forecasts for the Department and counties to aid in budget

planning efforts, although these forecasts are also subject to changes in expected harvest timing by purchasers.

BACKGROUND

The State Forests Division has faced recent criticism that the Division is failing to achieve stated timber harvest objectives. The Division is committed to good governance in managing Oregon's state forest lands, and accountability in establishing goals and achieving those outcomes is a critical governance component.

Current efforts to provide transparent information with respect to timber harvest objectives include annual reports to the Council for Forest Trust Land Counties and State Land Board, operations accomplishments reporting to the State Forests Advisory Committee, and a Legislative Key Performance Measure.

ODF has historically reported harvest volumes and revenue in the Council for Forest Trust Land Counties and the Common School Forest Land Annual Reports (Attachments 1 and 2), which show the previous fiscal year harvest volume and value as well as historical averages; however, those metrics are not tied to the specific AOP from which they came. The difference shown in these reports between the volume sold and the volume harvested in any given fiscal year is due to the harvest timing decisions described above. The multi-year contract term, reporting structure, and recently revised IPs (and their Annual Harvest Objectives) have resulted in a perception, in some cases, that harvest objectives were not being met.

Table 1 shows the total timber volume (in million board feet; MMBF) initially planned and then prepared and appraised for auction for each AOP fiscal year between 2015 and 2025, along with the total for that period. The Division seeks to offer volume in individual AOPs that fulfill the Annual Harvest Objective detailed in the District's IP, over the timeframe of the IP. This results in some year-to-year fluctuations around the AHO, but still meets the overall average AHO. District AOPs identify the fiscal year quarter that a timber sale contract is planned to be submitted to Salem, with the intent of auctioning it in the following quarter. Additionally, the final harvested volume (not shown in Table 1) is typically greater than the planned and prepared volume, due to a number of factors, including continued growth of trees during the three-year contract period, actual log lengths and diameters bucked from trees, and defect (or lack thereof) found in logs.

Note that for all of the Tables presented, volume from salvage or other small-scale activities is not included (unless it was part of an Approved AOP), and volume from Klamath-Lake District is not included, as it has an acreage, not volume, objective.

Table 1. Comparison of planned timber sale volume and volume auctioned for AOP fiscal years 2015 to 2025.

AOP Year*	AOP Planned Volume (MMBF)	Auctioned Volume (MMBF)
2015	224.8	226.3
2016	227.9	229.1
2017	223.0	230.2
2018	239.2	269.5
2019	237.7	225.3
2020	236.0	241.2
2021	253.2	239.2
2022	219.3	218.6
2023	222.8	222.4
2024	189.7	192.3
2025	188.0	190.2
Total	2,461.5	2,484.4

*Volume for the Coos Unit is only included from 2017 to 2025, after the change in the management status of the Elliott State Forest.

Table 2 shows the multi-year effect for fiscal year 2025. The total volume harvested in fiscal year 2025 was 187.6 MMBF. Notably, a very small portion of the harvested volume (4.9 MMBF or 2.6%) came from AOP 2025 sales. Although the preparation and auctioning of fiscal year 2025 sales is somewhat behind schedule due to staff drawdowns during the 2024 fire season, the general pattern of harvest coming from previous fiscal years' Annual Operations Plans and auctioning sales in the first quarter of the following fiscal year is typical.

Table 2. Fiscal year 2025 timber volume harvested by source Annual Operations Plan.

AOP Year	FY25 Harvest (MMBF)
2021	4.0
2022	48.0
2023	71.0
2024	59.7
2025	4.9
Total	187.6

Table 3 shows, for past two AOP fiscal years (2024 and 2025), the volume objective, the volume planned to be auctioned, the actual volume sold (or soon to be auctioned), and the volume delivered to the mills. For both years, the Annual Harvest Objective is 165-183 MMBF. Planning staff prepared operations plans that would result in an estimated 189.7 and 188 MMBF for 24 and 25 respectively. The sold volume for FY24 was 192.3 MMBF, with 64.8 MMBF of that volume delivered to date. The volume sold for FY25 was 190.2 MMBF, with 4.9 MMBF of that volume delivered to date.

Table 3. Annual Operations Plans accomplishments (MMBF).

AOP Year	Annual Harvest Volume Objective	Planned Volume	Prepared for Auction/Sold Volume	Delivered Volume to date
2024	165-183	189.7	192.3	64.8
2025	165-183	188	190.2	4.9

At any given time, there may be timber volume under contract (i.e., timber sold but not delivered) from the past three to four Annual Operations Plans. Table 4 shows the remaining amounts for AOP fiscal years 2021 to 2025. All sold volume from the 2021 Annual Operations Plans has been delivered, and only small volumes remain for the 2022 and 2023 Annual Operations Plans. Approximately 238 MMBF remains for the 2024 and 2025 Annual Operations Plans, and this volume will be delivered over the next two to three years. Volumes delivered or under contract in Tables 3 and 4 are current as of 7/1/25.

Table 4. Timber volume under contract by AOP.

AOP Year	Volume Under Contract (MMBF)
2021	Completed
2022	11.6
2023	39.0
2024	127.2
2025	110.8*
Total	288.5

*Approximately 74.5 MMBF remaining to be auctioned in FY26.

RECOMMENDATION

Information only.

NEXT STEPS

The State Forests Division will continue to provide regular accomplishment and status reporting of the Annual Operations Plans to the Board of Forestry. Future reports will take the same form as what is presented above, unless the Board requests changes. In addition, the Division will work with the Council of Forest Trust Land Counties to incorporate similar tracking by Annual Operations Plans into their report.

ATTACHMENTS

1. Council of Forest Trust Land Counties Annual Report Fiscal Year 2024
2. Common School Forest Land Annual Report Fiscal Year 2024

Wildlife benefits from unique state agency partnership to enhance critical habitat

Veneta, Ore.-- Purple martins, bats, bees and other wildlife are seeing benefits of a high-elevation meadow in the Oregon Coast Range established by a joint effort between the Oregon Department of Forestry (ODF) and the Oregon Department of Fish and Wildlife (ODFW).

The four-acre Walker Meadows site is located about 13 miles west of Veneta and is at an elevation of 2,300 feet. The project started as a six-acre ODF timber harvest to reduce fire risk, protect an ODF smoke detection camera and communication towers. While this harvest was occurring, ODFW asked if there were any suitable sites for an upland meadow at a regular end-of-season meeting between the two departments.

“It was great timing,” said Jason Kirchner, ODFW district biologist. “Many different species, including numerous Oregon Conservation Strategy species, are supported by montane grassland habitats. Pollinators, such as the Western Bumblebee and other invertebrates, rely on Kincaid’s Lupine, Nelson’s Checkermallow, and other rare endemic wild-flower species found in montane grassland.”

However, to turn the timber harvest area into a montane grassland-type meadow required a lot of work. This included removing 4.3 acres of stumps, leveling the ground to prepare for replanting, and chemically treating noxious and invasive plants. ODF obtained 120 potted plants for the new meadow habitat. Staff from both agencies got together and did the planting. ODFW staff then seeded the rest of the meadow with a native pollinator/grass seed mix. All the planting and seeding was done last October, and the meadow is looking good this year.

Multiple species, including a variety of birds and bats have been documented exploiting the forest openings for feeding. Also, meadows like this have optimal forage for small and large mammals such as moles, voles, rabbits, bobcats, Roosevelt elk, black-tailed deer, mountain lions, and black bears. Both ODFW and ODF see this meadow as a model project that can be used as a guide to create more critical habitat.

“Our hope is that other local ODF districts can create more places like this for all our wildlife,” said Randy Smith, ODF’s area wildlife biologist. “Often, people do not realize how hard ODF works to monitor, protect and enhance habitat for, not just threatened and endangered species, but for all the wildlife in our state forests.”



Left to Right: Site preparation slash pile burning for meadow development. ODF and ODFW staff preparing wildlife and pollinator friendly plants for planting. Photos; Jason Hayzlett and Morgan Kawakami

BOF Land Status

Number of Fish Barriers Removed: FY22: 6 FY23: 4
Resident Spotted Owl Sites: FY22: 28 FY23: 28
Acres Planted: FY23: 6,879 FY24: 4,594

Miles of Fish Access Restored : FY22: 3.82 miles FY23: 2.09 miles
Marbled Murrelet Management Areas: FY22: 108 FY23: 113
Marbled Murrelet Management Acres: FY22: 17,979 FY23: 18,525

Fiscal Year 2024

State Forests Division

The Oregon Department of Forestry manages 729,718 acres of Board of Forestry Lands. The Council of Forest Trust Land counties have a protected and recognizable interest in these lands. The lands are managed to secure the greatest permanent value by providing healthy, productive, and sustainable forest ecosystems that over time and across the landscape provide a full range of social, economic, and environmental benefits to the people of Oregon. The management focus of these lands is to actively manage them in a sound environmental manner to provide sustainable timber harvest and revenue to the state, counties and local taxing districts OAR 629-035-0020 (2). The purpose of this report is to provide an annual summary of activities on these Board of Forestry State Forestlands.

Full Report at www.oregon.gov/ODF/Pages/Reports.aspx



Economic

HARVESTED VOLUME

- 208.6 MMBF of timber volume was removed from BOF land in FY24.

FY 2024 REVENUE

- \$68.7 million distributed to counties.
- \$37.5 million retained by ODF.

FY 2024 COSTS

- Total costs were \$44.3 million.
- Direct Expenditures were approximately \$36.9 million.
- Revenue transfers were \$7.4 million.
 - Fire Protection costs were \$3.2 million.
 - Debt service for capital construction was \$18,182.
 - Seed orchard costs were \$98,214.

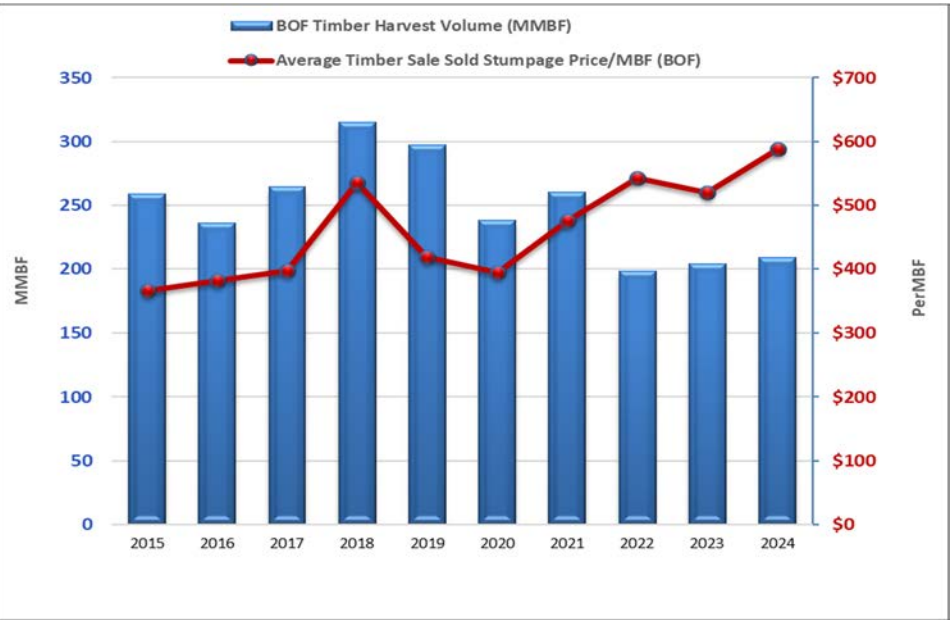
SOLD SALES

- 46 timber sales were sold on BOF land.
- Estimated to produce a total volume of 190.1 MMBF with a value of 104.8 million.
- Total project costs from sales sold in FY 2024 will be about \$7.0 million.

ECONOMIC and PLANNING UPDATE

Average stumpage values increased on Board of Forestry timber sales sold in FY2024 by \$68/mbf, from \$520/mbf in FY23 to \$588/mbf in 2024. The State Forests Division continues to develop and implement business improvement and marketing strategies to increase revenues and decrease cost. Timber sale contracts and marketing practices are continually adjusted to meet current and future economic conditions and business standards.

Timber Volume Removed and Stumpage Prices
FY 2015 – 2024



2025 PLANNED
TIMBER SALES
(2025 AOP -
All Districts)

- 5,513 Clear cut acres
- 4,323 Partial cut acres
- 187.7 MMBF Harvest
- Project Costs of \$8.85 million
- Appraised Net-Value of \$67.9 million

Social

Support To Local
Communities

A portion of the revenue generated from State Forest timber sales is distributed to schools, local taxing districts, and the county general fund. This revenue transfer is referred to as the “county distribution.”

County Share - FY 2025 Revenue Projection



Tillamook Forest
Center Highlights

Visitation
60,344

Education Participation
2,872

Interpretation Participation
1,981

Campers On State
Forests Campgrounds

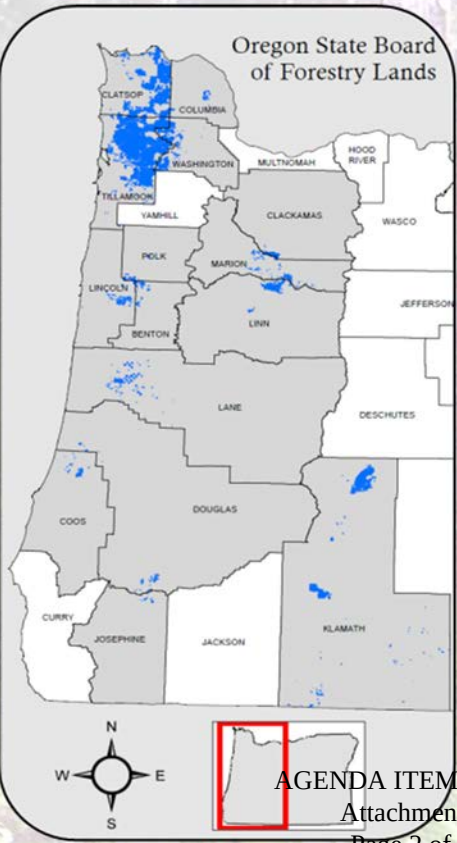
2023	2024
24,735	27,741

Trails Maintained
(miles)

Tillamook State Forest:	53
Clatsop State Forest:	14.5
Santiam State Forest:	10
West Oregon District:	9.3

County Share of
Revenue from BOF
Lands

County	FY 2024
Benton	\$1,085,063
Clackamas	\$246,185
Clatsop	\$25,834,967
Columbia	\$2,105,509
Coos	\$0
Douglas	\$185,119
Josephine	\$0
Klamath	\$494,156
Lane	\$3,573,739
Lincoln	\$2,582,893
Linn	\$1,483,821
Marion	\$2,141,154
Polk	\$285,741
Tillamook	\$18,377,860
Washington	\$10,302,632
Total	\$68,698,839





Council of Forest Trust Land Counties Annual Report

FISCAL YEAR 2024



**Prepared by the Oregon
Department of Forestry**
November 2024

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FY 2024 Annual Report Located at:

<https://www.oregon.gov/ODF/Pages/Reports.aspx>

Executive Summary

The Oregon Department of Forestry manages 729,718 acres of Board of Forestry Lands (BOFL) for which the Council of Forest Trust Land counties (CFTLC) have a protected and recognizable interest. These lands are managed through the State Forests Division to secure the greatest permanent value by providing healthy, productive and sustainable forest ecosystems that over time provide a full range of social, economic, and environmental benefits for Oregonians. These lands are sustainably managed to provide timber revenue to the state, local schools and communities, and local taxing districts. This report summarizes fiscal and management accomplishments on BOFL for Fiscal Year 2024 (FY 2024).

Long-term, broad direction for BOFL is guided through regionally specific forest management plans. Implementation plans provide specific, time-bound (i.e., 10-year) objectives, including annual timber harvest objectives, spatial designations for complex stand structure development and resource protections, young stand management, and restoration. Annual operation plans detail specific management activities intended to meet implementation plan objectives for each State Forests district.

In FY 2024, ODF harvested approximately 209 million board feet, generating \$101 million in net revenue. FY 2024 operational costs totaled \$44.3 million dollars in expenditures. ODF retained \$37.5 million in revenue and distributed \$68.7 million to the CFTLC member counties.

The following report provides historic and projected timber harvest volumes and estimated revenues to support planning processes for the Association of Oregon Counties (AOC). Traditionally, the housing market exerts a strong influence on ODFs revenue trends. Currently, new housing starts remain relatively low, but a tight log supply market has kept log prices high. On BOFL, timber sales sold in FY 2024 showed an increase in average stumpage values of \$68 per thousand board feet (mbf) from FY 2023.

This report provides a three-year revenue projection for the CFTLC member counties. It is important to note that these estimates are subject to uncertainties in the forestry sector and log market volatility. Further into the future, there is greater uncertainty associated with the anticipated revenues.

Fire activity on BOFL was low in 2023, with 2.4 acres burned.

ODF is committed to sustainable management of BOFL which includes managing for healthy productive diverse forests that provide a range of conditions by investing in variety of activities. These activities include: reforest and maintain young stands; wildlife habitat enhancement; maintain and construct roads; control invasive species; support recreation activities; provide education and interpretation; implement projects to improve fish habitat; inventory stands; and research and monitoring. We continue to work with local partners, and other state and federal agencies to manage state-owned forests for a full range of social, economic, and environmental benefits for Oregonians.

Financial and Asset Management

Overview

This report is intended to focus on FY 2024. However, in the business of forest management, it is important to analyze trends in revenue and expenditures over extended time frames, as the timing of harvest and other variables can cause a given year to be above or below average.

Approximately 209 million board feet (MMBF) were harvested from BOFL from July 1, 2023 through June 30, 2024.

ODF provides the statutorily established Forest Trust Lands Advisory Committee (FTLAC) with ongoing status reports related to revenue projections and proposed Oregon Department of Forestry (ODF) budgets for the upcoming biennium. ODF manages BOFL through a share of revenues that is maintained in the ODF Forest Development Fund (FDF).

Table 1 displays the volume harvested by county during fiscal years 2020 through 2024. Variation in year-to-year harvest volume represents choices of timber purchasers based on their preference for harvest timing allowed within the provisions of timber sale contracts, as well as choices by the Department which are guided by ODF implementation plans and annual operations plans that determine how much timber to market during a given year. The acreage of BOFL in a given county and the operational constraints on those lands have a large effect on both the overall volume and timing of timber harvest. Additionally, regulatory mechanisms available in some areas affect timber harvest. For instance, a Safe Harbor Agreement currently in place for northern spotted owls on the Veneta Unit allows for a greater certainty for planning, relative to federal Endangered Species Act compliance.

Table 1: Timber Volume Harvested from BOFL by County					
Total Volume MBF (thousand board feet)					
County	2020	2021	2022	2023	2024
Benton	4,058	1,310	2,706	2,888	3,462
Clackamas	2,124	218	3,784	3,054	5,912
Clatsop	89,826	72,193	72,102	73,745	75,500
Columbia	619	0	6,889	987	4,168
Coos	0	0	0	0	0
Douglas	1,913	211	1,267	775	46
Josephine	68	1,315	0	0	0
Klamath	4,721	10,450	4,167	13,845	5,319
Lane	17,229	8,394	4,919	14,138	10,272
Lincoln	5,708	9,025	3,815	1,154	6,621
Linn	3,811	16,451	7,221	5,214	3,407
Marion	1,728	21,760	10,022	1,298	5,569
Polk	2,578	1,291	1,569	0	0
Tillamook	84,635	81,136	46,789	65,553	61,815
Washington	19,328	36,297	33,116	21,209	26,499
TOTAL	238,345	260,051	198,365	203,861	208,590

County Revenues

A portion of the revenue generated from BOFL is distributed quarterly to CFTLC member counties. Counties retain revenue in their general fund and county school fund, and further distribute remaining revenues to schools and other special districts, based on their relative apportionment by taxing district. This revenue is primarily derived from timber sales, but also includes small amounts derived from the sale of special forest products (e.g., salal, moss and mushrooms) and other sources. The county revenue distribution for fiscal years 2020 through 2024, along with five and 10-year averages are shown in Table 2. County revenues during FY 2024 were approximately \$68.7 million. The average amount of revenue distributed to the counties over the previous 10 fiscal years was \$67.4 million.

A variety of factors contribute to annual harvest levels and corresponding revenues. A multi-year average compensates for “up” or “down” years and provides a clearer long-term view of forest management.

Table 2: County Revenue Distribution from Board of Forestry Lands							
County	FY2020	FY2021	FY2022	FY2023	FY2024	5-year Avg	10-year Avg
Benton	\$1,307,952	\$130,577	\$798,955	\$661,804	\$1,085,063	\$796,870	\$878,352
Clackamas	\$707,198	\$17,021	\$277,182	\$158,609	\$246,185	\$281,239	\$326,847
Clatsop	\$22,721,180	\$22,911,408	\$19,168,558	\$22,508,688	\$25,834,967	\$22,628,960	\$23,085,255
Columbia	\$376,759	\$251,585	\$2,194,153	\$390,658	\$2,105,509	\$1,063,733	\$1,258,680
Coos	\$35,878	\$124,589	\$212,123	\$673,689	\$0	\$209,256	\$104,633
Douglas	\$269,661	\$114,256	\$396,278	\$184,336	\$185,119	\$229,930	\$357,501
Josephine	\$4,479	\$233,714	\$0	\$0	\$0	\$47,639	\$84,887
Klamath	\$1,147,919	\$1,094,725	\$459,582	\$1,584,775	\$494,156	\$956,231	\$1,220,930
Lane	\$5,574,416	\$3,046,685	\$2,358,333	\$5,382,627	\$3,573,739	\$3,987,160	\$3,503,901
Lincoln	\$1,503,690	\$2,110,119	\$796,318	\$806,358	\$2,582,893	\$1,559,876	\$1,834,734
Linn	\$3,289,057	\$4,439,748	\$3,279,722	\$1,569,260	\$1,483,821	\$2,812,322	\$3,436,096
Marion	\$539,281	\$6,900,606	\$3,121,770	\$508,569	\$2,141,154	\$2,642,276	\$2,743,719
Polk	\$632,096	\$146,151	\$430,467	\$20,819	\$285,741	\$303,055	\$165,197
Tillamook	\$22,230,409	\$18,857,023	\$14,973,950	\$18,145,946	\$18,377,860	\$18,517,038	\$18,082,032
Washington	\$8,864,702	\$11,076,707	\$13,349,297	\$8,582,808	\$10,302,632	\$10,435,229	\$10,336,017
Total	\$69,204,677	\$71,454,915	\$61,816,688	\$61,178,946	\$68,698,839	\$66,470,813	\$67,418,781

Revenues and Expenditures

Actual net revenues for FY 2024 totaled approximately \$101 million. Net revenues averaged \$102.7 million over the past 5 years.

Table 3: Revenues, Expenditures, Transfers, and Project Work									
Revenues				Expenditures					Project Work
Fiscal Year	Net Revenue	Distributed Revenue	Retained Revenue	Personal Services	Services & Supplies	Capital Outlay	Net Transfers	Total Expenditures	Project Work
2024	\$100,954,785	\$68,698,839	\$37,461,345	\$22,262,491	\$14,210,486	\$418,484	\$7,359,911	\$44,251,372	\$10,052,224
2023	\$92,914,112	\$61,178,946	\$34,602,635	\$20,406,985	\$14,971,761	\$380,850	\$6,888,943	\$42,648,539	\$10,171,822
2022	\$95,027,507	\$61,816,687	\$35,480,371	\$19,837,971	\$13,981,634	\$1,022,431	\$6,180,972	\$41,023,009	\$9,876,009
2021	\$118,977,899	\$71,454,915	\$42,864,244	\$18,603,643	\$14,075,694	\$291,522	\$6,565,553	\$39,536,413	\$9,366,979
2020	\$105,744,738	\$69,204,678	\$38,278,875	\$17,856,648	\$13,155,041	\$446,300	\$7,857,295	\$39,315,284	\$8,631,174

Total expenditures in FY 2024 were \$44.3 million (Table 3), related directly to operational budget units that manage BOFL. The budget units include the ODF State Forests' Division staff, three regional areas, and seven districts. These units are responsible for: timber sale contract development and compliance; reforestation and intensive forest management activities; compliance with the state and federal Endangered Species Acts (ESA); recreation, education and interpretation; research and monitoring; forest planning; support for the Board of Forestry, FTLAC and public engagement; and overall program management.

The BOFL's timber harvest revenue is distributed at 63.75 percent to counties and other local taxing districts while the remaining 36.25 percent is retained by the division to cover all management costs. Annual retained revenue must cover essential operating costs and be used to make critical investments in research and monitoring, forest inventory, young stand management activities, recreation, education and interpretation and other key forest stewardship work. The division is proactively strategizing to respond to changes in forest productivity and health related to climate change and wildfire; foster the range of forest characteristics across the landscape that Oregonians expect; accurately estimate and project forest conditions; support future forest planning efforts; and conduct adaptive management, which uses monitoring to inform timely and responsible decision-making.

The division is vulnerable to shifts in the timber market and changes in forest conditions from disturbances such as prolonged drought, fire, flood, insects, disease, and windstorms. These conditions suggest that a business model with greater flexibility and a diverse income stream would provide greater financial stability. Under current financial constraints the department is challenged to fully implement the forest management plans and provide for ever-increasing public demands. The agency is working with the Board of Forestry and stakeholders to explore new business models, regulatory compliance mechanisms, and management approaches that better align revenue levels to management costs.

Historic Timber Harvests

Timber harvest volume represents volume removed from BOFL during FY 2024. In FY 2024, total timber harvested from BOFL was approximately 209 MMBF. The volume and stumpage prices of sold sales for the previous 10 years are shown in Table 4, along with five and ten-year averages.

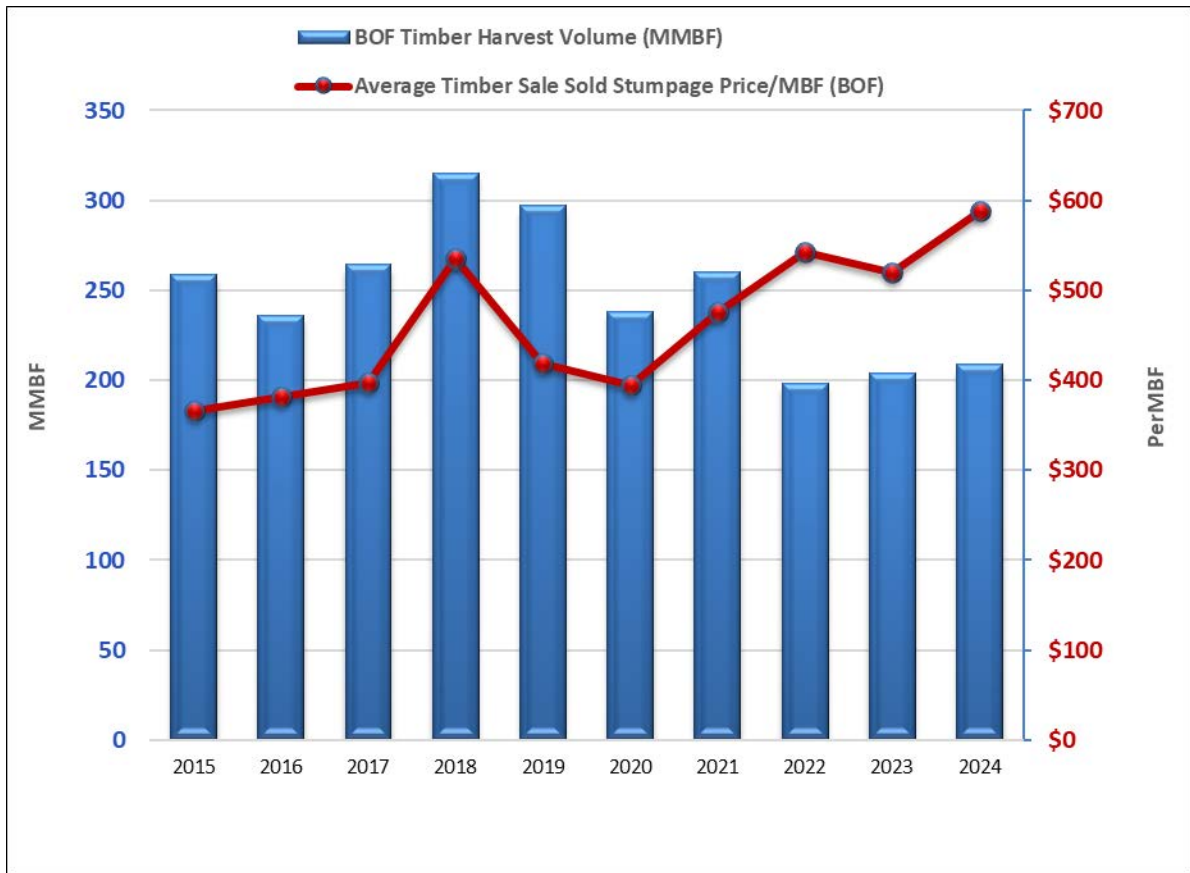
Average ODF stumpage prices in the past 10 years have ranged from \$366/mbf to \$588/mbf (Figure 1). ODF plans and offers annual timber volumes that are based on Annual Harvest Objectives in implementation plans. The amount offered for auction in any given fiscal year varies, but ODF strives to meet the Average Harvest Objective by the end of the associated Implementation Plan. Actual volume harvested in a fiscal year fluctuates along with market conditions and timber sale purchaser decisions on specifically when to harvest during the timber sale contract period.

**Table 4: Historical Timber Harvest Value, Volume, Stumpage Prices
FY 2015 - 2024**

Fiscal Year	¹ Gross Timber Sale Value Harvested (BOF)	BOF Timber Harvest Volume (MBF)	Average Stumpage Harvested Price/MBF (BOF)	Average Sold Stumpage Price/MBF (BOF)	BOF Timber Sold Volume (MBF)
2024	\$111,732,051	208,590	\$536	\$588	190,100
2023	\$109,279,757	203,861	\$536	\$520	194,900
2022	\$99,133,337	198,365	\$500	\$543	190,800
2021	\$126,674,757	260,051	\$487	\$476	282,600
2020	\$110,670,318	238,345	\$464	\$394	209,800
2019	\$151,697,665	297,202	\$510	\$419	229,400
2018	\$138,442,437	315,224	\$439	\$536	266,000
2017	\$106,670,082	264,421	\$403	\$397	227,000
2016	\$100,042,287	236,035	\$424	\$382	233,000
2015	\$97,557,968	258,871	\$377	\$366	217,000
Last 5-Year Average	\$111,498,044	221,842	\$505	\$504	213,640
10-Year Average	\$115,190,066	248,097	\$468	\$462	224,060

¹Gross timber sale value reflects the bid value prior to deduction of project work credits.

Figure 1: Timber Volume Harvested and Stumpage Prices FY 2015 – 2024



County Revenue Projection

The State Forests Division provides a revenue projection to AOC once a year. ODF continues to improve the revenue projection process in an effort to provide more accurate and consistent estimates for both internal use and information for AOC. Figure 2 and Table 5 represent the fiscal year 2025 revenue projection produced by State Forests Division staff. As mentioned above, there are inherent uncertainties around future log prices, natural disturbances, regulatory constraints and other factors that introduce increased uncertainty around estimates further into the future. This projection includes estimated revenues from both sold, planned and future timber sales. Housing-start data is used to forecast the revenue included in the “future category” of the projection. The assumption is that stumpage prices will move in correlation with projected housing starts. Assumptions are made on the timing of revenues based on local knowledge from ODF district personnel. These projections are estimates only. Actual revenues will depend on sold stumpage prices and actual harvest volumes. Market factors or changes in federal or state regulatory requirements could also significantly alter projections.

**Figure 2: Total County Revenue Distribution Projection
Fiscal Years 2025-2027**

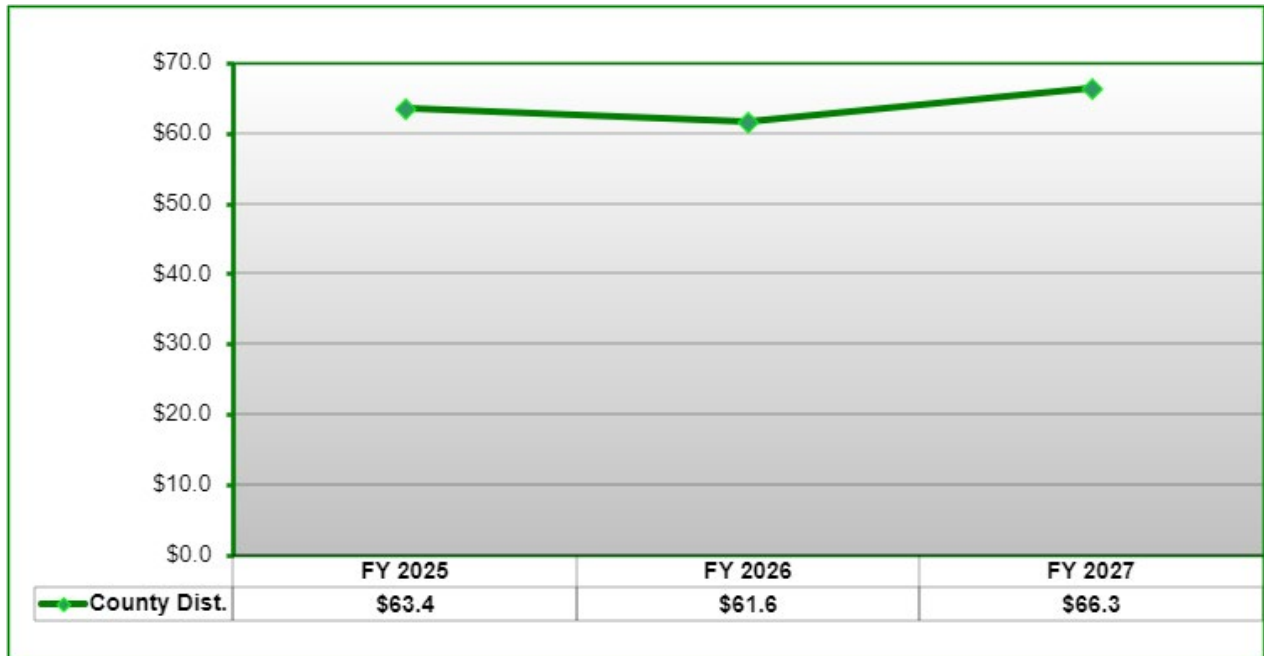


Table 5: Fiscal Year 2025 Revenue Projection County Revenue Distribution			
County	FY 2025	FY 2026	FY 2027
Benton	\$464,036	\$716,426	\$1,056,471
Clackamas	\$-	\$785,217	\$597,240
Clatsop	\$23,236,888	\$20,800,732	\$18,624,779
Columbia	\$1,715,482	\$1,211,373	\$1,197,763
Coos	\$-	\$-	\$-
Douglas	\$303,368	\$417,131	\$37,921
Josephine	\$-	\$-	\$-
Klamath	\$600,558	\$1,009,414	\$1,179,539
Lane	\$1,767,616	\$3,513,420	\$4,813,866
Lincoln	\$2,473,187	\$1,585,419	\$2,037,757
Linn	\$2,091,927	\$2,018,950	\$3,272,940
Marion	\$735,692	\$766,626	\$1,669,417
Polk	\$443,587	\$406,633	\$446,218
Tillamook	\$21,682,860	\$20,328,705	\$22,823,108
Washington	\$7,852,257	\$8,011,031	\$8,583,573
Total	\$63,367,460	\$61,571,076	\$66,340,592

The State Forests Division's FY 2025 budget is shown below in Table 6.

Table 6: State Forests Fiscal Year 2025 Budget - BOFL				
Budget Unit	Personal Services	Services and Supplies	Capital Investments	Total
Salem Total	\$6,305,359	\$6,036,090	\$78,411	\$12,419,860
NWOA Office	\$3,262,681	\$2,046,420	\$0	\$5,309,101
Astoria	\$2,867,699	\$1,202,116	\$20,323	\$4,090,138
Forest Grove	\$2,728,416	\$1,264,614	\$0	\$3,993,030
North Cascade	\$978,126	\$652,335	\$0	\$1,630,461
South Fork	\$1,852,299	\$697,062	\$0	\$2,549,361
Tillamook	\$2,798,851	\$1,443,205	\$0	\$4,242,056
Tillamook Forest Center	\$1,026,362	\$468,923	\$0	\$1,495,285
West Oregon	\$717,365	\$291,632	\$14,429	\$1,023,426
NWOA Total	\$16,231,798	\$8,066,307	\$34,752	\$24,332,857
SOA Office	\$192,277	\$12,021	\$0	\$204,298
Western Lane	\$591,098	\$407,926	\$0	\$999,024
SOA Total	\$783,375	\$419,948	\$0	\$1,203,323
EOA Office	\$38,958	\$13,351	\$0	\$52,309
Klamath	\$687,728	\$209,803	\$0	\$897,531
EOA Total	\$726,686	\$223,154	\$0	\$949,840
Total Operating Budget	\$24,047,218	\$14,745,499	\$113,163	\$38,905,880
Total Transfers	\$0	\$0	\$0	\$9,462,126
Total Expenditures	\$0	\$0	\$0	\$48,368,006

Forest Land Management

Annual Operations Plans – FY 2025

ODF manages 729,718 of BOFL. Table 7 shows the distribution of BOFL acres by county.

Annual Operation Plans (AOPs) are written each year by the Planning Team to describe all activities that will be carried out on the district during the year. These activities require significant commitment of personnel and funds and include, but are not limited to:

- Timber sales
- Terrestrial and Aquatic Habitat management
- Young stand management
- Recreation projects
- Road construction and maintenance
- Restoration Opportunities
- Monitoring efforts

Table 7: BOF Acres by County	
County	Acres
Benton	8,401
Clackamas	7,266
Clatsop	146,927
Columbia	6,459
Coos	7,244
Douglas	8,625
Josephine	2,482
Klamath	98,755
Lane	24,734
Lincoln	15,530
Linn	21,357
Marion	18,331
Polk	6,048
Tillamook	310,679
Washington	46,880
Grand Total	729,718

The links to the AOPs can be found here.

<https://www.oregon.gov/ODF/Pages/Reports.aspx>

Note: Report is based on legal acres not GIS acres

Annual Operation Plans (AOPs) are tracked each year by the Division. Table 8 details volume and value accomplishments for FY24 AOPs. In total the Division sold 101% of planned AOP volume with 140% of the planned AOP net value. There are three timber sales that had no bidders, which are being prepared for future auctions. Typically, there are a few sales that are sold in the following fiscal year. This varies due to staff capacity and workloads. Historically, the Division has been able to meet Annual Harvest Objectives for all AOPs within the Implementation Plan period. Table 8 does not include non-AOP harvest volumes, such as salvage sales.

Table 8: FY24 AOP Status Update Through 10/18/24						
	AOP		Sold		% Sold	
District	Volume (MMbf)	Value (\$ million)	Volume (MMbf)	Value (\$ million)	Volume	Value
Astoria	51.1	\$20.60	51.3	\$24.80	100%	120%
Forest Grove	46.9	\$20.20	53.0	\$33.40	113%	165%
Klamath-Lake	8.8	\$1.00	5.0	\$0.60	57%	60%
North Cascade	9.9	\$4.30	11.7	\$8.50	118%	198%
Tillamook	51.9	\$14.90	49.7	\$19.10	96%	128%
West Oregon	9.6	\$3.40	9.3	\$4.00	97%	118%
Western Lane	11.5	\$5.50	11.5	\$7.30	100%	133%
Total	189.7	\$69.90	191.6	\$97.70	101%	140%

Table 9 and 10 details planned harvest by county and district for FY 2025.

Table 9: FY 2025 AOP – Planned Sale Summary by County for BOFL							
County	Regen. Acres	Partial Cut Acres	Total Acres	Total Volume	Gross Value	Project Value	Net Value
				MMBF	<i>In Thousands of Dollars</i>		
Benton	94	0	94	94	\$1,380.8	\$78.2	\$1,302.6
Clackamas	81	84	165	165	\$2,003.8	\$145.7	\$1,858.1
Clatsop	1,465	272	1,737	1,737	\$26,847.6	\$2,289.7	\$24,557.9
Columbia	0	10	10	10	\$43.5	\$7.0	\$36.4
Coos	0	0	0	0	\$0	\$0	\$0
Douglas	0	0	0	0	\$0	\$0	\$0
Josephine	0	0	0	0	\$0	\$0	\$0
Klamath	0	3,296	3,296	7.1	\$518.2	\$109.5	\$408.7
Lane	267	18	285	9.2	\$4,529.0	\$475.0	\$4,054.0
Lincoln	109	158	267	5.5	\$2,541.0	\$151.7	\$2,389.3
Linn	149	0	149	5.9	\$3,239.0	\$119.9	\$3,119.1
Marion	0	0	0	0	\$0	\$0	\$0
Polk	33	0	33	1.2	\$547.4	\$28.7	\$518.8
Tillamook	2,610	456	3,066	64.9	\$21,408.5	\$3,494.6	\$17,913.9
Washington	705	29	734	27.5	\$13,680.0	\$1,952.1	\$11,727.9
AOP Total	5,513	4,323	9,836	187.7	\$76,738.8	\$8,852.1	\$67,886.6

Table 10: FY 2025 AOP – Planned Sale Summary by District for BOFL							
District	Regen. Acres	Partial Cut Acres	Total Acres	Total Volume	Gross Value	Project Value	Net Value
				MMBF	<i>In Thousands of Dollars</i>		
Astoria	1,354	121	1,475	53.0	\$23,835.6	\$2,077.2	\$21,758.4
Forest Grove	1,117	430	1,547	46.8	\$22,306.8	\$2,513.1	\$19,793.7
Klamath-Lake	0	3,296	3,296	7.1	\$518.2	\$109.5	\$408.7
North Cascade	230	84	314	9.9	\$5,242.8	\$265.6	\$4,977.2
Tillamook	2,309	216	2,525	51.9	\$15,837.2	\$3,153.2	\$12,684.0
West Oregon	236	158	394	9.8	\$4,469.2	\$258.6	\$4,210.6
*Western Lane	267	18	285	9.2	\$4,529.0	\$475.0	\$4,054.0
AOP Total	5,513	4,323	9,836	187.7	\$76,738.8	\$8,852.1	\$67,886.6

*Starting in FY19 Southwest Oregon and Coos Units are being managed out of Western Lane. These lands are now called the Western Lane District.

Other Management Activities

Reforestation activities include site preparation, planning, and tree protection. These activities are dependent on the timber harvest schedule, availability of suitable seedlings, and weather. Intensive management activities listed in Table 11 represent an investment in future benefits such as volume, timber quality, and habitat.

South Fork adult in custody crews provide valuable forest management services to the State Forest Division. South Fork crew costs for intensive management activities during FY 2024 totaled \$809,250 and these costs are included in Table 11.

Table 11: Intensive Management Activities on BOFL - FY 2024			
MANAGEMENT ACTIVITY	ACRES PLANNED	ACRES COMPLETED	TOTAL COST
Initial Planting*	5,045	4,594	\$1,979,348
Interplanting*	1,040	2,119	\$660,955
Invasive Plant Control	2,304	1,096	\$74,930
Precommercial Thinning	2,160	1,969	\$405,236
Pruning	35	0	\$0
Release-Chemical- Aerial	784	675	\$46,784
Release-Chemical-Hand	2,267	1,071	\$119,652
Release-Mechanical-Hand	1,086	495	\$167,182
Site Prep-Mechanical	8	8	\$4,734
Site Prep-Slash Burning	4,983	3,615	\$39,810
Site Prep-Chemical- Aerial	3,658	2,956	\$254,001
Site Prep-Chemical- Hand	1,264	1,038	\$126,739
Surveys-Invasive Plants	2,000	50	\$0
Surveys-Reforestation	19,390	19,164	\$43,338
Tree Protection-Barriers	1,770	1,562	\$342,997
Tree Protection-Direct Control	3,746	3,158	\$488,083
Underplanting*	0	0	\$0
Totals	51,540	43,570	\$4,753,790

*Planting costs include all costs to grow and plant seedlings.

Table 12 provides information about the planned road system management on BOFL and Common School Forest Land (CSFL) for FY 2025 by District. \$5,669 of the total project costs are dedicated to CSFL road projects in the Astoria and West Oregon districts.

Table 12: FY 2025 AOP Planned Road Work			
District	Total Project Cost (\$)	New Construction (miles)	Improvement, Rock, and/or Maintenance (miles)
Astoria	\$2,079,623	7.7	56.1
Forest Grove	\$2,513,050	4.9	106.2
Klamath-Lake	\$109,500	0	41.5
North Cascade	\$265,577	1.2	3.1
Tillamook	\$3,153,240	14.4	154.4
West Oregon	\$261,808	0.2	15.1
Western Lane	\$325,000	1.3	4.9
Total	\$8,707,798	29.6	381.3

In FY24, ODF managed recreation activities included the maintenance and construction of 46.5 miles and 5 miles, respectively, of OHV trails, and the maintenance and construction of 40.3 miles and 1.5 miles, respectively, of non-motorized trails. Much of this work was accomplished in partnership with volunteers who donated over 15,000 hours of their time on BOFL. Additionally, ODF's 21 designated campgrounds hosted 27,741 campers for 59,083 visitor nights and generated \$306,917 in revenue.

The Tillamook Forest Center, located on BOFL in Tillamook County and the hub of the program's education and interpretation work, welcomed over 60,000 visitors in FY24. Among those visitors were nearly 5,000 participants from local schools and other public organizations who attended educational programming designed to highlight forest management principles and outcomes. Similarly to the recreational activities on BOFL, volunteers played a large part in education and interpretation work by donating 688.5 hours to the program.

Links To More Information

Stand Level Inventory

[The Forest Inventory Report](#) covers the fiscal year-end stand level inventory estimates on Board of Forestry and Common School Land for each district.

Stream and Watershed Restoration

[Restoration reports](#) summarize all restoration activity reported to OWEB by State Forest Districts since 1995.

Forest Health

- [Aerial Survey Summary Reports](#) by ODF Area
- [Forest Health Highlights Report](#) -Joint Publications of Oregon Department of Forestry and USDA Forest Service, Pacific Northwest Region

Recreation Accomplishments

[BOF FY2024 Recreation Accomplishment Report](#) takes a district level look at volunteer hours, the trail project summary, camping and camping revenue and recreation facility planning and development projects.



Common School Forest Land Annual Report

FISCAL YEAR 2024



**Prepared by the
Oregon Department
of Forestry**

April 2025

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Annual Report Located at:

<https://www.oregon.gov/ODF/Pages/Reports.aspx>

Executive Summary

DATE: April 8, 2025

TO: Governor Tina Kotek
Secretary of State Tobias Read
State Treasurer Elizabeth Steiner

FROM: Kate Skinner, Interim Oregon State Forester

SUBJECT: Fiscal Year 2024 Annual Report for Common School Forest Land

During fiscal year 2024 the Oregon Department of Forestry (ODF) managed 28,093 acres of Common School Forest Land (CSFL). As trustee of the CSFL, the State Land Board (SLB) oversees management to provide Oregonians the greatest benefit, consistent with resource conservation and sound land management strategies. Within this context, these lands are managed to maximize revenue to the state's Common School Fund (CSF) through an agreement among ODF, the SLB and the Department of State Lands (DSL). The DSL 2012 Real Estate Asset Management Plan states that these lands are "managed primarily to produce merchantable timber on a sustainable basis in accordance with plans adopted by the Land Board in cooperation with the Board of Forestry." Net revenues generated from CSFL are dedicated to the CSF.

This agreement and partnership among ODF, DSL and the SLB requires ODF to present an annual report regarding the status of management of CSFL. This status report includes information related to timber management (volume and value of harvested, sold and planned timber sales), fiscal year operating costs, revenue transferred to the CSF, reforestation, intensive management accomplishments and costs, and other information affecting CSFL management and operations.

Fiscal Year 2024 Harvest and Revenue

In 2024, net operating income decreased to \$908,696 due to decreased volume harvested from CSF timber sales. ODF continues stewardship of 28,093 acres of CSFL through active management, supervising and administering timber operations, monitoring environmental successes and sustaining critical wildlife habitat areas.

A number of reforestation and replanting projects were completed successfully, and young stand management activities continue to actively grow healthy, sustainable forests for future generations – providing a range of longer-term natural benefits such as wood products, diverse ecosystems and habitat, and clean air and water.

1. CSFL Harvest Volume:
 - a. 3.87 MMBF
 - b. 41 percent decrease from FY 2023
2. Revenue Transfers to CSF:
 - a. \$2.31 million
 - b. 16 percent decrease from FY 2023

3. Net Operating Income (NOI): NOI is the total revenue received by ODF minus management costs. It is influenced by the same factors that affect volume and value, as well as management expenses.
 - a. \$908,696
 - b. 26 percent decrease from FY 2023
4. CSFL Management costs:
 - a. \$1.41 million
 - b. 8 percent decrease from FY 2023
5. CSFL sales sold in FY 2024 (not yet harvested)
 - a. 4.89 MMBF
 - b. Approximately \$2.53 million in timber sale value (prior to CSFL management costs)

Other Forest Management Activities

Reforestation and young stand management are integral to ensuring a sustainable flow of wood and future habitat development. On CSFL in FY 2024, 233 acres were reforested and 1,346 acres received young-stand management treatment, improving overall forest health and future growth.

This annual report summarizes CSFL management activities from July 1, 2023 through June 30, 2024.

Financial and Asset Management

Overview

This report primarily focuses on FY 2023 (July 1, 2023 through June 30, 2024). However, forest management often requires evaluating trends in revenue and costs for previous biennia (e.g., sales approved in one year’s operating plan may be harvested over one to three subsequent years). Revenue transferred to the CSF from management of CSFL has varied over the past 10 years from \$1.9 million to \$6.4 million annually. This time period includes fiscal years prior to July 1, 2017, when ODF managed the Elliott State Forest.

The primary factors influencing revenue fluctuations include: housing starts, lumber prices, harvest timing, individual sale volumes and value, changing ratios between harvests on CSFL and Board of Forestry lands (BOFL), Endangered Species Act protection measures and uncertainty and constraints associated with litigation.

Net Operating Income (NOI)

NOI for CSFL for FY 2024 was \$908,696. NOI was calculated by subtracting costs from total revenue transferred to DSL. NOI ranged from \$908,696 to \$1.9 million for CSFL in the past 5 years (Table 1).

Table 1: Net Operating Income	
FY2024	\$908,696
FY2023	\$1,226,043
FY2022	\$1,890,650
FY2021	\$1,119,587
FY2020	\$1,103,223
5 Year Average	\$1,249,640

Annual Revenue

Annual revenue is reported throughout this report, with influencing factors included for context.

Fiscal Year 2024 Revenue and Investment Costs

During FY 2024, \$2.31 million in revenue was transferred to DSL (Table 2). Total charges for managing the CSFL totaled \$1.41 million during FY 2024 (Table 2). These expenditures include State Forests Division personnel in Salem, three regional areas, and seven districts. The units are responsible for timber sale contract development and compliance, reforestation and intensive management activities, Endangered Species Act compliance, research and monitoring, forest planning and public engagement, and overall program administration.

Other charges to the CSF, referred to as “Net Revenue Transfers,” totaled \$250,826 in FY 2024 (Table 3). This is approximately 18 percent of total overall costs. Revenue transfers include a prorated portion of ODF’s total costs for capital improvement projects, debt service, and seed orchard management.

Revenue transfers include a portion of overall agency administration prorate which totaled \$243,545. It is ODF's goal to ensure that allocation of agency administrative costs accurately reflects work performed by administrative and managerial staff, and that each program pays their appropriate share of administrative costs.

J.E. Schroeder Seed Orchard costs for FY 2024 were \$4,445. These funds were used to produce genetically improved seed (superior growth, wood quality, and disease tolerant characteristics as identified through traditional breeding and selection methods) appropriate for reforesting state forestlands.

The fire protection cost for 28,093 acres of ODF managed CSFL was approximately \$150,818.

CSFL Revenues and Expenditures for FY 2024

Table 2: CSFL Revenues and Expenditures					
Expenditures and Transfers					
Category	FY20	FY21	FY22	FY23	FY24
T & E Surveys	\$108,828	\$95,611	\$114,930	\$118,627	\$123,992
Salem Program	\$297,652	\$423,562	\$400,838	\$450,049	\$360,614
Total Salem Expenditures	\$406,480	\$519,173	\$515,768	\$568,676	\$484,606
Total District Expenditures	\$690,803	\$513,752	\$536,027	\$744,845	\$670,494
Administrative Transfers	\$398,296	\$416,313	\$228,753	\$215,082	\$250,826
Total Expenditures + Transfers	\$1,495,579	\$1,449,238	\$1,280,549	\$1,528,603	\$1,405,927
District Expenditures Prorated by Acres					
District	FY20	FY21	FY22	FY23	FY24
Tillamook	\$204,029	\$231,463	\$199,248	\$225,270	\$269,430
Astoria	\$96,496	\$92,877	\$85,222	\$98,892	\$103,090
Forest Grove	\$29,817	\$32,280	\$28,991	\$30,155	\$30,527
West Oregon	\$460,863	\$373,341	\$348,211	\$390,496	\$336,845
North Cascade	\$42,794	\$58,752	\$52,947	\$62,003	\$46,191
Western Lane	\$437,344	\$424,068	\$346,344	\$467,494	\$523,756
Klamath-Lake	\$224,237	\$236,456	\$219,588	\$254,293	\$96,087
Total Expenditures + Transfers	\$1,495,579	\$1,449,238	\$1,280,549	\$1,528,603	\$1,405,927
CSFL Revenues					
District	FY20	FY21	FY22	FY23	FY24
Tillamook	\$97,366	\$54,561	\$59,633	\$220,166	\$406,945
Astoria	\$694,366	\$2,881	\$108,384	\$841,037	\$217,203
Forest Grove	\$635,519	\$1,542,376	\$138,506	\$540,195	\$67
West Oregon	\$664,469	\$737,436	\$1,754,192	\$822,698	\$1,359,684
North Cascade	\$2	\$2,325	\$472,768	\$0	\$28,517
Western Lane	\$356,548	\$229,749	\$637,707	\$113,268	\$250,753
Klamath-Lake	\$143,529	(\$503)	\$9	\$217,283	\$51,453
Revenues Transferred to DSL	\$2,591,799	\$2,568,825	\$3,171,199	\$2,754,647	\$2,314,622

Details of FY 2024 Administrative Costs

Table 3: Details of FY 2024 Administrative Transfer Costs	
Administrative Revenue Transfers	Amount
Administrative Prorate Charge	\$243,545
J.E. Schroeder Seed Orchard	\$4,445
Residual Equity	\$2,836
Bond Principal	\$0
Bond Interest	\$0
ADMINISTRATIVE TRANSFER COSTS TOTAL	\$250,826

CSFL Historical Timber Harvest Value, Volume and Average Stumpage Prices for Fiscal Years 2015 – 2024

**Table 4: Common School Forest Land Historical Timber Harvest Value, Volume and
Average Stumpage Price
Fiscal Years 2015 through 2024**

Fiscal Year	² Timber Sales Value of Timber Removed	Timber Harvest Volume (MMBF) Removed	¹Average Sold Sale Stumpage Price/MBF	Average Stumpage Harvested Price/MBF
2024	\$2,174,432	3.865	\$518	\$563
2023	\$2,445,252	6.589	\$485	\$371
2022	\$4,641,474	10.358	\$454	\$448
2021	\$2,034,439	4.242	\$404	\$480
2020	\$2,597,050	5.590	\$439	\$465
2019	\$2,057,269	4.671	\$170	\$440
2018	\$1,534,693	3.573	\$476	\$430
2017 Elliott State Forest (Coos District)	\$2,691,137	7.758	\$347	\$347
2017 Other CSFL	\$1,152,934	2.765	\$413	\$417
Total 2017	\$3,844,071	10.523	\$413	\$365
2016 Elliott State Forest (Coos District)	\$3,416,945	7.990	\$327	\$428
2016 Other CSFL	\$2,454,497	6.170	\$347	\$398
Total 2016	\$5,871,441	14.160	\$332	\$415
2015 Elliott State Forest (Coos District)	\$3,592,162	8.260	\$436	\$435
2015 Other CSFL	\$2,367,124	6.990	\$356	\$339
Total 2015	\$5,959,286	15.250	\$375	\$391
Last 5 Year Average	\$2,778,530	6.129	\$460	\$465
10 Year Average	\$3,315,941	7.9	\$407	\$437

¹ Average stumpage for new sales sold during the fiscal year and is not related to the harvested volume and value columns, which cover harvests spanning multiple fiscal years.

² Timber Sale Value is gross timber sales value before project work credits have been subtracted.

Forest Land Management

During FY 2024 ODF managed 28,093 acres of CSFL (Table 5). Activities conducted on CSFL managed by ODF include: timber harvest, reforestation and young stand management, and road construction and maintenance.

Timber Management Activities

A total of 10 active sales were harvested in FY 2024, producing 3.87 mmbf of volume with a value of \$2,174,432 (Table 7). In addition, there were 6 sales sold in FY 2024, totaling approximately 4.89 mmbf of timber volume (Table 6).

All planned sales on CSFL in FY 2025 are estimated to produce 188 mbf of timber volume with a net value of \$60,791 (Table 8).

Reforestation and young stand management activities such as site preparation, planting and thinning are used to promote healthy and productive forest land. Table 9 summarizes planned and completed acres and costs for these activities on CSFL.

Table 10 provides information about the road system management on CSFL by District and County.

Table 5: Common School Forest Lands Managed by ODF	
COUNTY	CSFL ACRES
BENTON	563
CLACKAMAS	113
CLATSOP	2,060
COLUMBIA	80
COOS	720
CURRY	1,352
DOUGLAS	1,903
JACKSON	1,622
JOSEPHINE	3,961
KLAMATH	1,920
LANE	907
LINCOLN	4,477
LINN	90
MARION	720
POLK	1,690
TILLAMOOK	5,584
WASHINGTON	250
YAMHILL	80
GRAND TOTAL:	28,093

Source: ODF, 07/6/23

Report is based on legal acres not GIS acres

Timber Sales Sold During FY 2024

Table 6. Common School Forest Lands Timber Sales Sold in Fiscal Year 2024										
Sale Name	ODF District	CSFL % of Sale	Total Sale Volume (Mbf)	CSFL Volume (Mbf)	CSFL Acres Partial Cut	CSFL Acres Regen.	Total Project Costs	CSFL Project Costs	Net Sale Value (BOF + CSFL)	Net CSFL Value
Little Nicky Thin	Astoria	21%	1,979	409	287	1	\$156,103	\$32,266	\$459,304	\$94,938
Middle Clole	Astoria	68%	2,604	1,762	0	26	\$162,308	\$109,801	\$1,404,854	\$950,384
Doe a Deer	West Oregon	92%	2,311	2,133	0	49	\$54,700	\$50,488	\$1,413,687	\$1,304,833
Wolf of Haul Street	West Oregon	0%	1,773	6	0	0	\$59,479	\$202	\$736,594	\$2,504
Salmon Forks Combo	West Oregon	9%	2,011	180	67	6	\$55,594	\$4,976	\$805,022	\$72,049
Lone Steere Thin	West Oregon	100%	400	400	68	0	\$20,365	\$20,365	\$109,635	\$109,635
Totals			11,078	4,890	422	82	\$508,549	\$218,099	\$4,929,096	\$2,534,344

All dollar amounts are rounded to the nearest whole dollar.

Activity Summary for FY 2024

Table 7. Active Timber Sales on Common School Forest Lands Volume and Value, Fiscal Year 2024					
Sale Name	District	Sale No.	%CSFL	MMBF Harvested	Value CSFL
Cup of Joe	Astoria	AT-341-2023-W00857-01	20%	0.30	\$94,858
Hamlet 8	Astoria	AT-341-2021-W00828-01	0%	0.00	\$41
Little Nicky Thin	Astoria	AT-341-2024-W00986-01	21%	0.08	\$25,785
Middle Cole	Astoria	AT-341-2024-W00986-01	68%	0.02	\$9,928
Gates Go Back	North Cascade	NC-342-2023-W01130-01	100%	0.07	\$26,267
Wooden Corners	Tillamook	TL-341-2023-W00851-01	61%	0.39	\$207,106
Mahrvelous	Western Oregon	WO-341-2023-W00996-01	25%	0.93	\$569,826
Roger Miller Combo	Western Oregon	WO-341-2023-W00905-01	22%	0.35	\$202,893
Long John	Western Oregon	WO-341-2023-W00902-01	40%	0.89	\$615,806
Maple Gulch	Western Lane	WL-341-2023-W01077-01	100%	0.83	\$421,922
Total				3.87	\$2,174,432

Planned Timber Sales for FY 2025

Table 8: Annual Operation Plan Timber Sales Planned in CSFL in FY 2025

Sale Name	ODF District	CSFL Percent of Sale	Timber Sale Volume (MBF)	CSFL Volume (MBF)	CSFL Acres Regen Cut	CSFL Acres Partial Cut	Total Sale Value	CSFL Project Costs	Net CSFL Value
Miller Woods Thin	West Oregon	7%	1,200	84	0.07	11.62	\$356,400	\$3,219	\$21,729
Triple Divide	Astoria	2%	5,200	104	3.46	0	\$2,075,600	\$2,450	\$39,062
Total			6,400	188	3.53	11.62	\$2,432,000	\$5,669	\$60,791

Reforestation and Young Stand Management for FY 2024

Table 9: Young Stand Management Activities in CSFL in FY 2024

Management Activity	Acres Planned	Acres Completed	Total Cost
Initial Planting*	240	233	\$96,257
Interplanting	10	5	\$2,486
Invasive Plant Control	25	63	\$4,447
Precommercial Thinning	15	0	\$0
Pruning	0	0	\$0
Release-Chemical- Aerial	0	24	\$1,663
Release-Chemical-Hand	88	91	\$11,576
Release-Mechanical-Hand	20	30	\$9,862
Site Prep-Mechanical	6	6	\$0
Site Prep-Slash Burning	87	126	\$332
Site Prep-Chemical- Aerial	136	129	\$10,731
Site Prep-Chemical- Hand	36	36	\$4,332
Surveys-Invasive Plants	0	10	\$0
Surveys-Reforestation	250	491	\$0
Tree Protection-Barriers**	0	36	\$11,105
Tree Protection-Direct Control	66	66	\$0
Underplanting*	0	0	\$0
Total	979	1,346	\$152,793

*Planting costs include all costs to grow seedlings.

**Some districts used South Fork crew labor. South Fork crew costs are covered in this table.

Road Management Activities for FY 2024

Table 10: FY 2024 Annual Road Work – CSFL								
District & County	Aggregate/Paved Surface (miles)			Dirt Surface (miles)			Bridge	Fish Pipes
	Constructed	Improved	Vacated	Constructed	Improved	Vacated	Installed	Installed
Astoria/Clatsop	0.08	0.65	0	0	0	0	0	0
West Oregon/Polk	0.05	0.69	0	0	0	0	0	0
West Oregon/Lincoln	0.00	0.87	0	0	0	0	0	0
Totals	0.13	2.21	0.0	0.00	0.00	0.0	0.0	0.0

Links To More Information

Stand Level Inventory

[Forest Inventory Report](#) covers the fiscal year-end stand level inventory estimates on Board of Forestry and Common School Land for each district.

Stream and Watershed Restoration

[Restoration reports](#) summarize all restoration activity reported to OWEB by State Forest Districts since 1995.

Forest Health

- [Aerial Survey Summary Reports](#) by ODF Area
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Board of Forestry Public Meeting

1. Opening Comments

This item serves as an opportunity for the Board Members to provide introductory statements, and for the State Forester to brief the Board of Forestry of the Department or related topics of importance. Individual members of the Board can offer comments for the Chair, Secretary, and Board consideration. Comment times may be reduced at the discretion of the Board Chair.

This is an information item.

Agenda Item No.:	2
Work Plan:	Forest Resources Division
Topic:	Implementing Legislative Direction
Presentation Title:	Post-Disturbance Harvest Rules
Date of Presentation:	September 3, 2025
Contact Information:	Josh Barnard, Division Chief, Forest Resources Division, ODF, josh.w.barnard@odf.oregon.gov , Nicole Stapp, Policy Advisor, Forest Resources Division, ODF, nicole.l.stapp@odf.oregon.gov

SUMMARY

In January 2023, the Board initiated post-disturbance harvest rulemaking as directed by Senate Bill 1501 (2022) and in February 2024 directed the Oregon Department of Forestry (Department) to file a Notice of Proposed Rulemaking. In June 2025, the Board directed the Department to reopen the public comment period on the proposed Post-Disturbance Harvest rules on July 1st and to hold it open for a period of 30 days, and to return to the Board with the results of the additional public comment period and a decision regarding the rulemaking at the September meeting. This agenda item is for the Department to report the results of the additional public comment period and for a Board decision on the rulemaking.

CONTEXT

In 2020, conservation and forest industry groups offered to revise the Forest Practices Act (FPA) and forest practice rules through a memorandum of understanding to include mediated discussions, known as the Private Forest Accord (PFA). Later that year, the Legislature passed [SB 1602](#) which set helicopter pesticide application requirements and required the Governor to facilitate mediated sessions between conservation and forest industry groups. As a product of this collaborative process, the [2022 PFA Report](#) was drafted and released by an author group comprised of representatives from those discussions. During the 2022 Legislative Session, [SB 1501](#) and [SB 1502](#) passed making substantial changes to the FPA and requiring the Board to incorporate the recommendations of the PFA Report into the forest practice rules through the adoption of a single rule package to support the development of the PFA habitat conservation plan (HCP). In addition, SB 1501 (2022) prescribed two additional rulemaking efforts regarding tethered logging and post-disturbance harvest.

Section 6 of SB 1501 (2022) sets the scope of post-disturbance harvest rulemaking as "...rulemaking concerning the post-disturbance harvest of trees that, but for the disturbance, would not be harvested under rules adopted, amended or repealed as part of the rule package described in section 2 of this 2022 Act." Section 2 of the Act is the single, large rule package that was adopted to implement the PFA changes to the forest practice rules. Section 6 also requires the Board completes rulemaking on or before November 30, 2025.

BACKGROUND

In January 2023, the Board initiated post-disturbance harvest rulemaking as directed by Senate Bill 1501 (2022). In February 2024, the Department presented a related literature review, a briefing on the policy and rulemaking framework and proposed draft post-disturbance harvest rules to the Board. The Board then made five related decisions including a degradation finding and determining that the specific facts and standards required by the FPA rulemaking procedure, Oregon Revised Statute (ORS) 527.714, had been met and directing the Department to complete and post the economic analysis required by ORS 527.714(8) and file a Notice of Proposed

Rulemaking. The [February 2024 staff report](#) includes more robust background information including the ORS 527.714 analysis.

After the February 2024 Board direction, the Department prepared and posted the [Analysis of the Estimated Economic Impact of Proposed OAR 629-643-0300](#), filed a [Notice of Proposed Rulemaking](#), completed required notifications, and conducted a rules hearing.

In June 2025, the Department returned to the Board and presented an overview of the policy framework that applies to FPA rulemaking, a summary of Board actions and decisions related to post-disturbance rulemaking and Department actions since the Board's February 2024 direction. The results of the original public comment period, which are captured in Attachment 2, were also shared including Department clarifications and a recommendation to adopt the Post-Disturbance Harvest Rules as they are presented in Attachment 1. More robust background information, including a staff analysis and clarifications in response to public comment can be found within the June 2025 [board materials](#).

At the June 2025 meeting, the Board directed the Department to reopen the public comment period on the proposed Post-Disturbance Harvest rules on July 1st and to hold it open for a period of 30 days, and to return to the Board with the results of the additional public comment period and a decision regarding the rulemaking at the September meeting.

DEPARTMENT ACTIONS

To implement the Board's June 2025 direction, the Department reopened the public comment period for the Post-Disturbance Harvest rules from July 1st to July 31st, 2025. In reopening the public comment period, the Department took the following actions:

- Posted a [Public Notice](#) in the July 2025 Oregon Bulletin
- Issued a [news release](#) announcing the reopening of the public comment period
- Posted information on the [ODF rulemaking webpage](#) and placed a banner announcing the comment window at the top of ODF webpages for the duration of the comment period; and
- Provided direct notices to those signed up to receive rulemaking notices either electronically or via postal mail, to legislators and to those who were notified of the original comment period.

Board direction also included instructions to return in September with the results of the additional public comment period and for a decision regarding the rulemaking.

During the additional public comment period, the Department received 119 written comments from 116 unique commenters which are provided for Board review and consideration as Attachment 3. Commenters' calls for rule action have been tallied by the number of unique commenters explicitly calling for the action and are provided below:

- Adopt the proposed rules as drafted: 103
- Retain existing OAR 629-643-0300: 7
- Retain existing OAR 629-643-0300 for Small Forestland Owners: 3
- Other: 3

The other category reflects two commenters that did not explicitly urge an action and one that supported the proposed rules but recommended the Board also retain the existing OAR 629-643-0300(3) for Type F streams for small forestland owners.

These comments are part of the rule record along with the comments received during the original public comment period which are included as Attachment 2 and were previously provided for Board consideration in June 2025.

The Department is now returning to the Board for a decision regarding the rulemaking.

RECOMMENDATION

The Department recommends the Board adopt the “Post-Disturbance Harvest Rules” as they are presented in Attachment 1.

NEXT STEPS

If the Board adopts the “Post-Disturbance Harvest Rules” as they are presented in Attachment 1, the Department will file the rule action with the Secretary of State’s Office. If the Board takes another action, the appropriate next steps will need to be determined at that time.

ATTACHMENTS

- 1) Post-Disturbance Harvest Rules
- 2) Public Comment on Draft Post-Disturbance Harvest Rules: April 1- May 1, 2024
- 3) Public Comment on Draft Post-Disturbance Harvest Rules: July 1- July 31, 2025

Post-Disturbance Harvest Oregon Administrative Rules (OARS) for Adoption *(Clean copy)*



OAR 629-643-0000: Vegetation Retention Goals for Streams; Desired Future Conditions

- (1) The purpose of this rule is to describe the vegetation retention measures for streams, the measures' purposes, and how the measures shall be implemented. The vegetation retention requirements for streams, as described in OAR 629-643-0100 through 629-643-0500, are designed to produce desired future conditions for the wide range of stand types, channel conditions, and disturbance regimes that exist in Oregon's forestlands.
- (2) The desired future condition for streamside areas that require forested buffers is to grow and retain vegetation so that, over time, average conditions across the landscape become similar to the conditions of mature streamside stands. Oregon has a tremendous diversity of forest tree species and stand density along waters of the state. The age of mature streamside stands varies by tree species. Mature stands generally occur between 80 and 200 years of stand age. Hardwood stands and some conifer stands may become mature at an earlier age. Mature forests provide ample shade over the channel, an abundance of large wood in the channel, channel-influencing root masses along the edge of the high-water level, and regular inputs of nutrients through litter fall. Mature forests are generally composed of multi-aged trees of appropriate and varied density, native tree species well suited to the site, a mature understory, snags, and downed wood.
- (3) For the forests specified in (2) above, the rule standards for desired future conditions and located in Western Oregon or the inner zone in Eastern Oregon can be developed by using normal conifer yield tables for the average upland stand consistent with the geographic region to estimate the conifer basal area for average unmanaged mature streamside stands (at age 120). For site specific vegetation retention prescriptions basal area targets, see the table in OAR 629-643-0400. These rule standards provide guidance for operators to implement site specific alternate plans to develop site specific vegetation prescriptions, described in OAR 629-643-0400.
- (4) The desired future condition for streamside areas that do not require tree retention areas, as defined in OAR 629-643-0130, is to have sufficient streamside vegetation to support the functions and processes important to downstream fish use waters and domestic water use, and to provide habitat for amphibians and other wildlife across the landscape. Such functions and processes include but are not limited to:
 - (a) Maintaining downstream cool water temperature and other water quality parameters;
 - (b) Influencing sediment production;
 - (c) Stabilizing banks; and
 - (d) Contributing nutrients and organic matter.
- (5) In many cases, the operator may achieve the desired future condition for streams by applying the standard vegetation retention and small forestland owner minimum option prescriptions as described in OAR 629-643-0100, 629-643-0105, 629-643-0120, 629-643-0125, 629-643-0130, 629-643-0135, 629-643-0141, 629-643-0142, 629-643-0143, and 629-643-0145. In other cases, the existing streamside vegetation may not be able to develop into the desired future condition in a timely manner. In these cases, the operator may apply an alternative vegetation retention prescription as described in OAR 629-643-0300 or develop a site-specific vegetation retention prescription as described in OAR 629-643-0400. For the purposes of these water protection rules, "in a timely manner" means that the trees within the riparian management area will substantially move towards the desired future condition more quickly than if the trees are left untreated.

OAR 629-643-0300: Alternative Vegetation Retention Prescriptions

- (1) The purpose of this rule is to prescribe an alternative vegetation retention prescription for harvest units experiencing stand level mortality. This alternative prescription is intended to contribute to desired future conditions, provide tree retention, woody debris, bank stability and result in the re-establishment of live trees.

- (2) For the purposes of this rule only, “stand level mortality” means a riparian management area or harvest unit with 50% or more dying or recently dead trees due to a catastrophic event such as wildfire, wind, ice, insect or disease damage.
- (3) For the purposes of this rule only, “soil disturbance” means soil has been moved in a manner that alters water drainage patterns so that a new channel is formed within which water flows or is confined and has potential to move loosened or exposed soil or debris toward the stream.
- (4) For harvest units in Western Oregon the operator may:
 - (a) For Type F and Type SSBT stream riparian management areas experiencing stand level mortality, harvest dying or recently dead trees outside 75 feet slope distance from the edge of the active channel or the channel migration zone (CMZ).
 - (A) The operator shall apply an ELZ at a distance of 75 feet from the edge of the active channel or the channel migration zone (CMZ) to the outer edge of the riparian management area.
 - i. Soil disturbance from cabled logs shall not exceed 20 percent of the total area of the ELZ.
 - ii. Soil disturbance from ground-based equipment shall not exceed 10 percent of the total area of the ELZ. Operators shall take corrective action(s) for soil disturbance from ground-based equipment. Corrective action(s) shall be designed to replace the equivalent of lost functions and be consistent with Forest Practices Technical Guidance.
 - (B) To encourage hardwood sprouting, the operator shall not apply chemicals within 75 feet slope distance from the edge of the active channel or the channel migration zone (CMZ) unless needed to address invasive species or noxious weed infestations and shall apply chemicals using targeted ground-based application. Chemical application in the remainder of the riparian management area is to be minimized to the greatest extent possible.
 - (C) To encourage less dense spacing, the operator may apply the minimum stocking standard described below rather than the productivity-based stocking standards described in OAR 629-610-0020(4) within the riparian management area.
 - i. 130 free to grow seedlings per acre; or
 - ii. 75 free to grow saplings and poles per acre; or
 - iii. 50 square feet of basal area per acre of free to grow trees 11-inches DBH and larger; or
 - iv. An equivalent combination of seedlings, saplings and poles, and larger trees as calculated in OAR 629-610-0020(7).
 - (b) For small Type Np stream riparian management areas experiencing stand level mortality, harvest dying or recently dead trees within the riparian management area. The operator shall apply an R-ELZ from the edge of the active channel in any area where tree removal occurs consistent with OAR 629-630-0700(6) and OAR 629-630-0800(8).
 - (c) For units experiencing stand level mortality that contain slope retention areas identified under OAR 629-630-0910(3), harvest dying or recently dead trees in the slope retention areas, if the slope retention area is not directly adjacent to designated debris flow traversal areas or Type F stream, Type SSBT stream, large or medium type Np stream riparian management areas. If the harvest unit contains one or more designated sediment source areas adjacent to a riparian management area or designated debris flow traversal area, the operator shall retain all trees in at least one of the slope retention areas.
- (5) For harvest units containing Terminal Type Np stream riparian management areas experiencing stand level mortality in Eastern Oregon, the operator may harvest dying or recently dead trees within the outer zone of the riparian management area.
- (6) The State Forester shall exempt small forestland owner harvest units experiencing stand level mortality from the watershed cap described in OAR 629-643-0140.
- (7) Except as explicitly stated in this rule, all other forest practice rules apply.

Public Comment Related to the Post-Disturbance Harvest Rulemaking Directed by SB 1501 (2022): Received 4/1/24 to 5/1/24



Note: The Notice of Proposed Rulemaking for the post-disturbance harvest rulemaking first appeared in the April 2024 Oregon Bulletin with a public comment deadline of May 1st, 2024. The Board of Forestry reopened the public comment period related to the post-disturbance harvest rulemaking from July 1st to July 31st, 2025.

This document captures the public comments received in the first public comment period. These comments should be considered alongside the comments received during the second public comment period which are summarized in Attachment 3 of board materials.

ODF Response to Public Comment

The Department of Forestry (ODF) would like to clarify the following items for the Board of Forestry and the public in response to public comments received in response to the [Notice of Rulemaking](#) filed on March 27th, 2024:

Legislative Direction & Private Forest Accord (PFA) Intent

Legislative direction regarding this rulemaking is in section 6 of [Senate Bill 1501 \(2022\)](#) which directs the Board to complete the rulemaking under specific procedures and sets the scope as "...the post-disturbance harvest of trees that, but for the disturbance, would not be harvested under rules adopted, amended or repealed as part of the rule package described in section 2...". In other words, rules adopted as part of this rulemaking must be about the harvest of trees that cannot be harvested under the forest practice rules that were adopted consistent with the [PFA Report](#). This means these rules would inherently conflict with the provisions of the PFA Report, but not the PFA Report itself as section 1.4.5 of the report states the board should complete post-disturbance harvest rulemaking and outlines what the authors anticipated as part of the process. This rulemaking effort has been conducted consistent with legislative direction, section 1.4.5 of the PFA Report, ORS 527.714, and the Administrative Procedures Act.

Purpose of the Rule & Applicability

The purpose of proposed Oregon Administrative Rule (OAR) 629-643-0300, as stated in the proposed rule, is "to prescribe an alternative vegetation retention prescription for harvest units experiencing stand level mortality. This alternative prescription is intended to contribute to desired future conditions, provide tree retention, woody debris, bank stability and result in the re-establishment of live trees.". Operators can apply the alternative vegetation retention prescription if the designated riparian management area (RMA) or harvest unit is experiencing stand level mortality as defined by the rule. While it's intended to contribute to desired future conditions, it is not intended to be a path to achieving desired future conditions more quickly and this is not the threshold an operator must meet to apply the prescription. Similarly to the standard practice and small forestland owner minimum option, proposed OAR 629-643-



0300 applies to operations as defined in the forest practice rules which involve commercial activities, meaning restoration activities that are not an operation are not impacted by this proposed rule.

Opportunities for Site-Specific Prescriptions

The proposed rule contains region specific provisions and section 7 of the rule states all other forest practice rules apply. If the stand level mortality definition is met the operator may apply the prescription as written or apply another prescription such as the standard practice, a small forestland owner minimum option, or pursue a Plan for Alternate Practice (PFAP) under OAR 629-643-0400 (Site Specific Vegetation Retention Prescriptions for Streams and RMAs) or 629-605-0500 (Modifications of Requirements for Forest Health and Public Safety).

Chemical Application Provisions

The proposed restriction on chemical application is only in Western Oregon and would only apply when an operator chooses to use the alternative vegetation retention prescription to harvest dying or recently dead trees in a Type F or Type SSBT stream RMA. It does not prohibit the use of chemicals to address invasive species or noxious weeds through targeted ground-based application which could include the use of a backpack sprayer.

Version of Rules in the Notice of Proposed Rulemaking

The [Post-Disturbance Harvest Draft Rules](#) document presented to the Board in February shows proposed OAR 629-643-0300 as a "(Clean copy-replaces existing rule entirely)". ODF filed the [Notice of Proposed Rulemaking](#) consistent with the draft rules document received by the Board.

Summary of Public Comments

Summaries are based solely on information submitted and are intended to accurately represent written and verbal comments; however, they may not contain the full submission. Text outside of quotes was prepared by staff while information inside quotation marks is directly from written comment. Comments are in alphabetical order with comments by governmental entities last.

Allen Hallmark

"I am quite concerned that the compromises made to write the new PFA rules for PDL have rendered them ineffective in protecting the forest, stream, and fishery values the rules are supposed to protect. Please add my comments to the list of those who are urging that post-fire or other severe disturbance logging should adhere to the same setbacks from streams and other bodies of water as required for normal logging operations. It makes no sense to waive those rules for post-disturbance logging. So, I am asking that you revisit these rules and amend them to provide much more protection for soil and streams by increasing the size of protected riparian zones."

Associated Oregon Loggers

"Associated Oregon Loggers appreciates the draft post-disturbance harvest rules' recognition of the unique knowledge and judgment that our members bring to their work as the "competent persons" required by OR-OSHA. The continued support ODF has showed in these rules acknowledging the discretion of these skilled professionals to manage such dangers appropriately is encouraging. We also wanted to stress the importance in updating any technical guidance and definitions of dying or recently dead trees with professional foresters and those competent persons making up the operating community."

Collins



Collins agrees with most of the rulemaking but did share considerations regarding herbicides. "We do want to share that in our extensive reforestation efforts the most critical component to the success of post-disturbance reforestation is the use of herbicide to suspend competing vegetation during conifer establishment. Seed supply is at critically low levels, particularly in Eastern Oregon. As we adapt to drier conditions each seedling planted needs to be given every opportunity to thrive, which means eliminating competition for water upon planting. The current recommendation of non-spraying within such a large buffer will translate into landowners excluding these areas from conifer establishment following catastrophic events, and therefore reducing landscape forest restoration efforts. We ask that you will reconsider the large buffer zone for herbicide use."

Dan Newton

States that the Oregon Small Woodlands Association (OSWA) does not oppose the Oregon Forest Industries Council (OFIC) position on post-disturbance rules related to industrial forestlands but that they do support an alternate plan that allows salvage and restoration of devastated riparian areas. He questions why the ODF literature review did not include studies related to food for fish. "Regarding the current proposal, I support the increased flexibility to remove dead trees from non-fish streams and large fish streams, but I have the following concerns: The current proposal limits the harvest of any dead trees less than 75' from fish streams, thus prohibiting salvage from small fish or medium fish streams for landowners using the SFO option. These two classifications represent most of the network of fish-bearing streams. Even without future economic incentive to restore conifers in RMAs, some of our landowners would like to restore native conifers next to streams to provide a source of large wood in the future. In summary, I support the idea of removing dead trees and restoring riparian areas damaged by catastrophic disturbance, but this proposal should also allow removal of dead trees from small and medium fish streams for small landowners (along with potential wood placement), as well as to stay with current rules for backpack applications to control competing vegetation."

David & Mary Ann Bugni

"In summary, the socioeconomic differences between industrial forestland owners and SFOs, the varying degrees and types of natural disturbances that may arise, their relative infrequency (as compared to normal business as usual harvesting), and the varying conditions under which they may occur dictate that SFOs require a more performance-based alternate plan procedure that recognizes such realities and that can be implemented on a case-by-case basis. Allow SFOs greater flexibility to remove some dead trees from within the RMA for all sizes of fish streams, which could provide some funds to the SFO for establishing (or reestablishing) conifers along streams, post-planting maintenance of these seedlings (e.g. mechanical and/or chemical control of competing vegetation) until they are free to grow, and placing of some of the dead, large wood into streams with large equipment. Such smart policies will be a win-win for the SFO, for the state's implementation of related policy regarding the PFA, and the environment."

David Wells

"Current rule language allows for Alternative Vegetation Management prescriptions along streams that incur catastrophic events resulting in substantial tree mortality. The proposed change and I quote "For harvest units in Western Oregon the operator may, for Type F and Type SSBT stream riparian management areas, experiencing stand level mortality harvest dying or recently dead trees outside 75 feet slope distance from the edge of the active channel or the channel migration zone." This rote distance disregards the importance of bringing forest management opportunities closer to the stream as is currently the case. It is also interesting that the use of herbicides is also prohibited within 75 feet of the stream. The given reason for this is to encourage hardwood sprouting. My understanding of one of the goals of the PFA is to encourage large conifers adjacent to streams for the benefits that they provide. The re-sprouting of hardwoods could delay the establishment of the longer-lived conifer trees, as part of the desired future condition along streams. The sooner that the DFC could be established seems like the better. The current rules are adaptive and allow a variety of solutions to be worked on



between the Oregon Department of Forestry Stewardship Forester and landowner. A word that I hear more and more often is the word curiosity. Setting rote distances along streams in these exceptional catastrophic events takes some of that curiosity away about what can be done to restore a functioning riparian management area. I ask that the current rules are continued and that the proposed rules not adopted."

Giustina Land & Timber Co.

"We recognize this rule-making package as a settled negotiation between environmental and forest sector "authors". While the Board of Forestry has elected to proceed with public rule-making and accept public comment, we remain supportive of the rule package as negotiated and do not suggest any change. Further, we encourage the Board to adopt the rule package as initially presented, with no changes. We believe this rule-package supports the development of a robust HCP, necessary to provide regulatory protections for both listed species and forest landowners."

Gordon Culbertson on behalf of the Oregon Small Woodlands Association (OSWA)

States that OSWA does not oppose the OFIC position on post-disturbance rules related to industrial forestlands and supports elements of the proposed rules that allow for harvesting of dead, down and dying trees in non-fish buffers and supports the use of herbicides to control noxious weeds or invasive plant species using ground application methods. "Ken Nygren testified on behalf of OSWA during the February comment period. Mr. Nygren referenced and noted OSWA support for the inclusion of "alternative vegetation retention 1 (catastrophic events)" as a restoration option for small forest owners (SFO) in situations such as the January 2024 ice storm that severely impacted the Southern Willamette Valley. This alternative prescription is noted under 629-643-0300 in the publication of Forest Practice Administrative Rules and the Oregon Forest Practices Act dated January 2024. Unbeknownst to and without consultation of OSWA members this language has been stripped from the post-disturbance rules dated March 27, 2024. This is unacceptable to our members as it eliminates options for critical practices supporting forest health and post catastrophe restoration on small woodland parcels. SFO (non-industrial) issues of concern differ in some cases than those of industrial forests. SFO families have unique goals for their property and the post-disturbance rules as proposed do not adequately protect SFO interests and values. Post disturbance rules as proposed discourage SFO stewardship of multiple resources. Following a catastrophic event such as wildfire, ice storm or windstorm the proposed rules inhibit the SFO from post disaster restoration efforts near fish streams. The rules as proposed will prohibit the landowner from treating large swaths of dead, dying or down trees on their property. This will exacerbate wildfire hazard and encourage insect infestation in adjacent forests and place nearby homes in jeopardy. Adaptive management practices are in order that will encourage collaborative solutions for post-disturbance situations. SFO families need an alternate plan procedure approved in the spirit of existing alternative vegetation retention prescriptions. We suggest rules adopted include options for alternate plans that recognizing stand condition, basal area, desired future stand conditions and historic land use considerations."

Greg Peterson

Details firsthand experience managing his property through multiple disturbances and states that small forestland owners are at a significant disadvantage compared to large landowners. "In the proposed alternative plan, shade was listed as the primary reason for not managing competing vegetation and that fast-growing hardwood would provide shade. While hardwoods will come in, brush and invasive species/noxious weed will also gain a foothold and soon become a seedbed, with very few conifers able to grow without suppressing competing vegetation. Post-disturbance mitigation is very expensive. SFOs have significantly higher unit costs and different priorities than large landowners, and thus need adaptive alternative practices that allow the harvest of marketable down and dead trees within RMAs, to offset other restoration costs. SFO landowners also need to be able to backpack spray to control noxious weeds and invasive species. Without herbicides, disturbed areas will eventual become a mix of brush, invasive species, and noxious weeds. There should not be additional restrictions on backpack



spraying, which is an essential reforestation tool. SFOs need procedures that encourage alternate vegetation retention prescriptions that recognizes stand condition, basal area, desired future conditions, and historic land use. P.S. There was a SFO restoration option noted under 629-643-0300 in the Jan 2024 publication of the Forest Practices Administrative Rules and the Oregon Forest Practices Act. Oregon Small Woodlands Association (OSWA) was not consulted on why such credible procedures for SFO alternative practices were unexpectedly stripped from the 3-27-24 Post-disturbance rules. This is an unacceptable shortcut of PFA procedures."

Kate McMichael

Details firsthand experience of managing through multiple disturbance events and ongoing fears related wildfire risks. States she does not speak for OSWA, but as an OSWA member is unopposed to the post-disturbance salvage provisions regarding industrial forests, however she is concerned for family forests with greater proportions of riparian areas. "The current post-disturbance rules for alternative practice seem to take the realities of SFOs into consideration far more than the proposed changes. Stripping away reasonable provisions for crafting an alternative practice solution to restore disturbance-devastated riparian areas—with a stewardship forester, on a place-based, case-by-case basis—and replacing it with a one-size-fits-all prescription seems utterly counterproductive. These rules seem to actually undermine the work of riparian restoration rather than support it."

Mark Vroman

"Rulemaking package as presented should be adopted. The package as presented represents a solid collaborative effort in rule making from all parties concerned."

Nancy Hathaway

Details firsthand experience managing lands after a disturbance and the related challenges and an observation from Italy. "An alternative vegetation retention prescription for small landowners would be a step in the right direction in terms of fairness and equity in the market. Prior rules allowed thinning which would help alleviate the cost of clean-up and replanting. We need an alternative plan that will be less burdensome to SFOs and provide an incentive to restore the damaged riparian forest. We own the land but the state is now controlling the trees on our land. So where is our incentive to replant trees for the state? Without spraying, planting seedlings in RMAs is just providing deer and elk nourishment. I ask you to consider this in your rule-making. "Letting Nature take its course" is akin to mismanagement and speaks to ignorance of real life situations, a position often taken by folks who have never worked in a real forest."

Oregon Forest Industries Council (OFIC)

OFIC stated rules regarding salvage harvest are critical for the protection and recovery of important resources following devastating natural disasters. They support the rules as drafted and request the Board adopt them and urged ODF and the Board to finalize the rulemaking process prior to the conclusion of the 2024 wildfire season. Verbal comments state PFAPs are an option and the concerns expressed by small woodland owners who testified are heard however PFAPs are the avenue and folks are just not understanding. OFIC urges adoption and encourages ODF to have a conversation with small woodland owners.

Oregon Small Woodlands Association (OSWA)

"Our organization is deeply concerned about the proposed limitations and negative impacts on forest restoration activities in the new Post Disturbance Harvest rules. The Oregon Small Woodlands Association is not opposed to the position on the Post Disturbance Harvest rules offered by the state's large timberland owners applied to industrial timberlands. As proposed, near streams, the new Post Disturbance Harvest rules will clearly and significantly reduce Oregon's Small Forestland Owners ability to respond with restoration efforts to improve forest health. Recovering family picnic sites, camping spots, and recreational access is also important to us. This may require removal of hazard trees for



safety, salvage of timber, removing invasives, and reduction of fire hazards. Before adopting the new Post Disturbance Harvest rules, the Oregon Small Woodlands Association urges ODF to consider the plight of our members and Small Forestland Owners all over the state who are facing the negative impacts - right now - with recent wildfires and ice storms. The Oregon Small Woodlands Association also requests that ODF consider the families who will face the next post disturbance scenario on their own properties, and what outcomes we want to see in the long run. ODF must reduce the negative impacts of the proposed Post Disturbance Harvest rules on Small Forestland Owners."

Oregon Wild

Intended to attend the rules hearing as an observer, however shared Oregon Wild was a signatory to the PFA and supports the draft rules as presented.

Paul Harlan on behalf of the NE Oregon OSWA Chapter

States OSWA does not oppose the OFIC position on post-disturbance rules related to industrial forestlands and supports elements of the proposed rules that allow for harvesting of dead, down and dying trees in non-fish buffers and supports the use of herbicides to control noxious weeds or invasive plant species using ground application methods. "Ken Nygren testified on behalf of OSWA and its members during the February comment period. Mr. Nygren referenced and noted OSWA support for the inclusion of "alternative vegetation retention 1 (catastrophic events)" as a restoration option for small forest owners (SFO). This alternative prescription is noted under 629-643-0300 in the publication of Forest Practice Administrative Rules and the Oregon Forest Practices Act dated January 2024. This language has been dropped from the post-disturbance rules dated March 27, 2024. This is unacceptable to our NE OSWA members as it eliminates options for critical practices supporting forest health and post catastrophe restoration on small woodland parcels. Having the flexibility to operate with the 'alternative vegetation retention 1' option allows these owners on a site by site application have a higher degree of success in reestablishing conifer trees plus also providing a running start at getting shade started on these non-fish bearing stretches of water. Removing the language that was in the alternative prescription as noted under 629-643-0300 in the publication of Forest Practice Administrative Rules and the Oregon Forest Practices Act dated January 2024 takes away our members abilities to creatively help restore the catastrophic disturbances that our east side members are at risk for. We ask that the January, 2024 language for the inclusion of "alternative vegetation retention 1 (catastrophic events)" as a restoration option for small forest owners be restored in the regulations."

Requested not to be identified.

"We need to be retaining more snags and other standing and downed wood in riparian areas. This will help with erosion control and improve water quality by lowering turbidity. We also need to cease herbicide use, allowing for deciduous and other hardwood trees to grow in riparian areas to provide shade quickly post disturbance and cool water temperatures to protect salmon and drinking water. Standing and downed dead wood provides great habitat and good carbon storage even post disturbance."

Southern Oregon Climate Action Now

"We understand that the Private Forest Accord (PFA) was developed as a compromise between the conservation organizations focused on promoting healthy forests that can serve Oregonians in a multi-faceted manner, and an industry which, time and again, argues that the only value in our forests is measured in terms of the profits to be made from harvesting the timber. The compromise that is the PFA should not be circumvented under the stealth guise that post-disturbance logging is different from regular logging. We know that our streams and rivers need to be protected from encroachment by logging and by the imposition of logging on steep slopes. We also know that the recovery of disturbed forests requires a light and sensitive hand, not the bludgeoning of logging equipment that compacts soils and promotes soil erosion. For these reasons, we urge that the Post-disturbance Logging Rules



parallel exactly the logging rules developed in association with the Private Forest Accord and be no less stringent."

Wild Salmon Center

Wild Salmon Center highlighted excerpts from the ODF literature review and stated that they support the Boards' degradation finding, concluding that the post-disturbance harvest rules are a compromise and effort to retain core protections. Additional verbal comments suggest draft rules reflect the PFA commitments and Senate Bill 1501 requirements, and the accelerated timeline is for inclusion in the habitat conservation plan. Asked that ODF move forward with adoption of the rules as written. Stated understanding that PFAPs would be allowed under these rules allowing flexibility particularly for restoration as it relates to concerns expressed by others at the rules hearing and encouraged ODF to clarify.

Comment by Governmental Entities

Baker County (submitted by Commissioner Christina Witham)

Baker County disagrees with the determination that degradation of resources is likely to occur if forest practices continue under the existing rule "but realizes the current lack of proper management must improve and that counties must have more coordination, collaboration and cooperation in current practices at the state level. To leave excess fuels along streams after a catastrophic event increases the possibility of fire along streams that are heavy in fuels resulting in contaminated water, unprotected streams and costly filtration systems for watersheds. Because these rules will apply to forestlands "owned by state, county, city or private individuals or entities", this ruling will have an economic impact although your statement is that the "impact is uncertain". The current rule and any future rules should be determined based on specific locations, climates, terrain, etc., because we know that the forests of the west are not the same and never should be compared to the forests of Eastern Oregon, a broad brushstroke ruling across Oregon will not work, it is not sustainable, it will be costly and detrimental to healthy streams and the health of our communities. Baker County objects to this rule change and encourages a wider consensus for feedback from the public, industry and landowners, not from "344 individuals" who responded to the ODF solicitation."

Oregon Department of Environmental Quality (DEQ)

DEQ expressed appreciation of ODF staff's scientific efforts and inclusion of other state agencies and interested parties related to the rule. DEQ agrees that the current rule is not protective of water quality and aquatic ecosystems and is likely to result in degradation and failure to meet desired future conditions. They state the proposed rule is a substantive and important improvement in water quality protection. DEQ has concerns about the adequacy of the proposed rule and feels these interventions are unlikely to reach desired future conditions sooner. They explain their comments are based on a review and analysis and they describe their methods and findings. "We only considered the question of whether the proposed post-disturbance riparian rules are less likely to achieve water quality goals than the standard riparian prescriptions in Division 643. The concern DEQ has with the Type F/SSBT provision is not in the overall design of the rule, which we support, but in the specific no-harvest width. Proposed Type F/SSBT rule would likely cause additional anthropogenic warming in fish-bearing streams beyond the natural disturbance in excess of TMDL load allocations for at least four years, relative to default RMA requirements. With regard to the PCW criterion of +0.3°C cumulatively, exceedance is possible but less certain for single harvests, but we recommend considering this at the watershed scale. The proposal to allow planting at a lower density in the managed portions of F/SSBT RMAs and the restrictions on herbicide use are ecologically beneficial and should allow development of stands with species and structural diversity and with greater ecological resiliency when compared to stands planted at higher densities with one or two conifer tree species. Proposed Type F/SSBT rule would cause a small decrease in large wood recruitment relative to default RMA requirements. Anthropogenic riparian erosion and sediment transport in addition to that generated by the natural



disturbance is unlikely to be significantly different than the default RMA requirements except in extreme cases (steep slopes and high soil burn severity). Proposed Type Np rules would likely cause additional anthropogenic warming in both the Np stream itself and downstream fish-bearing streams beyond the natural disturbance itself, in excess of the PCW criterion and TMDL load allocations relative to default RMA requirements. Proposed Type Np would eliminate post-disturbance large wood recruitment from riparian no-harvest zones that would otherwise be present with consequent negative effects for aquatic and riparian habitat and downstream water quality. Anthropogenic riparian erosion and sediment generation and transport, in addition to that generated by the natural disturbance, is likely to be significantly higher than the default RMA requirements, especially in extreme cases (steep side slopes and high soil burn severity), with negative implications for aquatic life and drinking water provision. Elimination of wood retention on otherwise protected Sediment Source Areas (landslide-prone slopes) would likely increase failure probability, reduce habitat creation benefits of landslides and debris flows, and contribute to downstream water quality degradation with negative implications for aquatic life and drinking water provision, relative to the default landslide-prone area requirements. Alternative Rule Approaches Leave all riparian management areas (RMAs) and Sediment Source Areas (steep slopes; SSAs) protected as they are in the regular forest practice rules. Leave all RMAs and protected SSAs as no-harvest zones except those with densities greater than 300-500 trees per acre, using thinning, erosion reduction practices, and replanting as needed to aid recovery. Suggested density targets are 80-150 trees per acre with no-harvest zones on all streams (e.g. 35-50ft on Np, 75-90ft on F/SSBT). Use the proposed post-disturbance riparian rule structure, adjusting no-harvest widths to be lower risk (e.g. 90ft on F/SSBT, 50ft on small Np). Remove the provision for harvest on otherwise protected SSAs.”

Oregon Department of Fish and Wildlife (ODFW)

ODFW supports the purpose of the proposed post-disturbance harvest rule and the proposed increases in buffer and tree retention requirements in comparison to current rule, especially for live green trees. ODFW believes that the protection of Type N streams is essential given the important role they play as habitat for a variety of species, especially Type Np streams and their associated buffers (RH max) in the proposed post-disturbance harvest rules. ODFW believes that the protective RH max buffer along the Type Np streams is indispensable to achieving desired future conditions for streamside areas and is the first line of defense to ameliorate impacts further upstream and contributes habitat structure and function to fish-bearing (including SSBT) streams directly downstream. ODFW recommends that the proposed post-disturbance harvest rule include a no-harvest buffer in the RH max for small Type Np streams in western Oregon. ODFW recommends, that at a minimum, a protection standard be applied to the small Type Np RH max that is in alignment and consistent with the same thresholds established for other stream type classification RMAs. ODFW encourages leaving burned wood on the landscape as much as possible, particularly in riparian areas to ensure long term benefits are realized.

U.S. Environmental Protection Agency Region 10

EPA is concerned that existing and proposed OAR 629-643-0300 are inconsistent with the PFA Report and legislative direction, that ODF has not provided evidence the proposed rule would achieve desired future conditions more quickly than standard options and stated their understanding is that OAR 629-643-0300 can be applied when it would achieve desired future conditions more quickly than the standard option. Based on this understanding, they state ODF should take the following actions; reconsider repealing the existing alternative vegetation retention prescription rule or provide further evidence to support the proposed rule revisions, identify conditions in which the alternative vegetation retention prescription would achieve desired future conditions more quickly than the standard options and articulate how they will work with landowners to verify the alternative vegetation retention prescription is applicable.



Public Comment Related to the Post-Disturbance Harvest Rulemaking Directed by SB 1501 (2022): Received 7/1 to 7/31/2025



Note: The Notice of Proposed Rulemaking for the post-disturbance harvest rulemaking first appeared in the April 2024 Oregon Bulletin with a public comment deadline of May 1st, 2024. The Board of Forestry reopened the public comment period related to the post-disturbance harvest rulemaking from July 1st to July 31st, 2025.

This document captures the public comments received in the second public comment period. These comments should be considered alongside the comments received during the original public comment period which are summarized in Attachment 2 of board materials.

Public Comment Results

- Comments Received: 119
- Unique Commenters: 116
- Call for Rule Action Counts: (by number of unique commenters urging the action)
 - o Adopt the proposed rules as drafted: 103
 - o Retain existing OAR 629-643-0300: 7
 - o Retain existing OAR 629-643-0300 for Small Forestland Owners: 3
 - o Other: 3

Detailed Public Comments

Comments are provided as they were received with any redactions noted and are listed with comments by governmental entities first, followed by shortest to longest comment. Unique commenters are indicated by **bold and underlined headings**. Some commenters made more than one submission and/or submitted multiple attachments. Multiple comments or attachments by an individual commenter are indicated by the presence of multiple comments enclosed by quotation marks listed under a single unique commenter.



U.S. Department of Commerce National Oceanic and Atmospheric Administration (NOAA)
National Marine Fisheries Service (NMFS)

“July 31, 2025
Nicole Stapp
Policy Advisor
ODF Forest Resources
2600 State St.
Salem, OR 97310

Re: NOAA’s National Marine Fisheries Service’s comments on the Post-Disturbance Harvest Rulemaking Directed by SB 1501 (2022)

Dear Ms. Stapp:

The National Marine Fisheries Service (NMFS) is providing comments on the July 1, 2025 Public Notice titled “Board of Forestry requests additional comments on Post-Disturbance Harvest Rulemaking Directed by SB 1501 (2022).” We suggest that you also refer to NMFS’s written comments provided to the Oregon Department of Forestry (ODF) on April 10, 2025, addressing the same proposed rule to which the current Public Notice applies. Those comments focused on the proposed rule’s alignment with the best available science and how the proposed rule may, in general, impact Endangered Species Act (ESA)-listed species under NMFS’ purview if the Board of Forestry chooses to move forward with this rulemaking.

We are providing the following additional information for the Board of Forestry’s consideration.

The stated purpose of the proposed rule is to:

...describe the vegetation retention measures for streams, the measures’ purposes, and how the measures shall be implemented. The vegetation retention requirements for streams, as described in OAR 629-643-0100 through 629-643-0500, are designed to produce desired future conditions for the wide range of stand types, channel conditions, and disturbance regimes that exist in Oregon’s forestlands.

The proposed rule further clarifies that:

[t]he desired future condition for streamside areas that require forested buffers is to grow and retain vegetation so that, over time, average conditions across the landscape become similar to the conditions of mature streamside stands.

The proposed rule also states that:

In many cases, the operator may achieve the desired future condition for streams by applying the standard vegetation retention and small forestland owner minimum option prescriptions as described in OAR 629-643-0100, 629-643-0105, 629-643-0120, 629-643-0125, 629-643-0130, 629-643-0135, 629-643-0141, 629-643-0142, 629-643-0143, and 629-643-0145. In other cases, the existing streamside vegetation may not be able to develop into the desired future condition in a timely manner. In these cases, the operator



may apply an alternative vegetation retention prescription as described in OAR 629-643-0300...For the purposes of these water protection rules, "in a timely manner" means that the trees within the riparian management area will substantially move towards the desired future condition more quickly than if the trees are left untreated.

We are unaware of science or scientific studies demonstrating that salvage logging will accelerate the development of riparian stands such that they more quickly realize mature-forest composition and structure. We will however, highlight the following existing studies that address salvage harvest impacts on stand regeneration:

Donato, D., Fontaine, J. B., Campbell, J., Robinson, W., Kauffman, J., and Law, B. E. 2006. Post-wildfire logging hinders regeneration and increases fire risk. *Science* 311(5759):352-352.

Topik, C., Halverson, N. M., and High, T. 1988. Plant Association and Management Guide for the Ponderosa Pine, Douglas-fir, and Grand Fir Zones: Mount Hood National Forest (Vol. 4, No. 88). US Department of Agriculture, Forest Service, Pacific Northwest Region.

With regard to potential effects of the proposed vegetation retention prescriptions, the findings in these articles are consistent with those in the Post-Disturbance Harvest Literature Review presented in the Meeting Materials for the February 23, 2024, Board of Forestry Meeting. To the extent the alternative prescriptions are adopted, enhanced monitoring may help ensure the desired regeneration is achieved.

To the extent the proposed rules will be incorporated into ODF's Private Forest Accord Habitat Conservation Plan and associated incidental take permit application, we note that NMFS' determination on whether the requirements of Sections 7 and 10 of the Endangered Species Act have been met is based on a complete permit application and a final Habitat Conservation Plan. ODF has not yet submitted a final HCP or permit application to NMFS for consideration, and we lack sufficient information on specific management approaches that might be included to determine how those might affect our Section 7 and Section 10 analyses. As stated in our April 10, 2025 comments, NMFS will determine through the permitting process whether the HCP meets Endangered Species Act requirements.

Thank you for the opportunity to provide comments. Please contact me at Kathleen.Wells@NOAA.gov if you have any questions regarding this letter.

Sincerely,
Kathleen Wells
Assistant Regional Administrator
Oregon Washington Coastal Office"



The 100 individuals listed below submitted matching public comments (some more than once). The comment is listed only once for the sake of brevity but should be considered as 102 individual comments.

Name	City, State	Name	City, State
Andrew Lewis	Maupin, OR	John Ernst	Gilchrist, OR
Anne Adams	Corvallis, OR	John Kendall	Cornelius, OR
Barbara Morris	Klamath Falls, OR	John Peterson	Salem, OR
Bill Hales	Coquille, OR	Judith Friend	Portland, OR
Blaine Nofziger	Christmas Valley, OR	Karen Conner	Bend, OR
Bob Stirling	Portland, OR	Karen Lackner	Lyons, OR
Brenda Woodard	Drain, OR	Kendall Horn	Woodburn, OR
Caitlin Wind	Eugene, OR	Kevin Maden	Central Point, OR
Caleb Brown	Mill City, OR	Kim Allen	Oakridge, OR
Carla J	Roseburg, OR	Kimberly Parish	Grants Pass, OR
Carol Wagner	Salem, OR	Kris Cheek	Eugene, OR
Chris Silbernagel	La Grande, OR	Kyle Freres	Aumsville, OR
Clarene Cullop	Medford, OR	Larry Spielbusch	Sutherlin, OR
Cynthia Cessnun	Philomath, OR	Lawrence Tucker	Lyons, OR
Cynthia Force	Lincoln City, OR	Liane Parker	Lake Oswego, OR
Daniel Shaw	Forest Grove, OR	Linda Rentfrow	Portland, OR
Daniel Wood	Prineville, OR	Lisa Basalto	Salem, OR
Darren Smith	Hillsboro, OR	Maria Guadalupe Jimenez Candelario	Salem, OR
David D Hunter	Forest Grove, OR	Mark Buckbee	Roseburg, OR
David Ehlers	Philomath, OR	Mary Gilstrap	Brush Prairie, WA
David Silbernagel	Scio, OR	Maurice Yoder	Sheridan, OR
Diane Rockafellow	Port Orford, OR	Mike Heflin	Redmond, OR
Dick Baird	Hines, OR	Monte Gingerich	Corvallis, OR
Dollie Beckett	Richland, OR	Nels Laulainen	Mount Hood Parkdale, OR
Don Cook	Sutherlin, OR	Nita Nickell	Elmira, OR
Don Mcwhorter	Trail, OR	Pamela J	Redmond, OR
Don Silbernagel	Sublimity, OR	Pat Harrington	Salem, OR
Edward Arnold	Springfield, OR	Paul Banas	Depoe Bay, OR
Edward Cole	Canby, OR	Ralph Saperstein	Portland, OR
Edwin Cochran	Dairy, OR	Ramona Dent	Eugene, OR
Frank Nasby	Newberg, OR	Reed Melton	Bend, OR
Gabriela Kandziora	Portland, OR	Richard Spring	North Bend, OR
Gary Hatherill	Prineville, OR	Richard Tewalt	Sisters, OR
George Stevenson	Portland, OR	Robert Bedient	Oregon City, OR
Gregory Moniz	Canyonville, OR	Robert Fine	Grants Pass, OR
Holly Black	Gold Hill, OR	Ron Jellison	Eugene, OR



Jackie Herring	Sisters, OR	Samuel Sanders	Kalama, WA
Jake Pelroy	Eugene, OR	Silbaugh Silbaugh	Bend, OR
Jay Besson	Bend, OR	Stacey E Bowman	Harrisburg, OR
Jayeson Vance	Albany, OR	Steve Walker	Lyons, OR
Jeff Bunnell	Coos Bay, OR	Taraza Lawrence	Dallas, OR
Jeff Frank	Stayton, OR	Therese MacGregor	Central Point, OR
Jennifer Cooper	Beaverton, OR	Timothy Baker	Springfield, OR
Jessica Irwin	Portland, OR	Tom McCarty	Shady Cove, OR
Jessica Stryker	Bend, OR	Trina Delany	Portland, OR
Jim Benvie II	Springfield, OR	Troy Vanderhoof	Camas Valley, OR
Joanne Fredricks	Redmond, OR	Ulrich Lau	Bandon, OR
Joe Angyus	Portland, OR	Wendy Jensen	Corvallis, OR
John Anderson	Longview, WA	William K	Oregon City, OR
John Brennan	Weed, CA	William Lovelace	Grants Pass, OR

"[Subject Line: Pass the draft salvage rules as written]

Oregon Department of Forestry,

I encourage you to adopt the proposed rules for post-disturbance harvest rulemaking as drafted. These rules were developed collaboratively between professional foresters, scientists and environmentalists who participated in the Private Forest Accord. This is a rare and notable compromise, and I urge you to support it.

Furthermore, active management in riparian zones after severe fires is essential to promote forest restoration, habitat recovery, and long-term protection of water quality for fish, wildlife and drinking water. Balancing both the protection of resources in the short-term, with the need to re-establish robust restoration for the long-term is what these draft rules were intended to accomplish.

Not only does active management restore healthy forests, but it also reduces the risk of future fires and allows landowners to salvage some economic value lost to wildfire, wind, ice, insects or disease.

Please pass the draft rules as written.

Thank you for the opportunity to submit comments.

{Commenter name, address and contact information appeared here}"



Four commenters expanded on the above comment, with both the additional content and associated commenter listed below:

“The forest is a crop that needs to be managed, even the Indian tribes managed the forests with thinning and prescribed burns. The environmental community has destroyed our beautiful forests.”

- William Lovelace, Grants Pass, OR

“I have fought wildland fires in management positions for over 25 years. I am currently active in forestry and arborist consulting. We need to get back to proper forest management. I support these draft rules as written. I am a Registered Consulting Arborist and have been trained by the USFS in hazard tree mitigation since 1978.” - David D Hunter, Forest Grove, OR

“I am a professional forester and a family forestland owner since 1979.” - Brenda Woodard, Drain OR

“My family owns timberland in Oregon and these rules could directly affect us on our own land as well as the wood products industry as a whole.” - Samuel Sanders Kalama, WA

Terry Garrelts, Roseburg, OR

“[Subject Line: Pass the draft salvage rules as written]

Oregon Department of Forestry,

The post-disturbance rules before you were collaboratively developed between environmentalists, professional foresters, and scientists who drafted and collaborated on the Private Forest Accord.

Please show the respect these varied experts deserve by passing the draft rules as written.

Thank you for the opportunity to submit comments.

Terry Garrelts

{note: address and contact information redacted}"

“[Subject Line: Pass the draft salvage rules as written]

Oregon Department of Forestry,

The draft post-disturbance rules were collaboratively developed by the environmentalists, professional foresters, and scientists who collaboratively drafted the Private Forest Accord. Please show the respect to these brave and hard-working groups and the compromise they created by passing the draft rules.

Please pass the draft rules as written.

Terry Garrelts

{note: address and contact information redacted}"



Jim James

"Public Comment to the Board of Forestry

Re: Post Disturbance Forest Practice Rules

Chair Kelly and Members of the Board of Forestry

I am currently a member of the Oregon Small Woodlands Association. Please address my concerns with the new Post Disturbance Forest Practice Rules. I propose the Board retain the current post-disturbance rules (OAR 629-643-0300(3)) for small forestland owners. I am specifically concerned how these rules will impact small forestland owners.

I believe these new rules will likely discourage long-term stewardship of forestland by limiting options for active management that supports healthy and resilient riparian areas. The proposed rules impose more restrictions after a catastrophic event than the regular rules do under normal circumstances. This is inconsistent with common sense. The rules under OAR 629-643-0300 in the 2024 FPA handbook should remain in place for small forestland owners. It supports stewardship and will better achieve riparian goals. The "hands off" approach does not support active restoration or recognize varied landscapes, ownership patterns, and social values across Oregon. A rigid, one-size-fits-all approach impedes restoration and undermines riparian goals.

I support the comments of Mike Cafferata, Executive Director of the Oregon Small Woodlands Association, to retain OAR 629-643-0300(3) for Small Forestland Owners.

Jim James

Past Oregon Small Woodlands Association Executive Director"

Ken Nygren, Dayton, OR

"Ken Nygren

{note: Address has been redacted}

ODF Forest Resources

Attn: Nicole Stapp

2600 State Street

Salem, OR 97310

July 30, 2025

Re: Post-Disturbance Forest Practice Rules

Chair Kelly and Members of the Board,

The proposed rules for Post-Disturbance Harvest directed by SB 1501 have missed both the intent of post-disturbance harvesting and the purpose of post-disturbance harvesting. The PURPOSE of post-disturbance harvesting is to remove the accumulation of dead and dying overstory within the riparian buffer area with the INTENT to restore the balanced ecosystem trajectory toward the future desired conditions of the HCP for the target species and to prevent the follow-on catastrophe caused by excessive biomass left within the watershed (insect infestations, wildfire fuel loads, flood water log jams, human/infrastructure safety, e.g.). For small landowners such as myself, the ability to actively manage within the riparian areas is



critical to limiting liability to our families and neighbors, preventing future problems, promoting our stewardship, conducting habitat enhancements, and retaining our ownership rights.

The existing OAR 629-643-0300 (3) Alternative vegetation retention prescription 1 (catastrophic events) provides a balanced and proven approach to active restoration activities while simultaneously providing conservation standards that promote habitat restoration within the intent of the HCP. My recommendation is to retain the current rule and incorporate it within the HCP plan.

Thank you for your consideration.

Sincerely,

Ken A. Nygren”

Collins

“Oregon Department of Forestry
2600 State Street
Salem, OR 97310

Re: Comment in Support of Proposed Revisions to OAR 629-643-0300 – Post-Disturbance Harvest Rules
July 22, 2025

Dear Chair Kelly and Forestry Board,

Thank you for the opportunity to respond to the Notice of Proposed Rulemaking on Post Disturbance Harvest. Collins is a fifth-generation, family-owned company that operates sawmills and manages roughly 370,000 FSC®-certified acres of forestland in Oregon, California, and Pennsylvania. Collins executes annual harvest operations on our ground and is one of the few remaining sawmill operators in southcentral Oregon and as such is a leading employer in this region. I am writing to express strong support for the proposed revisions to OAR 629-643-0300, which update the post-disturbance harvest rule, particularly the alternative vegetation retention prescriptions following wildfire and other catastrophic events.

Collins, like many other private landowners, has been on the receiving end of a devastating wildfire here in Oregon and in California. Wildfire fundamentally alters riparian function, often resulting in high tree mortality, unstable slopes, altered hydrology, and a loss of shade and bank stabilization. In these conditions, passive, no-touch approaches are often insufficient to meet ecological or regulatory objectives.

Active management in riparian zones after severe fires is essential to promote forest restoration, habitat recovery, and long-term protection of water quality for fish, wildlife, and drinking water. Balancing both the protection of resources in the short term with the need to re-establish robust forests for the long term is precisely what these draft rules are intended to accomplish.

These post-disturbance harvest rules represent a well-crafted, collaborative approach that balances ecological recovery, resource protection, and landowner viability. Active management



in riparian zones after wildfire is not a threat, but rather a critical tool for restoring function, resilience, and the restoration of forest health.

We respectfully urge the Board to adopt these rules as written and thank you for your leadership in advancing sustainable forest policy in Oregon.

Sincerely,
Galen Smith
VP, Resources, Collins”

Hampton Lumber

“July 30, 2025

Via Email: ODF.FRDrules@odf.oregon.gov

Oregon Department of Forestry

2600 State Street

Salem, OR 97310

RE: Post-Disturbance Harvest Rulemaking

Dear Chair Kelly and Board of Forestry Members,

On behalf of Hampton Lumber, I am writing to you to express our support for the proposed post-disturbance harvest rules as drafted. As you know, the proposed rules have been presented to the Board of Forestry (Board) several times and are widely supported by conservation and private forestry interests. We ask that you adopt them as-is before the November 30, 2025, deadline.

Most reasonable stakeholders agree that some level of post-disturbance management is crucial for accelerating recovery following catastrophic events, such as wildfires, wind and ice storms, and disease and insect infestations. Active rehabilitation promotes forest restoration, habitat recovery, and long-term protection of water quality for fish, wildlife, and drinking water. Without post-disturbance management, dead and dying trees increase the likelihood of wildfires, disease, and insect infestation. Removing dead trees and replanting in riparian areas helps stabilize stream banks and minimizes roadside runoff, giving those stands a better trajectory for long-term health and stability.

At the same time, the proposal recognizes that it’s appropriate to leave some amount of burned timber following forest harvest. It’s not a question of whether to leave standing timber following disturbances. The question is whether this rule leaves enough. As evidenced by the strong, multiparty support, we believe the proposed rules strike the right balance.

We urge the Board to approve the proposed rules as drafted. By doing so, you will be supporting this balanced and collaborative approach to how we manage forests now and into the future.

Sincerely,

Laura Wilkeson
Oregon Director of Government Affairs”



Nancy Hathaway, Corvallis, OR

“Comment to the Oregon Board of Forestry
Against the Post-Disturbance Harvest Proposal

Nancy Hathaway

{note: Address has been redacted}

7/30/25

The prescription under OAR 629-643-0300(3) in the 2024 PFA handbook should remain in place, as it supports good long-term forest stewardship and would better achieve riparian rules. The Post-Disturbance Harvest Proposal this task is heavily biased against (Small Forest Owners) SFOs, as it is effectively a take of SFO property, decreases SFO wood recovery, and seeks to prevent conifer reforestation, so it will be very detrimental to the environment and forest health. The proposed preference for hardwoods and against conifer reforestation is very short-sighted and has many downsides.

Increasing the post-disturbance ELZ from 20 to 75 ft, and not allowing wood recovery or modern silviculture methods, or replanting conifers sets the stage for becoming a jumbled mess of down and broken trees in a matrix of blackberries, vine maple, Scotch broom, Japanese Honeysuckle, etc. This turns what was a productive forest into a wasteland that is impenetrable to man and wildlife. It will also increase woodland fuel load, which will increase the severity of wildfires and make fire fighting impossible.

The preference for only hardwood trees in the 75 ft ELZ zone is baffling in light of the forest industry & ODF’s historic battle to control hardwoods in productive forests and the inherent limitations of hardwoods, including;

- * a brittle wood is far more prone to damage and breakage during ice and wind storms
- * do not thrive as well as conifers in elevations above 2000 ft, rocky soils, or colder climates, such as eastern and central Oregon.
- * do not reach the same mature height as conifers, thus will eventually be shaded out in a mature forest
- * big leaf maple is common in Western Oregon, where favorable conditions exist. It can out-grow other hardwoods, young Douglas Fir, and most understory species, and does not allow a mature understory. However, it does not shade out invasives such as Himalayan blackberries, false brome, ivy, and honeysuckle. Such species do not benefit wildlife or the environment.

Ash is another hardwood common to many western Oregon streams and has the same limitations mentioned above. However, with the impending arrival of the Emerald Ash Borer, this species could be decimated. The resulting enormous amount of ash debris may crush nearby trees and leave major debris piles along streams and no effective shade along many streams. To minimize further spread of the Emerald Ash Borer, it would be prudent to treat all ash re-sprouts and minimize their growth in riparian areas. A mix of conifers and some other hardwood mix might be a goal in riparian areas.

What is the point of changing rules when no matter what the desired future condition is—I’m stuck with living with what’s growing there now—and what may appear— if I’m not allowed to backpack spray herbicides.



In summary, the proposed change to SFO post-disturbance harvests and vegetation recovery won't work. The prescription under OAR 629-643-0300(3) in the 2024 PFA handbook should remain in place, as it supports good long-term forest stewardship and would better achieve riparian rules."

Sean Hathaway, Oregon City, OR

"Comment to the Oregon Board of Forestry

Against the Post-Disturbance Harvest Proposal

Sean Hathaway

{note: Address has been redacted}

7/31/25

The prescription under OAR 629-643-0300(3) in the 2024 PFA handbook should remain in place, as it supports good long-term forest stewardship and would better achieve riparian rules. The Post-Disturbance Harvest Proposal is heavily biased against (Small Forest Owners) SFOs, as it is a take of SFO property, decreases SFO wood recovery, and seeks to prevent conifer reforestation, so it will be very detrimental to the environment and forest health. The proposed preference for hardwoods and against conifer reforestation is very short-sighted.

Increasing the post-disturbance ELZ from 20 to 75 ft, and not allowing wood recovery or modern silviculture methods, or replanting conifers sets the stage for becoming a jumbled mess of down and broken trees in a matrix of blackberries, vine maple, Scotch broom, Japanese Honeysuckle, etc This turns what was a productive forest into a wasteland that is impenetrable to man and wildlife. It will also increase woodland fuel load, which will increase the severity of wildfires and make fire fighting impossible.

Since there are so many nasty invasive species and noxious weed, I can tell that its no fun (and nearly impossible) to recover a patch of ground that was hit hard by an ice or wind storm and ignored for years- It is soon overgrown with blackberries, vine maple, scotch broom or any of dozens of obnoxious weeds to become a terrible jumbled mess. Sometimes, with a lot of equipment and elbow grease, we can reclaim the land, while other times its lost forever. I see a great potential for this to occur in the 75 ft ELZ zone— What a waste of good forest ground!

The preference for only hardwood trees in the 75 ft ELZ zone is baffling in light of the forest industry & ODF's historic battle to control hardwoods in productive forests and the inherent limitations of hardwoods, including their brittleness, susceptibility for damage. and crowding out young fir trees.

Ash is a common hardwood but with the impending arrival of the Emerald Ash Borer, this species will be decimated. The resulting enormous amount of ash debris may crush nearby trees and leave major debris piles along streams and no effective shade along many streams. Why you would want to encourage such a tree instead of douglas fir is baffling to me.

What is the point of changing rules when no matter what the desired future condition is—I'm stuck with living with what's growing there now—and what may appear— if I'm not allowed to backpack spray herbicides.



In summary, the proposed change to SFO post-disturbance harvests and vegetation recovery won't work. The prescription under OAR 629-643-0300(3) in the 2024 PFA handbook should remain in place, as it supports good long-term forest stewardship and would better achieve riparian rules.

David & Mary Ann Bugni, Estacada OR

"July 30, 2025

Board of Forestry
Oregon Department of Forestry
2600 State St.
Salem, OR 97310

Re: Comments regarding proposed post-disturbance harvest rules

To Oregon Board of Forestry:

Thank you for reopening the public comment period related to the post-disturbance harvest rulemaking until July 31st, 2025.

We are concerned about some aspects of the current language of the proposed post-disturbance harvest rules and respectfully offer the following comments and suggestions. We request that this letter be entered into the public record on this matter. We have previously submitted comments twice about these proposed rules.

First, a little background about us. We consider ourselves very fortunate that we have not yet been subjected to any serious, stand-level natural disturbances, but it's probably only a matter of time. Unfortunately, we know other families who have suffered tremendous loss resulting from the 2020 wildfires. My wife and I are retired, and we own and manage about 101 acres of forestland in western Oregon near Estacada, which we have been doing for over 30 years. David is a retired civil/structural engineer and has been involved with fish habitat restoration activities in both his professional and SFO (Small Forestland Owner) roles for many years. In 2019 our family was awarded the joint ODF/ODFW "Fish & Wildlife Steward Award for Forestlands, Northwest Oregon Region, Non-industrial Forestlands"; and in 2021 the "Partnership Award" from the US Forest Service for "land stewardship and outreach in aquatic restoration" in addition to other local awards for our stream restoration work within our own property as well as within our community. We were also ODF's first co-awardees of the "Climate Smart Forestry" award last year, which we are quite proud of. We actively manage our forest for many requirements and uses, ranging from timber harvests to wildlife habitat enhancements, recreation, carbon sequestration & storage (our property is a verified carbon reserve), and riparian/fish habitat restoration. David is a member of the ODF Adaptive Management Program Committee of the PFA and the Committee for Family Forestlands and he is past chair of the Clackamas River Basin Council (CRBC), which is charged with implementing many stream and riparian restoration projects across the basin. David also initiated and managed the recently completed Clackamas River basin stream temperature study (the most extensive in Oregon), working with Portland State University and ODFW to better define how climate change, fish thermal tolerance and physical habitat interrelate to maximize and prioritize fish habitat and riparian restoration goals.



We believe there continue to be several problematic aspects of these proposed rules. Given the dwindling timeframe in which to accomplish anything meaningful regarding a revised set of rules fairer to SFOs, we ask the Board to retain the current post-disturbance rules (OAR 629-643-0300(3)) for small forestland owners. We are not opposed to the newly drafted rules for industrial forestland owners.

Specific areas of concern following a large, natural disturbance:

1. One-Size-Fits-All set of rules doesn't work in a complex situation as this: The "one size fits all" and "hands off" approaches do not support active restoration. They do not reflect the varied landscapes, ownership patterns, and social values across Oregon. A rigid, one-size-fits-all approach impedes restoration and undermines riparian goals. A set of performance objectives, or desired future conditions to meet a group of biological goals and objectives should be developed for each SFO seeking such post-disturbance management actions. This should be done utilizing the ODF Stewardship Foresters in concert with any other consultants deemed necessary. Provide incentives where practicable. The Plan for an Alternate Practice, as currently envisioned, is not a realistic path forward in a case such as this. We believe it's too complicated for both landowners and ODF to administer effectively.
2. Disproportionate Impact: Compared to industrial landowners, statewide, it is highly likely SFOs steward a larger share of fish-bearing (types F and SSBT) streams. This includes total length of stream miles (statewide) and the fraction of the Riparian Management Area (RMA) that is affected by such rules as a percentage of an individual SFOs total land holdings (for those that have creeks flowing through their properties). These rules disproportionately and negatively impact the very landowners who are most likely to pursue restoration efforts.
3. Stewardship Discouraged: The proposed rules discourage long-term stewardship of forestland. They limit options for conscientious, active management that support healthy, resilient forests. These rules should lead with both a carrot and stick approach to help SFOs achieve both private and public objectives. Otherwise, very little will get done following a disturbance – to the benefit of no one.
4. Existing Protections: Other existing rules, such as those covering pesticide use and harvest practices already provide resource protections. They should all be examined in totality, and a common, consistent, integrated, and clear set of rules should be developed to expedite post-disturbance recovery.
5. Fish Stream Buffers: Inside the proposed 75-foot no-touch buffers on fish-bearing streams, conifer regeneration will be minimal as a variety of hardwood species and other graminoids, forbs and shrubs will tend to out-compete them in their early stages of growth. We all know this and management should be directed to allow conifers to thrive in tandem with other plants. Conifers are crucial within the RMA due to their greater longevity and size. This is needed in both live wood (as shade to keep stream waters cool and a conifer's great longevity) and dead wood (as down wood in the creek to add instream complexity). Since conifers can achieve great height and girth, they function more effectively in natural or engineered log jams and their wood will typically last longer than most hardwoods.
6. Life-safety concerns: In contrast to industrial landowners, SFOs significantly use their properties for recreation, principally along creeks (for those who have them). What will happen when a natural disturbance occurs and management within the RMA needs to take place for the safety of families? We all need to recognize how SFOs use their entire property, and life-safety is paramount. For any timber harvest that needs to occur, the SFO should be given the option to sell a portion of the dead or fallen timber to partially offset costs



to repair infrastructure and perform necessary forest restoration activities to achieve desired future conditions quickly.

We reviewed other comments you have received on this topic. While many comments express fear that some forest management will degrade stream health, we believe such comments do not recognize that without stewardship, the number of mature conifer trees will be low, take a long time to become established and the risk of invasive plants species taking over will be greater. Other comments focus on how ODF could enforce such performance-based activities (striving towards a set of desired future conditions). We believe that by following best practices in concert with Stewardship Forester guidance followed by periodic inspections is a practicable way to address this concern. Conceptually, it is done effectively in other industries. We all need to be imaginative.

We would be pleased to assist in any way we can to provide additional suggestions on this important topic. If some of these items are contained within the latest draft of these rules, such language should be clearly stated and obvious for all to understand, with a clear path towards unambiguous implementation. We should all recognize that unfair rules may lead to greater detrimental consequences not only for SFOs but for the public when SFOs give up their overall stewardship activities for more lucrative options (e.g. development, conversion, etc.)

Thank you for your time.

Sincerely,

David & Mary Ann Bugni
{note: Address has been redacted}"

Greg Peterson PE, Corvallis, OR (Identical comment submitted twice)

"Comment to the Oregon Board of Forestry
Against the Post-Disturbance Harvest Proposal
{note: Address has been redacted}
7/30/25

In 2022, the PFA parties could not agree on post-disturbance remediation in riparian zones because this is a complex topic. However, the current attempt to complete this task is heavily biased against Small Forest Owners (SFOs), as it increases the effective take of SFO property, decreases SFO wood recovery, and seeks to prevent conifer reforestation which will be very detrimental to the environment and forest health. The current OAR 629-643-0300(3) post-disturbance rules allow recovery of all wood on non-fish stream riparian zones and most wood more than 20 ft from fish-bearing streams, with in-stream wood left in place. While even the current rules are a challenge to SFOs, the proposed changes will be catastrophic. While it does allow directed spraying of invasive species and noxious weeds, it does not address hardwood management or broadcast spraying. The proposed preference for no conifer reforestation is very short-sighted and has many downsides.

Issues

- The PFA has already negatively impacted SFOs more than anticipated, and this proposal is a take of more SFO property and wood without compensation or remediation assistance.



- Today there are many more invasive species and noxious weeds than even 20 years ago, and their control is the primary determinant of the success or failure of reforestation. This proposal ignores the many challenges with reforestation today and the benefits of aquatic herbicides within riparian buffers.
- SFOs have significantly different economies than industry, as they mostly do small-scale, infrequent harvests that aim to provide some income, but rarely cover the high cost of reforestation today. SFOs are rarely able to realize a long-term net profit, since they are a low priority for loggers in strong markets and do not have the same economies-of-scale as industry.
- SFOs steward a disproportionate share of F streams, meaning that the proposed 75-foot no-touch buffers disproportionately affect SFOs. Following a catastrophic disturbance, this group is the one most likely to attempt restoration, in spite of their financial vulnerability.
- It is hard to get concurrence on site-specific prescriptions with a stewardship forester, as it is very time consuming & unpredictable

My Personal experience with post-disturbance remediation

Last year, my 60 acre woodland near Creswell was very heavily damaged by an ice storm that ravaged Lane County. While not the first ice event, it was the worst in anyone's memory. While I was able to salvage some damaged conifer logs, salvage costs far exceeded log income. Damaged trees on steep ground or inaccessible to a harvester had to be hand cut, hand piled, and burned. There were about 60 burn piles for broken logs, tops, deciduous trees, brush, and logging debris.

Unlike a burn, an ice storm does not reduce invasive species (vine maple, Himalayan blackberries, scotch broom, false brome, etc), since once a canopy is removed, their growth explodes. Controlling noxious weeds and invasive species was difficult enough in non-riparian areas, but was more challenging in riparian areas, which were less accessible and required more hand labor.

Without herbicide control of invasive species and noxious weeds, reforestation would not be possible. I've already spent over 2000 hours on remediation and hired another 2000 hours of labor and have a lot of work left to do, but there's only so much an SFO can afford to do to restore a forest after a catastrophic disturbance. However, not remediating this area was not a palatable option.

Based on my experience, the proposed changes make little sense, because they are essentially a further take of SFO land, discourage any SFO financial return, and will degrade remedial areas. While some established trees can survive a disturbance, such as hardwoods that resprout, new conifer seedlings must receive modern silviculture to establish and thrive. However, the proposed rules aim to eliminate conifers within 75 ft of fish-bearing streams and limit hardwoods to pre-existing trees. Without the use of modern silviculture and conifer replanting, the disturbed areas will inevitably turn into impenetrable jungles, choked with invasive species and noxious weeds, which form a seed bed that will perpetually spread seeds to adjacent areas.

Specific Problems with the proposed changes

1. Increasing the recovery zone from 20 to 75 ft is essentially a major take of land that removes this area from productive forestry. The State itself does not propose to do any recovery or remediation work, but rather proposes to expand the riparian ELZ to 75 ft and



not recover damaged wood or replant, thereby causing it to become a jungle of down and broken trees in a matrix of invasive species, such as blackberries, vine maple, Scotch broom, etc. This can not only become impenetrable to man and wildlife, but will also make future remediation impossible. It will also increase woodland fuel load, which will increase the severity of wildfires and make fire fighting impossible.

2. If the SFO is unable to recover trees in this area, who will provide the funds to remediate the area and manage it for a beneficial future? After the State takes control of the land away from the landowner, certainly the landowner has no incentive or responsibility to do the work.
3. This proposed additional take of SFO property will devastate many SFOs, who have put decades of hard work into their forests, but would be unable to salvage anything for their efforts, which will be very detrimental to SFO finances, taking a heavy hit on the viability of SFO ownership and the future of family-owned forestlands.
4. Herbicide spraying will be essential to control invasive species/noxious weeds to enhance seedling survival. While aquatic herbicides are somewhat more expensive, they can be safely applied near water. This is supported by the thorough science that led to their labelling. Isn't this the best available science that we are supposed to rely upon?
5. Does the proposed "targeted ground-based application" exclude the prevailing practice of broadcast spraying? If so, it will be far more costly than broadcast application, and less predictable, since application rates vary considerably inside of target areas, with the label application rate exceeded in some areas and other areas under-applied, leading to less effective or no coverage. Areas not targeted can still have small sprouts that may go unnoticed and a seedbed that can readily germinate without herbicide application to impede it. Inadequate coverage will lead to more entries and more chemicals to control unwanted vegetation.
6. This proposal prefers hardwood resprouts over conifers, presumably anticipating faster shade development, but this is short-sighted, since invasive species and noxious weeds grow even faster than hardwoods and can quickly overtake an area. Hardwoods also have many limitations, including;
 - * their brittle wood is far more prone to damage and breakage during ice and wind storms
 - * do not thrive as well as conifers in elevations above 2000 ft, rocky soils, or colder climates, such as eastern and central Oregon.
 - * do not reach the same mature height as conifers, thus will eventually be shaded out in a fully maturity forest
 - * big leaf maple is common in Western Oregon, where favorable conditions exist. It can out-grow other hardwoods, young Douglas Fir, and most understory species, and does not allow a mature understory. However, it does not shade out invasives such as Himalayan blackberries, false brome, ivy, and honeysuckle. Such species do not benefit wildlife or the environment.It should be noted that ODF policy encourages eradication of big leaf maple in western Oregon forests, which would imply that its eradication in disturbed areas would be a high priority, but this was not addressed in the proposal. While resprouts from a maple stump grow fast, they will not produce as strong nor as large wood as the parent stump.
- 7) Ash is another common hardwood along many western Oregon waters and has the same limitations as big leaf maple, but with the impending arrival of the Emerald Ash Borer, this species will be decimated. The resulting large amount of debris will crush nearby trees and leave major debris piles. To minimize further spread of the Borer, it's recommended that the resulting debris be promptly gathered and burned. This will be very difficult if not impossible



in most riparian areas, particularly since infected ash has no value and the amount of debris can impede access. It would be prudent to treat all ash now and limit other hardwood resprouts, and that a conifer/hardwood mix should be the goal in riparian areas wherever feasible.

- 8) Decades ago, ODF policy defined “desired future conditions” as a tiered mixture of mature conifers and hardwoods. This proposal replaces this with “native trees well suited to the site”. There is a bias toward encouraging hardwoods resprouts, which will lead to an acceleration of hardwood growth, far beyond that which would naturally occur. Without an aggressive conifer reforestation effort, any volunteer conifer seedlings will soon be shaded out.

The State should be careful what its wishes for, because the Emerald Ash Borer will soon arrive and without some hardwood control and conifer reforestation, there will be no meaningful forest in the remediation zone.

To have have a realistic chance of establishing conifers in riparian zones, to achieve the “desired future conditions”, the following steps should be encouraged for SFO post-disturbance remediation;

- Where feasible, remove large debris that has no chance of becoming large woody debris.
- Where feasible, hand cut, collect, and burn invasive species, if the ground is too steep for equipment. Treat cut stems with a few drop of trichlopyr or other suitable herbicide
- Allow site prep sprays with available aquatic herbicides such as (glyphosate, trichlopyr, and imazapyr) which are specifically formulated to be safely used near open water. .
- Aggressively pursue the planting of conifers and where cost-effective, use Vexar tubes or deer repellant until trees are free to grow
- Allow moisture conserving post-emergent sprays with aquatic herbicides, to control grass
- Monitor the area for 3 years and replant (with limited sprays) and address invasive species as necessary
- Provide for SFO cost-sharing for the above in appropriate areas
- There needs to be flexibility to adjust any remediation work to site specific conditions.

in summary, the proposed change to SFO post-disturbance harvests and vegetation recovery won’t work. The prescription under OAR 629-643-0300(3) in the 2024 PFA handbook should remain in place, as it supports good long-term forest stewardship and would better achieve riparian rules.”

Theresa Hausser, Elk Ridge Tree Farm, Vida, OR

“Chair Kelly and members of the Board,

My name is Theresa Hausser and my wife Kate McMichael and I own and manage just under 40 acres of burned woodland in Vida.

I am writing regarding the rules for small landowners facing catastrophic disturbance in the riparian areas of their woodlands. At the end of this testimony, I am including my spoken comments to the Board on June 4. After all that, I will summarize my points.

Process and context

All Oregonians can weigh in on issues pertaining to forests in Oregon by means of public comment and testimony on issues. This is true whether the commenters have any experience of



caring for a woodland. It pertains whether the subject of discussion is public or private land. This means that the general public, irrespective of knowledge or experience, can weigh in on the rules I must follow in the management of my woodland.

Under the rubric of concern for the environment, both anti-forestry forces and concerned, well-meaning forest lovers call for an end to clear cuts (neither defined nor understood), an end to herbicide spraying (which is an invitation for global domination to every invasive plant and aggressive native weed), an end to the harvesting of old growth (which remains very loosely defined to be...any tree big enough to take to the mill?), and the protection of our water (primarily from forest, not recreation, activities).

These voices represent people who care about the forest (some of whom are paid to care about it). Why do these voices carry the same weight as people who actually care FOR and manage woodlands? We who care for (not just about) forest lands are most directly affected by the rules regarding our woodlands. We are most directly affected if rules hoping to protect riparian areas actually create fuel piles that only need a spark to devastate those riparian areas and the rest of our land as well. I don't think that's what environmental justice dictates are shooting for.

Content

Small woodland owners have been offering testimony about post disturbance salvage harvest rules. The rules that currently exist—the old rules (OAR 629-643-0300(3))—are sensible and allow for careful management to achieve desired conditions. Desired conditions, for most woodland owners, include a healthy, resilient riparian area that includes more trees than shrubs and looks like a place where a fire might slowly creep along the ground. Those conditions require management.

In an ideal situation, some forest management activities bring in money, and that money can go towards additional management activities, like fuels mitigation. (This is the model for the McKenzie Watershed Stewardship Group: federal timber sales fund stewardship activities). Even when we small woodland owners do our own management activities (rather than hire crews, if we can get them), they cost, and they cost more than sweat (and the inevitable blood and tears). Seedlings cost. Herbicide costs. Tools cost. Gas costs. Running machinery costs. To allow only activities that don't require a FERNs notification is a bizarre stance implying that the activity is ok as long as we don't make money. Given that for many of us, our land is both our primary concern and our primary asset, that stance is not only bizarre but damaging to our ability to care for our woodland (stewardship activities are often funded by income from other management/stewardship activities)—ESPECIALLY POST-DISASTER—and our ability to plan for our own financial futures (Kate and I had a backup plan for paying for future health care/premiums that went up in literal smoke). Allowing management activities (falling dead trees, removing deadfall) only if we do not gain financially—in other words, only if we lose money and time—seems overtly punitive. What is the punishment for? Owning a woodland? Or caring for it? I couldn't help but think of the post-disturbance rules when I saw posts about the Finn Rock Reach and Quartz Creek floodplain restoration efforts (along the McKenzie River). A lot of work—sometimes with heavy equipment—is going into those restoration efforts. People are being paid for their work. These are more landscape-scale projects, but the necessary work for a healthier riparian area is not precluded by buffers on the River.



As small woodland managers, we are faced with an ongoing series of trade-offs. (That was the heart of my public comments on Zoom at the June 4 Board of Forestry meeting.) During river restoration projects, the disturbance that is part of the restoration process is deemed worthwhile for the sake of the greater good—the longer-term restoration of floodplains and fish habitat. Is it not possible that the same dynamic is at play on a smaller scale on small woodland properties? Is it not possible that short term, carefully managed work might be the cost of a greater good—a riparian zone more resilient to disease, aggressive weeds, fire, and insect outbreaks?

Unfortunately, catastrophic disturbance is becoming normal in Oregon. That means more and more landowners have to grapple both with recovery and with how to pay for their ideal stewardship practices. ORS 527.714 (5) lays the groundwork for approaches to management parameters that can facilitate management that sets damaged woodlands on a road to recovery. The existing post-disturbance rules protect the land, enable small landowner stewardship, and provide for consequences for bad actors.

I urge you to protect our waters and our forests and not penalize woodland stewardship by retaining the existing rules regarding post-disturbance salvage harvest.

Thank you for your consideration.

June 4 comments to the Board of Forestry

Chair Kelly, Acting state forester Skinner, members of the Board, my name is Theresa Hausser and I am here today as a woodland owning member of the public.

Six years ago, my wife and I moved to Oregon. We moved for a forest property in Vida that we had fallen in love with and closed on months earlier, days before Snowmageddon. It was an exciting and overwhelming time: retirement at last, having a home built, learning a new context...At least we had our own little slice of paradise to tend and explore.

We got our first inkling that we didn't know a lot about our context when we went to a book event and the environmentalist author physically recoiled from us upon hearing we owned a small woodland property. Clearly, it was something we had said, but all we had said was that we had just purchased a small woodland property.

A small woodland property we needed to learn something about, and fortunately there were avenues for that. Extension, OFRI, OSWA, our stewardship forester, forestry supply stores, consulting foresters... So many people were helpful and supportive with science based information, including our extension and stewardship foresters who each also provided copies of the many, many rules governing our land and our care of it. (Not a surprise by then, but that author? The author had said small woodland owners had virtually no rules to follow.)

Fast forward, and every day my wife and I deal with the effects of the Holiday Farm fire on our woodland. We're still relatively new as landowners, but catastrophic fire really pushes you up that learning curve. For us, it underscores some of the things we learned, and forced us to grapple with tradeoffs we might not have had to consider if our little woodland hadn't experienced a stand replacing fire.



Trade-offs like, do I want to use grass seed on exposed slopes knowing that I will later be trying to kill that grass in order to protect my seedlings, or do I hope waterbars will be enough protection from potential erosion until understory and trees re-establish?

Trade-offs like, do I want to have trees and native vegetation on my woodland? Or do I want to use only mechanical means of invasive plant removal? Because even with careful herbicide use, limiting the proliferation of invasive plants is the stuff of nightmares.

Trade-offs like, do I let nature do its thing and let the woodland heal itself? Or do I honor my responsibility to the woodland and listen to the land saying that without my intervention, it will never be more trees than it is scotch broom, thistles, Himalayan blackberries, poison oak, and honeysuckle that girdles the trees that do make it to free-to-grow?

Unfortunately, catastrophic disturbance is becoming normal in Oregon. That means more and more landowners have to grapple with difficult trade-offs, and how to pay for their ideal stewardship practices. The Board of Forestry can make responsible, responsive management of hurt woodlands more achievable, rather than more burdensome. ORS 527.714 (5) lays the groundwork for approaches to management parameters that can facilitate management that sets damaged woodlands on a road to recovery.

Thank you for your time.

TESTIMONY SUMMARY

Woodland owner/manager voices should weigh more heavily than other voices, because knowledge, experience, and in many cases, expertise, count more than caring about an issue.

Woodland owner voices should carry more weight because through the lens of environmental justice, we who live on and manage our lands are the people most directly affected by the health of our woodlands.

Allowing management activities (falling dead trees, removing deadfall) only if we do not gain financially—in other words, only if we lose money and time—seems overtly punitive. What is the punishment for? Owning a woodland? Or caring for it?

There has been much excitement around the completion of the Quartz Creek floodplain restoration. That project involved tree cutting and using heavy equipment to move dead trees into the creek. I would not be allowed to have heavy equipment in my riparian area to restore it. Might the trade-off of salvage activities for the sake of a long-term healthy, resilient riparian area be as worth it on my land as on a wider scale?

ORS 527.714 (5) lays the groundwork for approaches to management parameters that can facilitate management that sets damaged woodlands on a road to recovery. The existing rules (OAR 629-643-0300(3)) provide for that.

Thank you for your consideration.

Theresa Hausser”



Oregon Small Woodlands Association

"Public Comments to the Oregon Board of Forestry
Re: Post-Disturbance Forest Practice Rules

Chair Kelly and Members of the Board,

Thank you for reopening the public comment period on the post-disturbance rules.

The Oregon Small Woodlands Association remains concerned about the post-disturbance rules and asks the Board to retain OAR 629-643-0300(3) for F streams on small forestland owner land.

A key value for most small landowners is stewardship, and we are concerned these rules present barriers to this stewardship ethic and effort, which we believe do protect and improve these areas.

In addition, the recent rules processes has caused considerable lack of trust across the small landowner community. Non-industrial landowners dedicated to forest stewardship are typically not in favor of negotiated settlements. Also, they want to follow good science. In this case, many feel the literature review and discussion has left out local science, conducted in Oregon with landowner and taxpayer funding, that appears directly related to the post-disturbance question. Leaving this out and unaddressed, while restricting management options, does not support strong relationships between the landowner community and the Board of Forestry.

Irrational rules don't foster good relationships either. As currently drafted, the rules for post-disturbance restoration efforts are more restrictive than those for harvesting timber in healthy stands—a discrepancy that is difficult to justify

We understand that landowners have the option to remove trees for personal use of firewood after a disturbance. This is irrational to landowners as well. It is hard to understand why removal that offsets restoration costs is bad, but removal without commercial benefit is acceptable.

We feel that inside the 75-foot buffer on F streams, the resource goals are unlikely to be attained following catastrophic fire, storm damage, or insect infestations. With these rules, it is apparent that hardwoods and low-growing shrubs will dominate these zones for the foreseeable future. Conifers will be absent.

Many OSWA members are concerned that the required ORS 527.714 analysis lacks available scientific information directly relevant to post disturbance in Oregon, which OSWA members have repeatedly pointed out. The rule addresses herbicide use, but this also appears to be lacking in the literature review. There are other shortcomings of the 527.714 analysis members have pointed out. The 527.714 rule intent is to gather the best science and then choose the least burdensome alternative to achieve the objective. We do not feel this has been accomplished.

Early in this rulemaking process, many in our community had mistakenly understood that the prescription noted under OAR 629-643-0300 in the 2024 FPA print was to remain in place. This rule was developed with a diverse committee with the intent to meet the desired future conditions needed to support riparian goals. We believe this previous rule better supports stewardship opportunities to meet these goals.



We reviewed other comments you have received on this topic. While many comments express fear that forest management will degrade stream health, we feel they do not recognize that without stewardship, the number of mature conifer trees will be very very low, and take very long time frames, if ever. The literature review also noted tremendous variability, and very few studies related to relevant causes of riparian tree mortality for much of Oregon. We feel many of the public comments don't recognize the field conditions and are really just negotiation techniques from advocates. Leadership is needed for Oregon's long term riparian health, not mediation between stakeholders.

Driving through Archie Creek Fire, Beachie Creek Fire and the Riverside Fire, the landscape context seems relevant. The mixed ownerships have left a tremendous amount of snags – miles and miles of them, both stream adjacent and landscape wide. In Oregon's checkerboard landscape, streams and watersheds have high but variable components of federal lands where it appears riparian and other management is rare or non-existent. On private lands, the range of age classes means many riparian areas are just not feasible locations for restoration. This rule really only has applications in rare circumstances where ownership goals align with access and a passion for restoration. From a landscape perspective, we should be urging more restoration, not preventing it, and attempting to get some areas that do grow large trees. If rules allow, some lower reaches of these streams, in many cases owned by small woodland families, may be rehabilitated promoting goals to restore future large wood.

While wildfire and storm damage are common west-side causes of riparian mortality, another area where these rules will soon have widespread application is in west-side valley bottoms, where the Emerald Ash Borer is expected to kill all Oregon ash trees. We see two common possibilities in these areas:

- No management occurs, leading to greater dominance by Himalayan blackberry and even fewer trees than exist today.
- Some of the dead ash is removed slowly and piecemeal for firewood (non-commercial), followed by further spread of Himalayan blackberry and other invasive species.

It is our perspective that these valley bottoms are exceedingly difficult places to successfully reforest. All possible tools, education, and support are needed. The new rules add more barriers and disincentives for caring landowners to overcome.

We suggest that supporting Oregon's stewardship efforts is important, and that the new rules, as written, are a barrier to those efforts. We continue to recommend that the Board retain the existing post-disturbance rules for Type F streams, particularly considering the limited areas where restoration might realistically be contemplated.

A few additional points to keep in mind:

- Some have mentioned concerns about "bad actors" operating in riparian areas, however rather than focusing on the unknown negative potential, focus on the desire of most small woodland owners to restore and rehabilitate habitat. Other existing rules such as those governing slash treatment, chemical use, and harvesting provide resource protection.



- The one size-fits-all “hands off” approach prohibits active restoration, and does not complement desired future conditions across the varied landscape and actually serves as an impediment. In the varied landscapes and social conditions of Oregon, one-size-fits-all is a poor choice.
- The Plan for Alternate Practices is theoretically an avenue for landowners, but in reality it is too complex. Many stewardship foresters are inexperienced or hesitant to support these efforts. These stewardship forester positions already carry heavy responsibility and complexity —interpreting the full rule book, understanding forest incentives, the industrial rules, the minimum option rules, tax incentives, forest health questions, supporting wildfire suppression, etc... Proficiency in alternate practice review and support is difficult to maintain under these circumstances.
- Small Forestland Owners steward a disproportionate share of F streams, meaning that these 75-foot no-touch buffers disproportionately affect those landowners most likely to attempt restoration. Following catastrophic wildfire, they are also among the most financially vulnerable. This group bears the highest cost of exclusion from post-disturbance management.
- Landowners will have to deal with the safety issues of working and recreating on their landscapes post disturbance. Safety exceptions are generally applied around infrastructure, but the safety issues are much broader than that for families working to restore their lands. The existing post disturbance rule allows landowners to better mitigate safety issues than the proposed rule.

Considering all of this, we recommend the Board:

Retain OAR 629-643-0300(3) for F streams, including Table 5 and Table 6, as options for Small Forestland Owners.

For the N Streams and for the F stream requirements outside of the 75', we can support the proposed rules.

Below are some recent photos of the Archie Creek Fire area, subject to the previous rule set. We would be happy to host visitors for a tour to review streamside conditions and discuss riparian management practices

Respectfully,
Mike Cafferata
Oregon Small Woodlands Association







Dan Newton, Yoncalla, OR

"Dan Newton

{note: Address has been redacted}

April 25, 2024

Testimony to The Board of Forestry
Comments on Post-Disturbance Harvest Proposal

Chair Jim Kelly and Members of the Board,

Thank you for this opportunity to comment. My name is Dan Newton. I come to you today as a member of the OSHA Executive Committee. I have been part of two stream advisory committees, the first in 1993 and the second in 1999. In addition, I was one of the founders and supporters of the Hinkle Creek Watershed Research project that has provided some very important information with which to inform policy makers. In my career as a silviculturist, I have been doing large-scale reforestation work for more than 40 years, including restoration of burned-out riparian areas. My wife and I own and manage 630 acres in SW Oregon – a privilege and responsibility that I think about frequently.

OSHA does not oppose the Oregon Forest Industries Council (OFIC) position on post-disturbance rules as they relate to industrial forest lands. We support an alternate plan that allows salvage and restoration of devastated riparian areas.



As you review the issue of active management in riparian areas, please keep in mind that for small landowners, a catastrophic disturbance creates a massive financial and emotional hit. In many cases, the stand will be too young to be financially mature at the time of the fire or snowstorm. In other cases, log markets may be poor, like happened in the Labor Day fires when the log market became flooded with salvaged logs.

The reality is that the PFA ended all economic incentive to reforest burned out streams because it eliminated 100% of the economic value in future harvests. Prior rules allowed thinning which would generate at least some revenue to offset the cost and challenges of restoring native conifers to RMAs. Our hope is that the alternate plan will be something that will substantively be the “least burdensome” and will help us to restore burned out riparian areas.

Regarding the current proposal, I support the increased flexibility to remove dead trees from non-fish streams and large fish streams, but I have the following concerns:

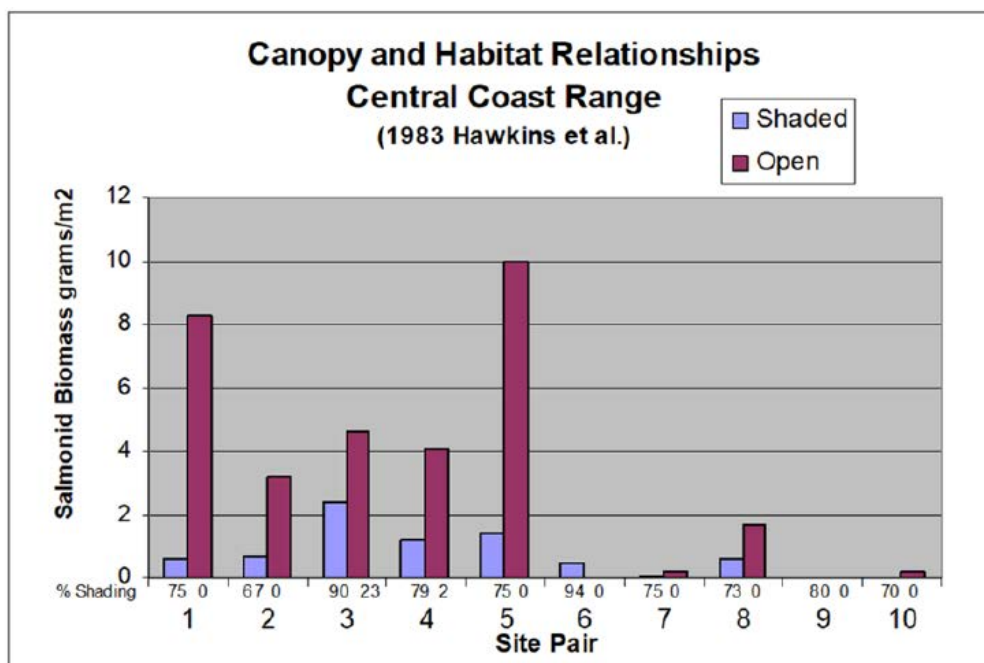
- The current proposal limits the harvest of any dead trees less than 75' from fish streams, thus prohibiting salvage from small fish or medium fish streams for landowners using the SFO option. These two classifications represent most of the network of fish-bearing streams. I see little scientific basis for this and if the goal is to have landowners use this restoration option, there must be something in it for them.
- Even without future economic incentive to restore conifers in RMAs, some of our landowners would like to restore native conifers next to streams to provide a source of large wood in the future. The proposed language that prohibits backpack spraying (except noxious and invasive weeds) will prevent effective reforestation on most sites – in effect creating “reverse buffers” in the future, occupied by brush with the conifers growing outside the buffers. Riparian areas are more difficult to restore than upland areas due to greater brush growth and other factors. Native weeds and non-native weeds frequently blow in with the wind, creating a mix of many weed species that all compete with newly planted trees – picture a mix of non-native thistles and grasses mixed with native weeds. There is no practical way to treat only one group of this mix without treating the others. Poison oak, a native weed would be untreatable with a backpack sprayer with this proposal. Taking away a safe and effective tool to remove competing vegetation will further reduce any chance of success. Without help from landowners, these buffers will be growing brush.
- Finally, there appears to be an inconsistency in the proposed restriction on backpack spraying. In the current proposal for salvage areas, backpack spraying is prohibited except for noxious and invasive weeds; however, if salvage is not done, landowners may use the current rules for backpack spraying. The net effect is that if a landowner salvages one tree, using the alternate plan, then these new restrictions would apply, whereas if they do not salvage, they can use current rules for backpack spraying. Is my interpretation correct? If yes, this makes little sense.

I am appreciative of the fact that this rule will have to meet the requirements of ORS 527.714. The rule making standards are reasonable and were written to screen out regulatory proposals that are of high cost and low benefit. I have concerns that the rules will not comply with certain provisions and will provide my rationale along with citations from relevant literature.



ORS 527.714 The proposed rule reflects available scientific information and, as appropriate, the results of relevant monitoring and adequate field evaluation at representative locations in Oregon.

In ODF's literature review, a number of factors were listed that were considered important to stream health, with shade, large wood, bank stability, sediment production and others listed, but no mention of food for fish. Why were studies excluded that show the benefit of canopy opening to fish productivity? Examples include Hawkins et al. 1983, Murphy and Hall 1981, and Wilzbach et al. 2005. I have included a graph below to show the effects of canopy opening from timber harvest on fish (Hawkins et al. 1983). It contrasts the amount of shade with harvested vs unharvested stream reaches and fish response by site pair. It is clear that the reaches with less shade have greater fish biomass. This is not an isolated study.



A recent study of impacts to fish productivity in Hinkle Creek following the devastating 2020 Archie Creek Labor Day Fire showed significant increases, not decreases in cutthroat trout abundance (A. Roon, Allison G. Swartz, and Kevin D. Bladon, 2022).

In the proposed alternate plan, shade was listed as a reason for not managing competing vegetation and that fast-growing hardwoods would provide shade. I would agree that hardwoods will come in, along with a lot of brush and few if any conifers. But why focus on everything except food when it clearly can be a limiting factor for fish? The food chain in aquatic systems starts with photosynthesis, with algae providing the base and continuing up the trophic levels, which include salmonids. Fish have evolved and persisted in a disturbance driven landscape with periods of full sunlight which temporarily raised stream temperatures – a point that can get missed in the formulation of policy recommendations for protecting water and fish.

ORS 527.714 The availability, effectiveness and feasibility of alternatives to the proposed rule, including non-regulatory alternatives were considered, and the alternative chosen is the least



burdensome to landowners and timber owners in the aggregate while still achieving the desired level of protection.

Two ideas that would make this proposal less burdensome, and would increase the likelihood of achieving a desired future condition in a timely way:

- Allow small landowners to take dead trees out of the RMA on all sizes of fish stream (including those using the SFO option), and potentially place large wood. This would do two important things. One, it would reduce the number of dead snags that create a safety and fire hazard for landowners who are trying to restore conifers. The falling snags also damage planted conifers. Secondly, it would provide a small amount of revenue to help offset the cost of establishing conifers along streams, which can easily exceed \$1000/acre.
- Allow landowners to hand treat both noxious and non-noxious weeds with the same rules that exist now. There is no justification for adding even more restrictions that would negatively impact the restoration of these riparian areas.

In summary, I support the idea of removing dead trees and restoring riparian areas damaged by catastrophic disturbance, but this proposal should also allow removal of dead trees from small and medium fish streams for small landowners (along with potential wood placement), as well as to stay with current rules for backpack applications to control competing vegetation.

Sincerely,
Dan Newton

Citations:

Hawkins, C. P., M. L. Murphy, N. H. Anderson, and M. A. Wilzbach. 1983. Density of fish and salamanders in relation to riparian canopy and physical habitat in streams of the northwestern United States. Canadian Journal of Fisheries and Aquatic Sciences 40:1173–1185.

MURPHY, M. L., AND J. D. H ALL. 1981. Varied effects of clear-cut logging on predators and their habitat in small streams of the Cascade Mountains, Oregon. Can. J. Fish. 38: 137-145

Margaret A. Wilzbach, Bret C. Harvey, Jason L. White, and Rodney J. Nakamoto, 2005. Effects of riparian canopy opening and salmon carcass addition on the abundance and growth of resident salmonids. Can. J. Fish. Aquat. Sci. 62: 58-67 (2005)

Warren, Dana R., David A. Roon, Allison G. Swartz, and Kevin D. Bladon. 2022. "Loss of Riparian Forests from Wildfire Led to Increased Stream Temperatures in Summer, yet Salmonid Fish Persisted." Ecospher13(9): e4233. <https://doi.org/10.1002/ecs2.4233>

"Dan Newton
{note: Address has been redacted}
June 4, 2025
Testimony to The Board of Forestry
Chair Jim Kelly and Members of the Board



Thank you for this opportunity to comment. My name is Dan Newton. I have been part of two stream advisory committees in the 1990s. In addition, I was one of the founders and supporters of the Hinkle Creek Watershed Research project. In my career as a silviculturist, I have been doing large-scale reforestation work for more than 40 years, including restoration of burned-out riparian areas.

Given my experience on stream advisory committees, I would like to emphasize the value of doing a rigorous evaluation of ORS 527.714 prior to adopting new rules. It is a very reasonable ask – we have not been asking for compensation for the take of our assets, but this will help keep our rules science-based and least burdensome.

Let us review the law, along with a few comments on the various sections:

Necessary Findings

■ ORS 527.714 (5)

- Certain rules must meet evidentiary criteria:
 - Monitoring evidence of resource degradation
 - Rule reflects available scientific information
 - Objectives clearly defined and restrictions on practices substantially advance the objective
 - Consider alternatives, including non-regulatory approaches, and chose “least burdensome”
 - Resource benefits achieved are proportional to the harm cause by forest practices

*from ODF, Board of Forestry Meeting, John Day, Oregon, Nov. 7, 2012

1. Monitoring evidence of resource degradation
 - *What is degradation? Example: What if actual stream temperatures are colder than optimal for fish? Should a one-degree temperature increase that dissipates within a quarter mile downstream be considered degradation if the fish biomass increases in the harvested section due to greater food supply?*
2. Rule reflects available scientific information.
 - *This needs to include an objective review of science that shows positive impacts as well as negative impacts if any.*
3. Objectives clearly defined and restrictions on practices substantially advance the objective.
 - *Example: if the goal is increasing conifer survival and growth for large wood recruitment, then would restrictions on vegetation management substantially increase the objective?*
4. Consider alternatives, including non-regulatory approaches, and choose “least burdensome.”
 - *This is an opportunity for landowners to offer options to accomplish the objective more effectively and/or at lower cost.*
 - *This gets at the feasibility of even accomplishing the proposed rule in actual field conditions.*



5. Resource benefits achieved are proportional to the harm caused by forest practices.
 - *This is where it is important to look at other land uses. Are we being asked to restrict the use of tools that ODOT, residential users (or any other land use) routinely use that already have less restrictions?*

And lastly, and not in ORS 527.714, this is just my recommendation. Consider how ODF will evaluate and enforce compliance. Stewardship foresters have a lot on their plate. They do not need rules that are fuzzy and lack clear enforcement guidelines. You will also get more buy-in from landowners if the rules are clear and they can understand the purpose.

In conclusion, we believe that the BOF should rigorously use ORS 527.714 to sift through the recommendations when deliberating proposed rules that can impact forest landowners. Getting public input will improve the result and OSWA is happy to help with that.

Thank you for the opportunity to comment.
Sincerely,
Dan Newton”

“Dan Newton
{note: Address has been redacted}
July 25, 2025

Testimony to The Board of Forestry
Comments on Post-Disturbance Harvest Proposal
Chair Jim Kelly and Members of the Board,

Thank you for this opportunity to comment. My name is Dan Newton. I come to you today as President of OSWA. We currently have more than 1500 dues paying member families. My comments here are intended to be added to comments I submitted on June 4, 2025. This additional note is a follow-up to testimony I submitted on April 25, 2024, outlining the following concerns:

1. The virtual elimination of post-disturbance harvesting on most fish-bearing streams. The proposed buffers for small and medium fish streams are actually wider than the PFA small landowner option. A disincentive for restoration. We oppose this.
2. The lack of a rigorous evaluation of ORS 527.714. Letting you know that key studies showing the positive relationship of fish productivity to canopy opening (sunlight) were strangely omitted – and I provided references for these studies. Even more shocking, I have not seen any evidence of action to correct this serious omission in a law that requires the use of best available science. The apparent lack of interest and action in this important and required step will undermine confidence that this rule will be doing the right thing for restoration and seems very counter to improving fish populations. In addition, I have not seen any effort at producing a less burdensome alternative – also required by law. The lack of interest and effort on this important and required step will undermine confidence that the BOF is committed to doing the right thing for small landowners who care about restoration.



Now, it seems that your time is getting short. Should I worry that testimony from OSWA members has been ignored?

One option to consider is to simply let small landowners use the current law for the Type F stream reaches that will allow a bit more flexibility to restore landscapes following post-catastrophic disturbance. I doubt many landowners will do restoration since the PFA has eliminated future harvest, but at least there would be an option for our members who put a priority on restoration.

Dan Newton”

Kate McMichael, Elk Ridge Tree, Farm Vida, OR

“Chair Kelly, Acting State Forester Skinner and members of the Board of Forestry:

Thank you for an additional opportunity to provide comment on the Post-Catastrophic Disturbance Harvest Rules currently under (re)consideration by the Board. My comments are in three parts:

- (1) excerpts from my verbal public comment provided in April 2024 (the summary provided in the June 2025 Board packet was exceedingly brief and did not include what I felt was pertinent in my comments, which is not surprising since there was no written component at that time);
- (2) resubmission of public comment provided to the Board at the June 2025 meeting;
- (3) final thoughts to supplement the highly edited (to meet the 2-minute time limit) content of the June public comment April 2024

My name is Kate McMichael, a small woodland owner in Lane County. Additionally, I am the president of our local OSWA chapter and serve on the Board of the Oregon Tree Farm System. I am proud that our property is certified under the OTFS/ATFS program, which demands abiding by internationally approved sustainability standards in order to attain and retain certification.

As most of you know, my wife Theresa (who helped write and edit this testimony) and I are the stewards of 39 acres in Vida that burned in the 2020 Holiday Farm Fire. We understand, firsthand, both the immediate trauma and the complex, longterm aftermath of a destructive disturbance event. Like many small woodland owners, our forest has multiple streams running through it. Also like many small woodland owners, the health of our riparian areas, and indeed, the health of our entire watershed, is something we take very seriously.

When we were able to salvage a small portion of our property in 2021, we left wider than required buffers on the stream side edge of the harvest area. Today, nearly four years, a heat dome, on-going drought and an ice storm later, we are watching that protected area (including several generations of baby trees we have planted) fall victim to multiple hardwoods and leave trees causing their own “disturbances” as they shatter and fall or tip and fall, taking out seedlings and soil and creating a nearly impenetrable mess—one that seems terrifyingly ripe for another fire.



Where we have been able to do enough deadfall clearance to provide access to do vegetation management of pioneering invasives, we have seen the re-emergence of pre-fire native species. (This glimpse of healthier “desired future condition” is actually a return to a pre-fire condition that had qualified our riparian areas for the Preservation track of the Pure Water Partners program, a collaborative effort spearheaded by EWEB to maintain the health of the McKenzie Watershed.) Where we share a property line with a neighbor who has been unable to do either of those things on his side of the stream, we witness the steady expansion of an impenetrable mass of deadfall, brush, blackberry, scotch broom and thistle. However diligently we try to keep “our side” cleared, it feels like a losing battle. And if another fire were to come through, all our replanting and rebuilding efforts could disappear in a heartbeat. In fact, our riparian areas, minus post disturbance management, are chimneys filled with kindling.

We do not speak for OSWA, but as OSWA members we are unopposed to the post-disturbance salvage provisions regarding industrial forests. Our concern is family forests like ours, that have greater proportions of riparian areas under our care. The current post-disturbance rules for small woodland owners (OAR 629-643-0300(3)) seem to take the realities of SFOs into consideration far more than the proposed changes. Stripping away reasonable provisions for crafting a solution to restore disturbance-devastated riparian areas—with a stewardship forester, on a place-based, case-by-case basis—and replacing it with a one-size-fits-all prescription seems utterly counterproductive. Is the goal of these rules really the restoration and resilience of riparian areas—or is the unspoken intent actually to penalize SFOs for being SFOs, to provide protection against a caricature of rapacious landowners bent solely on profit? Small woodland owning is not, in our experience, a profit-making venture. Actually, our family “joke” is that to make a small fortune as an SFO you need to start with a large one.

These rules seem to actually undermine the work of riparian restoration rather than support it. The primary beneficiaries seem to be to invasive vegetation and destructive fire. Are these the desired future conditions that will actually benefit Oregon’s forests and riparian areas? And when the next catastrophic fire blows up and impacts not only rural residential neighbors, but suburban and urban-dwellers as well, will SFOs be blamed for not managing our forests? for not doing adequate fuels mitigation? for not restoring our damaged riparian areas and nurturing them back to health and resilience rather than allowing them to become fuel piles waiting to burn?

As you consider these proposed rules regarding post-disturbance practices for small woodland owners, please keep in mind the people, the woodlands and the actual streams and adjacent riparian areas that are impacted by your decisions. Not all management tools are necessary in every situation, but taking tools away could have downstream consequences that are potentially more damaging than leaving them in the tool box. Please place restoration and resilience ahead of political expediency.

Thank you for listening.

June 2025

My name is Kate McMichael. I am a small woodland owner in Vida, up the McKenzie. As many of you know, from multiple years of hearing me speak as landowner at large on the Committee for Family Forestlands, my wife Theresa and I have the privilege and responsibility of caring for 39 acres of Oregon Tree Farm certified forestland devastated by the Holiday Farm Fire.



Being on the cusp of another fire season grounds today's comments. None of us relishes the prospect of another catastrophic fire season. Yet, as I look across the valley seeing more standing dead and dying trees each year and brush-cut along our property line—where we share a McKenzie tributary stream with a neighbor who has left his side untouched—I fear for the coming summer and re-ignition of the trauma lingering just under our skin and on our landscape.

Post-fire restoration has been a struggle. Five growing seasons punctuated by dry springs, hot summers, delayed fall rains, winter ice storms and rain-and-wind events have continued the battery the fire began: jackstrawed deadfall, toppled live trees that rip the soil and slam into struggling seedlings, shattered habitat trees and hardwoods, acres of scotch broom, thistle and blackberry. The stream corridors on either side of our property—although particularly on the side shared with our no-touch neighbor—are like a chain of interwoven slash piles just waiting for a spark to transform all our work since 2020 into smoke and ash in a heartbeat.

The “profit” from our small salvage harvest ran out years ago, but our commitment to the rebirth of the forest we had—even though we won't be alive to see it—keeps us working, planting, pilfering from our remaining retirement savings. And that's the rub: more and more it feels like active management—active care—is under attack, not simply disincentivized, but villainized, as if we (not just T and me, but small woodland owners all over Oregon) pour our limited resources of time, energy and money into caring for our woodlands for some nefarious, destructive purpose. Every plea to keep our toolboxes full seems to fall on deaf ears, as if simply having tools—even the evil Hs of harvest and herbicide—constitutes an unthinking and intentional attack on water, fauna and flora.

According to ORS 527.714 (5) there are evidentiary criteria for forest practice rules: resource degradation needs to be monitored; science needs to be followed, alternative approaches that might be “less burdensome” need to be considered and the benefits achieved must be proportional to the harm caused. These touchstones seem to be missing from current forest policy conversations.

There is no magic protection against disturbance. But the science shows that we can mitigate some of the devastation, both of the event itself and of the aftermath. Fuels burn. So, mitigate the fuels and there's less to burn. Invasive vegetation hinders the re-establishment of native species. So, mitigate the invasives and the natives have a chance. It's science that even a former theology teacher turned small woodland owner can understand.

As you reflect on regulatory decisions that impact Oregon's forests and those who dedicate their lives to caring for them, please consider that caring *about* forests is never enough; we must care *for* them—with sound science, with all the tools in the toolbox, with the humility to adapt as necessary, with the courage to embrace the ambiguity of allowing short term disturbances for long term gains.

July 2025: Concluding thoughts

One size fits all regulations, like one size fits all clothing, rarely fits at all

It is all too easy to make declarations for “all forests” as if they are all the same. To some degree that is true, but the reality on the ground trumps—and sometimes confounds—the abstract



every time. Our 2024 Master Woodland Manager training in the Coast Range made it clear that even when the concepts are overarching, the forests are very different: the Cascades are not the Coast are not Eastside forests. Every forest ecosystem is unique, demanding adaptive management strategies to meet *their* needs, not our human desire to keep the boxes neat and tidy. That said, each of our different forests, regardless of location or ownership, deserves active, thoughtful care rather than neglect.

Walking away is not the answer

Following the Holiday Farm Fire, riparian restoration of the McKenzie River watershed became a key component of the Pure Water Partners Program. Spearheaded by the Eugene Water & Electric Board and handled by members of the Upper Willamette Soil & Water Conservation District and other conservation entities, PWP provided restoration work to landowners with significant McKenzie tributary streams. Since we had been involved in the previous iteration of the PWP, our streams qualifying for “preservation” status due to their health and diversity of native plants, we were happy to continue the relationship. Over time, their focus narrowed to one particular stream, where they planted—conifers and native plants—and conducted limited invasive species remediation (focused almost exclusively on himalayan blackberry). They planted (twice) and walked away. A few of their native plantings survived, although most were overcome by the regrowth of pre-fire hazel and bracken and blackberry, and the emergence (and astounding spread) of scotch broom and Canada thistle. Nearly every conifer died.

Perception matters

Most small woodland owners do not spend their evenings thumbing through the Forest Practice Rules. Not even the publication of the long-awaited *Illustrated Manual* has changed this reality. As a result, a vast number of forest landowners—and members of the public as well—interpret “no touch” as, well, no touch: no entry into the riparian areas, no replanting, no vegetation control, no cutting or removal of trees, period. Thus, the perception of many landowners is that the land has been effectively removed from stewardship, in fact, effectively taken from them. Many of us worry that our counties will decide that our now “unproductive” riparian areas will be disqualified as forest acres for property tax purposes, thus raising our taxes. Higher taxes mean less money left for management activities—none of which are “free” even if we do the work ourselves, since tools, equipment, fuel, seedlings, etc. all cost money. Ironically, what triggers the “no touch” seems to be the possibility that money might be made from the activity—even if the goal of the activity isn’t profit and when, more than likely, there won’t be much profit left once expenses are paid. In reality, having money left over is a bonus—and one that makes it possible to continue to pay for further stewardship activities. This can be particularly key when some work demands skills and equipment beyond what we have on hand. What we can’t afford to do is work that won’t get done—no matter how we want to do it.

Reciprocity

One of the thematic threads running through the *Vision for Oregon’s Forests* is reciprocity: our forests provide multiple benefits for us and we care for them in return—except in cases of catastrophic disturbance? Then we just walk away from them when they’re no longer pretty or productive? Neglect them? Allow them to become tangles of deadfall and vegetative fuel so that they are more at risk of becoming a nexus for insect infestation or disease—or a driver of future catastrophic fire?



After the Holiday Farm Fire, T and I realized that in the 18 months we had owned the property, we had forged a relationship with it. We could have taken the fire as an opportunity to cut our losses and move on—but that would have meant turning our back on a relationship. We are in relationship with our forest; our management activities are a tangible expression of our commitment to our battered woodland. We are responsible not just *for* our forest, we are responsible *to* it. And we honor that responsibility by learning all we can about forests, forest health, sound and science-based forest management—and then acting on what we learn.

Oregon's forests deserve no less. Oregon's small forest landowners deserve support in their commitment to authentic reciprocity with their woodlands. Are there some "bad actors" in the woodland world? Undoubtedly. There are bad actors in every walk of life. But the vast majority of landowners are not bad actors. How many acts (and acres) of good stewardship are you willing to dismantle, how much good will are you willing to squander, how much trust are you willing to erode further under the guise of "protecting from (potential not proven) bad actors"?

Weighing voices

As you weigh testimony, I hope you ask yourselves who is speaking, what is their agenda, their bias, their connection to forests and forest management? I hope you can ask yourselves whose voices are being heard in your deliberations, whose voices are given more weight and whose are discounted. Environmental justice demands listening to those most involved and directly impacted. In the case of decisions regarding the management (or not) of small woodland properties that would mean paying particular attention to the voices of small woodland owners. From where I stand, as a small woodland owner who has testified over and over again, it does not feel like we've been heard. In fact, it feels more like our voices have been deliberately ignored, our concerns systematically overlooked, our experience intentionally discounted. Why? Who has more of a stake in the health and resilience of small woodlands than small woodland owners?

While I understand that you must—and in fact should—listen to everyone, I would hope that you will reflect on your own "listening bias" and raise up the voices of small woodland owners on not only this issue, but every decision you make that impacts our ability to care for our woodlands. I ask that you give more weight to those who care not only *about* Oregon's forests (and the people, wildlife and watersheds that rely on them), but those who care *for* them, day in and day out, with passion and science, with heart and sweat and lots of literal tears.

Lastly, back to ORS 527.714 (5)

If healthy, resilient, RESTORED riparian areas are indeed the desired future condition of this rule set, then let that goal be the touchstone for your decisions—in this instance and for other deliberations that will inevitably come. Follow the best, most complete, place-based and current science. Listen to boots on-the-ground land stewards and support their stewardship efforts. Determine the least burdensome alternative(s) for small landowners seeking to do the right thing. Don't compound the devastation of catastrophic disturbance, either for the landowners or the land they love. Oregon doesn't need to lose more forestland to —conversion —whether to other uses or to becoming a monocrop of scotch broom or blackberry or thistle.

Please retain the current post-disturbance rules (OAR 629-643-0300(3)) for small forestland owners.





top three photos: the “untouched” side—a plethora of dead not-quite-fallen (and beyond our skills to deal with) hardwoods and resurgent vegetation

remainder: our PWP riparian area: no downed wood in the streams (it couldn’t reach even if it fell), but LOTS of berries, thistle, etc; dead conifers

note 1: the stream is in the bottom left corner

note 2: it all looks green, but it was green when the Holiday Farm Fire came through as well



Gordon Culbertson, White Water Forests LLC, Springfield, OR

“Re: Board of Forestry Comments, June 4, 2025

Chair Kelly and Board Members,

My name is Gordon Culbertson; I am the president of the Oregon Small Woodlands Association and a small woodland owner. Four members will address you today on the topic of restoration forest policy and a fifth with written comment. We’re concerned the Board may be responding to



urban Oregonians who don't have experience of how to care for woodlands. This may lead to a bias against active response to mitigate fire hazards and restore forests after catastrophic events.

Small woodlands owners' heritage and care for the lands is crucial and we wish to keep family forests as forests. We own about thirty-five percent of Oregon's private forests and produce a bit more than 10% of annual harvests. Small forest owners typically use longer rotations with older trees and higher value per acre. This places the owners at risk of greater loss in the case of catastrophic events. Much of this land is in the hands of the older generation. In many cases, there will be succession to younger family members in the near future.

Is forest ownership a good long-term investment? It's a risky combination of creeping regulations, cost of doing business, land and timber taxes and ultimately estate taxes that often force families to cut trees prematurely or sell the land. These are grave concerns.

Oregon's small woodlands provide clean air, pure water, fish and wildlife habitat and sustainable wood products. Are these public values appreciated and encouraged?

Will owners decide it's not worth the risk and trouble, choose to see out or see alternate uses? Aesop warned of killing the Golden Goose, it's my caution this is coming closer each day.

A significant portion of small woodlands have been restricted by the Private Forest Accord. In our case it was about 10 additional percent that is off limits to active management. We're unable to remove dead trees, mitigate fire hazards and restore the forest, that's not forward thinking in my opinion.

As the Board of Forestry evaluates policy I'm concerned there is an unwillingness to consider science that is contrary to the decided outcome. For instance, there are numerous well documented studies that contradict the science justifying stream measures in the PFA. Yet they are ignored. Is sanctity of the PFA more important than forest restoration after catastrophic events?

Don't be afraid to endorse research and science that may be uncomfortable under the dominant paradigm. The Board should encourage a vigorous and robust adaptive management committee promoting incentives for imaginative restoration projects that will be valuable tools to reach desired results. I urge you to willingly support desired future outcomes using creative, active management strategies rather than strict, absolutely no touch, politically motivated guidance.

Remember communities and real people with families, homes and heritage forests are part of the equation too. Don't let blind public policy lead us to killing the Golden Goose.

Sincerely,

Gordon Culbertson
Whitewater Forests LLC
{note: Address has been redacted}"



"July 29, 2025

Re: Post-disturbance harvest rules comments-Culbertson Whitewater Forests LLC

Chair Kelly and Board of Forestry Members,

I am writing today to share our comments and concerns on the proposed "Private Forest Accord" rules governing post-disturbance restoration as applied to western Oregon's streams. We have serious reservations about the rules proposed and see them as detrimental to desired future outcomes and the well-being of family forests.

Citing the "Vision for Oregon's Forest" this document calls for specific policy recommendations including:

- *Policies will be based on a comprehensive, all-lands approach, that will reflect the unique landscape and forestland ownership of Oregon, and will honor the complexity of relationships Oregonians have with Oregon's forests.*
- *Policies will be based on the best available information, and be applicable in a place-based manner to meet local, regional and statewide expectations of Oregonians.*

Further, the "Visions" glossary of terms identifies the aforementioned "place-based" concept as follows:

"General planning approach which emphasizes the characteristics and meaning of places as a fundamental starting point for planning and development. "Solutions that are uniquely tailored to a geography and the relevant communities or people for a given locale."

Passages of the "Private Forest Accord" seem contrary to the "Vision for Oregon's Forest" and doesn't honor the intent of the document. Without a doubt, some of the "best available" science was ignored.

Three generations of our family are dedicated to the stewardship and long-term resilience of forest, wildlife and water resources integrity for our woodlands in Lane and Douglas Counties. We are actively committed to pursuit of practical public policy that will encourage family forest health and longevity. Advocacy for family forestry is important to us; I served a term as the President of Oregon Small Woodlands Association, have been a long-time member of the Lane County Small Woodland Association Board and in 2019 our family was recognized as "Oregon State Outstanding Tree Farmers" of the year. We care for forests and our values as small forest owners compel us to question the wisdom of post-disturbance rules as presently proposed.

Small woodland owners are disproportionately impacted by these proposed rules. Geographically speaking, small woodland ownerships are most likely to be situated at lower elevations near main stem fish bearing streams. Tributaries frequently are identified as fish bearing streams. Considering the riparian goals to encourage large wood and promote shade, it is inconsistent to prohibit small woodland owners from actively restoring these characteristics.

We aren't opposed to the Oregon Forest Industries Council (OFIC) position on post-disturbance rules as they relate to industrial forest lands. We support elements of the proposed rules that



allow for harvesting dead, down and dying trees located in areas designated as non-fish stream buffers and support the use of herbicides to control noxious weeds or invasive plant species using herbicide ground application methods.

However, small woodland (non-industrial) issues of concern differ in some cases than those of industrial forests. Small woodland families have unique goals for their property and the post-disturbance rules as proposed do not adequately protect interests and values of small woodland families.

The post disturbance rules as proposed discourage stewardship of multiple small woodland resources. We are interested not only in commercial timber harvest; but recreation, hosting family and educational events associated with riparian areas.

Following a catastrophic event such as wildfire, ice storm or windstorm, the proposed rules inhibit the small forest owner from post disaster rehabilitation efforts near fish streams. There is no clear direction or incentive for a stewardship forester to risk collaboration with a landowner in an "alternate prescription." Rules as proposed will prohibit the landowner from treating large swaths of dead, dying or down trees on their property. This will exacerbate wildfire hazards, encourage insect infestation in adjacent forests and place nearby homes in jeopardy.

Mother nature does not preclude catastrophic forest destruction from designated one-size-fits-all retention buffers. Active management practices are in order that will encourage collaborative solutions for post-disturbance situations. Small forest families need an approved procedure in the spirit of alternative vegetation retention prescriptions. We suggest rules encouraging an alternate plan procedure that recognizes individual circumstances and considerations for active restoration.

Retaining the "alternative vegetation retention 1 (catastrophic events)" as a restoration option for small forest owners (SFO) in post catastrophe situations is our suggested option for small woodland owners. This alternative prescription is noted under 629-643-0300 in the publication of Forest Practice Administrative Rules and the Oregon Forest Practices Act dated January 2024.

This will encourage small woodlanders' options to engage in rehabilitation efforts after catastrophic disturbance. In January 2024 a severe ice storm devastated thousands of forest acres on both sides of the Southern Willamette Valley. Our Penn Road Forest west of Eugene suffered serious damage from the heavy ice and snow. One of the most severely impacted areas was a valley drained by a small fish bearing stream. Our stewardship forester and I jointly developed "alternative vegetation retention" written plan outlining resource protections to protect stream buffers and facilitate removal of down and destroyed trees, mitigating resource damage.

Restoration efforts are costly. I personally worked for well over a month, using our logging machinery to complete the necessary salvage work. We recovered three sawmill loads and one pulp load of small Douglas fir and red alder logs from the surrounding jumble of uprooted, broken and splintered trees.

We were paid \$ 3665 delivered to the mill. The trucking cost amounted to \$ 925. About \$ 13 per hour was left to cover my labor, fuel, saw and machinery expenses. Obviously, the outcome wasn't economically profitable, but the meager economic return wasn't the goal.



Our family all agreed, it was imperative we clean this mess up to promote good stewardship and healthy future of the tree farm. We accomplished our restoration goal, we mitigated the fire hazard, and once again allow recreation having recuperated the streamside area from under a mountain of slash. I hope you will agree this was a sensible and credible undertaking. I encourage you to promote rules that encourage latitude for family forest owners to care for their lands.

For your consideration with today's testimony is a document including photographs and a commentary outlining our collaboration with our stewardship forester and experience in post-disturbance recovery. I hope you will consider this example of how a successful restoration effort can work if we seek active management outcomes rather than a "hands off, no touch" one-size-fits-all approach.

Lastly, I am dismayed by insinuations from the Board that prescriptive post-disturbance rules prevent misbehavior from "bad actors". The Forest Practices Act has definitive rules that have plenty of consequences for addressing misdeeds. Rather than questioning landowner motives, rules should encourage proactive habitat enhancement, such as planting riparian conifers or placement of large wood. I would propose you consider incentives supporting those who wish to do the "right thing."

Small woodland owners are significant contributors in protecting Oregon's forest legacy. We cherish our forests and the amenities, both natural and economic. How we address post-disturbance restoration treatments will have significant and long-lasting implications for our communities, forests, and our desired future habitat conditions.

Sincerely,

Gordon Culbertson
Whitewater Forests LLC
{note: Address has been redacted}"

"Our post-disturbance harvest experience
Gordon Culbertson
April 14, 2024 (updated July 30, 2025)

In mid-January 2024 a significant winter storm affected much of Western Oregon. Freezing rain and heavy wet snow combined to create havoc with major tree damage. Lane County was the epicenter of these conditions and many forest owners including SFO suffered serious down timber and tree breakage.

Our Penn Road tree farm in Western Lane County suffered serious damage totaling about five acres. This area was comprised of 30-year-old Douglas fir and red alder as the primary species affected. Swaths of timber were pushed over, and many trees were snapped off at varying heights.





Ice storm damage on Penn Road tree farm. A small fish tributary of Wildcat Creek is located center of photograph. Near location of Photo 8. (Photo 1)

One area particularly hard hit was along a draw with a small fish stream, a tributary of Wildcat Creek. The most impacted area was about 150 feet wide and 500 feet long following the stream course. As a result of the storm this area was an impenetrable tangle of down trees, many trees hanging in standing or leaning trees, broken tops, limbs, and slash.



Mix of conifer and hardwood, layered several deep with some trees up rooted others snapped off. (Photo 2)

Around February 1st I assessed the damage and asked the local stewardship forester from the Western Lane office to join me, survey the damage and advise in developing a plan to mitigate



this undesirable and risky situation. Under the Private Forest Accord restrictions, I was uncertain of cleanup opportunities because of the mandatory stream setbacks required by the PFA.

Our management objectives for this area included commercial timber management outside the restricted area but also it was an area our family used frequently for recreation with hiking trails along both sides of the stream.

Without some intervention the area damaged in the ice storm would be negative for the health of the surrounding forest, a significant wildfire hazard and would make the recreational experience impossible due to safety concerns.

During the joint inspection with our stewardship forester, he advised me the “post-disturbance harvest alternative” would give us the greatest latitude to intervene and improve forest conditions. Under the guidance of the FPA we developed an “alternate plan” allowing us to harvest the damaged timber and mitigate the hazard to our property. We selected and marked adequate reserve trees meeting a pre-determined basal area along the stream course, meeting the objectives for shade and stream set back protection.

After the waiting period was concluded our written plan was approved and weather permitting, we started the clean-up.



Previous page – harvest is underway, we carefully bucked and individually removed trees from the “layers” of down timber to protect the reserve trees in the buffer strip. Orange marked trees are reserved to maintain the prescribed buffer. The area across the stream was almost entirely wiped out. (Photo 3)

The harvest was completed in the riparian area by early summer. The results were definitely a “win-win” for all. We did not operate machinery anywhere near the stream and were able to remove most of the hazardous trees. There is an abundance of down wood and reserved standing trees within the harvest area. Accumulations of broken stems and limbs are



manageable. Prescribed burning during the winter season is an option if necessary to mitigate the potential wildfire hazard.



Alder logs recovered from storm damaged area. (Photo 4)

One year later (July 2025) let's go back and look at the results of our post-disturbance restoration project.



Reserved conifer and hardwoods retained in the stream buffer. The stream is under the salmon berry in pictures center. Trees marked for retention are in good condition, hardwood trees have recovered damaged crowns. (Photo 5)





This is the small fish buffer one year post harvest, looking from west to east. Logs were yarded to the road on the right. This is about the same perspective as Photo 4. (Photo 6)



One year post harvest stream flow through the reserved buffer. This area was “layered” with down trees that were carefully individually cut and removed. The opening in the background right is the devastated area in Photo 3. (Photo 7)





Some of the most severe ice damage in this area. (Photo 8)

Thank you for joining me on this “field trip” of our post-disturbance restoration and harvest. The stewardship forester responsible for the Penn Road area and our family were pleased with the result. The post-disturbance alternate vegetation prescription as implemented was the proper choice. It is a good example of collaborative decision making to improve forest conditions considering site specific conditions.”





Board of Forestry Public Meeting

3. Public Forum

This item serves as the vehicle for the public to comment on information items or topics not on the agenda. Comment times may be reduced at the discretion of the Board Chair.

This is an information item.

Agenda Item No.:	4
Work Plan:	Fire Protection
Topic:	Ongoing Topic; Fire Season Update
Presentation Title:	2025 Fire Season Update
Date of Presentation:	September 3, 2025
Contact Information:	Michael Curran, Chief – Fire Protection Division 503-480-6675, Michael.Curran@odf.oregon.gov Ron Graham, Deputy Chief of Operations- Fire Protection Division 503-945-7271, Ron.Graham@odf.oregon.gov

SUMMARY

Oregon revised statutes define the Department’s Fire Protection policy, which requires a complete and coordinated system. This system relies on the partnership between the Department and forest landowners with a commitment to ongoing communication and collaboration with many other state and federal agencies. Fire management leaders from the Department will provide a briefing on some of the ongoing coordination and an up-to-date fire season status report during this agenda item.

STAFF REPORT

Agenda Item No.:	5
Work Plan:	Forest Resources Division
Topic:	Implementing Legislative Direction
Presentation Title:	Budgets for Adaptive Management Program and AMPC Research Agenda
Date of Presentation:	September 3, 2025
Contact Information:	Josh Barnard, Division Chief, Forest Resources Division, ODF, Josh.W.Barnard@odf.oregon.gov ; Terry Frueh, Adaptive Management Program Coordinator, Forest Resources Division, ODF, Terry.Frueh@odf.oregon.gov ; Stacey Detwiler, Adaptive Management Program Committee (AMPC) Co-chair Seth Barnes, AMPC Co-chair

SUMMARY

The department presents proposed budgets for the Adaptive Management Program and research projects per the Adaptive Management Program Committee's (AMPC) research agenda for the Board's consideration.

CONTEXT

The legislature directed the Board to set up an adaptive management program. The program helps inform future rulemaking and supports an application for a programmatic habitat conservation plan (HCP), and subsequent incidental take permits from NOAA Fisheries and the US Fish and Wildlife Service. The goal of the program is to use the best available science to assess the effectiveness of rules for achieving the biological goals and objectives described in the HCP.

BACKGROUND

In 2020, conservation and forest industry groups offered to revise the Forest Practices Act (FPA) and forest practice rules through a memorandum of understanding to include mediated discussions, known as the Private Forest Accord (PFA). Later that year, the Legislature passed [SB 1602](#) which set helicopter pesticide application requirements and required the Governor to facilitate mediated sessions between conservation and forest industry groups. As a product of this collaborative process, the [2022 PFA Report](#) was drafted and released by an author group comprised of representatives from those discussions. During the 2022 Legislative Session, [SB 1501](#) and [SB 1502](#) passed making substantial changes to the FPA and requiring the Board to incorporate the recommendations of the PFA Report into the forest practice rules through the adoption of a single rule package to support the development of the PFA habitat conservation plan (HCP) and prescribed two additional rulemaking efforts.

A key part of the rules is the Adaptive Management Program. In addition to the Board, this Program has two primary participants:

1. The AMPC develops the policy direction for the program.
2. The Independent Research and Science Team (IRST) oversees the research and monitoring to address the policy direction.

The Board approves the budgets for both the Program¹ and the AMPC's research agenda².

During the 2025 legislative session, the department was appropriated \$4,500,000 to support the department's Adaptive Management Program and continued work towards a federally approved HCP as part of the PFA. This includes \$1,400,000 to support operational costs, \$20,000 for the Program's administrative costs at ODF, and \$3,080,000 for the next round of research projects conducted by the IRST. The \$3,080,000 is in addition to approximately \$3 million already transferred to INR for research projects at the end of the 2023-25 biennium making approximately \$6.1 million available for IRST research projects. Also, Governor Kotek issued a letter when signing the department's appropriation bill (Attachment 1) that may affect the timing of the disbursement of research project funds from the 2025-27 appropriation.

ANALYSIS

Per OAR 629-603-0130, the Board shall determine the budget for:

1. The IRST Housing Agency (Oregon State University's Institute for Natural Resources (INR)) and participation grants for the AMPC and the IRST; and,
2. The AMPC's research agenda.

The department, with input from INR, developed the budget (Table 1) for the IRST Housing Agency and participation grants for the AMPC and the IRST, for the Board's vote.

Table 1

<u>Item</u>	<u>2-year Budget</u>
IRST Housing Agency (INR)	\$ 946,803
Participation grants for the AMPC & IRST*	\$ 453,197
Total	\$ 1,400,000

* Recommended participation grant awards, per OAR 629-603-0160, for the organizations that requested these grants are listed in Attachment 2.

The AMPC developed a research agenda per OAR 629-603-0200(5), the report of which (Attachment 3) was sent to the Board on July 8th, 2025. This agenda was based on scoping proposals developed by the IRST (Attachments 4 and 5),

The AMPC's estimated budget for the research agenda is summarized in Table 2.

Table 2. AMPC estimated research agenda budget.

¹ OAR 629-603-0130(2)

² OAR 629-603-0200(5)(d)

Project	Budget for 2025-2027 biennium	Total budget[^]
Road-Stream Hydrologic Connectivity ^{&}	\$2.7 million	\$5.4 million
Eastern Oregon Steep Slopes	\$80,000	\$80,000
Amphibians/other	TBD	TBD

[^] Not to exceed numbers

[&] These budget numbers are for the baseline study per Question 1; subsequent rounds of sampling to develop the trends per Question 2 will be completed in the future.

The AMPC may amend the research agenda budget to include additional projects (e.g., Amphibians) for a Board decision later this biennium.

RECOMMENDATION

The department recommends the Board approve budgets for:

1. The IRST Housing Agency and participation grants for the AMPC and the IRST (Table 1); and,
2. The AMPC's research agenda (Table 2).

NEXT STEPS

The department will coordinate with the AMPC, the INR, and the IRST to complete work per the Board-approved budgets.

ATTACHMENTS

1. Governor Kotek's Senate Bill 5521 signing letter
2. Participation grant awards per organization
3. The Adaptive Management Program Committee's Research Agenda Report
4. Road-Stream Hydrologic Connectivity Scoping Proposal
5. Eastern Oregon Steep Slopes Scoping Proposal



TINA KOTEK
GOVERNOR

July 24, 2025

The Honorable Tobias Read
Secretary of State
900 Court Street NE
Salem, OR 97310

RE: Senate Bill 5521

Dear Secretary Read,

Today I am signing Senate Bill 5521, which provides the budget for the Oregon Department of Forestry (ODF). I want to take this opportunity to share the direction I am giving the agency on the administration of a portion of the budget related to the Private Forest Accord (PFA).

Package 801 provides \$6 million to ODF for the administration of the PFA effort to submit a consensus Habitat Conservation Plan (HCP) to the federal agencies charged with administering the Endangered Species Act. This one-of-a-kind effort by the State of Oregon, conservation organizations, and private forest landowners is well underway, and I appreciate the legislature's attention to this work. We cannot abandon this effort.

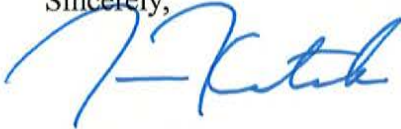
Of that \$6 million provided, \$3.1 million is intended for the next round of research projects at the Institute of Natural Resources (INR) and \$2 million is intended for additional grants in the Small Forestland Investment in Stream Habitat (SFISH) fund. I understand that as of the end of the 2023-2025 biennium, approximately \$2.8 million remains available from prior funding authorizations and will be used to continue research projects already being administered by the INR in support of the PFA.

Completing and submitting Oregon's HCP application that will meet requirements of the federal Endangered Species Act is a critical next step for ODF after a long engagement process with the PFA authors, interested parties, and constituencies. All allocated funding must support this effort before funds are applied to other PFA-related initiatives.

Honorable Tobias Read
July 24, 2025
Page 2

With this in mind (and given that \$2.8 million is already available for research related activities), I am directing ODF to hold the new allocations of \$3.1 million targeting additional research projects and the \$2 million for grants covered by the SFISH program until the HCP application is completed and submitted for review by the federal government. When that occurs, ODF should consult with my office on the timing and sequence for moving forward with the expenditures for these programs. That discussion can be accelerated if ODF finds a clear and present need for releasing a portion of the funds in order to directly support the completion of the state's HCP application.

Sincerely,



Governor Tina Kotek

cc: Speaker of the House Julie Fahey
Senate President Rob Wagner

TK:smg

Participation grant awards per organization

Adaptive Management Program Committee (AMPC)

Organization	Amount for 2025-27 biennium
Wild Salmon Center	\$ 15,400
Oregon Small Woodlands Association	\$ 15,400
Oregon Wild	\$ 15,400
Oregon Forest Industries Council	\$ 15,400
Coalition of Oregon Land Trusts	\$ 15,400
Association of Oregon Counties	\$ 15,400
Associated Oregon Loggers	\$ 15,400
Cow Creek Band of Umpqua Tribe of Indians	\$ 15,400
Total	\$ 123,200

Independent Research and Science Team (IRST)

Organization	Amount for 2025-27 biennium
Kelly Burnett Consulting*	\$ 60,000
USDA Forest Service	\$ 54,000
Eagle Cap Press	\$ 54,000
J Light Consulting	\$ 54,000
Roering Geoscience	\$ 54,000
MJ Furniss & Associates	\$ 54,000
Total	\$ 330,000

* Since member is co-chair of the committee for 2025-26 and has a higher workload, their grant award is higher.

Total for participation grants in 2025-27 \$ 453,200

Adaptive Management Program Committee Research Agenda Report

July 7th, 2025

Contents

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1. Introduction

The legislature directed the Board of Forestry (Board) to set up the Adaptive Management Program in 2022. The Program helps inform rulemaking¹ by using the best available science to assess the effectiveness of rules to achieve the Biological Goals and Objectives (BGOs) described in the Private Lands Aquatic Habitat Conservation Plan (HCP)².

The Adaptive Management Program includes two advisory bodies:

1. The Adaptive Management Program Committee (AMPC) develops the policy direction for the program, including the research questions.
2. The Independent Research and Science Team (IRST) oversees the research and monitoring to address the policy direction.

Every 2 years, the AMPC develops a Research Agenda that is based on the IRST's scoping proposals. This Agenda prioritizes the research projects, and specifies the budgets, key milestones, and timelines for these projects (see Appendix 1 for the relevant rule). The Board reviews this Agenda and votes on its budget. If additional funds remain available, then the AMPC may amend the Research Agenda to include additional projects³ for a Board decision.

2. Research Agenda

The AMPC finalized this Research Agenda Report at their July 7, 2025, meeting and approved it unanimously by all 10 voting members.

¹ OAR 629-603-0000(5)

² As of 07/07/2025 the private lands HCP was still in draft form, but the Adaptive Management Program and this research agenda were a negotiated requirement to meet commitments to USFW and NOAA Fisheries for the attainment of Incidental Take Permits.

³ Note that the AMPC sent preliminary research questions on Amphibians to the IRST. However, there was insufficient time for the IRST to complete its scoping proposal, and thus the associated research is not included in this research agenda. This research may be later added to the research agenda through an amendment.

Table 1. Summary of Research Agenda

Priority	Project	Milestone	Completed (months since project start)
1	Road-Stream Hydrologic Connectivity Baseline Assessment and Sediment Modeling	Award contract	2-3
		Prep for field data collection	15-18
		Complete field data collection	27-30
		Complete data analysis & draft reports	42-46
		Complete final reports	48-50
2	Eastern Oregon Steep Slopes modified Rapid Systematic Map	Award contract	2-3
		Literature search and assessment	5-6
		Complete draft reports	7-8
		Complete final reports	9-10
?	Amphibians/other	TBD	TBD

Summary of Research Agenda Projects

This section outlines the AMPC decisions for the Research Agenda.

First Priority: Road-Stream Hydrologic Connectivity Baseline Assessment and Sediment Modeling Project⁴

The Road-Stream Hydrologic Connectivity Project will include these components⁵:

- 1) Pre-survey Options 1 & 2 to save time and money by using geospatial data to identify optimal field work for the study;
- 2) Sample stratification based on differences in ownership (large vs. small landowner⁶) and geography (eastern vs. western Oregon⁷);
- 3) Baseline assessment of road-stream hydrologic connectivity soon after the start of the new Forest Practices Act (FPA) rules; and,
- 4) Sediment modeling to assess trends in sediment delivery from roads to streams.

Knowledge Contribution:

- Assesses hydrologic connectivity between roads and streams, and models associated amounts of sediment delivery.
- Includes all the connectivity-only metrics listed in Option 1 of the scoping proposal, plus the modeled delivery of road sediment to streams.

⁴ Scoping proposal found [here](#).

⁵ Note: The road connectivity research questions have three components (baseline, trends, and rule effectiveness); this research agenda proposal includes only the baseline component.

⁶ OAR 629-600-0100(126)

⁷ Eastern and western Oregon are distinguished in OAR 629-635-0220.

- Informs the development of performance targets and the effectiveness of road rules in achieving BGOs related to hydrologic disconnection and sediment delivery.

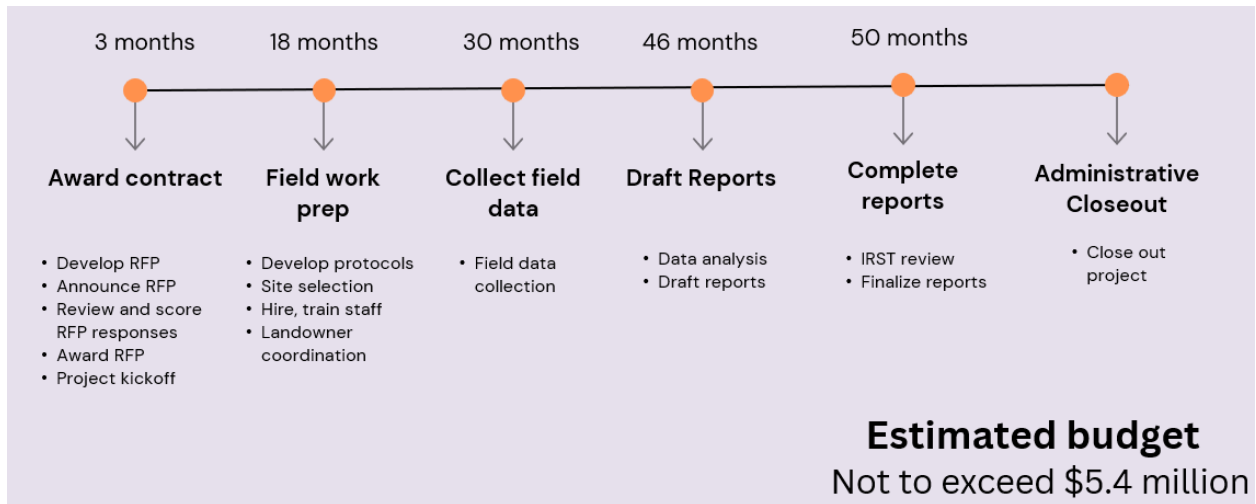


Figure 1. Timeline for Road-Stream Hydrologic Connectivity Baseline & Sediment Modeling Project

Use of Sediment Modeling Results

The AMPC believes the following quote provides important context for this work:

“It is recognized that output from any road surface erosion model is not an accurate measure of sediment production or delivery at the scales of individual delivery points or individual road segments; however, models are useful for comparing trends in sediment production through time in response to changes in road conditions (Dubé et al. in press).” (Dubé et al., 2010)

Given this information, the AMPC will not use the results of sediment modeling that may come out of this project as an indication of measures of actual sediment amounts, individual sediment delivery points, or individual road segments. Sediment modeling results alone would not be used as the basis to recommend rule changes but could be used to inform future study or analysis.

Second Priority: Eastern Oregon Steep Slopes Rapid Systematic Map Project⁸

The Eastern Oregon Steep Slopes Rapid Systematic Map Project is a detailed literature review to help inform the Board about hillslope processes in Eastern Oregon. The AMPC modified the original proposals by IRST in two ways:

1. Include a second reviewer to minimize bias; and
2. Extract data from the relevant studies and provide those data in a database for potential future analysis.

Knowledge Contribution:

⁸ Scoping proposal found [here](#).

Extracts data from reviewed documents to support quantitative and narrative synthesis about the state of, and important gaps in, knowledge regarding eastern Oregon steep slopes. This may exclude some of the gray literature, especially older studies or those from other states. The search and review process would be well documented for transparency and replicability.

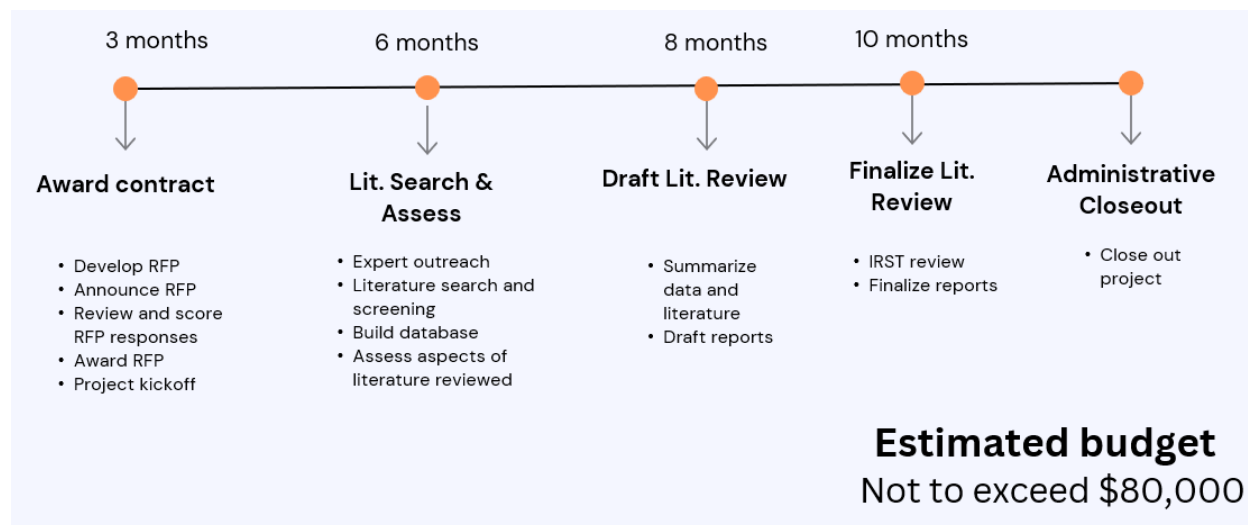


Figure 2. Timeline for Eastern Oregon Steep Slopes Rapid Systematic Map Project.

This Research Agenda provides the AMPC’s direction for the IRST to implement the research. Although the details of this implementation are strictly the purview of the IRST⁹, they may request input from the AMPC about unforeseen policy-relevant details of implementing this Research Agenda.

Project Budgets

Project budgets are based on the associated scoping proposals and are summarized in Table 2.

Table 2. Research Agenda budget estimates

Project	Budget/year	Budget for 2025-2027 biennium	Total budget [^]
Road-Stream Hydrologic Connectivity ^{&}	\$1.4 million [#]	\$2.7 million [#]	\$5.4 million
Eastern Oregon Steep Slopes	\$80,000	\$80,000	\$80,000
Amphibians/other	TBD	TBD	TBD

[^] Not to exceed numbers

[&] These budget numbers are for the baseline study per Question 1; subsequent rounds of sampling to develop the trends per Question 2 will be completed in the future.

[#] Since there is insufficient information in the scoping proposals to determine these figures, a constant-rate expenditure is assumed.

⁹ OAR 629-603-0200(6); Section 37(7)(a) chapter 33, Oregon Laws 2022; and Section 10.3.1.1 of the PFA Report.

Potential Research Agenda Amendments

The AMPC sent preliminary research questions on Amphibians to the IRST, and the AMPC anticipates coming back to the Board within 8-12 months to revise this Research Agenda. Additionally, work on an effectiveness monitoring strategy or other policy initiatives may arise that warrant amending the Research Agenda.

3. Conclusion & Next Steps

The AMPC requests that the Board approve the budget outlined above. Upon Board approval, the IRST will be notified they may proceed with Requests for Proposals for the research projects per this Research Agenda.

ODF, the AMPC, and the IRST will continue to provide Adaptive Management Program updates to the Board at least annually, and act upon the completed research project reports as specified in rule¹⁰.

Reference

Dubé, K., A. Shelly, J. Black, and K. Kuzis. 2010. *Washington road sub-basin scale effectiveness monitoring first sampling event (2006-2008) report*. Cooperative Monitoring, Evaluation and Research Report CMER 08-801. Washington Department of Natural Resources. Olympia, Washington.

¹⁰ OAR 629-603-0200(7, 8)

Appendix 1. Rules regarding the Research Agenda

OAR 629-603-0200(5)

- (a) “The AMPC shall develop a multi-year research agenda that includes:
 - (A) Prioritized research projects;
 - (B) Key milestones for each research project;
 - (C) A timeline for progress on research projects; and,
 - (D) A comprehensive IRST budget, including annual budget for each year of each project.”
- (b) In prioritizing the research projects, the AMPC shall consider:
 - (A) Biennial appropriations from the legislature;
 - (B) Priorities outlined in OAR 629-603-0100(8);
 - (C) Research proposals received from the IRST per subsection (4)(e) of this rule;
 - (D) Board direction;
 - (E) Requirements for continuity of research projects under agreement or out for RFP review; and,
 - (F) Other information as appropriate.

Appendix 2. Finalized research questions

Hydrologic connectivity of roads research questions:

1. Baseline Report.
 - a. What is the baseline status of hydrologic connectivity of roads prior to the implementation of the OFPA road rules effective Jan 1, 2024?
 - b. How does the status of hydrologic connectivity differ based on landowner type and East/West region?
 - c. How do particular elements of the regulatory framework (e.g. road location) or site characteristics (e.g. geology) contribute to hydrologic connectivity?
2. Trend Monitoring. What are the trends in the status of hydrologic connectivity of roads over 5-year intervals? These trends should be assessed for the same variables in question 1.
3. Determination of rule effectiveness. Within 25 years, to what extent are road rules associated with hydrologic disconnection effective at achieving biological goals and objectives?

Eastern Oregon Steep Slopes research questions:

Overarching Question: What impact do hillslope processes have on the covered species included in the draft HCP and their habitats in Eastern Oregon?

Primary Focus: What does the literature say about upslope initiated shallow rapid slides and how timber harvesting may impact these in Eastern Oregon environments?

Secondary Focus: Are there hillslope processes other than upslope initiated shallow rapid slides that may affect covered species within the draft Habitat Conservation Plan (HCP) and are these processes changed by forest practices?

Appendix 3. Work leading to the Research Agenda

The materials used in this Research Agenda were developed in these steps:

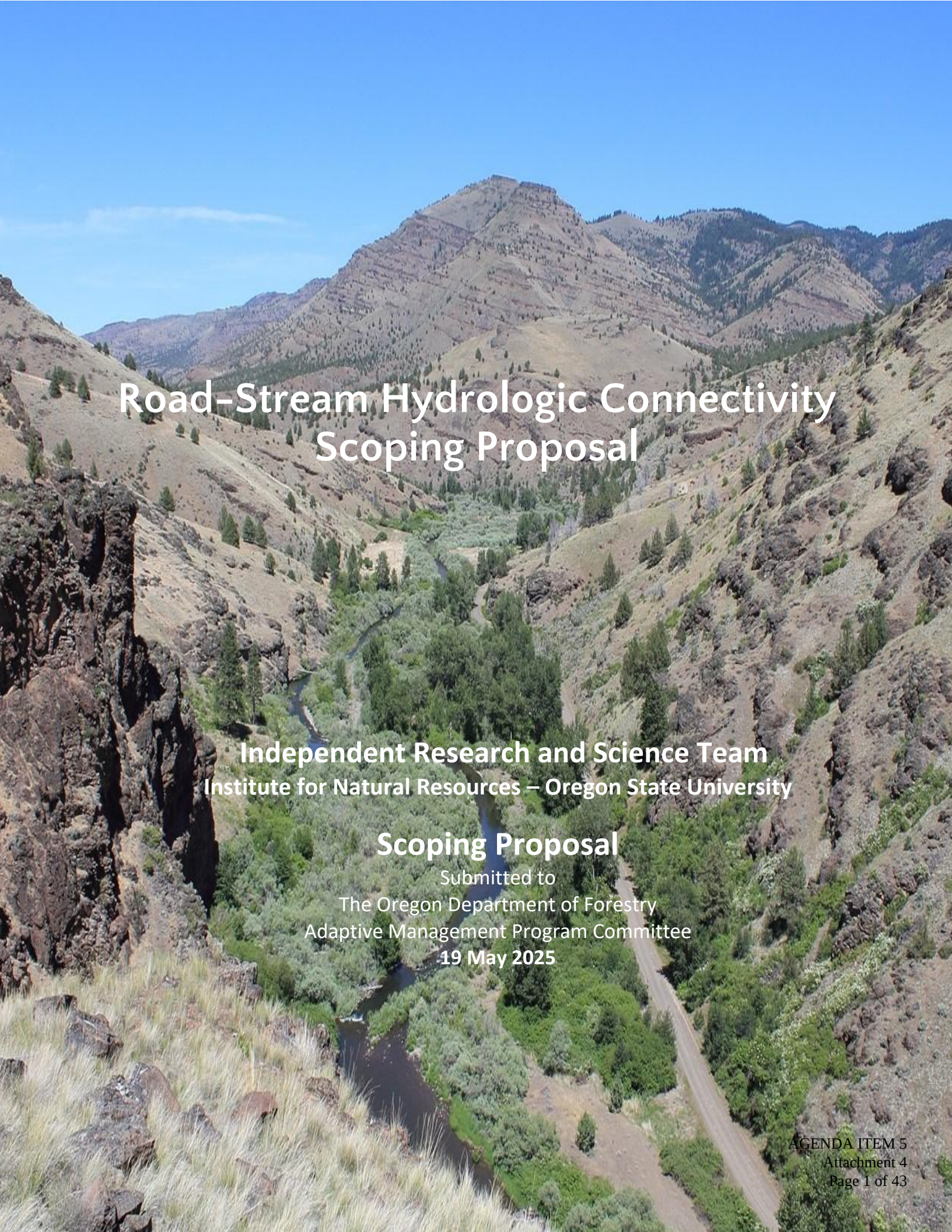
1. The AMPC developed preliminary research questions on two topics¹¹:
 - a. Road-stream hydrologic connectivity; and,
 - b. Eastern Oregon steep slopes.
2. The IRST worked with the AMPC to hone the research questions into final, researchable formats. These finalized research questions are listed in Appendix 2.
3. The IRST developed scoping proposals that address the two sets of questions¹². These scoping proposals include:
 - a. A literature review;
 - b. A preliminary estimate of the budget, and a timeline to complete the research project with specific deliverables; and,
 - c. A preliminary description of research project requirements, scope of work including an estimate of the timeline and key milestones, and an estimate of the degree to which knowledge may be improved if the research proposal is implemented.

AMPC Process to develop the Research Agenda

The AMPC Co-chairs and ODF staff developed a survey to assess the AMPC members' preferences for the Research Agenda and then used that information to focus the conversation at their June 2, 2025, meeting. During this meeting, the AMPC discussed the IRST scoping proposals with the IRST Co-chairs, and then determined where there was consensus and what needed more conversation. The AMPC also formed a workgroup to work on an initial draft of this report that was subsequently reviewed and discussed by the full AMPC.

¹¹ These topics are specified in OAR 629-603-0100(8).

¹² Note that because the Biological Goals and Objectives and the associated metrics and targets are not yet complete, and the IRST could not complete a scoping proposal to address Question 3 from the road-stream hydrologic connectivity topic.



Road-Stream Hydrologic Connectivity Scoping Proposal

Independent Research and Science Team
Institute for Natural Resources – Oregon State University

Scoping Proposal

Submitted to
The Oregon Department of Forestry
Adaptive Management Program Committee
19 May 2025

Road-Stream Hydrologic Connectivity Scoping Proposal

19 May 2025

Authors

The Independent Research and Science Team

Prepared by

The Institute for Natural Resources

The Institute for Natural Resources' mission is to provide access to integrated, management-relevant information that informs discussions and decisions about the long-term stewardship of Oregon's natural resources. Institute for Natural Resources is an Oregon public universities institute located at Oregon State University and Portland State University.



**INSTITUTE FOR
NATURAL RESOURCES**

OREGON STATE UNIVERSITY (headquarters)
234 Strand Hall, Corvallis, Oregon 97331

For more information about this report please contact Lisa Gaines at Lisa.Gaines@oregonstate.edu. The Institute for Natural Resources is the Housing Agency of the Independent Research and Science Team.

Recommended Citation

Independent Research and Science Team. 2025. *Road-Stream Connectivity Scoping Proposal*. Institute for Natural Resources. Oregon State University. Corvallis, Oregon.

Photo by Debbie Walkingbird, Pixaby

Independent Research and Science Team Members

Kelly Burnett	Wild Salmon Center
Ellen Bishop	Conservation/Oregon Wild
Rebecca Flitcroft	U.S. Forest Service
Michael Furniss	Cal Poly Humboldt
Jessica Homyack	Weyerhaeuser
Jeff Light	Oregon Forest Industries Council
Josh Roering	University of Oregon

Contributors

Sean Gordon, Institute for Natural Resources

Lisa DeBruyckere, Creative Resource Strategies, LLC

Lisa Gaines, Institute for Natural Resources

Disclaimer

This scoping proposal is submitted to the Adaptive Management Program Committee as a requirement of the Oregon Department of Forestry Adaptive Management Program rules ([Chapter 629, Division 603](#)).

The contents of this report reflect the views of the Independent Research and Science Team (IRST), which is solely responsible for the facts and accuracy of the material presented. This scoping proposal does not constitute a standard, specification, or regulation.

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Abbreviations and Acronyms

AMPC	Adaptive Management Program Committee
AQI	Aquatic Inventories Program
AREMP	Aquatic and Riparian Effectiveness Monitoring Program
BGO	Biological, Goals, and Objectives
BLM	Bureau of Land Management
BMP	Best Management Practices
CMER	Cooperative Monitoring, Evaluation, and Research
FPR	Forest Practices Rules
FRIA	Forest Road Inventory and Assessment
GIS	Geographic Information Systems
GRAIP	Geomorphic Road Analysis and Inventory Package
HCP	Habitat Conservation Plan
HUC	Hydrologic Unit Code
INR	Institute for Natural Resources
IRST	Independent Research and Science Team
ISPRC	Independent Scientific Peer Review Committee
LiDAR	Light Detection and Ranging
NMFS	National Marine Fisheries Service
OAR	Oregon Administrative Rules
ODF	Oregon Department of Forestry
OSU	Oregon State University
PFA	Private Forest Accord
PIBO	PACFISH/INFISH Biological Opinion
QA/QC	Quality Assurance/Quality Control
RCA	Road Condition Assessment
READI	Road Erosion and Sediment Delivery Index

RFP	Request for Proposals
RMAP	Road Maintenance and Abandonment Plans
RSHC	Road-Stream Hydrologic Connectivity
QA/QC	Quality Assurance/Quality Control
WARSEM	Washington Road Surface Erosion Model
WEPP:Roads	Water Erosion Prediction Project: Roads

Executive Summary

The Independent Research and Science Team (IRST) was established to support the work of the Oregon Department of Forestry Adaptive Management Program Committee (AMPC) by developing research and monitoring options in response to AMPC-developed research question packages.

The AMPC submitted the following research questions related to road-stream hydrologic connectivity (RSHC):

1. Baseline report
 - a. What is the baseline status of hydrologic connectivity of roads prior to the implementation of the OFPA road rules effective Jan 1, 2024?
 - b. How does the status of hydrologic connectivity differ based on landowner type and East/West region?
 - c. How do particular elements of the regulatory framework (e.g., road location) or site characteristics (e.g. geology) contribute to hydrologic connectivity?
2. Trend monitoring
 - a. What are the trends in the status of hydrologic connectivity of roads over 5-year intervals? These trends should be assessed for the same variables in question 1.
3. Determination of rule effectiveness
 - a. Within 25 years, to what extent are road rules associated with hydrologic disconnection effective at achieving biological goals and objectives?

The biological goals and objectives referenced in Question 3 are still under development as part of the Habitat Conservation Plan (HCP), therefore this scoping proposal focuses on the baseline and trend monitoring questions (Q1 and Q2).

The IRST reviewed the literature on RSHC, emphasizing the measurement and monitoring methods relevant for answering the AMPC's research questions. The following is a brief summary of key findings from the review:

- A number of RSHC models exist but the accuracy of modeled outputs depends on the quality of road and stream data as inputs.
- Numerous site-specific factors can influence connectivity and sediment delivery, so field data collection is still needed even when models are used.
- While water and sediment contributions from roads to streams have been quantitatively monitored over small areas, monitoring over broader spatial extents, such as for the area covered by the Oregon Forest Practice Rules (FPR), often necessitates using simpler, qualitative estimates of connectivity and/or modeling based on a small set of road characteristics.
- Monitoring over a broad area also means that a complete census of roads is typically infeasible, so some method for selecting a statistical sample will be necessary. The Dubé et al. (2010) study in Washington selected 60 four square mile land blocks and then collected data on all road segments within these.
- A sample of sub-watersheds rather than land blocks could better link RSHC monitoring results to effects on aquatic ecosystems.

- If accurate road and stream maps are available, efficiency can be gained by a pre-survey that:
 - First identifies and then collects field data on only the road segments with a higher probability of being connected to a stream; and
 - Characterizes essential metrics of road segments from available high-resolution digital elevation models, reducing field-data collection to a small set of variables.
- Although the ultimate purpose of the road connectivity rules is to reduce impacts on aquatic habitats and organisms, measuring impacts on those endpoints specific to the new road rules is likely infeasible given the large area involved, the cryptic nature of aquatic organisms, movement into the ocean by anadromous species, and multiple other confounding factors and mixed ownership patterns. Coordinating RSHC field sampling with existing habitat and population monitoring programs, however, could help understand these linkages in the future.

Based on the results of our literature review, we provide two primary survey options: 1) assessment of only the hydrologic connectivity between roads and streams, and 2) assessment of connectivity along with a modeled estimate of sediment delivery. In addition, we provide two pre-survey options, which could be added to test and improve the digital (GIS) road and stream data, helping to target where and what data are collected in the field. All options are summarized below (Table Ex-1).

Costs are highly dependent on the number of field sampling units. Dubé et al. (2010) determined that a sample size of 60 land blocks would provide sufficient statistical power for an accurate statewide estimate of RSHC, and so that sample size informs the lower end of our cost estimates. If AMPC desires to detect changes at the sub-state level (east/west, large/small landowners), the same number of samples would likely be required for each of these four strata, and so a four-fold increase is used as the upper bound for the cost estimates. Costs for Survey Options 1 and 2 may be reduced by implementing one or both of the Pre-survey options.

Table Ex-1. Summary of scoping proposal options, timeframes, costs, and knowledge contributions.

Option	Estimated Timeframe (months)	Cost	Knowledge Contributions
Survey Option 1: Hydrologic Connectivity Only	36 months	\$1.1-\$4.4 million (for baseline sample)	- Assesses only the hydrologic connectivity between roads and streams (no estimate of sediment contributions). - Characterizes the length of road segments identified as draining to streams by a number of measures (% of total, per stream mile, etc.). - Can inform performance targets and effectiveness of road rules at achieving BGOs related to hydrologic disconnection. - Faster and less expensive than Option 2 due to less field time and data processing.
Survey Option 2: Hydrologic Connectivity + Sediment Modeling	48 months	\$1.35-5.4 million (for baseline sample)	- Assesses hydrologic connectivity between roads and streams and models associated amounts of sediment delivery. - Outputs would include all the connectivity-only metrics listed in Option 1, plus the modeled tons of road sediment delivered to streams. - Can inform the development of performance targets and the effectiveness of road rules at achieving BGOs related to hydrologic disconnection and sediment delivery. - Estimated time line is one year longer and costs are ~20% higher than Option 1.
Pre-survey Option 1: Digital Data Accuracy Assessment)	6 months	\$10-30k	- Increases confidence that sampling locations selected are a relatively unbiased sample. - Reduces time and expense by limiting field data collection to road segments with a higher probability of connectivity.
Pre-survey Option 2: GIS-LiDAR Road Segmentation	8 months	\$80k	- Reduces time and expense by limiting the data collected in the field on each road segment. - Improves the accuracy and consistency of road segment data.

1. Introduction

1.1 Background and Project Purpose

The Independent Research and Science Team (IRST) was established via [Senate Bill 1501](#) as part of the Oregon Department of Forestry's [Adaptive Management Program](#). The IRST supports the work of the Adaptive Management Program Committee (AMPC) by responding to AMPC-developed research questions packages. Per rule, and in consultation with the AMPC, the IRST refines preliminary research questions into final research questions, then develops scoping proposal(s) to address those questions. The scoping proposal(s) need(s) to include:

- A literature review that specifies the need for, or the type of, monitoring, research, commissioned studies, or other means of scientific inquiry necessary to answer the finalized research questions mentioned above;
- A preliminary estimate of the budget for each year of the research, and a timeline to complete the research project with specific deliverables; and,
- A preliminary description of research project requirements, scope of work including an estimate of the timeline and key milestones, and an estimate of the degree to which knowledge may be improved if the research proposal is implemented.

As per [OAR 629-603-0200](#), the IRST develops requests for proposals (RFP) in an open, competitive process after the AMPC and Board of Forestry approve an AMPC research agenda that is based on IRST scoping proposal(s) (Figure 1).

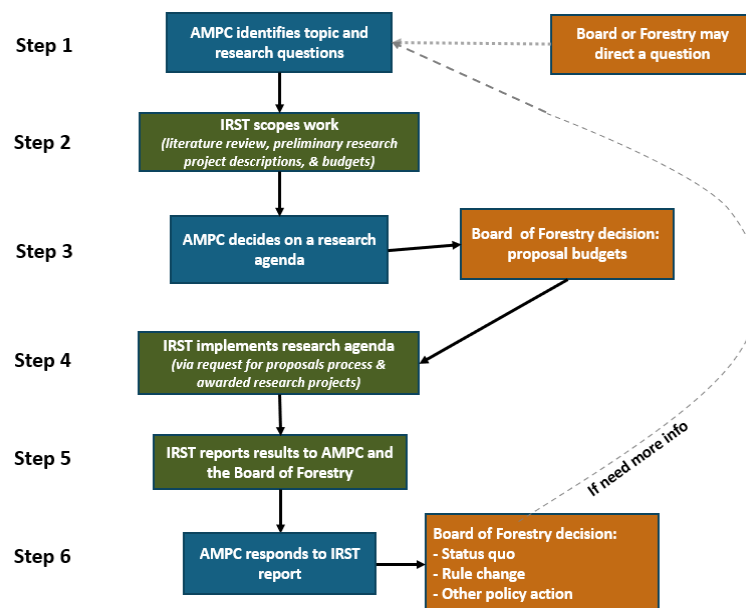


Figure 1. Adaptive Management Process.

1.2 Research questions

On June 24, 2024, the AMPC approved the finalized research questions package (Appendix A) pertaining to road-stream hydrologic connectivity (RSHC). The final questions were structured around baseline status and trend monitoring and determining rule effectiveness (Table 1).

Table 1. AMPC road-stream hydrologic connectivity research questions.

1. Baseline report	a. What is the baseline status of hydrologic connectivity of roads prior to the implementation of the OFPA road rules¹ effective Jan 1, 2024? b. How does the status of hydrologic connectivity differ based on landowner type and East/West region? c. How do particular elements of the regulatory framework (e.g., road location) or site characteristics (e.g., geology) contribute to hydrologic connectivity?
2. Trend monitoring	What are the trends in the status of hydrologic connectivity of roads over 5-year intervals? These trends should be assessed for the same variables in question 1.
3. Determination of rule effectiveness	Within 25 years, to what extent are road rules associated with hydrologic disconnection effective at achieving biological goals and objectives?

The biological goals and objectives (BGOs) referenced in question 3 are still under development as part of the Habitat Conservation Plan (HCP), therefore this scoping proposal focuses on the baseline and trend monitoring for RSHC. It is expected that further links to the BGOs will be considered by the AMPC as the HCP is finalized along with a broader effectiveness monitoring framework. However, there are potential opportunities to estimate the percentage reduction in RSHC through implementation of the OFPA Road Rules.

The Private Forest Accord Report (2022), which informed the development of HB1501 and the Adaptive Management Program, provided the following background on this request:

1. Baseline and Trend Monitoring for Hydrologic Disconnection: The methodology for the monitoring shall be based off of Dube et al. (2010) and Martin (2009). The purpose of the monitoring for hydrologic disconnection is to establish a baseline and to monitor and report the change in hydrologic connectivity over time as the FRIA is implemented. The overarching goal is to ensure that all forest roads and landings shall be hydrologically disconnected to the maximum extent feasible from waters of the state. The Adaptive Management Program Committee shall use the results of the baseline and trend monitoring to develop regional goals consistent with that monitoring. All hydrologic connectivity data should be public and shared as it becomes available to help focus goals, identify accomplishments, and inform statewide learning.

¹ A summary of relevant OFPA road rules is provided in Appendix B.

2. Literature Review

Introduction

A large body of scientific literature details the impacts of forest roads on hydrologic processes. Reviews can be found in Dubé et al. (2004), the Private Forest Accord Report (2022), and Kastridis (2020). The factors controlling how overland flow and interception of subsurface stormflow by cutbanks concentrate runoff from roads and convey fine sediment and other materials to streams have been well studied using empirical and physically-based approaches. Rather than focusing on these well-studied impacts, this scoping proposal reviews relevant measurement and monitoring methods to answer the AMPC's research questions.

The literature review began with reports from Dubé et al. (2010) and Martin (2009), as these studies were cited in the Private Forest Accord (2022) as methods to follow. In contrast to the Eastern Steep Slopes Scoping Proposal, the IRST did not conduct a systematic review due to the limited timeframe and the existence of relatively recent and comprehensive reviews. Most reviewed literature was drawn from two resources: 1) a literature database maintained by the NW Forest Plan Aquatic and Riparian Effectiveness Monitoring Program (AREMP 2025a), and 2) literature compiled for the Trees to Tap report (Souder et al. 2020). These documents were initially screened by INR staff, and those that were deemed potentially relevant were reviewed by IRST members and INR staff to extract salient information. IRST members used their professional knowledge to identify additional documents to supplement this effort. In total, this literature review including scanning or integrating information across approximately XX publications.

Assessing connectivity between roads and streams requires a standardized definition (Furniss et al. 2000). The Oregon Forest Practices Rules (FPR) define hydrologic disconnection as “the removal of direct routes of drainage or overland flow of road runoff to waters of the state” (OAR 629-600-0100 (71)). However, the Oregon Forest Practices Rules (FPR) lack a definition of hydrologic connection. On 6 March 2025, the IRST accepted the following as its working definition of road-stream hydrologic connectivity (RSHC): “A road segment is considered hydrologically connected where surface runoff from road cuts, ditches, running surfaces, and fills exhibits a continuous surface flow path to a natural stream channel.” This definition was derived from the IRST's literature review and is used throughout the scoping proposal.

We reviewed the literature for methods of RSHC effectiveness monitoring that examined: 1) only the Hydrologic connection of water runoff between roads and streams, hereafter referenced as Hydrologic connectivity; 2) sediment inputs from roads to streams; 3) runoff and sediment effects on aquatic habitats; and 4) runoff and sediment effects on populations of aquatic species. The primary interest of AMPC appears to be the Hydrologic connections between roads and streams; however, the third question references achieving BGOs, which include both runoff and sediment as related to covered species habitat requirements. Given the AMPC questions and the Dubé et al. (2010) and Martin (2009) examples, the literature review prioritized methods for measuring or estimating connectivity. However, we also reviewed methods for estimating sediment inputs and impacts to habitat or aquatic species. Because of the overlap in methods among connectivity and sediment monitoring and habitat/population monitoring, the literature review was collapsed into two corresponding sections.

The full literature review is in Appendix C. Here we summarize the key takeaways considered in the developing the options presented in Section 3. The takeaways are organized under three principal aspects of option design: ways to measure connectivity, statistical sampling designs, and assessment of results.

Key Takeaways

Measurement

- A number of very site-specific factors can have a large influence on connectivity and sediment delivery, so field verification of conditions is still considered essential.
- Observer bias was substantial in field assessments of RSHC even with extensive training. Thus, enhanced standardized training and coordination in the field are recommended.
- Field measurement of connectivity and modeling of sediment are possible at a state-wide scale as demonstrated by Dubé et al. (2010). However, direct field measurements of sediment production and delivery from a census of road segments across a broad spatial extent, such as the area covered by the FPA, is infeasible.
- Numerous site-specific factors can influence connectivity and sediment delivery so that quantifying field covariates is essential for exploring relationships between RSHC and local conditions.
- Availability of models and improvements in remote sensing methods and GIS data may reduce the amount of field work needed, particularly when relative estimates of RSHC are sufficient.
- RSHC data to be collected under FRIA may complement but not fulfill the effectiveness monitoring needs for numerous reasons.

Sampling Design

- For large areas of interest, monitoring for RSHC requires sampling rather than a census of all roads.
- Because of the focus on hydrologic processes, most studies sampled and/or assessed based on hydrologic units, such as sub-watersheds; however, Dubé et al (2004) and Martin (2009) documented reasons to sample by land grids.
- Past studies have consistently determined that most impacts from RSHC are associated with relatively few road segments. These “high probability of delivery” segments can be identified and characterized using existing GIS data and modeling tools before going to the field. This focuses field data collection, potentially decreasing sampling costs or cost-effectively increasing sample size. However, applying such “pre-survey” approaches depends on the quality of GIS roads and streams data available.

Assessment

- Although the ultimate purpose of the road connectivity rules is to reduce impacts on aquatic habitats and organisms, measuring such impacts specific to the new road rules is likely infeasible given the large area involved, the cryptic nature of aquatic organisms, movement into the ocean by anadromous species, and multiple other confounding factors and mixed ownership patterns. Coordinating RSHC field sampling with existing habitat and population monitoring programs, however, could help understand these linkages in the future.
- Accurate estimates of the *absolute* amounts of sediment delivered to streams is infeasible over large areas. However, field measurement of road characteristics coupled with erosion and delivery modeling can provide *relative* measures of sediment inputs.
- Although most studies have addressed Hydrologic connectivity and sediment delivery together, connectivity can be addressed alone and would save on both field work and analysis resources.

- Dubé et al. (2010) were able to compare their connectivity and sediment results to Washington performance target ranges from prior agency work, however, performance targets have not been developed for Oregon.

3. Scoping Proposal Options

3.1 Introduction

Based on the results of our literature review, we provide options for RSHC status and trend monitoring (AMPC Questions 1 and 2). We do not address the full breadth of potential effectiveness monitoring approaches (Question 3) for habitat or populations. Rule effectiveness can be inferred from status and trends monitoring of RSHC and the likely reduction through time. More specific BGOs, monitoring metrics, and performance targets that would be necessary to quantitatively assess effectiveness are not finalized through a fully executed HCP. Thus, the options presented here are intended to support the eventual development of achievable targets for lowering RSHC through time.

Below we describe two primary survey options: 1) assessment of only the Hydrologic connectivity between roads and streams, and 2) assessment of connectivity with a modeled estimate of sediment delivery. We also provide two pre-survey options. These could be added to test and improve the digital (GIS) roads and streams data that will be used in planning the field survey, helping to better target where and what data are collected in the field.

3.2 Survey Options

Survey Option 1: Hydrologic Connectivity

Approach

This option documents the connectivity of surface runoff from roads to streams without collecting the parameters and other data required to model road-related sediment production and transport. The length of road-related features (e.g., road tread, road cuts, ditches, fill slopes) that capture and deliver water to streams will be measured in the field-for status and trend reporting. Based on GIS analysis, points of connectivity to natural water bodies (e.g., wetlands, lakes) other than streams, as defined in the Oregon Forest Practice Rules (FPR), will be included if these can be identified comprehensively in advance of or in conjunction with initial fieldwork.

Sampling Design

The two sampling approaches considered are the land-grid-based road census approach used by Dubé et al. (2010) and an approach that targets road segments most likely to have a high degree of RSHC. The latter approach would be watershed-based, sampling within 12th code hydrologic units (HUC 12) that have significant private forestland ownership. The watershed-based approach entails a pre-survey step to identify the road segments with a high probability of delivering sediment using a GIS-based road-stream proximity assessment.

Either approach will require a large random sample to provide valid statistical data to draw inferences and detect trends across the state of Oregon. The sample could be stratified by landowner type (large/small) and geography (eastside/westside). These four sampling frames are hereafter referred to as “strata.” A statistical power analysis will be necessary to determine the sample size needed for each stratum and sampling period to reliably evaluate the baseline status and detect trends.

Numerous sampling designs are possible for trend analysis, including paired, unpaired, and rotating panel designs.

Data Collection Methods

We envision data collection methods similar to the field protocol of Dubé et al. (2010), as described in Watershed Professionals Network (2009) with potentially more recent updates (e.g., Bohle and Dubé 2016). Field crews will drive roads included in the sample and use GPS to spatially record features indicating various types and levels of connectivity (such as the five types in Dubé et al. (2010)). Crews will measure variables describing and affecting pathways for delivery of runoff from each sampled road segment. Typical variables would include ditch lengths, road segment slope, and road surface type. Field crews will be sufficiently trained to competently reduce within- and among-observer errors to within specified tolerances (TBD) and a QA/QC program will be developed to quantify data collection variability.

Baseline Status and Trend Analysis

As part of this study, summary statistics will be calculated on each measured variable related to RSHC for each reporting unit (e.g., all the roads in a watershed or land grid). The baseline status will be summarized by strata (landowner class in each geo-region). Depending on the sampling approach, the summarized baseline status would be something like the length of connected road over total road length (or sampled area) or length of actually connected road per length of potentially connected road.

To establish the pre-PFA baseline status for Hydrologic connectivity, ODF records of road work completed since January 2024 will be used. New FPRs went into effect in 2024, including the FRIA process that directed large landowners to begin, as soon as possible, identifying and remediating high conservation value sites. These are areas known to have road stream connectivity or chronic sedimentation. Small landowners are exempt from FRIA but must conduct a Road Condition Assessment (RCA) for roads used in active harvest operations. Data from FRIA and RCA would help identify road segments affected by these post-rule changes, which then could either be dropped from the sample or assumed connected in the baseline.

AMPC question 2 requests a trend analysis at 5-year intervals, which seems reasonable given the 20-year timeframe of the FRIA process and the remediation of the worst roads in the first five years. The request for a specific design of repeated sampling through time would be integrated into the Request for Proposals.

Reporting

The baseline status of Hydrologic connectivity at each sampling interval, and trends over time between intervals, will be reported for each stratum. Potential metrics include:

- Total road length draining to streams.
- Density of roads and road length draining to streams (road miles/sq mi).
- Percent of road network draining to streams.
- Miles of roads delivering to streams per miles of stream.
- Average percentage of high probability road length delivering to streams.

- Characteristics of delivering road segments, including the portion of road cross section that is connected to streams.
- Presence of or delivery to adjacent wetlands and lentic water bodies (i.e. lakes).
- Regression plot of the estimated percentage of roads that meet current BMPs vs. percentage of high probability road length delivering to streams.

Landowner-specific information collected in the sample will not be identified in any reporting and will be held confidential.

Timeline

Determining baseline status for this project should entail 6–12 months to prepare for sampling, one or two field seasons to collect field data, and 6–12 months for data analysis. The final report on baseline status results would be expected in about 3 years from project initiation.

For trends, the sampling interval will likely be at least 5 years and the duration at least 20 years. The 3-year timeline projected for the baseline status will apply for each iteration of trend sampling, but with some time savings likely in subsequent sampling periods.

Table 2. Timeline for Option 1.

Task	Who	Estimated Time Needed (months)
Administrative Start up (i.e., contracting, etc.)	OSU/INR	2
Initial planning	IRST & Contractor	1
Site selection & screening,	Contractor	4
Recruitment & training of field teams	Contractor	6
Landowner permissions and access coordination	Contractor	2
Field sampling	Contractor	10
Data analysis & report writing	Contractor	8
IRST review	IRST	1
Final report	Contractor	1
Administrative closing	OSU/INR	1
Total		36

Costs

There is insufficient information to estimate sampling densities needed for different levels of statistical certainty or the potential cost differences between alternative sampling approaches at this time. Thus, costs and precision related to the Dubé et al. (2010) study are assumed to provide an adequate basis for this scoping proposal. Dubé sampled 60 land blocks, which they estimated would provide a statistical power of 80% to detect a change of 30% in delivering road length on a statewide basis.

CMER recorded an overall cost of \$878,000 for the Dubé study (which probably did not include some additional CMER staff time). Using an inflation calculator for 2007 (midpoint of the 2006–2008 monitoring

effort) to 2025 provides an overall cost equivalent of \$1.35 million. Based on the line-item budget in the pilot study (Raines et al. 2005), not collecting and analyzing data needed for the sediment modeling is estimated to reduce the costs by 20%, resulting in a cost estimate of approximately \$1.1 million for the baseline sampling event. Raines et al. (2005) estimated costs would be approximately 25% less for a second round of sampling after five years resulting in an estimate of \$800,000 for each of the second and subsequent iterations.

If AMPC desires to detect changes at the sub-state level (east/west, large/small landowners) with a similar amount of statistical power, the same number of samples may be required for each of these strata. Thus, four strata may require 240 sampling units and cost approximately \$4.4 million for the initial sampling iteration.

Other factors affecting costs:

- Field time, including travel between sites and rigor of field measurements.
- Whether field data collection can target only the road segments likely to be connected i.e., proximate to streams versus a complete census of roads in the sample.
- Whether road segments can be characterized from high-resolution LiDAR, reducing the metrics for which data collection in the field is required.
- The number of strata for which hydrologic connectivity is to be estimated.
- Sampling frequency.

Knowledge Contribution

- Assesses only the hydrologic connectivity between roads and streams (no estimate of sediment contributions).
- Characterizes the length of road segments identified as draining to streams by a number of measures (% of total, per stream mile, etc.)
- Result metrics, all based on the length of road segments identified as draining to streams, would include: total length, percent of road network, length per mile of stream.
- If additional road characteristics are collected (cutslope vegetation, road surface type), connectivity could additionally be reported by these categories.
- Can inform the development of performance targets and effectiveness of road rules at achieving BGOs related to hydrologic disconnection.
- Cannot support quantitative targets or effectiveness for sediment-related BGOs, although a more qualitative assessment of sediment could be inferred from levels of hydrologic connectivity but with a lower level of confidence than Option 2.
- Faster and less expensive than Option 2 due to less field time and data processing.

Survey Option 2: Hydrologic Connectivity Plus Modeled Estimates of Sediment Delivery Approach

This effort expands the field sampling, analysis, and reporting of Survey Option 1 to include modeled estimates of sediment generated by roads and delivered to streams both episodically and annually.

Field Methods

The field methods for this option require data collection to support modeling the estimated amounts of sediment generation and delivery. Raines et al. (2005) describes the types of variables for which field data will be collected. These include variables such as road surface, road age, and cut slope vegetation coverage. Other needed variables (e.g., road traffic or maintenance activities) may be derived from landowner interviews. The exact variables will depend on the model selected.

Baseline and Trend Analysis

Similar to Survey Option 1, with the addition of all variables that relate to the generation and delivery of sediment to streams (e.g., surfacing, traffic, age, cut slope vegetation coverage), and a modeled estimate of the amount of sediment delivered by the surveyed road segments per year. Estimates of sediment delivered could be stratified across landowner type and region and analyzed through time as the FPRs are implemented.

Reporting

Reports will include the baseline status of hydrologic connectivity plus sediment delivery at each sampling interval, and trends over time between intervals, for each stratum. The following metrics will be included in addition to those in Survey Option 1:

- Density of sediment delivery to streams (tons/sq mi/year).
- Volume of road sediment delivered to streams per mile of stream (tons/stream mi/year).
- Characteristics of high delivery road segments (surfacing, traffic, etc.).
- Sediment delivery to adjacent wetlands and lentic water bodies that may store/divert delivery to streams.
- Expected sediment delivered by certain levels of storm/meltwater runoff events.

Landowner-specific information collected in the sample will not be identified in any reporting and will be held confidential.

Timeline

Determining the baseline for this project should be the same as for Option 1, requiring 6-12 months to prepare for sampling. However, field sampling and data analysis will take longer than for Option 1 given the need to collect and analyze sediment data. Thus, two seasons will likely be necessary to collect field data, and 15 months for data analysis. The final report for baseline results would be expected in about four years from project initiation.

For trends, the sampling interval will likely be at least five years and the duration at least 20 years. The four-year timeline projected for the baseline will apply for each episode of trend sampling, but with some time savings likely for subsequent sampling periods.

Table 3. Timeline for Option 2.

Task	Who	Estimated Time Needed (months)

Administrative Start up (i.e., contracting, etc.)	OSU/INR	2
Initial planning	IRST & Contractor	1
Site selection & screening	Contractor	4
Recruitment & training of field teams	Contractor	6
Landowner coordination & interviews	Contractor	4
Field sampling	Contractor	12
Data analysis & report writing	Contractor	15
IRST review	IRST	1
Final report	Contractor	2
Administrative closing	OSU/INR	1
Total		48

Cost

Costs are estimated based on the Dubé et al. (2010) study, similar to Option 1. To establish a statewide connectivity baseline with sediment modeling would cost an estimated \$1.35 million. Subsequent iterations on five-year intervals would cost approximately 25% less, resulting in an estimate of \$1 million for each round of sampling. If AMPC desires to detect changes at the sub-state level (east/west, large/small landowners) with a similar amount of statistical power, the same number of samples may be required for each of these strata. Thus, four strata may require 240 sampling units and cost approximately \$5.4 million for the initial sampling iteration. Costs may be reduced if field data collection can target only the road segments likely to be connected and if road segments can be characterized from high-resolution LiDAR data, reducing the metrics for which data collection in the field is required.

Knowledge Contribution

Same as for Survey Option 1, except that Option 2:

- Assesses hydrologic connectivity between roads and streams and models associated amounts of sediment delivery.
- Outputs would include all the connectivity-only metrics listed in Option 1, plus the modeled tons of road sediment delivered to streams.
- Includes additional road characteristics needed for sediment modeling (cutslope vegetation, road surface type, traffic levels) that will be reported by road length.
- Provides a baseline status estimate in approximately four years after project initiation. An initial trend estimate could likely be available five years after the baseline.
- Can inform the development of performance targets and the effectiveness of road rules at achieving BGOs related to hydrologic disconnection and sediment delivery.
- Estimated time line is one year longer and costs are ~20% higher than Option 1.

3.3 Pre-survey Options

Pre-survey Option 1: Assessing Roads and Streams Digital Data

Approach

As described in Options 1 and 2 above, one potential way to boost sampling efficiency would be to preselect and sample only road segments with a high probability of being hydrologically connected, using either a simple distance buffer or one of the RSHC models. However, the utility of these locations for field work and eliminating potential sampling bias will depend on the accuracy of the stream and road data used to identify field sampling locations.

ODF's hydrography layer derived from LiDAR and ODF's transportation layer (both available from their [GIS Data Hub](#)) are considered the most comprehensive coverages available for private forestland in Oregon. However, the accuracy of the layers is not well quantified. Thus, using these layers to guide sampling for RSHC may introduce an unknown level of bias into estimates. For example, road locations that are inaccurate could result in higher or lower estimates of the true probability of RSHC.

Here, we propose to quantify and address potential biases of inaccurate hydrography or transportation layers through validation sampling. If the existing ODF transportation and hydrography layers have a desired level of accuracy, estimates of baseline status and future RSHC will have lower levels of bias. Conversely, if either layer is less accurate than desired, these will need to be improved or cannot be used to preselect road segments for field data collection in Survey Options 1 and 2.

Developing an improved transportation layer, for example, could be achieved by interpreting LiDAR data or by a field-mapped census. It may also be possible to draw on the complete census of roads being developed by large landowners through the FRIA process, but that census will not be available until January 1, 2029 and excludes small landowners.

Two time periods are proposed for assessing the accuracy of ODF's hydrography and transportation layers.

- A state agency, INR, or other organization could validate and estimate accuracy prior to publishing the Request for Proposal (RFP) for the Roads Questions.
- Alternatively, validation sampling could be incorporated into the RFP as an additional project component.

In either case, if the accuracy of the layers is lower than desired, additional mapping of roads and streams may be necessary in the geographic areas (e.g., sub-watersheds) selected for study. The sooner this is determined, the greater the certainty in approach as well as cost and time estimates for Survey Options 1 and 2 above.

Timeline

Evaluation of the hydrography and transportation layers could be undertaken prior to publishing a full survey RFP or as part of the full survey RFP before sending crews to the field. We estimate it will take one to three person-months of effort to complete, with a likely overall timeline of three to six months. If

improved roads or streams layers are desired, a separate timeline for that work would need to be developed.

Cost

We estimate it will take one to three person-months of effort to complete at a cost per person-month of about \$10,000, yielding a total cost estimate of \$10,000 - \$30,000. Testing (and possibly improving) these layers may also decrease costs of the full Survey Options 1 and 2 by reducing the amount of field sampling needed.

If this initial assessment shows a need to develop improved transportation or stream layers, that will require a separate cost estimate. We cannot develop that additional cost estimate until the initial evaluation of data quality is completed.

Knowledge Contribution

Estimating the accuracy of these layers could enhance the sampling design by reducing required sample sizes, facilitating selection of a relatively unbiased sample of field sites, and allowing use of the methods described in Survey Options 1 and 2 that target field sampling at the road segments most likely to be hydrologically connected. These benefits are possible only if the existing transportation and stream layers are deemed sufficiently accurate or are improved after evaluation.

Pre-survey Option 2: GIS-LiDAR Road Segment Analysis

Approach

Identifying road segments and measuring the associated attributes needed for RSHC analysis and sediment modeling takes considerable time in the field. The literature suggests that GIS (desktop) analysis prior to fieldwork could be used to generate road segments and properties from publicly available airborne LiDAR data. The goal of this option would be to test whether such an approach improves the accuracy and efficiency of road segment creation and the quantification of segment characteristics needed for RSHC analysis.

After overlaying the ODF road network atop airborne LiDAR, flow routing algorithms and other GIS tools could be used to distinguish road segments and attribute those segments with estimates of relevant properties, including length, slope, configuration, ditch width/position, cut slope height, tread width, and other geometric data. Field crews could then focus on documenting site-specific information such as road surfacing.

This approach would require workflow development and testing before adoption and rollout for field crews. Also, some legacy (or older) LiDAR datasets have lower point density, thus testing would be necessary to determine whether data limitations exist. Field validation would also be needed to assess the accuracy of this approach.

Timeline

A detailed timeline for this pre-survey option is presented below (Table 4).

Table 4. Timeline for Pre-survey Option 2.

Task	Who	Estimated Time Needed (months)
Administrative start up (i.e., contracting, etc.)	OSU/INR	2
Initial planning	IRST & Contractor	1
LiDAR data acquisition and initial processing	Contractor	1
Terrain analysis and feature extraction	Contractor	1
Identification of road features	Contractor	1
Road extraction, testing, and refinement	Contractor	2
Post-processing, vectorization, and characterization	Contractor	2
IRST review	IRST	1
Final report	Contractor	1
Administrative closing	OSU/INR	1
Total		13

Cost

Eight months of contractor time would be needed, and assuming a cost of \$10,000 per person-month, the estimated cost for this option is \$80,000.

Knowledge Contribution

This option has the potential to reduce the time (and funding) needed for field crews to collect geometric data and instead focus their efforts on acquiring other relevant data. It is anticipated there would be cost savings and/or an expansion of the number of sample sites or length of roads assessed for RSHC.

3.4 Options Summary Table

The two primary survey options and two pre-survey options differ in time required, cost, and knowledge contributions (Table 5).

Table 5. Summary of scoping proposal options, timeframes, costs, and knowledge contributions.

Option	Estimated Timeframe (months)	Cost	Knowledge Contributions
Survey Option 1: Hydrologic Connectivity Only	36 months	\$1.1-\$4.4 million (for baseline sample)	- Assesses only the hydrologic connectivity between roads and streams (no estimate of sediment contributions). - Characterizes the length of road segments identified as draining to streams by a number of measures (% of total, per stream mile, etc.). - Can inform performance targets and effectiveness of road rules at achieving BGOs related to hydrologic disconnection. - Faster and less expensive than Option 2 due to less field time and data processing.
Survey Option 2: Hydrologic Connectivity + Sediment Modeling	48 months	\$1.35-5.4 million (for baseline sample)	- Assesses hydrologic connectivity between roads and streams and models associated amounts of sediment delivery. - Outputs would include all the connectivity-only metrics listed in Option 1, plus the modeled tons of road sediment delivered to streams. - Can inform the development of performance targets and the effectiveness of road rules at achieving BGOs related to hydrologic disconnection and sediment delivery. - Estimated time line is one year longer and costs are ~20% higher than Option 1.
Pre-survey Option 1: Digital Data Accuracy Assessment)	6 months	\$10-30k	- Increases confidence that sampling locations selected are a relatively unbiased sample. - Reduces time and expense by limiting field data collection to road segments with a higher probability of connectivity.
Pre-survey Option 2: GIS-LiDAR Road Segmentation	8 months	\$80k	- Reduces time and expense by limiting the data collected in the field on each road segment. - Improves the accuracy and consistency of road segment data.

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5. Appendices

Appendix A. AMPC Research Questions Package

Finalized research questions

These finalized research questions were approved by the AMPC at the June 24 2024 AMPC meeting.

4. Baseline report
 - d. What is the baseline status of hydrologic connectivity of roads prior to the implementation of the OFPA road rules effective Jan 1, 2024?
 - e. How does the status of hydrologic connectivity differ based on landowner type and East/West region?
 - f. How do particular elements of the regulatory framework (e.g., road location) or site characteristics (e.g. geology) contribute to hydrologic connectivity?
5. Trend monitoring
 - b. What are the trends in the status of hydrologic connectivity of roads over 5-year intervals? These trends should be assessed for the same variables in question 1.
6. Determination of rule effectiveness
 - b. Within 25 years, to what extent are road rules associated with hydrologic disconnection effective at achieving BGOs?

Preliminary Research Questions Package: Contextual Information

The remainder of this document provides contextual information that details the context for the preliminary research questions, as required by rule². The following are organized per the elements in this rule.

B.1 The type of research³

This research is of type OAR 629-603-0100(1)(a): *“Conduct effectiveness monitoring by assessing the degree to which the rules facilitating particular forest conditions and ecological processes achieve the biological goals and objectives. This assessment may include evaluation of cumulative effects.”*

B.2 The rule, biological goals and objectives (BGOs), or other issue being studied⁴

Note that the most recent version of the BGOs is in the Dec. 2022 draft HCP. The BGOs will be finalized within the HCP due Dec. 31, 2027. The BGOs are listed below with those applicable to these questions in bold italic:

² OAR 629-603-0200 (3)(a)

³ OAR 629-603-0200(3)(a)(A)

⁴ OAR 629-603-0200(3)(a)(B)

“Overarching Goal: Forest practices that support the survival and recovery of the covered species by providing clean, cool, connected, and complex habitats.

Goal 1: Provide clean water and substrate for the covered species.

- ***Objective 1.1 - Forest practices near streams minimize sediment delivery.***
- ***Objective 1.2 – Slope Retention Areas reduce episodic sediment delivery to fish-bearing streams.***
- ***Objective 1.3 – Road runoff directly to streams is minimized.***
- ***Objective 1.4 – Roads are not a significant source of episodic sediment delivery to streams.***

Goal 2: Shade and watershed processes controlling stream temperature provide cool water compatible with the needs of the covered species.

- ***Objective 2.1 – Forest practices maintain stream shade sufficient to support desired cool water temperatures on fish-bearing streams.***
- ***Objective 2.2 – No-harvest RMAs maintain stream shade sufficient to support desired cool water temperatures for covered amphibians.***
- ***Objective 2.3 – Forest practices near non-fish-bearing perennial streams do not notably increase water temperatures in fish-bearing streams.***

Goal 3: Stream network connectivity satisfies freshwater habitat needs for covered species.

- ***Objective 3.1 – Road crossings on fish-bearing streams are passable by the covered fish species.***
- ***Objective 3.2 – Forest practices maintain the hydrologic continuity of stream-associated wetlands and stream-adjacent seeps and springs to stream habitats.***
- ***Objective 3.3 – Timber harvest maintains stream-associated connectivity in riparian areas along non-fish streams sufficient to support covered amphibians.***

Goal 4: Riparian areas function to support complex habitats for the covered species.

- ***Objective 4.1 – Mature, complex riparian forests are fostered in no-harvest zones of RMAs.***
- ***Objective 4.2 – Forest practices within tree retention areas of RMAs promote delivery of large wood.***
- ***Objective 4.3 – Designated Debris Flow Traversal Areas function to deliver large wood to fish-bearing streams.***
- ***Objective 4.4 – Forest practices maintain stream-associated wetlands and stream-adjacent seep and spring habitat for amphibians.”***

B.3 The objective of the research⁵

⁵ OAR 629-603-0200(3)(a)(C)

1. To assess the current (baseline) status and trend of roads that are hydrologically connected to streams, and how those vary with practice, region, landowner type, and other relevant strata.
2. Determine the effectiveness of road rules associated with hydrologic disconnection at achieving BGOs.

B.4 A brief description of the context of the research question⁶

The following direction was provided in the PFA Report and provides the foundation for these research questions:

“4.3.5 Hydrologic Connectivity in Forest Practice Rules (FPR) Revisions and Proposed Inventory Processes

Hydrologic connectivity occurs where road and ditch runoff is delivered to the natural stream channel system. Roads can generate overland flow due to the relatively impermeable surface of the road prism and can also intercept interflow at cut slopes, effectively converting subsurface flows to surface flows. When these surface flows have a continuous flow path between the road prism and a natural stream channel, hydrologic connectivity occurs (Furniss et al., 2000, pp. 5-6). As Furniss et al. describe, “a hydrologically connected road becomes part of the stream network” (pp. 5-6).

Hydrologically connected roads can deliver increased runoff, sediment, and chemicals associated with roads, such as spills or oils generated on the road surface or cut slope. At the watershed scale, connections between roads and streams can also alter the drainage density of the watershed and change runoff frequency and magnitude (See Furniss et al., 2000; Weaver et al., 2015).

The Authors agree that the goal of disconnecting roads and streams is to minimize sediment delivery, hydrologic change, and risk of road pollutants entering waters of the state.”

4.3.10 Development of Monitoring Requirements

The Independent Research Science Team (IRST) created under the PFA shall design and oversee baseline and trend monitoring for hydrologic disconnection. Compliance monitoring will be conducted through the Department’s process.

1. ***Baseline and Trend Monitoring for Hydrologic Disconnection:*** *The methodology for the monitoring shall be based off of Dube et al. (2010) and Martin (2009). The purpose of the monitoring for hydrologic disconnection is to establish a baseline and to monitor and report the change in hydrologic connectivity over time as the FRIA is implemented. The overarching goal is to ensure that all forest roads and landings shall be hydrologically disconnected to the maximum extent feasible from waters of the state. The Adaptive Management Program Committee shall use the results of the baseline and trend monitoring to develop regional goals consistent with that monitoring. All*

⁶ OAR 629-603-0200(3)(a)(D)

hydrologic connectivity data should be public and shared as it becomes available to help focus goals, identify accomplishments, and inform statewide learning.”

B.5 Other information the AMPC deems necessary for the IRST’s work⁷

1. It is essential to maintain the role of the regulatory framework (the OFPA) throughout the design and implementation of studies, including the following considerations:
 - a. There are two stratum classifications:
 - A. FPA regions, of which there are two - East and West of the Cascade Mountains.
 - B. Landowner classifications in the FPA (of which there are two, each with a different regulatory framework for roads) – 1) small forestland owners (RCA); 2) large forestland owners (FRIA).
 - b. Assessments should differentiate Type F, SSBT, and N streams, but the design need not be stratified by stream type. Additional attributes listed in Dube et al. (2010) should also be considered.
2. The AMPC wants to know how metrics of interest (e.g., sediment delivery from roads) compares with background levels.
3. Ideally, the baseline would be for the effective date for the road rules (Jan. 1, 2024); however, the AMPC recognizes that it will take time to refine and scope the research questions, decide on the research agenda, develop and then award the RFP.
4. Research should include field data.
5. When assessing effectiveness of rules, it would be helpful to understand results both individually and cumulatively.
6. This entire research question package would be very complex, long, and expensive to implement as a single research project. Thus, the AMPC would appreciate the IRST dividing up this research question package into discrete projects and developing scoping proposals (per OAR 629-603-0200(4)) for each one.

⁷ OAR 629-603-0200(3)(a)(E)

Appendix B. Road rules relevant to the IRST's work on hydrologic connectivity

This document provides the rules that are relevant to the work of the Adaptive Management Program regarding hydrologic connectivity of roads, along with clarifying summaries where needed. These rules are provided to help the IRST develop a scoping proposal per OAR 629-603-0200(4)(c) in the context of the question package from the AMPC with the finalized research questions. Clarifications are added via comments. Parts of rules that are irrelevant to hydrologic connectivity have been omitted for brevity and focus.

OAR 629-625-0000 Purpose

- (3) The purpose of the road construction and maintenance rules is to establish standards for locating, designing, constructing, and maintaining efficient and beneficial forest roads;...; identifying active and inactive roads that ... contribute sediment to waters of the state, to correct conditions; and to vacate roads, rock pits, and quarries that are no longer needed in manners that provide the maximum practical protection to maintain forest productivity, water quality, and fish and wildlife habitat.
- (4) To achieve the goals of the division, all roads will be designed, constructed, improved, maintained, or vacated to:
 - (a) Prevent or minimize sediment delivery to waters of the state;
 - (f) To the maximum extent practicable, hydrologically disconnect forest roads and landings from waters of the state;

OAR 629-625-0300 Road Design

- (3) The department shall publish Forest Practices Technical Guidance that explains how to avoid and prevent potential impacts to fish, wildlife, habitat resources, and waters of the state, in support of the following rules:
 - (g) OAR 629-625-0330(1) to explain how to implement rules to hydrologically disconnect forest roads and landings from waters of the state.

OAR 629-625-0320 Water Crossing Structures

- (10) Construction of Water Crossings. In the construction of water crossings, operators shall do the following:
 - (b) Runoff, Erosion and Sediment. Operators shall control runoff, erosion, and sediment through the following actions:
 - (A) Include a site-specific erosion and sediment control plan as part of a written plan prior to beginning work. This plan must include, but is not limited to:
 - (i) A site plan with a description of the methods of erosion or sediment control;

- (iii) Measures to disconnect road surface and ditch water from all typed waters and lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, wetlands, inlets, and canals.

OAR 629-625-0330 Drainage

- (1) All active, inactive, and vacated forest roads and landings shall be hydrologically disconnected to the maximum extent practicable from waters of the state to minimize sediment delivery from road runoff and reduce the potential for hydrological changes that alter the magnitude and frequency of runoff. Operators shall locate drainage structures based on the priority listed below. When there is a conflict between the requirements of sections (2) through (7) of this rule, the lowest numbered section takes precedence and the operator shall not implement the later numbered and conflicting section.
- (2) Operator shall not install cross-drains and ditch-relief culverts in a way that causes stream diversion.
- (3) Operators shall not concentrate road drainage water into headwalls, slide areas, high landslide hazard locations, or steep erodible fill slopes.
- (4) Operators shall not divert water from stream channels into roadside ditches.
- (5) Operators shall install drainage structures at approaches to stream crossings to divert road runoff from entering the stream. If placement of a single drainage structure cannot be placed in a location where it can effectively limit sediment from entering the stream, then additional drainage structures, road surfacing, controlling haul, or other site-specific measures shall be employed so that the drainage structure immediately prior to the crossing will effectively limit sediment from entering the stream. Operators may also use best management practices to manage sediment at the outflow of the drainage structure nearest to the crossing.
- (6) Operators shall provide drainage when roads cross or expose springs, seeps, or wet areas.
- (7) Operators shall provide a drainage system that minimizes the development of gully erosion of the road prism or slopes below the road using grade reversals, surface sloping, ditches, culverts, water bars, or any combination thereof. For new road construction, operators shall use out sloping to the maximum extent practicable when site-specific conditions allow for its safe and effective use.

OAR 629-625-0600 Road Maintenance

- (1) The purpose of this rule is to protect water quality and ensure hydrologic disconnection of roads from waters of the state to the maximum extent practicable by timely maintenance of all active and inactive roads. Road surface must be maintained as necessary to:
 - (a) Minimize erosion of the surface and the subgrade;
 - (b) Minimize direct delivery of surface water to waters of the state;
 - (c) Minimize sediment entry to waters of the state;
 - (d) Direct any groundwater that is captured by the road surface onto stable portions of the forest floor;

- (e) Ensure properly functioning and durable drainage features; and
- (f) For existing roads with inboard ditch, avoid overcleaning of ditch lines.

OAR 629-600-0100(71) "Hydrologic disconnection" means the removal of direct routes of drainage or overland flow of road runoff to waters of the state.

Note: there is no rule-based definition of hydrologic connectivity.

Appendix C. Literature Review

For our literature review, we considered relevant measurement and monitoring methods for road-stream hydrologic connectivity (RSHC) that focused on: 1) simply the Hydrologic connection of water runoff between roads and streams; 2) sediment inputs from roads to streams; 3) runoff and sediment effects on aquatic habitats; and 4) runoff and sediment effects on aquatic species populations. Given the AMPC questions and the Dubé/Martin examples, we focused on methods for measuring or estimating Hydrologic connectivity and sediment inputs, but we also include information on a few studies and monitoring programs that include RSHC-related habitat and species metrics. Because of the overlap in methods between connectivity/sediment monitoring and habitat/population monitoring, the review has been collapsed into two corresponding sections.

Hydrologic Connectivity and Sediment Delivery Monitoring

In a forested landscape, runoff and associated chronic sedimentation are primary concerns from road-stream connectivity on aquatic species; thus, several methods have been devised to characterize these processes. Predictive models have emerged from this knowledge base and are increasingly used to estimate water and sediment inputs from roads to streams in a wide array of geologic and ecological settings (Fu et al. 2010). The literature tends to address hydrological connectivity and sediment delivery together, with the former being an element of and precursor to the latter. Martin (2009) is an exception in that only connectivity was measured.

Measuring RSHC

To characterize RSHC, roads are typically divided into segments that drain to a common point and share other related characteristics (e.g., surfacing, traffic, slope). All the efforts reviewed based their data collection and analyses on road segments, although their delineation methods varied.

Field methods

For the Dubé et al. (2010) study, Hydrologic connectivity was determined visually by field crews using a flow chart protocol (Watershed Professionals Network 2009). Six categories of connectivity were recorded in the field assessment: 1) none; 2) direct delivery; 3) 35% delivery; 4) 10% delivery sediment plume reaching or nearly reaching a stream; 5) direct via gully or from road structure; or 6) a road paralleling a stream within 20 ft. They implemented a quality assurance/quality control (QA/QC) protocol and found observer differences to be substantial, which they addressed through further training and mixing of teams. Martin (2009) did not describe RSHC determination methods, however, they are assumed to be similar to those used by Dubé et al. (2010). For modeling sediment delivery, field crews measured numerous aspects of delivering road segments, such as slope, surfacing, maintenance level, ditch conditions, cutslope conditions, and vegetation.

Several field methods have been developed to improve accuracy of estimates of sediment contributions to streams from RSHC, by directly measuring sediment outputs from road segments. These include tipping buckets, sediment traps, and visual observations of runoff turbidity (Skaugset et al. 2011). Logistics limit actual field sampling of sediment to relatively small areas. Thus, monitoring sediment delivery at the scale envisioned by AMPC has generally been done using models with various levels of field calibration.

GIS/Remote Sensing

Remote sensing and GIS analysis have been increasingly used to identify and characterize forest roads and RSHC. Given the limitations of optical imagery in dense, closed canopy forests, much of the relevant literature focuses on airborne LiDAR, which can penetrate canopy and achieve moderate-to-high 'bare earth' point density.

Several studies have tested the ability of airborne LiDAR data to map road networks and demonstrate that airborne LiDAR can be used to map road networks with high accuracy (Kardoš et al. 2024), including abandoned/deactivated roads (Beck et al. 2015; White et al. 2010). Early efforts involved manual GIS work to map road surfaces from LiDAR-derived coverages, but recent studies highlight the efficacy of automated tools for road network extraction (Even and Ngo 2021; Ferraz et al. 2016; Wiskes et al. 2023). GIS tools using LiDAR enable the quantification of road geometry, such as segment length, width, slope, cutbank height, and more, with high accuracy (Hatta Antah et al. 2021; Pradhan and Ibrahim Sameen 2020). A multitude of studies have used GIS tools to map and quantify road-stream hydrologic connectivity by using flow routing algorithms to intersect road drainage flow paths with stream layers and drainage features (Benda et al. 2019; Roelens et al. 2018). These RSHC approaches have been applied in steep as well as gentle settings and can be used to generate maps of connected road systems or revise existing maps of road-stream connectivity to inform field surveys and facilitate validation (Benda et al. 2016). GIS analysis has been shown to be effective for assessing road status (e.g., active, abandoned) and quality (e.g., structural condition, surface geometry, ditches) over relatively large areas, which greatly reduces the need for extensive field surveys (Waga et al. 2020a, 2020b).

Modeling

Numerous models have been developed to estimate runoff and sediment yield from forest roads. Two types of models are generally used: empirical and physical process-based (Elliot et al. 2009; Fu et al. 2010).

Empirical models apply relationships describing sediment production and delivery derived from research on road erosion (e.g., WARSEM [Washington Road Sediment Estimation Model, Dube et al. 2004], USLE/RUSLE [Universal Soil Loss Equation/Revised] (Dissmeyer and Foster 1980), GRAIP and GRAIP-lite [Geomorphic Road Analysis and Inventory Package] (Black et al. 2012; Cissel et al. 2012; Nelson et al. 2014). The GRAIP and most other of the empirical models predict road to stream hydrologic connectivity, sediment production and delivery to streams, downstream sediment accumulation, risks of shallow landslides caused by roads, gully initiation risk below drain points, and risks to road-stream crossings (Black et al. 2012; Cissel et al. 2012). The NW Forest Plan Aquatic and Riparian Effectiveness Monitoring Program (AREMP; Dunham et al. 2023) used the GRAIP-lite model to assess RSHC and sediment delivery. These empirical models all use similar basic inputs on road characteristics to estimate sediment production from surface erosion.

Physical process-based models simulate the finer scale subprocesses that determine runoff, such as infiltration, routing, and soil cohesion. They can use regionalized parameters for inputs and can provide estimates of sediment production from individual road segments (e.g., WEPP:Road [Water Erosion Prediction Project] (Elliot 2013), DHSVM [Distributed Hydrology Soil Vegetation Model] (Wigmosta et al. 2002), and whole watersheds (e.g., READI [Road Erosion And Delivery Index]) (Benda et al. 2019).

Tests of both types of models using field-measured sediment production show they can provide reasonable relative delivery estimates over multiple sampling locations, but that they may be inaccurate for individual locations, sometimes by large amounts (Bohle and Dubé 2015; Dubé et al. 2011; Faubion 2020; Fu et al. 2010; Skaugset et al. 2011). Calibrating the models with local sediment production data can improve the accuracy of estimates (Bohle and Dubé 2015). Despite issues with accuracy, models are useful for generating relative estimates of sediment production, which can identify road segments with the highest probability of delivering the most water and sediment to streams. Relative estimates can also be used as a proxy for measuring change in sediment inputs, for example, where efforts have been made to reduce RSHC.

Sampling Design

Spatial Sampling

For field-based studies or field-calibrated models, if the area of interest is small it may be possible to collect measurement on the complete road network (a full census). However, when field-based methods are desired over a large area selecting samples based on a predetermined design will be necessary, given costs and time constraints. Raines et al. (2005) (the pilot study for Dubé et al. 2010) considered sampling by Washington sub-basins (average area 6.26 mi²), but rejected that idea because statewide mapping was incomplete. Instead, they opted for six square mile sample units based on aggregating quarter sections from the general land survey (Dubé et al. 2010 reduced these units to four square miles). A potential benefit was that sections were more likely to follow property lines creating efficiencies with landowner contacts. However, effects on aquatic systems may be better characterized using subwatersheds, which have been mapped at multiple spatial scales for the entire state of Oregon (<https://geohub.oregon.gov/datasets/oregon-geo::12-digit-hu-subwatershed/explore>).

For larger areas, it may not be necessary to sample depending on the information desired and whether accurate and comprehensive mapping is available for both roads and streams. For example, AREMP was able to model RSHC for all roads in their area of interest with the uncalibrated GRAIP-lite model based on a compilation of agency road inventories. However, the only road condition change categories available consistently included road segments that were active or decommissioned, thus limiting the detail of the results. FRIA will create another example of a census approach in which large landowners are required to conduct a complete inventory of their roads, but the information collected will be limited.

Covariates / Sampling Stratification

Road-stream hydrologic connectivity and sediment delivery have been found to be influenced by both human-caused factors (e.g., location, surfacing, traffic) and environmental factors (e.g., slope, soils, geology, rainfall patterns) (Kastridis 2020). Covariates reflecting such factors can be either explicitly integrated into the sampling design or data about these can be collected during field work and analyzed post hoc. The former increases chances that statistically-based conclusions can be generated but also increases the sample size needed for each covariate.

AMPC question 1b asks how results vary by OFPA landowner type, which are divided into large (>5,000 acres) and small landowners, and by OFPA geographic region (east/west). Dubé et al. (2010) did not stratify by ownership types but encountered challenges aggregating sufficient blocks in more fragmented non-industrial ownerships and in obtaining landowner permissions. As a result, ~95 percent of their sampled area came from industrial and state/local government owners. They also weighted their

sampling by three geographic regions (Coastal/Spruce, West of Cascade Crest, East of Cascade Crest), which were based on performance targets established by these regions in prior watershed analyses. Their overall sample design considered the proportion of eligible lands within each of these zones.

Cabrera et al. (2016) stratified by more specific environmental variables, such as granitic and volcanic geologies, found significantly different base erosion rates. Sheridan et al. (2013) stratified by stream size because the same amount of sediment in a small stream has a greater potential to affect biota compared to that amount of sediment in a larger stream.

Temporal Sampling

Timing of sampling is critical for establishing baseline status and trend estimates of RSHC. Dubé et al. (2010) faced a number of related challenges, which are likely to be similar for the Oregon AMP process. First, the time it takes to get a baseline sampling effort executed is one such consideration. The original vision in Washington was to have a first sample before significant work on Road Maintenance and Abandonment Plans (RMAP) had been accomplished, a second sample mid-way through RMAP efforts, and a third sample after RMAP was completed. However, the first sample was not collected until 2006/2007, five years after the Washington road upgrade process was underway. Our Oregon effort may be able to use records from the FRIA process or landowner interviews to identify improvements made between the implantation of the new rules and our sampling date. These post-rule improved road segments could either be dropped from the sample or assumed connected for the baseline. Timing and budgetary constraints have delayed the follow up sampling to Dube et al. (2010), which was intended to show trend and efficacy. It is now scheduled to occur in 2028, well after RMAP completion in 2021 (CMER 2023).

Repeated sampling needs to match the time scale of processes of interest that are driving change. Sampling intervals that are too short may capture the effects of processes that are not relevant to answering the AMPC questions or result in redundant data collection for periods where the processes of interest are relatively static. Sampling intervals that are too long may miss important variability and delay information useful for decision making.

Assessment

Measurement and sampling choices should be driven by determining how to ultimately assess the data. The main studies we reviewed have used relatively simple metrics. For RSHC, Dubé et al. (2010) reported connected road length (both per square mile and per mile of stream), whereas for sediment, they used the WARSEM model to estimate tons of delivered sediment/year/mile of stream. Dubé et al. (2010) also used performance target ranges from prior agency work that were established from the low-medium categories of an expert rating of watersheds for aquatic risk.

The AREMP measured changes in modeled connected road length by subwatershed (HUC12). Sediment delivery values were divided by the subwatershed area to account for subwatersheds of varying size (km/km²). The sediment model was not calibrated for local geology, climate, or other influences; thus, results were interpreted as relative.

FRIA will simply report on road length in each of their categories, transitioning from “not meeting” to “meeting” standards. The ODF Compliance Monitoring Program will also be assessing road conditions on randomly sampled sites; metrics are currently under discussion, however, no measure of RSHC is included at this point.

Studies have generally found that a relatively small percentage of the road network (1%–25%) is hydrologically connected to streams (Benda et al. 2019; Coe 2006; Dubé et al. 2010; Faubion 2020; Martin 2009).

Habitat and Population Monitoring

The Oregon FPR HCP is designed to minimize and mitigate take of the species of concern through the provision of adequate habitat. Studies linking particular habitat attributes and the effects on aquatic and riparian species are too numerous to discuss here. More relevant to this effort are monitoring and assessment programs that have been developed based on habitat-species links. A few ongoing state and federal government programs monitor aquatic habitat indicators and/or species populations in the northwestern United States. Through the Aquatic Inventories Program (AQI), the Oregon Department of Fish and Wildlife (ODFW) has been collecting aquatic and riparian habitat data for 27 years in westside wadeable streams (ODFW 2019, 2025). Aquatic and riparian monitoring has also been occurring on federal lands on the east (PIBO 2025; Roper et al. 2019) and west (AREMP 2025; Dunham et al. 2023) sides of the state.

Measurement

ODFW's AQI collects information on culverts and substrate particle size by 6 classes (including fines). They also conduct fish population surveys for juvenile and spawning salmonids. The AREMP and PIBO tested aquatic organism surveys but found that their sampling intensity was not sufficient to reliably detect changes. AREMP/PIBO habitat metrics most closely related to RSHC effects include pool-tail crest fines and the distribution of substrate particle sizes along stream bed transects.

Spatial and Temporal Sampling Design

All three programs (ODFW, PIBO, AREMP) use a rotating panel design to balance the benefits of having more sites (better for status assessments) with repeat visits to sites (better for trend assessment). ODFW uses four panels with different repeat intervals: annual, 3-year, 9-year, and sites that are only visited once. The sites are selected from 1st–3rd order streams on a 1:100,000-scale map as stratified by five monitoring areas. The sample size is large enough to allow post hoc analyses by ownership class. AREMP uses a hierarchical random sample based first on HUC12 subwatersheds, then on sites within them selected from the 1:100,000 NHD streams layer. The original plan was to sample 50 subwatersheds per year on a five-year repeating cycle. Financial and logistical constraints have pushed the repeat cycle to eight years. Identifying more watersheds and sites initially was important because sites had to be delayed or dropped due to fires and other unanticipated circumstances. On the eastside of the Cascade crest, the PIBO program also samples a randomly selected subset of HUC12s on a repeating cycle but only samples at one location at the lowest point in the stream network on federal land.

Assessment

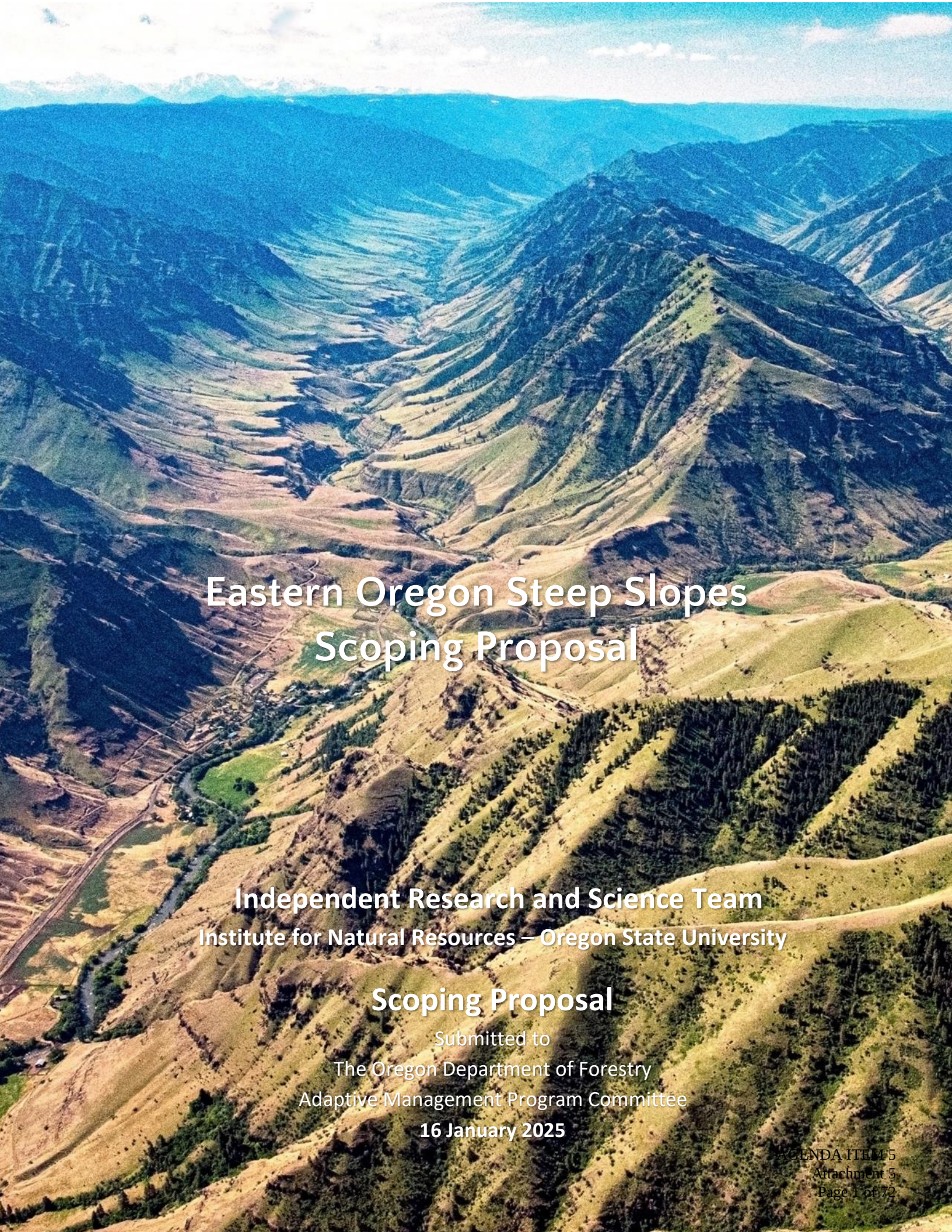
Using linear statistical models, the ODFW (2019) analyzed the first 12 years of ODFW habitat data and generally found no trends for fine sediment in riffles; however, positive or negative trends were observed in other habitat variables. Twelve years is a relatively short time period to expect such changes.

In a study examining only the first five years of data, Anlauf-Dunn and Jones (2012) compared distributions of habitat values to minimally-disturbed reference conditions and found median fine sediment values at or above reference thresholds, whereas coarser gravel values were below reference.

A study by Al-Chokhachy et al. (2016) tested for a linkage between sediment delivery predicted by the GRAIP model with PIBO instream sediment data. Although they found a positive relationship, it was highly variable across sites, which they attributed to differences in topography, geology, and other human-caused sources (off road vehicle trails, cattle grazing, forest management). In their associated literature review, they found only eight studies that attempted to link streambed fine sediment to road measures and only one that found a strong (but again variable) relationship. Similarly, whereas (Dunham et al. 2023) found declines in active road miles over 25 years, along with declines in modeled connectivity/sediment, and instream fine sediment, they cautioned against expecting high correlation given the variety of factors that can influence in-channel sediment.

Summary

A summary of the key takeaways from this review is provided in the Literature Review section in the main body of the document.

An aerial photograph of a mountain valley. The foreground shows steep, rugged slopes with patches of green forest and brownish-yellow cleared land. A river winds through the valley floor, and a road or railway line is visible on the left. In the background, more mountain ranges are visible under a blue sky with some clouds.

Eastern Oregon Steep Slopes Scoping Proposal

Independent Research and Science Team
Institute for Natural Resources – Oregon State University

Scoping Proposal

Submitted to
The Oregon Department of Forestry
Adaptive Management Program Committee

16 January 2025

Eastern Oregon Steep Slopes: Scoping Proposal

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Authors

The Independent Research and Science Team

Prepared by

The Institute for Natural Resources

The Institute for Natural Resources' mission is to provide access to integrated, management-relevant information that informs discussions and decisions about the long-term stewardship of Oregon's natural resources. Institute for Natural Resources is an Oregon public universities institute located at Oregon State University and Portland State University.



**INSTITUTE FOR
NATURAL RESOURCES**

OREGON STATE UNIVERSITY (headquarters)
234 Strand Hall, Corvallis, Oregon 97331

For more information about this report please contact Lisa Gaines at Lisa.Gaines@oregonstate.edu. The Institute for Natural Resources is the Housing Agency of the Independent Research and Science Team.

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Independent Research and Science Team Members

Kelly Burnett	Wild Salmon Center
Ellen Bishop	Conservation/Oregon Wild
Rebecca Flitcroft	U.S. Forest Service
Jessica Homyack	Weyerhaeuser
Jeff Light	Oregon Forest Industries Council

Contributors

Sean Gordon, Institute for Natural Resources

Lisa DeBruyckere, Creative Resource Strategies, LLC

Lisa Gaines, Institute for Natural Resources

Disclaimer

This scoping proposal is submitted to the Adaptive Management Program Committee as a requirement of the Oregon Department of Forestry Adaptive Management Program rules ([Chapter 629, Division 603](#)).

The contents of this report reflect the views of the Independent Research and Science Team (IRST), which is solely responsible for the facts and accuracy of the material presented. This scoping proposal does not constitute a standard, specification, or regulation.

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Tables and Figures

Tables

Table ES-1. Summary of scoping proposal options timeframes, costs, (excluding indirect costs and administrative startup and closeout time), and knowledge contributions.

Table 1. Core topic areas and terms used in the predetermined searches to find documents with potential relevance to the research questions.

Table 2. Core topic areas considered as inclusion criteria and related keywords for determining potential relevance to a research question as part of the screening process.

Table 3. Results from traditional and predetermined searches performed to address the research questions.

Table 4. The three potentially relevant documents that met the first three inclusion criteria (Table 2) and were located in eastern Oregon.

Table 5. Documents potentially relevant to the primary focus research question.

Table 6. Documents potentially relevant to the secondary focus research question.

Table 7. Summary of scoping proposal options timeframes, costs, (excluding indirect costs and administrative startup and closeout time), and knowledge contributions.

Figures

Figure 1. Adaptive Management Process.

Figure 2. Number and percent of potentially relevant documents by publication year.

Figure 3. Locations of 39 potentially relevant studies identified in the scoping review. The 9 states and provinces yielding potentially relevant documents are shown in green. In addition, 12 documents were described simply as representing studies in the western United States (depicted by tan box), and one study included numerous locations not specific to any state, province, or region.

Figure 4. Distribution of the 39 potentially relevant studies in the scoping review by core topic area in Table 2.

Figure 5. Timeline, key milestones, and budget for a systematic map.

Figure 6. Timeline, key milestones, and budget for a rapid review.

Figure 7. Timeline, key milestones, and budget for a descriptive review.

Abbreviations and Acronyms

AMPC	Adaptive Management Program Committee
BGO	Biological, Goals, and Objectives
CEE	Collaboration for Environmental Evidence
CMER	Washington State’s Cooperative Monitoring, Evaluation, and Research Committee
EMC	California’s Effectiveness Monitoring Committee
HCP	Habitat Conservation Plan
INR	Institute for Natural Resources
IRST	Independent Research and Science Team
OSU	Oregon State University
PFA	Private Forest Accord
ROSES	RepOrting standards for Systematic Evidence Syntheses

Executive Summary

The Independent Research and Science Team (IRST) was established to support the work of the Oregon Department of Forestry Adaptive Management Program Committee (AMPC) by responding to AMPC-developed research question packages. The AMPC-submitted research questions pertaining to steep slopes in eastern Oregon are:

Overarching Question: What impact do hillslope processes have on the covered species included in the draft HCP and their habitats in Eastern Oregon?

- Primary Focus: What does the literature say about upslope initiated shallow rapid slides and how timber harvesting may impact these in Eastern Oregon environments?
- Secondary Focus: Are there hillslope processes other than upslope initiated shallow rapid slides that may affect covered species within the draft Habitat Conservation Plan (HCP) and are these processes changed by forest practices?

Only those amphibians and fish species identified in Section 1.4 of the Private Forest Accord (PFA) Report (2022) are considered “covered species,” as defined for use in developing a Habitat Conservation Plan (HCP) consistent with USFWS and NMFS (2016), and thus are relevant to the overarching question. Road impacts on shallow rapid slides were not considered for the primary and secondary focus questions. Similarly, other hillslope processes unrelated to mass wasting were excluded for the secondary focus question.

The IRST was asked to prepare a research scoping proposal framing how these questions could be addressed using literature reviews, which would assess the robustness of conclusions based on the literature and identify key gaps that may prompt the need for additional research. Through the Institute for Natural Resources (INR) – the housing agency of the IRST – the IRST conducted a scoping review to characterize the potential amount and nature of the existing scientific literature. It was intended, not as a comprehensive literature review, but as a necessary first step to support the development of a research proposal package that will inform the AMPC and Board of Forestry decisions about the utility of soliciting a further literature review or research via requests for proposals.

Traditional searches considered 45 documents from two document repositories, two documents contributed from IRST members, several documents found through the Google search engine, and citations within these. Seven predetermined searches were performed across three electronic literature database sources. Of the thousands of documents retrieved through searches for the scoping review, 39 documents were found to have potential relevance to the research questions.

Primary Focus. Twenty of the 39 documents were deemed potentially relevant to the primary focus question and included content on hillslope processes, specifically shallow rapid slides; three of these documents were studies focused in eastern Oregon and two additional documents were focused in eastern Washington.

Secondary Focus. Four of the 39 documents, none of which targeted eastern Oregon or Washington, were deemed potentially relevant to the secondary focus question and included content on mass wasting processes apart from shallow rapid landslides, such as deep-seated earthflows, slumping, and soil bulking

debris flows. One document included mention of aquatic species and fire. All four were also identified as potentially relevant to the primary focus question.

Of the 39 documents, 19 were identified as potentially relevant to hillslope processes related to mass wasting on forested lands in semi-arid environments but did not explicitly include forest harvest-related practices.

The scoping review yielded insights on the literature review process and content that could be valuable for the AMPC when considering future work and for those designing and conducting that work. Insights on content are summarized here:

- 1) The approach used to search and review the literature identified few documents that directly addressed the research questions, and only Fitzgerald and Clifton (1997) explicitly examined mass wasting in eastern Oregon.
- 2) Many of the potentially relevant documents reported mass wasting in northeastern Oregon, southeastern Washington, and Idaho following an intense storm event in February 1996.
- 3) Landslide inventories generally indicated that fewer landslides and debris flows occur in arid and semi-arid environments east of the Cascade Mountain Crest compared to west of the Crest.
- 4) Although not well characterized in the literature for eastern Oregon, the factors there associated with the initiation and runout of shallow rapid slides and other mass wasting processes appear similar to those in western Oregon. These factors include slope steepness and heavy precipitation.
- 5) The effects of changing climate and weather patterns on precipitation events and thus mass wasting in eastern Oregon are unclear but may be important for evaluating landslide susceptibility and risk to covered species. Halofsky and Peterson (2017) report that climate change impacts to precipitation, plant communities, and wildfires in eastern Oregon may contribute to increasing mass movement susceptibility.
- 6) Shallow rapid landslides were associated with timber harvest in environments similar to eastern Oregon. However, the influence of timber harvesting on landslide and debris flow characteristics (e.g., number, size, runout distance) in semi-arid environments is less well studied and understood than in westside forests.
- 7) Watershed analyses in eastern Washington, Idaho, and western Montana included landslide inventories and explicitly examined the role of forest management on landslides. These landslide inventories may be a source of information to address the research questions if a future review occurs.
- 8) The impacts of debris flows and other hillslope processes on habitat characteristics or their influence on demographics and persistence of covered amphibian and fish species in eastern Oregon has not been researched extensively. Limited studies identified in the scoping review examined changes to in-stream habitat conditions following mass wasting events. Other studies from semi-arid regions broadly infer habitat responses to changes in sediment levels related to climate change, forest management practices, and in particular the frequency, extent and severity of wildfires (e.g., Goode et al. 2012, Halofsky et al. 2017, Luce et al. 2012). The eastside watershed analyses may contain information on fish habitat as related to mass wasting, but this has not yet been explored.

Based on the results of this scoping review, four options are presented to address the AMPC research questions: (1) a full systematic mapping review following the Collaboration for Environmental Evidence

(CEE) process; (2) a more rapid systematic mapping review following the corresponding CEE advice; (3) a standard but less rigorous descriptive review; and, (4) no further searching or literature review. The four options differ in time required, costs, and knowledge contributions. However, the knowledge contributed from each of the first three options in Table I should sufficiently characterize the state of science and gaps in understanding to help inform policy discussions regarding steep slopes in eastern Oregon.

Table ES-1. Summary of scoping proposal options timeframes, costs, (excluding indirect costs and administrative startup and closeout time), and knowledge contributions.

Option	Timeframe	Cost	Knowledge Contribution
Full systematic map	12–18 mo.	\$50,000-\$100,000	Extracts data from reviewed documents to support quantitative and narrative synthesis about the state of and important gaps in knowledge regarding eastern Oregon steep slopes. Compiles any existing empirical databases for future use. Further describe differences between eastern and western Oregon in the drivers of mass wasting processes and what is known about covered species habitat vulnerabilities in eastern Oregon.
Rapid systematic map	4–8 mo.	\$20,000-\$50,000	Extracts data from reviewed documents to support quantitative and narrative synthesis about the state of and important gaps in knowledge regarding eastern Oregon steep slopes. This may exclude some of the gray literature, especially older studies or those from other states. The search and review process would still be well documented for transparency and replicability but relying only on one or two reviewers without consistency checking could increase bias.
Descriptive review	3–6 mo.	\$15,000-\$30,000	Provides a reasonable collation of the literature on steep slopes in eastern Oregon based primarily on peer-reviewed literature. It is unlikely to capture much of the gray literature, especially older studies or those from other states. The searching, screening and review methods would not be as thoroughly documented, so would be less transparent and replicable. A narrative synthesis of findings would result but would be more limited than for the rapid systematic mapping option.
No further searching or review	0 mo.	N/A	Provides only the characterization and summary of the literature garnered from this scoping effort (Section 2.5 Content Insights, Appendices B, C, and D) and does not identify knowledge gaps. The search for literature conducted for this scoping review was not exhaustive and was not intended to be a full synthesis of existing information relative to the research questions.

1. Introduction

1.1 Background and Project Purpose

The Independent Research and Science Team (IRST) was established via [Senate Bill 1501](#) as part of the Oregon Department of Forestry's [Adaptive Management Program](#). The IRST supports the work of the Adaptive Management Program Committee (AMPC) by responding to AMPC-developed research questions packages. Per rule, and in consultation with the AMPC, the IRST refines preliminary research questions into final research questions, then develops scoping proposal(s) to address those questions. The scoping proposal(s) need(s) to include:

- A literature review that specifies the need for, or the type of, monitoring, research, commissioned studies, or other means of scientific inquiry necessary to answer the finalized research questions mentioned above;
- A preliminary estimate of the budget for each year of the research, and a timeline to complete the research project with specific deliverables; and,
- A preliminary description of research project requirements, scope of work including an estimate of the timeline and key milestones, and an estimate of the degree to which knowledge may be improved if the research proposal is implemented.

As per [OAR 629-603-0200](#), the IRST develops requests for proposals (RFP) in an open, competitive process after the AMPC and Board of Forestry approve an AMPC research agenda that is based on IRST scoping proposal(s). See Figure 1.

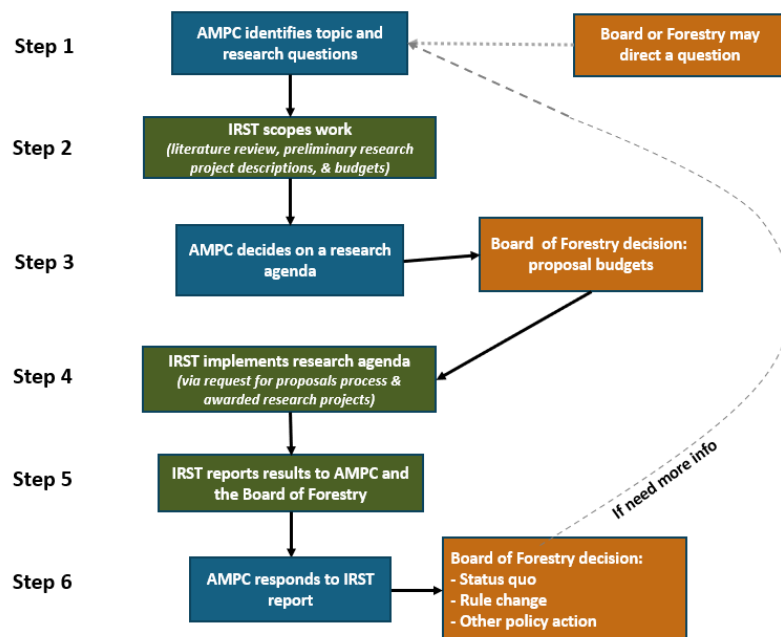


Figure 1. Adaptive Management Process.

With these requirements, the purpose of this effort was to conduct a scoping review that provides an initial characterization of the potential amount and nature of existing literature in relation to the AMPC research questions (see Section 1.2) and to determine if there is enough to warrant a full literature review through the required RFP process.

1.2 Research Questions

On July 11, 2024, the AMPC submitted the research questions package (Appendix A) pertaining to the geographic region ¹ of Eastern Oregon. The IRST was asked to address the questions using literature reviews, assess the robustness of conclusions based on the literature, and identify key gaps that may prompt the need for additional research.

Overarching Question: What impacts do hillslope processes have on the covered species in the draft HCP and their habitats in Eastern Oregon?

- Primary Focus: What does the literature say about upslope initiated shallow rapid slides and how timber harvesting may impact these in Eastern Oregon environments?
- Secondary Focus: Are there hillslope processes other than upslope initiated shallow rapid slides that may affect covered species within the draft Habitat Conservation Plan (HCP) and are these processes changed by forest practices?

1.3 Types of Literature Reviews

Literature reviews may differ based on their objectives and the rigor of approach used to search for documents, to screen found documents for relevance to review objectives, and to summarize content in the relevant documents. The search approach is foundational to any review, and so it is highlighted here.

Searches may aim to be comprehensive, attempting to identify every document relevant to the review objectives, but more often strive to balance sensitivity and precision. Precise or focused searches may retrieve fewer irrelevant results but have a higher risk of missing relevant documents and so can be less comprehensive. Sensitive or broad searches typically retrieve more documents but may require greater effort in evaluating which are relevant to the review objectives. When searching electronic databases, the greater the number of search terms linked with “AND,” the more precise and fewer results. Conversely, the more terms or synonyms linked with “OR,” the greater the sensitivity and number of results returned.

Searches are rarely comprehensive, and so searchers will introduce some level of bias when locating documents for review. To help reduce the potential for bias, a “predetermined” search approach identifies beforehand the sources (e.g., electronic databases, agency archives, or program repositories) to be searched as well as the search terms and how these are linked when searching those sources. A predetermined search approach aims to be transparent and reproducible. In contrast, a “traditional” search approach is iterative - the document sources and search terms may evolve during the search. For example, citations in an initial set of potentially relevant documents can be considered to reveal other potentially relevant documents, those documents are located, their citations considered, and the process of “citation

¹ Note: The Oregon Department of Forestry maintains a regulatory Geographic Information Systems layer of the Forest Practices Act delineation between eastern and western Oregon.

mining” is repeated until the reviewer decides to stop searching. Traditional searches may proceed until no or few new relevant documents are found.

Characteristics of the review types most pertinent to preparing this scoping proposal or providing useful context are briefly described here. Unless otherwise noted, much of the text below is summarized from the National Library of Medicine (2017).

Scoping reviews, such as the one conducted for this scoping proposal (Section 2), provide an initial assessment of the existing literature to answer a question or set of questions on an emergent topic. These are intended to broadly characterize the amount and types of studies available to help determine the value of undertaking a more comprehensive literature review and/or identify research gaps (Paré et al. 2015). Scoping reviews may use both predetermined and traditional search approaches and often consider peer-reviewed publications along with non-peer reviewed “gray” literature, such as working papers, technical reports, and conference proceedings. Consistent with their main objective, scoping reviews usually conclude by presenting an agenda or options for future work.

Narrative reviews are mainly descriptive, focusing on a subset of studies in an area chosen based on availability or author selection rather than predetermined searching and screening criteria as with the other types of review. A narrative review summarizes or synthesizes what has been written on a particular topic but does not seek generalization or cumulative knowledge from what is reviewed. Such reviews are common in the introduction section of peer-reviewed journal articles.

Descriptive Reviews determine the extent to which a body of knowledge on a particular topic reveals any interpretable patterns or trends. Descriptive reviews typically provide only a qualitative, narrative summary of the relevant literature, as illustrated in “Literature Review: Effects of Salvage Logging on Riparian Zones in Coniferous Forests of Eastern Washington and Adjacent Regions” (Barrett and Reilly 2017). Although descriptive reviews may apply predetermined strategies for searching and screening documents, these exclude a critical appraisal of study methods for quality.

Systematic reviews are designed to answer a clearly formulated and often narrow question on a well-researched topic and seek to identify causation or the effectiveness of a specific intervention. These reviews aggregate and synthesize all results from similar studies in the primary literature. Two of the better-known systematic literature review protocols developed for the field of environmental management are the Collaboration for Environmental Evidence (CEE 2022) and the RepOrting standards for Systematic Evidence Syntheses (ROSES, Haddaway et al. 2018). These build on methods developed to enhance objectivity and rigor when searching and synthesizing results in clinical medicine (e.g., Page et al. 2021; Higgins et al. 2024). The critical appraisal of study methods is a hallmark of systematic reviews. This is essential for any systematic review that includes a meta-analysis, whereby data from the reviewed studies are statistically summarized into a single quantitative estimate of effect size (CEE 2022).

Systematic maps retain many of the methodological requirements and benefits of systematic reviews but offer greater flexibility (Haddaway et al. 2016). For example, systematic maps are useful for addressing a wider array of questions, can include more types of studies (e.g., primary, secondary, quantitative, or qualitative), and are intended to identify knowledge gaps. These reviews are appropriate for synthesizing broad areas of science that have not been extensively

studied and are prompted by open-framed questions, such as the primary and secondary focus questions in Section 1.2.

Rapid reviews accelerate “the process of conducting a traditional systematic review through streamlining or omitting a variety of methods to produce evidence in a resource-efficient manner (Smela et al 2023).” Similar time-saving modifications can be applied to systematic maps. Although it may increase bias, one of the more common modifications is to use only one reviewer, rather than multiple independent reviewers. Limiting the number of sources searched can also help accelerate the process but may return fewer publications, posing concerns about the reliability and validity of the results. Less or no effort can be expended in the critical appraisal of study validity, however lower quality studies with less reliable findings may be included that influence conclusions drawn from evidence synthesis. The Oregon Department of Forestry recently conducted a rapid review. Its purpose was “to determine whether the post-catastrophic event alternative vegetation retention prescriptions described in Oregon Administrative Rules (OAR) 629-643-0300(3) are effective in avoiding, minimizing, or mitigating effects on riparian areas and aquatic habitat” (Thompson et al. 2024). Their review, with a few departures, generally followed CEE protocol.

2. Scoping Literature Review

2.1 Introduction

This scoping literature review, as the first step in developing the eastern Oregon steep slopes proposal, was undertaken to help determine the value of conducting a more in-depth review. It is intended to serve, not as a comprehensive literature review, but rather to understand if literature might be available to support the development of a research proposal package and help the AMPC determine the next steps in investing resources. Unless future research questions from the AMPC specifically request answers through a review of the literature, a narrative review, in lieu of a scoping review, will likely be sufficient to support the associated scoping proposal for those questions and meet rule requirements (OAR 629-603-0200).

This scoping review does not directly address the broad, overarching question in Section 1.2. Instead, for the primary focus question, the scoping review provides a preliminary indication of the existing scientific research available that could potentially determine if shallow rapid slides are prevalent enough to be an important driver of riparian and stream habitats in eastern Oregon and if forest harvest is likely to influence characteristics (e.g., initiation rate, size, runout distance) of these slides. The scoping review uses a similar approach for the secondary focus question but considers other potentially important mass wasting processes and the influence of forest harvesting on those processes. Consistent with Appendix A, Section 3.3.8 from the Private Forest Accord Report (2022), the only hillslope processes considered for the secondary focus question are related to mass wasting.

2.3 Methods

This scoping review used a three-step process. Step one was finding the potentially relevant literature, step two was screening the found literature to determine relevance, and step three was a simple data extraction and summarization of articles that were deemed potentially relevant to the research questions.

Approaches to finding potentially relevant literature

Two search approaches (traditional and predetermined) were used to find potentially relevant literature for the scoping review.

Traditional search approach

Documents were obtained by soliciting the IRST, examining repositories of two related programs (Washington State's Cooperative Monitoring, Evaluation, and Research Committee (CMER) and California's Effectiveness Monitoring Committee (EMC)), and using the Google search engine. Consistent with the iterative process described in Section 1.3 for traditional searches, citations in potentially relevant documents were also considered (citation mining) to identify additional material not found in initial searches.

For the Google search, the search terms "debris flows", "landslides", "mass wasting", "semi-arid", "steep slopes", "hillslopes," "forest practices", "forest management", "lumbering", and "timber harvest" were input in combination with: a) individual names of four mountain ranges in eastern Oregon (specifically, Ochocos, Blue, Wallowa, and Strawberry); b) individual western state names of Idaho, Montana, Washington, Oregon, Utah, Colorado, and Wyoming; and, c) individual eastern Oregon national forests

(specifically, Wallowa-Whitman, Deschutes, Malheur, Ochoco, and Umatilla). Not all eastern Oregon mountain ranges, federal lands, or national forests were included in this search effort.

Predetermined search approach

With input and revisions from the IRST, INR developed the predetermined search approach. This included specifying document sources, search terms, how search terms were linked, and how many articles to screen from each search. Searching took place from September to December 2024. Sources of potentially relevant documents were three electronic literature databases: [Web of Science](#), [Google Scholar](#), and the [OSU Scholars Archive](#). The core topic areas and search terms in Table 1 were derived from the two research questions (Section 1.2).

Table 1. Core topic areas and terms used in the predetermined searches to find documents with potential relevance to the research questions.

Core Topic Area	Search Terms
Hillslope processes-mass wasting	mass wasting, "debris flow", landslid*, landslide, "debris slide", "hillslope process"
Environmental similarity to eastern Oregon	semi-arid, east, eastern, eastside, "eastern Oregon", Oregon, "eastern Washington", Washington, Idaho, Montana, Wyoming, Colorado, Utah, Nevada, Oregon, California, "British Columbia", OR "Sierra Nevada" OR Alberta
Forest harvest-related activities	forest
HCP covered species and their habitats	<i>(No specific terms were searched for, rather this topic was used in the review)</i>

* The asterisk is a search operator available in some databases, it finds any words that begin with the preceding characters, e.g. landslid* finds landslide, landsliding, etc.

Because few documents that directly addressed eastern Oregon were found in preliminary searches, search terms were broadened to include other western states with environments similar to eastern Oregon (Table 1). Search terms were linked in searches using Boolean operators. Examples include: forest AND hillslope AND (arid OR semi-arid OR dry), hillslope AND (trout OR salmon OR salamander) AND (eastern AND (Oregon OR Washington)). Given guidance in the PFA Report (Appendix A), search terms related to "roads" as a forest harvest-related activity were not considered.

For the predetermined searches, the first 20 results from each search were selected to be screened. If there were fewer than 20 search results, all were selected for screening.

Screening of the traditional and predetermined search results to assess potential relevance

Consistent with the *Standards for Best Available Science: A Guidance Document* produced by the IRST, documents were screened to assess potential relevance between the study subject matter and the primary and secondary focus questions. Potential relevance of the documents selected for screening was assessed by reading the abstracts or introductions and searching within each document for keywords that we identified for each topic area (Table 2).

Table 2. Core topic areas considered as inclusion criteria and related keywords for determining potential relevance to a research question as part of the screening process.

Core Topic Area (Inclusion Criteria)	Related Keywords
Hillslope processes-mass wasting	shallow rapid slides/landslides, landslides, debris flows, mass wasting, hillslope failure, slope stability, soil bulking, geologic mapping, geologic-mapped landslides, landslides with geologic map
Environmental similarity to eastern Oregon	semi-arid systems, arid systems, dry-side, arid environments, snow-dominated systems
Forest harvest-related activities	timber harvesting, harvest, clear cutting, thinning, fuel treatment
HCP covered species and their habitats	aquatic & riparian biota, cutthroat trout, bull trout, rainbow trout, salmonids, salmon, Torrent salamander, Giant salamander

The first three core topic areas in Table 2 were essential inclusion criteria when determining whether a document had potential relevance overall to a focus question. The fourth core topic area (“HCP covered species and their habitats”) was not considered essential because studies meeting the other criteria could be connected to species impacts via the processes described in the draft HCP biological goals and objectives (Appendix A, Section B.2). The screening determined whether a document was potentially relevant but not the degree of relevance to a focus question.

Data extraction

For documents determined to be potentially relevant, the reference was entered into an Excel spreadsheet, along with a Yes/No indication for each of the screening criteria and whether content was relevant to the primary focus question (includes shallow rapid slides) or secondary focus question (includes other hillslope mass wasting processes). The general geographic location and text clips of the potentially relevant content were also recorded. These data were used to generate document counts by various categories.

2.4 Findings

General characterization of the potentially relevant literature

This scoping review provided an indication of the size, nature, and relevance of the existing literature with potential application to the primary focus and the secondary focus research questions from AMPC (Table 3). Seven predetermined searches were performed across the three electronic literature database sources. Regarding the traditional searches, 45 documents from the two document repositories, two documents contributed from IRST members, several documents returned from searching Google, and citations within these were screened.

Table 3. Results from traditional and predetermined searches performed to address the research questions

Source	Search Terms Strings	Total Articles	Articles Screened	Q1 Relevant Articles	Q2 Relevant Articles	Process Relevant ²
Google Scholar	mass wasting OR "debris flow" forest semi-arid	7,170	20	1	0	1
	landslide forest Idaho OR Montana OR Wyoming OR Colorado OR Utah OR Nevada	41,200	20	3	1	3
	landslide forest "eastern Oregon" OR "eastern Washington"	4,280	20	2	0	0
Web of Science	(landslid* OR "debris flow") AND (Oregon OR Washington OR California OR "British Columbia") AND (east OR eastern OR eastside) AND forest*	10	10	0	0	0
	(landslid* OR "debris flow") AND (Idaho OR Montana OR Wyoming OR Colorado OR Utah OR Nevada OR "Sierra Nevada" OR Alberta) AND forest*	31	20	1	0	4
OSU ScholarsArchive	forest AND (landslide OR "mass wasting" OR "debris flow" OR "debris slide" OR "hillslope process")	1	1	0	0	0
	landslide OR "mass wasting" OR "debris flow" OR "debris slide" OR "hillslope process"	5	5	0	0	0
CA BoF EMC	[reviewed projects list on website]	18	18	0	0	0
WA CMER	[reviewed publications list on website]	27	27	1	0	0
Google Search + Citation Mining	[various – see section 2.3 Methods]	NA [†]	NA [†]	10	3	11
IRST Contributions		2	2	2	0	0
Totals			141	20	4	19

* The asterisk is a search operator available in some databases, it finds any words that begin with the preceding characters, e.g. landslid* finds landslide, landsliding, etc.

[†] NA means that the information is not available.

Types of documents found and reviewed included peer-reviewed journal articles, dissertations and theses, government office or agency reports, technical reports, conference proceedings, and book chapters. Some of the potentially relevant documents were produced outside of traditional commercial, academic, or publishing channels, and may not be peer-reviewed. Examples include working papers, technical reports, conference proceedings, or oral presentations.

Although searches returned thousands of documents, few were screened - either by design in the predetermined searches or because most in the traditional searches had little relevance to the review questions. Of the 141 documents screened from the predetermined searches, the two repositories, and IRST contributions along with an uncounted number identified from the Google search and citation mining, 39 documents passed the screening and had potential relevance to the research questions (Table 3). Twenty documents were potentially relevant to the primary focus research question, four of which were

² "Process relevant" articles are not referenced in the body of the report; however, they are in the references (Section 4) indicated by the authors' names being in red italic font. Abstracts or summaries of these articles appear in Appendix D.

also potentially relevant to the secondary focus question, and 19 other documents were potentially relevant to mass wasting processes on forested lands but did not address forest harvest-related activities. Forest harvest-related topics included skid trails, logging with ground-based equipment and cable yarding, fuel treatments, stand density management, regeneration, preventing damage from disturbance, clearcutting, and harvest methods.

Of the 39 potentially relevant documents, 74% were published between 2001 and 2024 (Figure 2), indicating an increasing interest over time in the effects of forest harvest-related activities on mass wasting processes in semi-arid environments.

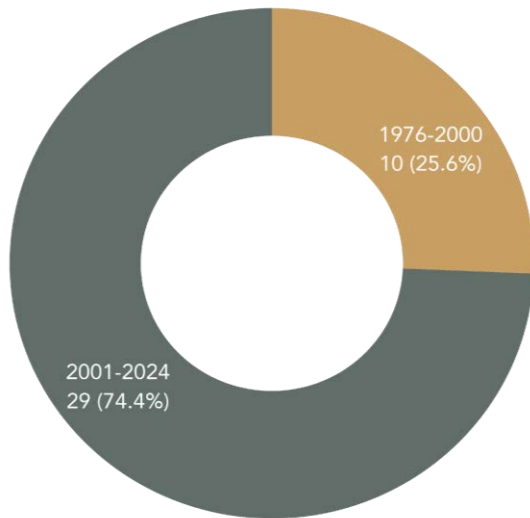


Figure 2. Number and percent of potentially relevant documents by publication year.

Whereas the traditional and predetermined searches focused on western states, the majority of potentially relevant documents were obtained from studies in Idaho (Figure 3). Only three documents were found from studies in eastern Oregon (Figure 3 and Table 4).

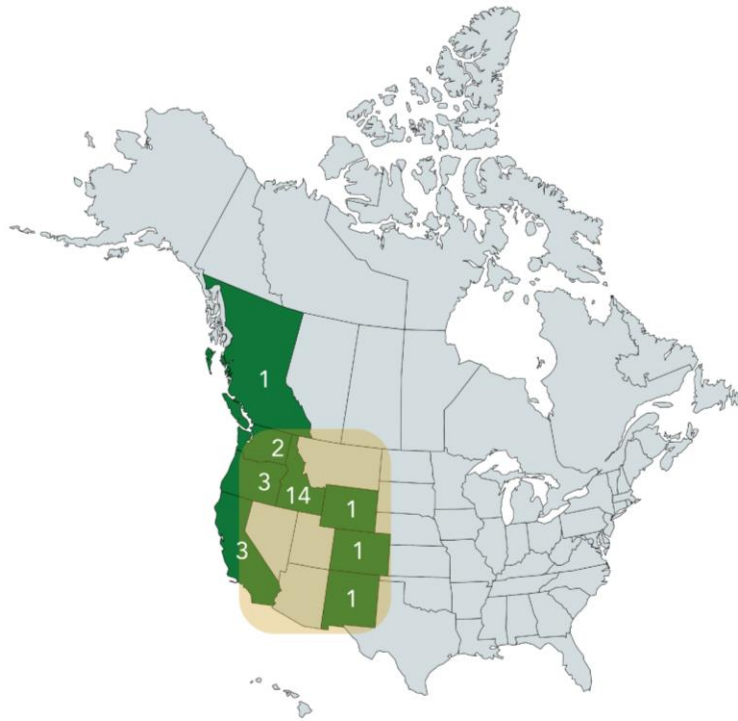


Figure 3. Locations of 39 potentially relevant studies identified in the scoping review. The 9 states and provinces yielding potentially relevant documents are shown in green. In addition, 12 documents were described simply as representing studies in the western United States (depicted by tan box), and one study included numerous locations not specific to any state, province, or region.

Table 4. The three potentially relevant documents that met the first three inclusion criteria (Table 2) and were located in eastern Oregon.

Fitzgerald, J., and C. Clifton 1997. Flooding, land use, and watershed response in the Blue Mountains of northeastern Oregon and southeastern Washington. In: Inland Northwest Water Resources Conference, Program and abstracts. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5208929.pdf
Halofsky, J.E., and D.L. Peterson. 2017. Climate change vulnerability and adaptation in the Blue Mountains region. Pacific Northwest Research Station General Technical Report, PNW-GTR-939. 331 p. https://doi.org/10.2737/PNW-GTR-939
Wondzell, S.M. 2001. The influence of forest health and protection treatments on erosion and stream sedimentation in forested watersheds of eastern Oregon and Washington. <i>Northwest Science</i> 75:128-140. https://rex.libraries.wsu.edu/esploro/outputs/journalArticle/The-influence-of-forest-health-and/99900501658801842

In assessing potential relevance to core topic areas, all 39 documents contained the core topic of mass-wasting related hillslope processes. Aquatic species were least well represented in the potentially relevant documents (Figure 4).

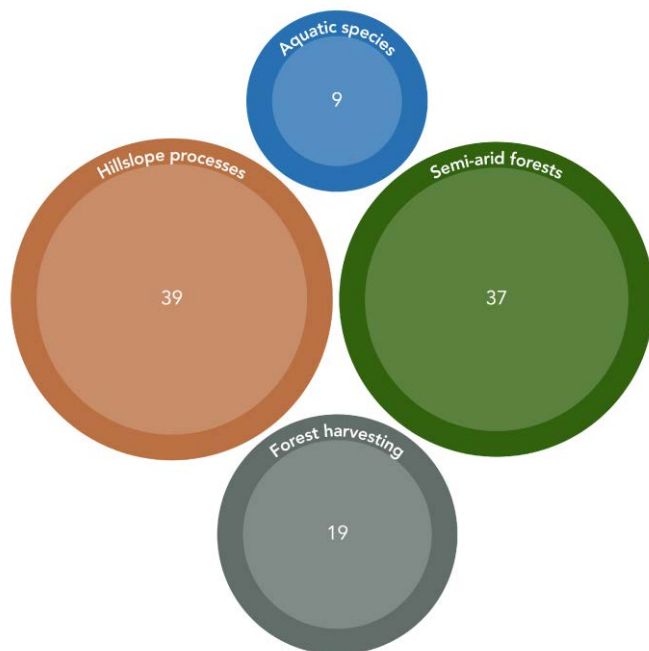


Figure 4. Distribution of the 39 potentially relevant studies in the scoping review by core topic area in Table 2.

Characterizing the publications in relation to the AMPC questions

Primary focus: What literature exists relating to upslope initiated shallow rapid slides and how timber harvesting may impact these in eastern Oregon environments?

Of the 39 potentially relevant documents, the 20 presented in Table 5 were deemed potentially relevant to the primary focus question and included content on hillslope processes, specifically shallow rapid slides. Three of these documents were studies focused in eastern Oregon, and two additional documents were from studies in eastern Washington. As previously noted, screening determined whether a document was potentially relevant but not the degree of relevance. Regarding the primary focus question for example, McGreer et al. (1998) and McClelland et al. (1997) associated timber harvest with mass wasting events using data from empirical studies, whereas Wondzell (2001) inferred the association based on westside literature.

Abstracts of the potentially relevant literature are provided in Appendix B.

Table 5. Documents potentially relevant to the primary focus research question.

Publication		Location	Forest harvest-related activities	Hillslope processes-mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Fitzgerald and Clifton (1997)		Eastern Oregon				
Halofsky and Peterson (2017)*						
Wondzell (2001)						
Harp et al. (1996)		Eastern Washington				
Klock and Helvey (1976)*						
Gorsveski et al. (2006)		Idaho				
Istanbulluoglu et al. (2004)*						
Ketcheson et al. (1999)						
Lineback Gritzner et al. (2001)						
McClelland et al. (1999)*						
Megahan et al. (1978)						
Platts et al. (1989)						
Goode et al. (2012)*		Western U.S.				
Herrera Environmental Consultants (2004)						
Luce et al. (2012)*						
McGreer et al. (1998)						
Peterson et al. (2009)*						
Wondzell and King (2003)*		British Columbia				
Jordan et al. (2010)						
Sidle (2005)		Various				

* Denotes a document that includes wildfire effects.

Eight documents included content on wildfire and are highlighted in Table 5 because these provide insights into hillslope processes and mass wasting, with potential consequences for aquatic habitats and/or species.

The six documents that included content on aquatic species are briefly described here:

- Halofsky and Peterson (2017), in a climate change vulnerability assessment for three national forests in the Blue Mountain region, suggested that landslides and debris flows following wildfires are an issue in this area of eastern Oregon. They do not specifically link forest harvesting to mass wasting processes, but they do mention the potential for climate change to affect mass wasting impacts on aquatic species and recommend the need for debris flow / landslide hazard mapping as part of post-fire response approaches.
- Luce et al. (2012) described the nexus among physical processes, biological interactions, and management decisions as well as potential interactions of fish populations with wildfire.
- McClelland et al. (1997) investigated the extent of mass wasting in the Blue Mountains of eastern Washington after a severe rainfall event in 1996. They described the relative abundance and volume of sediment delivered by landslides and debris flows associated with natural areas (no management), roads, and timber harvest, and described “aquatic habitat parameters” that either degraded, were unchanged, or improved because of flooding or flooding with landslide sediment.

- McGreer et al. (1998) summarized results of mass wasting analyses for 23 watersheds in forested areas of eastern Washington, Idaho, and western Montana. In the original studies, landslide inventories were used to associate geology, geography, and forest management activities (both road- and non-road-related) with mass wasting events and their potential effects on aquatic resources, per the State of Washington's Watershed Analysis process.
- Peterson et al. (2009) assessed the effects of post-fire logging based on the biophysical setting of the forest, pattern of burn severity, operational aspects of tree removal, and other management activities (e.g., removal of snags, road construction, logging with ground-based equipment, cable yarding) in dry forests of the western United States. They describe potential effects on aquatic systems and species in relation to the intensity and extent of post-fire logging.
- Platts et al. (1989) documents sediment delivery to spawning and rearing areas for Chinook salmon (*Oncorhynchus tshawytscha*) and Steelhead (*Oncorhynchus mykiss*), noting logging and road construction, in combination with large storm events in a two-year period, resulted in increased amounts of fine sediment delivery to an Idaho river.

Secondary focus: Are there hillslope processes other than upslope initiated shallow rapid slides that may affect covered species within the draft Habitat Conservation Plan (HCP) and are these processes changed by forest practices?

Four documents (Table 6) were deemed potentially relevant to the secondary focus question and included content on mass wasting processes apart from shallow rapid landslides, such as deep-seated earthflows, slumping, and soil bulking debris flows. One document included mention of aquatic species and fire. All four were also identified as potentially relevant to the primary focus question. Abstracts or summaries of the potentially relevant literature are provided in Appendix C.

Table 6. Documents potentially relevant to the secondary focus research question.

Publication	Location	Forest harvest-related activities	Hillslope processes-mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Lineback Gritzner et al. (2001)	Idaho				
Megahan et al. (1978)					
Luce et al. (2012)*	Western U.S.				
Jordan et al. (2010)	British Columbia				

* denotes publication that includes wildfire effects.

Other process relevant studies

Nineteen documents were classified as "process relevant," (Table 3) that is, these considered mass wasting on forestlands but without any direct connection to forest management. These documents are summarized here as demonstrating the role that mass wasting can play after wildfire. Although not specifically addressed, forest harvest-related activities may affect the processes driving post-fire mass wasting. The largest number of documents came from studies in Idaho (7), followed by studies spanning multiple western states (6); three were located in California and one each in Colorado, Wyoming, and New Mexico. None were located in eastern Oregon or Washington. By definition, none of these addressed forest harvest-related activities but all addressed hillslope processes and all overlapped with semi-arid

environments. Most of these studies (14) investigated post-wildfire surficial erosion and mass wasting. Abstracts or summaries of the potentially relevant literature are provided in Appendix D.

Studies with potentially useful literature review methods

Two literature reviews were found (Barrett and Reilly 2017; Herrera Environmental Consultants Inc. 2004) that described methods that could be useful in conducting a comprehensive literature review. Herrera (2004) included both project initiation and mid-project workshops in which information and feedback was solicited from broader user groups, whereas Barrett and Reilly (2017) gave a final presentation to the sponsoring group. Both reviews were focused on eastern Washington, but because of the lack of literature directly addressing this area, they broadened their searches to similar environments in other western states and Canada. Both reviews researched literature databases and solicited documents from subject matter experts. These two reviews are also useful for estimating the time and cost of this type of work. Further details on the review steps used in each of these literature reviews can be found in Appendix D.

2.5 Insights

The scoping review yielded insights that could be valuable for the AMPC when considering future work and for those designing and conducting that work. Insights were gleaned on the process of conducting the review and from the content of the reviewed documents.

Review process insights

Although the gray literature was particularly helpful in addressing the research questions, no gray literature was identified from predetermined searches of the three electronic literature databases. Approximately half the documents that were potentially relevant to the primary focus question (9 of 20) and the secondary focus question (2 of 4) were classified as gray literature. All of the gray literature was found via the traditional search approach (i.e., personal contacts (IRST members), agency websites, Google searches, and subsequent reviews of citations). Only one of the 19 documents describing the process-relevant literature was classified as gray literature. This may be due to different search emphases – process-relevant literature was not requested from IRST members and not included in the review of agency websites. Rather the process-relevant category was created after examining search results. More than half of the process-relevant literature came from searching Google and mining citations; the latter led to formally published sources.

Although the predetermined search approach returned thousands of documents, the majority of these are unlikely to be relevant for a more comprehensive review. This was particularly true of the Google Scholar search, where results included less relevant conference abstracts and multiple entries for a single document. If a comprehensive review related to the research questions is pursued, the reviewer will need to determine a reasonable top number of search results to review.

The search for literature conducted for this scoping review was not exhaustive and was not intended to be a full synthesis of existing information relative to the research questions. Thus, a more comprehensive search that includes other search terms may return documents not considered here. However, the IRST does not expect expanded searches to discover substantially more studies specific to the research questions and conducted in eastern Oregon. A subsequent literature review would synthesize across the best available science and has the potential to develop different conclusions than the content insights that follow.

Content insights

Based on the limited amount of literature identified and characterized in the scoping review, we provide the following insights:

- 1) The approach used to search and review the literature identified few documents that directly addressed the research questions, and only Fitzgerald and Clifton (1997) explicitly examined mass wasting in eastern Oregon.
- 2) Many of the potentially relevant documents reported mass wasting in northeastern Oregon, southeastern Washington, and Idaho following an intense storm event in February 1996.
- 3) Landslide inventories generally indicated that fewer landslides and debris flows occur in arid and semi-arid environments east of the Cascade Mountain Crest compared to west of the Crest.
- 4) Although not well characterized in the literature for eastern Oregon, the factors associated with the initiation and runout of shallow rapid slides and other mass wasting processes appear similar to those in western Oregon. These factors include slope steepness and heavy precipitation.
- 5) The effects of changing climate and weather patterns on precipitation events and thus mass wasting in eastern Oregon are unclear but may be important for evaluating landslide susceptibility and risk to covered species. Halofsky and Peterson (2017) report that climate change impacts to precipitation, plant communities, and wildfires in eastern Oregon may contribute to increasing mass movement susceptibility.
- 6) Shallow rapid landslides were associated with timber harvest in environments similar to eastern Oregon. However, the influence of timber harvesting on landslide and debris flow characteristics (e.g., number, size, runout distance) in semi-arid environments is less well studied and understood than in westside forests.
- 7) Watershed analyses in eastern Washington, Idaho, and western Montana included landslide inventories and explicitly examined the role of forest management on landslides. These landslide inventories may be a source of information to address the research questions.
- 8) The impacts of debris flows and other hillslope processes on habitat characteristics or their influence on demographics and persistence of covered amphibian and fish species in eastern Oregon has not been researched extensively. Limited studies identified in the scoping review examined changes to in-stream habitat conditions following mass wasting events. Other studies from semi-arid regions broadly infer habitat responses to changes in sediment levels related to climate change, forest management practices, and in particular the frequency, extent and severity of wildfires (e.g., Goode et al. 2012, Halofsky et al. 2017, Luce et al. 2012). The eastside watershed analyses may contain information on fish habitat as related to mass wasting, but this has not yet been explored.

3. Scoping Proposals

3.1 Introduction

Although few studies that related forest harvest to mass wasting hillslope processes in eastern Oregon and similar environments were found in the scoping review, it is expected that additional relevant literature would be found with more intensive searching, particularly in gray literature and state-sponsored technical reports. Based on the scoping review, the literature for the primary and secondary focus questions seems sufficiently intertwined that separate reviews are unlikely to be fruitful if future work is undertaken. Therefore, the four options presented here could address both of the AMPC research questions together. The options are: 1) a full systematic mapping review following the Collaboration for Environmental Evidence (CEE) process, 2) a more rapid systematic mapping review following the corresponding CEE advice, 3) a standard but less rigorous descriptive review, and 4) no further literature review. If subsequent review is pursued, the IRST would provide advice and oversight throughout, including reviewing the search and screening protocols, initial search results, data coding plan, and draft of final results. The following information describes the four options in more detail.

3.2 Scoping proposal: Systematic map

Scope of work

A systematic mapping approach, following the CEE process, could be used to more fully describe the amount and nature of the literature on forest harvest practices related to hillslope processes in eastern Oregon. The search terms could be broadened beyond those used in the scoping review to include non-empirical studies that use modeling. These types of studies are often framed as susceptibility or risk assessments. Databases from empirical studies or developed in modeling work could be compiled as part of the systematic map to be made available for use in future research, particularly in developing and calibrating new models for application in eastern Oregon if deemed appropriate.

Given that the Private Forest Accord (PFA) identified the differences in climate and geology between eastern and western Oregon, part of the systematic mapping process could describe these differences and inventory data sources available to assess these differences. Similarly, a section related to the aquatic/riparian species of most concern and their habitat needs in relation to mass wasting processes could be included. To best access gray literature, a list of organizational and individual experts could be developed and contacted. This option could include workshops for input and broad participation, beyond iterative interaction with the IRST. Consistent with its previously listed roles, the IRST would advise on the contact list of experts for workshop participation and document solicitation.

Screening and coding/analysis of publications would be done by multiple independent reviewers with checks for consistency. A full database of the publications found, including those accepted and rejected, and other coding fields would be delivered, as well as a list of accepted publications in Zotero or a common bibliographic interchange format (RIS, Bibtex). Critical appraisal of study validity and data would be described (e.g., model v. empirical datasets; experimental design v. opportunistic assessment; statistical analysis and sample size). Empirical databases that can be used for later model calibration and/or mapping purposes would be compiled and made available (possibly using GitHub).

The core elements, milestones, and timelines of the scope of work are documented in Figure 5, showing a maximum estimated duration of 18 months, not including administrative startup and closeout.

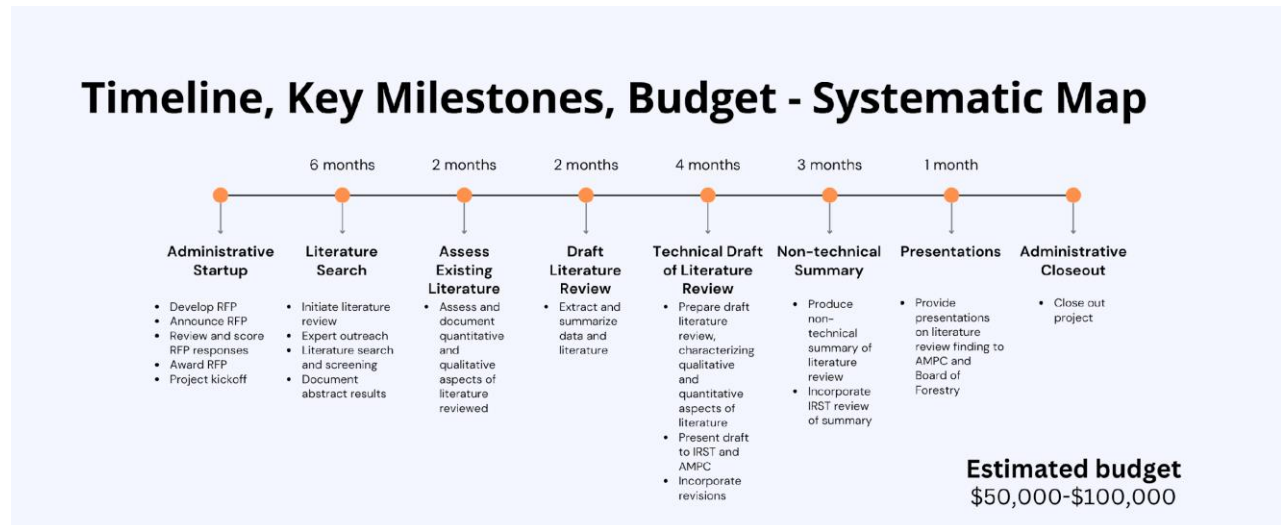


Figure 5. Timeline, key milestones, and budget for a systematic map.

Knowledge contribution

A systematic map is intended to inform the AMPC on the extent of knowledge about whether forest practices on private lands in eastern Oregon are affecting hillslope processes that in turn may affect HCP-covered species. A full mapping would be expected to uncover all the literature available on the topic, particularly the more difficult to find gray literature. It would identify important gaps and compile relevant empirical data that could be used in later analysis/research efforts (as in model calibration for landslide susceptibility/risk assessment). This option may also further describe the differences in the drivers of mass wasting processes eastside vs. westside, and what is known about related species habitat vulnerabilities on the eastside. This information on knowledge gaps and environmental condition differences could support AMPC policy decisions or inform the need for future research.

Budget

The estimated budget for the full systematic mapping review ranges from an estimated \$50,000 to \$100,000. This budget is primarily personnel costs (e.g., salary and benefits). It excludes indirect costs, which vary among institutions.

3.3 Scoping proposal: Rapid systematic map

Scope of work

Conduct a more rapid systematic mapping review following the corresponding CEE advice. The process would be simplified from the full option by:

- 1) Reducing review and inputs beyond the IRST (e.g., no external workshops);
- 2) Reducing the number of databases searched and experts consulted;
- 3) Relying on only one reviewer, rather than two or more independent reviewers, when screening and extracting information from each publication;

- 4) Limiting the critical appraisal of study validity;
- 5) Limiting the literature database to only relevant documents, rather than also including those that were rejected, and;
- 6) No compilation of available empirical datasets.

The core elements, milestones, and timelines of the scope of work are documented in Figure 6, showing a maximum estimated duration of 4–8 months, not including administrative startup and closeout.

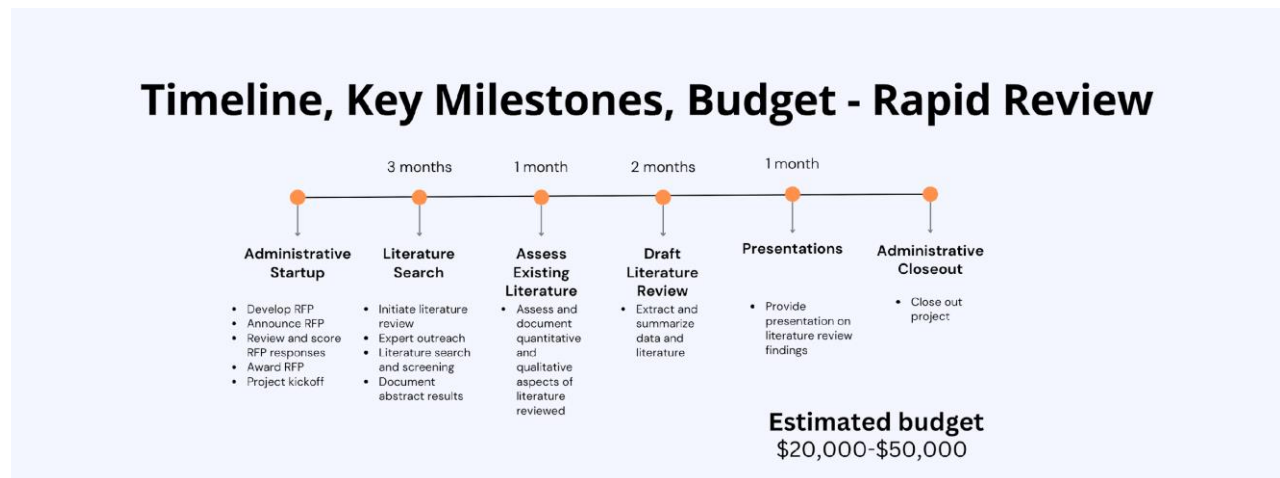


Figure 6. Timeline, key milestones, and budget for a rapid review.

Knowledge contribution

A rapid systematic mapping review would collate the relevant literature on this topic. As with the full systematic map, this review would be expected to extract data from the documents and, based on this, summarize the state of knowledge and identify research gaps, but would not capture some of the gray literature that could be identified in workshops of subject experts. This option could begin to describe the differences in the drivers of mass wasting processes eastside vs. westside, and what is known about related species habitat vulnerabilities on the eastside. The search and review process would be well documented for transparency and replicability, however, relying only on one or two reviewers without consistency checking would increase the potential influence of individual biases. Because relevant empirical databases would not be compiled, later use in model calibration for risk or susceptibility assessment would not be possible.

Budget

The estimated budget for the rapid review ranges from an estimated \$20,000 to \$50,000. This budget is primarily personnel costs (e.g., salary and benefits). It excludes indirect costs, which vary among institutions.

3.4 Scoping proposal: Descriptive review

Scope of work

A descriptive review would spend less effort on documenting a systematic and transparent procedure but would still include a knowledge synthesis with some information on searching, screening and classifying

methods. Multiple literature sources would be searched, but expert contacts would be limited. Characteristics of the review literature would be summarized, such as publication year, research methods, data collection techniques, and general research outcomes. Relevance to AMPC questions would be described, but no empirical data would be compiled, and no critical appraisal of study methods would occur.

The core elements, milestones, and timelines of the scope of work are documented in Figure 7, showing an estimated duration of 3–6 months, not including administrative startup and closeout.

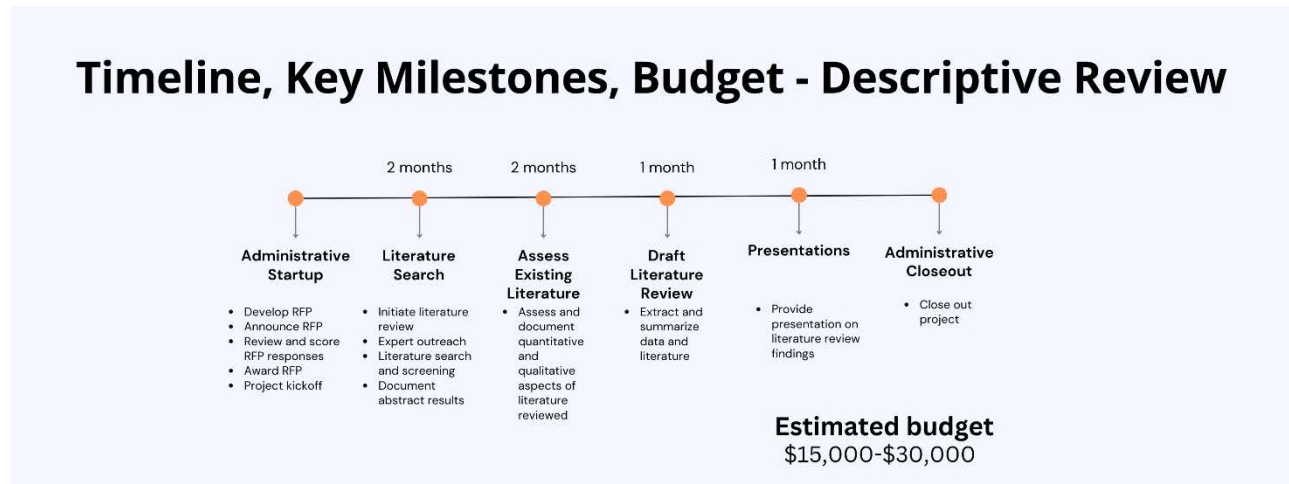


Figure 7. Timeline, key milestones, and budget for a descriptive review.

Knowledge contribution

As with the rapid systematic mapping, this option would collate the literature on this topic but may not capture some of the gray literature because the focus would be on peer-reviewed and journal published sources. The searching, screening and review methods would not be as thoroughly documented as in the full systematic map or the rapid review, yielding a less transparent and replicable product. Only a narrative synthesis of findings would be presented without a quantitative summary of the literature. Related datasets would not be compiled.

Budget

The estimated budget for the narrative review ranges from an estimated \$15,000 to \$30,000. This budget is primarily personnel costs (e.g., salary and benefits). It excludes indirect costs, which vary among institutions.

3.5 Scoping proposal: No further searching or review

The results of the scoping review suggest that mass wasting can be an issue in eastern Oregon and can be influenced by forest removal by both management activities and natural disturbance. Although only five percent of the area on private lands in eastern Oregon has slopes exceeding 65 percent, a full characterization of other drivers that might render locations susceptible to mass wasting, how forest harvest-related activities may affect susceptibility, and where covered species might be most at risk were

not well represented in the cursory scoping review. However, a more thorough search and review process may or may not yield further insights. Should an additional search be completed, the search would include search terms such as landslide susceptibility, landslide inventory, and topics including geologic maps, climate models, and arid steep slope processes. In which case, knowledge gaps with relevance to timber management practices on steep slopes in eastern Oregon could be identified and research proposals prepared.

Knowledge contribution

Unless further work is directed by the AMPC to characterize knowledge gaps and develop associated scoping proposals, the knowledge gained from this option is summarized in Section 2.5 Content Insights.

3.6 Summary

The four options for addressing the research questions differ in the time required, cost, and knowledge contribution (Table 7). The costs exclude indirect costs, which vary among institutions; and the timeframes exclude administrative start up and close out. Knowledge contributions from the first three of the four options in Table 7 should sufficiently characterize the state of science and gaps in understanding to help inform policy discussions regarding steep slopes in eastern Oregon. However, the knowledge contribution from those three options do vary regarding several factors, including the inclusion of gray literature, potential for bias in the results, exploration of issues beyond forest harvest-related activities that may influence mass wasting, and acquisition of empirical data for future use.

Table 7. Summary of scoping proposal options relative to timeframes, costs (excluding indirect costs and administrative startup and closeout time), and knowledge contributions.

Option	Timeframe	Cost	Knowledge Contribution
Full systematic map	12–18 mo.	\$50,000-\$100,000	Extracts data from reviewed documents to support quantitative and narrative synthesis about the state of and important gaps in knowledge regarding eastern Oregon steep slopes. Compiles any existing empirical databases for future use. Further describe differences between eastern and western Oregon in the drivers of mass wasting processes and what is known about covered species habitat vulnerabilities in eastern Oregon.
Rapid systematic map	4–8 mo.	\$20,000-\$50,000	Extracts data from reviewed documents to support quantitative and narrative synthesis about the state of and important gaps in knowledge regarding eastern Oregon steep slopes. This may exclude some of the gray literature, especially older studies or those from other states. The search and review process would still be well documented for transparency and replicability but relying only on one or two reviewers without consistency checking could increase bias.
Descriptive review	3–6 mo.	\$15,000-\$30,000	Provides a reasonable collation of the literature on steep slopes in eastern Oregon based primarily on peer-reviewed literature. It is unlikely to capture much of the gray literature, especially older studies or those from other states. The searching, screening and review methods would not be as thoroughly documented, so would be less transparent and replicable. A narrative synthesis of findings would result but would be more limited than for the rapid systematic mapping option.
No further searching or review	0 mo.	N/A	Provides only the characterization and summary of the literature garnered from this scoping effort (Section 2.5 Content Insights, Appendices B, C, and D) and does not identify knowledge gaps. The search for literature conducted for this scoping review was not exhaustive and was not intended to be a full synthesis of existing information relative to the research questions.

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NOTE: *Articles with authors' names in red italic are "process relevant" articles that are not referenced in the body of the report; however, "process relevant" articles are a column in Table 3 (Search results). Abstracts or summaries of these articles appear in Appendix D.*

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5. Appendices

Appendix A. AMPC Research Questions Package

Appendix B. Abstracts or Summary of Publications Potentially Relevant to the Primary Focus

Appendix C. Abstracts or Summary of Publications Potentially Relevant to the Secondary Focus

Appendix D. Abstracts or Summary of “Process Relevant” Publications

Appendix E. Literature Review Examples

Appendix A. Key Aspects of the AMPC Research Questions Package

A. Final research questions

These preliminary research questions were approved by the AMPC as a substantial decision at their July 2, 2024 meeting. These questions apply east of the crest of the Cascades³ in Oregon and are to be answered via literature reviews. In addition to an overview of literature, the review should provide an assessment of how robust the conclusions from the literature are and where there may be need for additional research.

Overarching Question:

What impacts do hillslope processes have on the covered species in the draft HCP and their habitats in eastern Oregon?

Primary Focus: What does the literature say about upslope initiated shallow rapid slides and how timber harvesting may impact these in eastern Oregon environments?

Secondary Focus: Are there hillslope processes other than upslope initiated shallow rapid slides that may affect covered species within the draft HCP and are these processes changed by forest practices?

B. Contextual information

The remainder of this document provides contextual information that details the context for the preliminary research questions, as required by rule⁴. The following are organized per the elements in this rule.

B.2 The rule, biological goals and objectives (BGOs), or other issue being studied⁵

AMPC response: The BGOs⁶ are listed below with those applicable to these questions [in red font]:

“Overarching Goal: Forest practices that support the survival and recovery of the covered species by providing clean, cool, connected, and complex habitats.

Goal 1: Provide clean water and substrate for the covered species.

- *Objective 1.1 - Forest practices near streams minimize sediment delivery.*
- *Objective 1.2 – Slope Retention Areas reduce episodic sediment delivery to fish-bearing streams.*
- *Objective 1.3 – Road runoff directly to streams is minimized.*
- *Objective 1.4 – Roads are not a significant source of episodic sediment delivery to streams.*

Goal 2: Shade and watershed processes controlling stream temperature provide cool water compatible with the needs of the covered species.

- *Objective 2.1 – Forest practices maintain stream shade sufficient to support desired cool water temperatures on fish-bearing streams.*

³ Note: ODF maintains a regulatory GIS layer of the FPA delineation between eastern and western Oregon.

⁴ OAR 629-603-0200 (3)(a)

⁵ OAR 629-603-0200(3)(a)(B)

⁶ The most recent version of the BGOs is in the Dec. 2022 draft HCP. The BGOs will be finalized within the HCP due Dec. 31, 2027.

- *Objective 2.2 – No-harvest RMAs maintain stream shade sufficient to support desired cool water temperatures for covered amphibians.*
- *Objective 2.3 – Forest practices near non-fish-bearing perennial streams do not notably increase water temperatures in fish-bearing streams.*

Goal 3: Stream network connectivity satisfies freshwater habitat needs for covered species.

- *Objective 3.1 – Road crossings on fish-bearing streams are passable by the covered fish species.*
- *Objective 3.2 – Forest practices maintain the hydrologic continuity of stream-associated wetlands and stream-adjacent seeps and springs to stream habitats.*
- *Objective 3.3 – Timber harvest maintains stream-associated connectivity in riparian areas along non-fish streams sufficient to support covered amphibians.*

Goal 4: Riparian areas function to support complex habitats for the covered species.

- *Objective 4.1 – Mature, complex riparian forests are fostered in no-harvest zones of RMAs.*
- *Objective 4.2 – Forest practices within tree retention areas of RMAs promote delivery of large wood.*
- *Objective 4.3 – Designated Debris Flow Traversal Areas function to deliver large wood to fish-bearing streams.*
- *Objective 4.4 – Forest practices maintain stream-associated wetlands and stream-adjacent seep and spring habitat for amphibians.”*

B.3 The objective of the research⁷

The objective of this research is to inform deliberations about whether rules or other policies are needed regarding timber harvest and other forest practices on steep slopes in eastern Oregon to protect HCP-covered species.

B.4 A brief description of the context of the research question⁸

The following direction was provided in the PFA Report and provides the foundation for these research questions:

“CHAPTER 3. TIMBER HARVEST ON STEEP SLOPES

3.2 Goals

The goals of the PFA commitments regarding timber harvest on steep slopes is to provide large wood and sediment consistent with maintaining or improving aquatic habitat within large basins over long timeframes. (For the purposes of this Chapter, large basins are those of a size equivalent to those supporting independent populations of Oregon coastal coho salmon. In modeling to support the PFA, these are USGS HUC 4th Field [8-digit] basins). To accomplish this, sediment sources and debris flow runout paths will be identified and a subset of these will be managed during timber harvest activities to retain trees and other vegetation. These actions, together with other HCP commitments, are intended to provide high-quality

⁷ OAR 629-603-0200(3)(a)(C)

⁸ OAR 629-603-0200(3)(a)(D)

habitat to support recovery and long-term conservation of the species covered by this HCP on private forestlands.

3.2.1 Objectives

- Aligned with the overall goals for timber harvest on steep slopes to provide high-quality habitat that supports the recovery, protection, and long-term conservation of covered species on private forestlands, the Authors establish the following objectives under the PFA:
- Leave trees in Designated Debris Flow Traversal Areas to help create and maintain high-quality habitat in:
 - Type F or Type SSBT streams by delivering large wood and regulating sediment storage and transport.
 - Type N streams by creating shade and cover for amphibians covered under the HCP.
- Leave trees in Slope Retention Areas to:
 - Reduce timber-harvest-related increases in the frequency and volume of sediment delivered to Type F or Type SSBT streams from mass wasting events.
 - Contribute large wood to Type F or Type SSBT streams.
 - Leave trees on a subset of steep (>70%) slopes immediately adjacent to Type F or Type SSBT streams to:
 - Stabilize these areas.
 - Contribute large wood to Type F or Type SSBT streams.

3.3.8 Timber Harvest on Steep Slopes in Eastern Oregon

The Private Forest Accord does not prescribe new management measures for landslide initiation zones or debris flow traversal channels in Eastern Oregon. The Authors agree that Eastern Oregon's unique geologies and climates likely mean that these processes are different in magnitude, frequency, and impact on the covered species, when compared to Western Oregon. Similarly, the impact of timber harvesting on these processes is potentially different in Eastern Oregon. In light of this uncertainty, the Authors agree that the Adaptive Management Program shall, beginning no later than January 1, 2024, examine the scientific literature on the impacts that hillslope processes have on the covered species in Eastern Oregon. The primary focus will be on upslope initiated shallow rapid slides and how timber harvesting may impact these in Eastern Oregon environments. A secondary and more limited focus is whether other hillslope processes that likely affect covered species are changed by forest practices. Findings of the Adaptive Management Program on these topics will be presented to the Board of Forestry. These findings should focus primarily on the importance of shallow rapid landslides in Eastern Oregon to habitat for the covered species and the potential modification of these processes by forest practices or lack thereof. The report on this primary topic may or may not include recommendations as to desirability and relative importance of potential management measures. In addition, the report should convey whether the secondary review of literature on the effect of forest practices on other hillslope processes merits more thorough consideration by the Adaptive Management Program in light of scientific literature on the connection of these processes to covered species. Nothing in this Report should be read to suggest that any additional Eastern Oregon steep slope or other hillslope prescriptions are, or are not, necessary. The timber harvest prescriptions for steep

slopes established under Section 3.3.3 of this Chapter for Designated Debris Flow Traversal Areas and under Section 3.3.4 of this Chapter for Designated Sediment Source Areas and Slope Retention Areas do not apply to any private forest ownership class east of the summit of the Cascade Mountains. The timber harvest prescriptions for steep slopes established under Section 3.3.7 Stream Adjacent Failures apply to all private forest ownership classes both west and east of the summit of the Cascade Mountains.”

Appendix B. Abstracts of Publications Potentially Relevant to the Primary Focus

Primary Focus: What literature exists relating to upslope initiated shallow rapid slides and how timber harvesting may impact these in eastern Oregon environments?

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Fitzgerald and Clifton 1997	eastern Oregon	Q1		x	x	x	

Reference

Fitzgerald, J., and C. Clifton. 1997. Flooding, land use, and watershed response in the Blue Mountains of northeastern Oregon and southeastern Washington. In: Inland Northwest Water Resources Conference, Program and Abstracts. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5208929.pdf

Abstract

The northern Blue Mountains sustained heavy rain and rapid snowmelt in November 1995 and rapid snowmelt over frozen soil in February 1996. The result was multiple record flood events, with February peak flows being more wide-spread and of higher magnitude. In addition to flooding, the storms triggered debris flows and slides on the Umatilla National Forest. These features commonly occurred in the rain-snow transition zone, in saturated loam-clay-ash soil, and on steep slopes (30-80 percent). Debris flows or torrents were the dominate feature, starting as an earthslide and then transporting debris sometimes over a mile. Roading and logging were associated with 37 percent of the observed mass wasting features. High flows and mass wasting combined to produce a variety of channel responses including: scouring of substrate and banks; aggradation of sediment; accumulation of large woody debris; and, lateral channel migration. Fluvial responses appear to differ with elevation and land use intensity. Flood discharge of National Forest streams was estimated using the indirect, slope-area method based on post-flood field evidence. Flood frequencies were then estimated using U. S. Geological Survey regional flood equations. Flood magnitude and frequency varied by watershed with some areas experiencing one or more "100 year" events (Umatilla and Walla Walla) and others experiencing less than a "25 year" event (Tucannon and Wenaha). Flood effects on National Forest investments (instream fish habitat structures and road-stream crossings) were also assessed. Results from field inventories indicate a high rate (73 percent) of instream fish habitat structure survival. Anchored rock weirs had the highest success rate. In roaded watersheds, a sample of culverts at stream-road crossings indicated about 50 percent of the culverts failure. The failure rate varies by watershed, however, from 23 to 95 percent. Culverts failed because of plugging with sediment often causing additional flood damage to roads and streams. Preliminary results indicate variability in watershed response to flooding which is partly attributed to different watershed characteristics and land use intensities. The post-flood assessments will be used to improve understanding of watershed response to extreme hydrologic events and to improve management practices to reduce damage from future high flows.

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Goode et al. 2012	western US	Q1		x	x	x	

Reference

Goode, J.R., C.H. Luce, and J.M. Buffington. 2012. Enhanced sediment delivery in a changing climate in semi-arid mountain basins: implications for water resource management and aquatic habitat in the northern Rocky Mountains. *Geomorphology* 139: 1–15. <https://doi.org/10.1016/j.geomorph.2011.06.021>

Abstract

Sediment yields tend to be larger in semi-arid climates than in arid and humid environments due to the regulating effect of vegetation on hillslope stability and soil generation. Sediment yields in semi-arid mountain basins will increase in response to projected warming and increased climate variability. Potential approaches for reducing sediment through land management include post-fire stabilization, suppression of fire and fire severity, and attention to other anthropogenic sources of sediment (e.g., roads, logging, grazing, mining). Determining the most effective method depends on the relative contribution of each source, management resources and objectives, and feasibility of actions. Increased sediment yields following logging result from vegetation disturbance; exposure of bare soils accelerates surface erosion, loss of forest interception and transpiration increases soil pore pressure, and loss of root strength destabilizes shallow hillslope soils, increasing the potential for shallow land sliding in both humid and semi-arid landscapes. Logging roads exacerbate this erosion and commonly produce greater erosion per unit area, but their overall extent is small compared to the area of timber harvest (Megahan, 1986). Although logging has declined in the western US over the last few decades, legacy sediment stored within the fluvial system may continue to affect channel morphology and aquatic habitat. The ecological consequences of sediment chronically supplied from roads may be more detrimental than from sediment periodically supplied from post-fire debris flows. Despite the dramatic nature of debris-flow disturbances and their potential impacts to river corridor infrastructure, salmonids and other aquatic organisms have evolved with, and are adapted to, these disturbances.

Aquatic Species: The authors generally reference aquatic species, fish, and salmonids.

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Gorsevski et al. 2006	Idaho	Q1		x	x	x	

Reference

Gorsevski, P.V., P.E. Gessler, J. Boll, W.J. Elliot, and R.B. Foltz. 2006. Spatially and temporally distributed modeling of landslide susceptibility. *Geomorphology* 80(3): 178–198. <https://doi.org/10.1016/j.geomorph.2006.02.011>

Abstract

Mapping of landslide susceptibility in forested watersheds is important for management decisions. In forested watersheds, especially in mountainous areas, the spatial distribution of relevant parameters for landslide prediction is often unavailable. This paper presents a GIS-based modeling approach that includes representation of the uncertainty and variability inherent in parameters. In this approach, grid-based tools are used to integrate the Soil Moisture Routing (SMR) model and infinite slope model with probabilistic analysis. The SMR model is a daily water balance model that simulates the hydrology of forested watersheds by combining climate data, a digital elevation model, soil, and land use data. The infinite slope model is used for slope stability analysis and determining the factor of safety for a slope. Monte Carlo simulation is used to incorporate the variability of input parameters and account for uncertainties associated with the evaluation of landslide susceptibility. This integrated approach of dynamic slope stability analysis was applied to the 72-km² Pete King watershed located in the Clearwater National Forest in north-central Idaho, USA, where landslides have occurred. A 30-year simulation was performed beginning with the existing vegetation covers that represented the watershed during the landslide year. Comparison of the GIS-based approach with existing models (FSmet and SHALSTAB) showed better precision of landslides based on the ratio of correctly identified landslides to susceptible areas. Analysis of landslide susceptibility showed that (1) the proportion of susceptible and non-susceptible cells changes spatially and temporally, (2) changed cells were a function of effective precipitation and soil storage amount, and (3) cell stability increased over time especially for clear-cut areas as root strength increased and vegetation transitioned to regenerated forest. Our modeling results showed that landslide susceptibility is strongly influenced by natural processes and human activities in space and time; while results from simulated outputs show the potential for decision-making in effective forest planning by using various management scenarios and controlling factors that influence landslide susceptibility. Such a process-based tool could be used to deal with real-dynamic systems to help decision-makers to answer complex landslide susceptibility questions.

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Halofsky and Peterson 2017	eastern Oregon	Q1		x	x	x	x

Reference

Halofsky, J.E., and D.L. Peterson. 2017. Climate change vulnerability and adaptation in the Blue Mountains region. Pacific Northwest Research Station General Technical Report, PNW-GTR-939. 331 p.

<https://doi.org/10.2737/PNW-GTR-939>

Abstract

The Blue Mountains Adaptation Partnership was developed to identify climate change issues relevant to resource management in the Blue Mountains region, to find solutions that can minimize negative effects of climate change, and to facilitate transition of diverse ecosystems to a warmer climate. Partnering organizations included three national forests (Malheur, Umatilla, Wallowa-Whitman National Forests), the Pacific Northwest Research Station and Pacific Northwest Region of the U.S. Department of Agriculture, Forest Service, the University of Washington, and the Climate Impacts Research Consortium at Oregon

State University. These organizations worked together over a 2-year period to conduct a state-of-the-science climate change vulnerability assessment and develop adaptation options for national forests in the Blue Mountains region. The vulnerability assessment emphasized four resource areas—water, fish, upland vegetation, and special habitats—regarded as the most important resources for local ecosystems and communities.

The vulnerability assessment indicated that effects of climate change on hydrology in the Blue Mountains will be especially significant. Decreased snowpack and earlier snowmelt will shift the timing and magnitude of streamflow; peak flows will be higher, and summer low flows will be lower. Projected changes in climate and hydrology will have far-reaching effects on aquatic and terrestrial ecosystems, especially as frequency of extreme climate events (drought) and associated effects on ecological disturbance (wildfire, insect outbreaks) increase. Abundance and distribution of spring Chinook salmon (*Oncorhynchus tshawytscha* Walbaum), redband trout/steelhead (*O. mykiss gibsii* Walbaum)/(*O.m.* Walbaum), and especially bull trout (*Salvelinus confluentus* Suckley) will be greatly reduced, although effects will differ by location as a function of both stream temperature and competition from nonnative fish species. Increasing air temperature, through its influence on soil moisture, is expected to cause gradual changes in the abundance and distribution of tree, shrub, and grass species throughout the Blue Mountains, with drought tolerant species becoming more competitive. Ecological disturbance, including wildfire and insect outbreaks, will be the primary facilitator of vegetation change. High-elevation forest types will be especially vulnerable to disturbance.

Resource managers developed a detailed list of ways to address these climate change vulnerabilities through management actions. The large number of adaptation strategies and tactics, many of which are a component of current management practice, provide a pathway for slowing the rate of deleterious change in resource conditions.

Aquatic Species: The authors reference chinook salmon (*Oncorhynchus tshawytscha*), redband trout/steelhead (*O. Mykiss*), bull trout (*Salvelinus confluentus*), and other aquatic species that are not on the HCP list.

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Harp et al. 1996	eastern WA	Q1		x	x	x	

Reference

Harp, E.L., A.F. Chleborad, R.L. Schuster, S.H. Cannon, M.E. Reid, and R.C. Wilson. 1996. Landslides and landslide hazards in Washington State due to February 5-9,1996 storm. U.S. Geological Survey Administrative Report. 33 p. <https://faculty.washington.edu/kramer/522/USGS1996StormSlides.pdf>

Abstract

The authors did not provide an abstract.

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Herrera Environmental Consultants, Inc. 2004		Q1		x	x	x	

Reference

Herrera Environmental Consultants Inc. 2004. Review of the Available Literature Related to Wood Loading Dynamics in and around Streams in Eastern Washington Forests.

https://www.dnr.wa.gov/publications/fp_cmer_03_308.pdf

Abstract

The authors did not provide an abstract.

Specific location: eastern WA and similar ecoregions

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Istanbulluoglu et al. 2004	Idaho	Q1		x	x	x	

Reference

Istanbulluoglu, E., D. Tarboton, R. Pack, and C. Luce. 2004. Modeling of the interactions between forest vegetation, disturbances, and sediment yields. Journal of Geophysical Research-Earth Surface 109(F1)

<https://doi.org/10.1029/2003JF000041>

Abstract

The controls of forest vegetation, wildfires, and harvest vegetation disturbances on the frequency and magnitude of sediment delivery from a small watershed (similar to 3.9 km²) in the Idaho batholith are investigated through numerical modeling. The model simulates soil development based on continuous bedrock weathering and the divergence of diffusive sediment transport on hillslopes. Soil removal is due to episodic gully erosion, shallow landsliding, and debris flow generation. In the model, forest vegetation provides root cohesion and surface resistance to channel initiation. Forest fires and harvests reduce the vegetation. Vegetation loss leaves the land susceptible to erosion and landsliding until the vegetation cover reestablishes in time. Simulation results compare well with field observations of event sediment yields and long-term averages over similar to 10,000 years. When vegetation is not disturbed by wildfires over thousands of years, sediment delivery is modeled to be less frequent but with larger event magnitudes. Increased values of root cohesion (representing denser forests) lead to higher event magnitudes. Wildfires appear to control the timing of sediment delivery. Compared to undisturbed forests, erosion is concentrated during the periods with low erosion thresholds, often called accelerated erosion periods, following wildfires. Our modeling suggests that drainage density is inversely proportional to root cohesion

and that reduced forest cover due to wildfires increases the drainage density. We compare the sediment yields under anthropogenic (harvest) and natural (wildfire) disturbances. Disturbances due to forest harvesting appear to increase the frequency of sediment delivery; however, the sediment delivery following wildfires seems to be more severe. These modeling-based findings have implications for engineering design and environmental management, where sediment inputs to streams and the fluctuations and episodicity of these inputs are of concern.

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Jordan et al. 2010	British Columbia	Q1, Q2		x	x	x	

Reference

Jordan, P., T.H. Millard, D. Campbell, J. W. Schwab, D.J. Wilford, D. Nicol, and D. Collins. 2010. Forest Management Effects on Hillslope Processes (Chapter 9, page 275-330). In: Compendium of Forest Hydrology and Geomorphology in British Columbia Volume 1 of 2. (Eds) R.G. Pike, T.E. Redding, R.D. Moore, R.D. Winkler, and K. D. Bladon. Ministry of Forests and Range Forest Science Program. British Columbia https://fews.forestry.oregonstate.edu/publications/AA_LMH66_volume1of2.pdf

Abstract

The authors did not provide an abstract.

Specific location: Interior British Columbia

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Ketcheson et al. 1999	Idaho	Q1		x	x	x	

Reference

Ketcheson, G.L., W.F. Megahan, and J.G. King. 1999. "R1–R4" and "BOISED" sediment prediction model tests using forest roads in granitics. Journal of the American Water Resources Association 35, 83–98. <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1752-1688.1999.tb05454.x>

Abstract

Erosion and sedimentation data from research watersheds in the Silver Creek Study Area in central Idaho were used to test the prediction of logging road erosion using the R1-R4 sediment yield model, and sediment delivery using the "BOISED" sediment yield prediction model. Three small watersheds were instrumented and monitored such that erosion from newly constructed roads and sediment delivery to the mouths of the watersheds could be measured for four years following road construction. The errors for annual surface erosion predictions for the two standard road tests ranged from +3 1.2 t/ha/yr (+15

percent) to -30.3 t/ha/yr (-63 percent) with an average of zero t/ha/yr and a standard deviation of the differences of 18.7 t/ha/yr. The annual prediction errors for the three watershed scale tests had a greater range from -40.8 t/ha/yr (-70 percent) to +65.3 t/ha/yr (+38 percent) with a mean of -1.9 t/ha/yr and a standard deviation of the differences of 25.2 t/ha/yr. Sediment yields predicted by BOISED (watershed scale tests) were consistently greater (average of 2.5 times) than measured sediment yields. Hillslope sediment delivery coefficients in BOISED appear to be overly conservative to account for average site conditions and road locations, and thus over-predict sediment delivery. Mass erosion predictions from BOISED appear to predict volume well (465 tonnes actual versus 710 tonnes predicted, or a 35 percent difference) over 15 to 20 years, however mass wasting is more episodic than the model predicts.

Specific location: Silver Creek, central Idaho

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Klock and Helvey 1976	eastern WA	Q1		x	x	x	

Reference

Klock, G.O., and J.D. Helvey. 1976. Debris flows following wildfire in north central Washington. Proceedings of the Third Inter-agency Sedimentation Conference. US Water Resources Council, Sedimentation Committee, Washington DC. x1-91–1-98.
<https://babel.hathitrust.org/cgi/pt?id=umn.31951000143903p&seq=109>

Abstract

A combination of rapid snowmelt, high intensity rainstorms, and fire-denuded watersheds resulted in massive debris torrents from numerous tributary streams of the Entiat River in north-central Washington during the spring and summer of 1972. Debris torrents are summarized by location, soil type, topography, and land use history for five adjacent watersheds. Alternative forest management recommendations are suggested for minimizing the impact of possible future debris torrents within the study area.

Specific location: north-central Washington (Entiat River Valley 20 miles north of Wenatchee, WA)

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Lineback-Gritzner et al. 2001	Idaho	Q1, Q2		x	p		

Reference

Lineback Gritzner, M., W.A. Marcus, R. Aspinall, and S.G. Custer. 2001. Assessing landslide potential using GIS, soil wetness modeling and topographic attributes, Payette River, Idaho. *Geomorphology* 37(1): 149–165. [https://doi.org/10.1016/S0169-555X\(00\)00068-4](https://doi.org/10.1016/S0169-555X(00)00068-4)

Abstract

This study utilizes GIS modeling to determine if the location of 559 landslides in the 875 km² catchment of the Middle Fork of the Payette River, Idaho can be predicted based on topographic attributes and a wetness index generated by the DYNWET model. Slope and elevation were significantly related to landslide occurrence at this landscape scale. Aspect was also retained as a variable for further analysis because, despite a non-significant chi-square relation to landslide occurrence, graphical analysis suggested a relation between aspect and mass wasting. Chi-square analysis indicated that plan and profile curvature, flow path length, upslope contributing area, and the DYNWET-based moisture index were not significantly related to landsliding. A Bayesian probability model based on combinations of elevation, slope, aspect, and wetness indicates that elevation exhibits the closest relation to landsliding, followed by slope; but that neither aspect nor wetness index values help in prediction. The Bayesian probability model using elevation and slope generates a map of relative landslide risk that can be used to direct activities away from mass wasting prone areas. The association between elevation and landslides is perplexing but is perhaps due to the location of logging road at specific elevations (roads could not be included in the input data for analysis because they have not been adequately mapped). The lack of explanation provided by the DYNWET wetness index was also surprising and may be due to the 30-m digital elevation model (DEM) and the soils data having resolutions too coarse to adequately portray local variations key to mass wasting. We believe the inadequacy of data to drive the models is typical of the majority of catchment scale setting. For now, the ability of researchers to effectively model landscape scale landsliding is more limited by the type, resolution, and quality of available data than by the quality of the landslide models.

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Luce et al. 2012	western US	Q1, Q2		x	x	x	x

Reference

Luce, C., P. Morgan, K. Dwire, D. Isaak, Z. Holden, and B. Rieman. 2012. Climate change, forests, fire, water, and fish: building resilient landscapes, streams, and managers. Gen. Tech. Rep. RMRS-GTR-290. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 207 pp
<https://research.fs.usda.gov/treesearch/41932#>

Abstract

Fire will play an important role in shaping forest and stream ecosystems as the climate changes. Historic observations show increased dryness accompanying more widespread fire and forest die-off. These events punctuate gradual changes to ecosystems and sometimes generate stepwise changes in ecosystems. Climate vulnerability assessments need to account for fire in their calculus. The biophysical template of forest and stream ecosystems determines much of their response to fire. This report describes the framework of how fire and climate change work together to affect forest and fish communities. Learning how to adapt will come from testing, probing, and pushing that framework and then proposing new ideas. The western U.S. defies generalizations, and much learning must necessarily be local in implication. This report serves as a scaffold for that learning. It comprises three primary chapters on physical processes,

biological interactions, and management decisions, accompanied by a special section with separately authored papers addressing interactions of fish populations with wildfire. Any one of these documents could stand on its own. Taken together, they serve as a useful reference with varying levels of detail for land managers and resource specialists. Readers looking for an executive summary are directed to the sections titled “Introduction” and “Next Steps.”

Aquatic species: fish

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
McClelland et al. 1999	Idaho	Q1		x	x	x	x

Reference

McClelland, D.E., R.B. Foltz, C.M. Falter, W.D. Wilson, T. Cundy, R.L. Schuster, J. Saurbier, C. Rabe, and R. Heinemann. 1999. Relative Effects on a Low-Volume Road System of Landslides Resulting from Episodic Storms in Northern Idaho. *Transportation Research Record*. 1652(1): 235–243.
<https://doi.org/10.3141/1652-63>

Abstract

In late November to early December 1995 and February 1996, northern Idaho was hit by heavy rains on a deep snowpack, resulting in two flood and landslide events of historic magnitude. Each of these storms was larger than the previous significant storm, which occurred in January 1974. A study was initiated by the U.S. Department of Agriculture Forest Service to survey and study the effects of the resultant landslides on the Clearwater National Forest, including the effects on the aquatic ecosystem. The results of this study were compared with the estimated average natural sediment resulting from landslides to evaluate the incremental impacts of these recent episodic landslides. They were also compared with the results of a study conducted on the landslides resulting from the January 1974 storm to determine if the landscape was responding more severely to large storms as a result of Forest Service management activities over the past 21 years. The general results of this study indicate that, of the Forest Service management activities, roads are the major contributor; however, they contribute less sediment than natural landslides. The total resultant sediment appears to be within the transport capacity of the aquatic system, and the landslide response in 1974 was similar to the 1995–1996 response. The results of the aquatic ecosystem study were generally mixed, with some habitat parameters indicating degradation, some unchanged, and some improved as a result of the flooding or flooding with landslide sediment.

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
McGreer et al. 1998	eastern WA & western MT	Q1		x	x	x	x

Reference

McGreer, D.J., B.D. Sugden, and D.T. Schult. 1998. Surface Erosion and Mass Wasting Assessment and Management Strategies for Plum Creek's Native Fish Habitat Conservation Plan. Native Fish Habitat Conservation Plan Technical Report #3. Columbia Falls, Montana: Plum Creek Timber Company.

Abstract

The authors did not provide an abstract.

Aquatic Species: Salmonids and fish

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Megahan et al. 1978	Idaho	Q1, Q2		x	x		

Reference

Megahan, W.F., N.F. Day, and Bliss, 1978. Landslide occurrence in the western and central northern Rocky Mountain physiographic province in Idaho. In: Youngberg, C.T. (Ed.), Forest Soils and Land Use, Proceedings of the Fifth North American Forest Soils Conference. Colorado State University, Department of Forest and Wood Sciences, Fort Collins, CO, pp. 116–139.

https://geodata.geology.utah.gov/pages/view.php?ref=4784&search=&offset=15100&order_by=resource_type&sort=DESC&archive=0&k=&

Abstract

The authors did not provide an abstract.

Specific location: Idaho batholith - Clearwater National Forest in northern Idaho and Boise National Forest in west-central Idaho

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Peterson et al. 2009	Western US	Q1		x		x	x

Reference

Peterson, D.L., J.K. Agee, G.H. Aplet, D.P. Dyskstra, R.T. Graham, J.F. Lehmkuhl, D.S. Pilliod, D.F. Potts, R.F. Powers, and J.D. Stuart. 2009. Effects of timber harvest following wildfire in western North America. General Technical Report PNW-GTR-776. Portland, OR: USDA Department of Agriculture, Forest Service, Pacific Northwest Research Station. 51 p. <https://doi.org/10.2737/PNW-GTR-77>

Abstract

Timber harvest following wildfire leads to different outcomes depending on the biophysical setting of the forest, pattern of burn severity, operational aspects of tree removal, and other management activities. Fire effects range from relatively minor, in which fire burns through the understory and may kill a few trees, to severe, in which fire kills most trees and removes much of the organic soil layer. Postfire logging adds to these effects by removing standing dead trees (snags) and disturbing the soil. The influence of postfire logging depends on the intensity of the fire, intensity of the logging operation, and management activities such as fuel treatments. In severely burned forest, timing of logging following fire (same season as fire vs. subsequent years) can influence the magnitude of effects on naturally regenerating trees, soils, and commercial wood value. Removal of snags reduces long-term fuel loads but generally results in increased amounts of fine fuels for the first few years after logging unless surface fuels are effectively treated. By reducing evapotranspiration, disturbing the soil organic horizon, and creating hydrophobic soils in some cases, fire can cause large increases in surface-water runoff, streamflow, and erosion. Through soil disturbance, especially the construction of roads, logging with ground-based equipment and cable yarding can exacerbate this effect, increasing erosion and altering hydrological function at the local scale. Effects on aquatic systems of removing trees are mostly negative, and logging and transportation systems that disturb the soil surface or accelerate road-related erosion can be particularly harmful unless disturbances are mitigated. Cavity-nesting birds, small mammals, and amphibians may be affected by harvest of standing dead and live trees, with negative effects on most species but positive or neutral effects on other species, depending on the intensity and extent of logging. Data gaps on postfire logging include the effects of various intensities of logging, patch size of harvest relative to fire size, and long-term (10+ years) biophysical changes. Uncertainty about the effects of postfire logging can be reduced by implementing management experiments to document long-term changes in natural resources at different spatial scales.

Specific location: western U.S., from the coastal ranges, Cascade Range, and Sierra Nevada east to the Rocky Mountains and associated ranges, and from SW Canada to the SW United States, including dry forests dominated by ponderosa pine, cold forests dominated by Engelmann spruce, fir species and lodgepole pine, and woodlands in the American Southwest

Aquatic species: fish, amphibian, benthic invertebrates

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Platts et al. 1989	Idaho	Q1		x	x	x	x

Reference

Platts, et al. 1989. Changes in spawning and rearing habitat from increased delivery of fine sediment to the South Fork Salmon River, Idaho. Transactions of the American Fisheries Society 118:274-283.

[https://doi.org/10.1577/1548-8659\(1989\)118%3C0274:CISSAR%3E2.3.CO;2](https://doi.org/10.1577/1548-8659(1989)118%3C0274:CISSAR%3E2.3.CO;2)

Abstract

Levels of surface and subsurface fine sediment (<4.75 mm in diameter) were measured annually from 1965 to 1985 in spawning and rearing areas for chinook salmon *Oncorhynchus tshawytscha* and steelhead *O. mykiss* (formerly *Salmo gairdneri*) in the South Fork Salmon River, Idaho. Between 1950 and 1965, logging and road construction, in combination with large storm events of 1964 and 1965, resulted in the delivery of increased amounts of fine sediments to the South Fork Salmon River. Surface and subsurface fine sediment levels peaked at 46% of the surface area in 1966 and 48% of the volume in 1969, respectively. A logging moratorium initiated in 1965, coupled with natural recovery and watershed rehabilitation, led to significant decreases in the amounts of fine sediments delivered to and stored in the South Fork Salmon River; this reduction led to a limited resumption of logging operations within the watershed in 1978. By 1985, surface and subsurface sediment levels in chinook salmon spawning areas averaged 19.7% of the surface area and 25.4% of the volume, respectively. However, additional recovery to pre-logging fine sediment levels is probably contingent on both further watershed recovery and the occurrence of flood flows capable of transporting material downstream. An equilibrium between incoming sediment from the watershed and outgoing sediment from the river appears to have been reached under flow regimes that have occurred since 1975.

Specific location: South Fork Salmon River, Idaho

Aquatic species: salmonids

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Sidle 2005	various			x	x	p	

Reference

Sidle, R.C. 2005. Influence of forest harvesting activities on debris avalanches and flows. In: Hungr, O., Jacob, M. (Eds.), Debris Flow Hazards and Related Phenomena. Praxis, Springer-Verlag, Berlin, pp. 387-403

https://link.springer.com/content/pdf/10.1007/3-540-27129-5_15.pdf

Abstract

The author did not provide an abstract.

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Wondzell and King 2003	Western US	Q1		x	x	x	

Reference

Wondzell, S.M., and J.G. King. 2003. Postfire erosional processes in the Pacific Northwest and Rocky Mountain regions. *Forest Ecology and management* 178(1–2): 75–87. [https://doi.org/10.1016/S0378-1127\(03\)00054-9](https://doi.org/10.1016/S0378-1127(03)00054-9)

Abstract

The objective of this paper is to provide a general overview of the influence of wildland fires on the erosional processes common to the forested landscapes of the western United States. Wildfire can accelerate erosion rates because vegetation is an important factor controlling erosion. There can be great local and regional differences, however, in the relative importance of different erosional processes because of differences in prevailing climate, geology and topography; because of differences in the degree to which vegetation regulates erosional processes; and because of differences in the types of fire regimes that disrupt vegetative cover. Surface erosion, caused by overland flow, is a dominant response to wildfire in the Interior Northwest and Northern Rocky Mountains (Interior Region). A comparison of measured postfire infiltration rates and long-term records of precipitation intensity suggest that surface runoff from infiltration-excess overland flow should also occur in the Coastal and Cascade Mountains of the Pacific Northwest after fires, but this has not been documented in the literature. Debris slides and debris flows occur more frequently after wildfire in the Interior Region and in the Coastal and Cascade Mountains of the Pacific Northwest (Pacific Northwest Region). Debris flows can be initiated from either surface runoff or from soil-saturation-caused debris slides. In the Pacific Northwest Region, debris flows are typically initiated as debris slides, caused by soil saturation and loss of soil cohesion as roots decay following fire. In the Interior Region, both overland-flow-caused and debris-slide-caused debris flows occur after wildfire. Surface erosion, debris slides, and debris flows all occur during intense storms. Thus, their probability of occurrence depends upon the probability of intense storms occurring during a window of increased susceptibility to surface erosion and mass wasting following intense wildfire.

Specific location: Pacific Northwest and Rocky Mountains

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Wondzell, S.M. 2001	eastern Oregon	Q1		x	x	x	x

Reference

Wondzell, S.M. 2001. The influence of forest health and protection treatments on erosion and stream sedimentation in forested watersheds of eastern Oregon and Washington. *Northwest Science* 75:128-140.

<https://rex.libraries.wsu.edu/esploro/outputs/journalArticle/The-influence-of-forest-health-and/99900501658801842>

Abstract

A variety of Forest Health and Protection treatments have been proposed to reduce long-term risks to forests from wildfire, insects, and disease. This review examines the potential effects of these treatments on sediment production in watersheds of eastern Oregon and Washington, USA, channel forming processes, riparian vegetation, and risks posed to riparian zones. Wildfires can affect upland erosion; however, erosion from prescribed fires burning the same area should be much smaller. Dense riparian vegetation might help regulate the amount of sediment that reaches streams, but this effect would be strongly dependent on the geomorphic setting. Forest pathogens are not expected to cause accelerated erosion and stream sedimentation directly, but indirect effects might be substantial if they lead to increased wildfire. The largest risk of accelerated erosion is expected from ground-disturbing activities during fuels reduction treatments, such as construction of roads and firebreaks or salvage logging or thinning. Intense grazing has changed composition and cover of riparian vegetation, leading to bank erosion, and in many places, widening or incision of stream channels. Improved grazing prescriptions can result in major changes to riparian vegetation, but response of channel morphology will most likely be slow. Most of the studies reviewed were conducted at the site or small-watershed scale. Consequently, conclusions at these scales are generally well supported by the available literature. The cumulative effects of forest health and protection treatments imposed across a large region are difficult to assess, however. Given the current state of knowledge, dramatically changing forest land use practices across eastern Oregon and Washington-including the widespread use of prescribed fires, salvage logging, and mechanical fuel treatments-is a long-term, landscape-scale experiment, the cumulative effects of which are unknown.

Aquatic Species: The author mentions salmonids and the negative effects of sedimentation.

Appendix C. Abstracts of Publications Potentially Relevant to the Secondary Focus

Secondary Focus: Are there hillslope processes other than upslope initiated shallow rapid slides that may affect covered species within the draft Habitat Conservation Plan (HCP) and are these processes changed by forest practices?

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Jordan et al. 2010	British Columbia	Q1, Q2		x	x	x	

Reference

Jordan, P., T.H. Millard, D. Campbell, J. W. Schwab, D.J. Wilford, D. Nicol, and D. Collins. 2010. Forest Management Effects on Hillslope Processes (Chapter 9, page 275-330). In: Compendium of Forest Hydrology and Geomorphology in British Columbia Volume 1 of 2. (Eds) R.G. Pike, T.E. Redding, R.D. Moore, R.D. Winkler, and K. D. Bladon. Ministry of Forests and Range Forest Science Program. British Columbia https://fews.forestry.oregonstate.edu/publications/AA_LMH66_volume1of2.pdf

Abstract

The authors did not provide an abstract.

Specific location: Interior British Columbia

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Lineback-Gritzner et al. 2001	Idaho	Q1, Q2		x	p		

Reference

Lineback Gritzner, M., W.A. Marcus, R. Aspinall, and S.G. Custer. 2001. Assessing landslide potential using GIS, soil wetness modeling and topographic attributes, Payette River, Idaho. *Geomorphology* 37(1): 149–165. [https://doi.org/10.1016/S0169-555X\(00\)00068-4](https://doi.org/10.1016/S0169-555X(00)00068-4)

Abstract

This study utilizes GIS modeling to determine if the location of 559 landslides in the 875 km² catchment of the Middle Fork of the Payette River, Idaho can be predicted based on topographic attributes and a wetness index generated by the DYNWET model. Slope and elevation were significantly related to landslide occurrence at this landscape scale. Aspect was also retained as a variable for further analysis because, despite a non-significant chi-square relation to landslide occurrence, graphical analysis suggested a relation between aspect and mass wasting. Chi-square analysis indicated that plan and profile curvature, flow path length, upslope contributing area, and the DYNWET-based moisture index were not significantly related to landsliding. A Bayesian probability model based on combinations of elevation, slope, aspect, and wetness

indicates that elevation exhibits the closest relation to landsliding, followed by slope; but that neither aspect nor wetness index values help in prediction. The Bayesian probability model using elevation and slope generates a map of relative landslide risk that can be used to direct activities away from mass wasting prone areas. The association between elevation and landslides is perplexing but is perhaps due to the location of logging road at specific elevations (roads could not be included in the input data for analysis because they have not been adequately mapped). The lack of explanation provided by the DYNWET wetness index was also surprising and may be due to the 30-m digital elevation model (DEM) and the soils data having resolutions too coarse to adequately portray local variations key to mass wasting. We believe the inadequacy of data to drive the models is typical of the majority of catchment scale setting. For now, the ability of researchers to effectively model landscape scale landsliding is more limited by the type, resolution, and quality of available data than by the quality of the landslide models.

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Luce et al. 2012	western US	Q1, Q2		x	x	x	x

Reference

Luce, C., P. Morgan, K. Dwire, D. Isaak, Z. Holden, and B. Rieman. 2012. Climate change, forests, fire, water, and fish: building resilient landscapes, streams, and managers. Gen. Tech. Rep. RMRS-GTR-290. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 207 pp
<https://research.fs.usda.gov/treearch/41932#>

Abstract

Fire will play an important role in shaping forest and stream ecosystems as the climate changes. Historic observations show increased dryness accompanying more widespread fire and forest die-off. These events punctuate gradual changes to ecosystems and sometimes generate stepwise changes in ecosystems. Climate vulnerability assessments need to account for fire in their calculus. The biophysical template of forest and stream ecosystems determines much of their response to fire. This report describes the framework of how fire and climate change work together to affect forest and fish communities. Learning how to adapt will come from testing, probing, and pushing that framework and then proposing new ideas. The western U.S. defies generalizations, and much learning must necessarily be local in implication. This report serves as a scaffold for that learning. It comprises three primary chapters on physical processes, biological interactions, and management decisions, accompanied by a special section with separately authored papers addressing interactions of fish populations with wildfire. Any one of these documents could stand on its own. Taken together, they serve as a useful reference with varying levels of detail for land managers and resource specialists. Readers looking for an executive summary are directed to the sections titled "Introduction" and "Next Steps."

Aquatic species: fish

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Megahan et al. 1978	Idaho	Q1, Q2		x	x		

Reference

Megahan, W.F., N.F. Day, and Bliss, 1978. Landslide occurrence in the western and central northern Rocky Mountain physiographic province in Idaho. In: Youngberg, C.T. (Ed.), Forest Soils and Land Use, Proceedings of the Fifth North American Forest Soils Conference. Colorado State University, Department of Forest and Wood Sciences, Fort Collins, CO, pp. 116–139.

https://geodata.geology.utah.gov/pages/view.php?ref=4784&search=&offset=15100&order_by=resourcetype&sort=DESC&archive=0&k=&

Abstract

The authors did not provide an abstract.

Specific location: Idaho batholith - Clearwater National Forest in northern Idaho and Boise National Forest in west-central Idaho

Appendix D. Abstracts of “Process Relevant” Publications

These documents found were classified as “process relevant,” that is they were focused on mass wasting on forestlands but without any direct connection to forest management activities. As these were seen as containing potentially useful context information, they are summarized here. The largest number came from Idaho (7), followed by studies spanning multiple western states (6); three were located in California and one each in Colorado, Wyoming, and New Mexico. None were located in eastern Oregon or Washington. By definition none of these addressed forest practices but all addressed hillslope processes and all overlapped with semi-arid environments. Most of these studies (14) involved investigations of post-wildfire surficial erosion and mass wasting.

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Cannon and DeGraff 2008	California		x		x	x	

Reference

Cannon, S.H., and J. DeGraff. 2008. The increasing wildfire and post-fire debris-flow threat in western USA, and implications for consequences of climate change. In: Sassa, K., Canuti, P. (Eds.), Landslides — Disaster Risk Reduction: Proceedings of 1st World Landslide Forum. Springer-Verlag, Berlin, pp. 177–190.
https://link.springer.com/chapter/10.1007/978-3-540-69970-5_9

Abstract

The authors did not provide an abstract.

Specific location: southern California and the intermountain West

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Cannon and Gartner 2005	western US		x		x	x	

Reference

Cannon, S.H., and J.E. Gartner. 2005. Wildfire-related debris flow from a hazards perspective. In: Hungr, O., Jacob, M. (Eds.), Debris Flow Hazards and Related Phenomena. Praxis, Springer-Verlag, Berlin, pp. 363–385
https://link.springer.com/content/pdf/10.1007/3-540-27129-5_15.pdf

Abstract

The authors did not provide an abstract.

Specific location: various - data from 95 basins throughout the western United States

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Cannon et al. 2003	western US		x			x	

Reference

Cannon, S.H., J.E. Gartner, C. Parrett, and M. Parise. 2003. Wildfire-related debris-flow generation through episodic progressive sediment-bulking processes, western USA. In: Rickenmann, D., Chen, C. (Eds.), Debris-Flow Hazards Mitigation: Mechanics, Prediction, and Assessment. Millpress, Rotterdam, pp. 71–82.

Abstract

Debris-flow initiation processes on hillslopes recently burned by wildfire differ from those generally recognized on unburned, vegetated hillslopes. These differences result from fire-induced changes in the hydrologic response to rainfall events. In this study, detailed field and aerial photographic mapping, observations, and measurements of debris-flow events from three sites in the western U.S. were used to describe and evaluate the process of episodic progressive sediment bulking of storm runoff that leads to the generation of post-wildfire debris flows. Our data demonstrate the effects of material erodibility, sediment availability on hillslopes and in channels, the degree of channel confinement, the formation of continuous channel incision, and the upslope contributing area and its gradient on the generation of flows and the magnitude of the response are demonstrated.

Specific location: three sites in the western United States - Hamilton, Montana, Glenwood Springs, Colorado, and Los Alamos, New Mexico

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Cannon et al. 2010	western US		x	x	x	x	

Reference

Cannon, S.H., J.E. Gartner, M.G. Rupert, J.A. Michael, A.H. Rea, and C. Parrett. 2010. Predicting the probability and volume of post-wildfire debris flows in the intermountain western United States. Geological Society of America Bulletin 122, 127–144.

https://www.researchgate.net/publication/249527492_Predicting_the_probability_and_volume_of_postwildfire_debris_flows_in_the_intermountain_western_United_States

Abstract

Empirical models to estimate the probability of occurrence and volume of post wildfire debris flows can be quickly implemented in a geographic information system (GIS) to generate debris-flow hazard maps either before or immediately following wildfires. Models that can be used to calculate the probability of debris-flow production from individual drainage basins in response to a given storm were developed using logistic regression analyses of a database from 388 basins located in 15 burned areas located throughout the U.S.

Intermountain West. The models describe debris-flow probability as a function of readily obtained measures of areal burned extent, soil properties, basin morphology, and rainfall from short-duration and low recurrence-interval convective rainstorms. A model for estimating the volume of material that may issue from a basin mouth in response to a given storm was developed using multiple linear regression analysis of a database from 56 basins burned by eight fires. This model describes debris-flow volume as a function of the basin gradient, aerial burned extent, and storm rainfall. Applications of a probability model and the volume model for hazard assessments are illustrated using information from the 2003 Hot Creek fire in central Idaho. The predictive strength of the approach in this setting is evaluated using information on the response of this fire to a localized thunderstorm in August 2003. The mapping approach presented here identifies those basins that are most prone to the largest debris-flow events and thus provides information necessary to prioritize areas for postfire erosion mitigation, warnings, and pre-fire management efforts throughout the Intermountain West.

Specific location: U.S. Intermountain West - Idaho, Montana, Utah, Colorado, and southern California

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Cannon et al. 2008	western US		x		x	x	

Reference

Cannon, S.H., J.E. Gartner, R.C. Wilson, J.C. Bowers, and J.L. Laber. 2008. Storm rainfall conditions for floods and debris flows from recently burned areas in southwestern Colorado and southern California. *Geomorphology* 96, 250–269.

Abstract

Debris flows generated during rain storms on recently burned areas have destroyed lives and property throughout the Western U.S. Field evidence indicate that unlike landslide-triggered debris flows, these events have no identifiable initiation source and can occur with little or no antecedent moisture. Using rain gage and response data from five fires in Colorado and southern California, we document the rainfall conditions that have triggered post-fire debris flows and develop empirical rainfall intensity–duration thresholds for the occurrence of debris flows and floods following wildfires in these settings. This information can provide guidance for warning systems and planning for emergency response in similar settings.

Debris flows were produced from 25 recently burned basins in Colorado in response to 13 short-duration, high-intensity convective storms. Debris flows were triggered after as little as six to 10 min of storm rainfall. About 80% of the storms that generated debris flows lasted less than 3 h, with most of the rain falling in less than 1 h. The storms triggering debris flows ranged in average intensity between 1.0 and 32.0 mm/h, and had recurrence intervals of two years or less. Threshold rainfall conditions for floods and debris flows sufficiently large to pose threats to life and property from recently burned areas in south-central, and southwestern, Colorado are defined by: $I=6.5D^{-0.7}$ and $I=9.5D^{-0.7}$, respectively, where I =rainfall intensity (in mm/h) and D =duration (in hours).

Debris flows were generated from 68 recently burned areas in southern California in response to long-duration frontal storms. The flows occurred after as little as two hours, and up to 16 h, of low-intensity (2–10 mm/h) rainfall. The storms lasted between 5.5 and 33 h, with average intensities between 1.3 and 20.4 mm/h, and had recurrence intervals of two years or less. Threshold rainfall conditions for life- and property-threatening floods and debris flows during the first winter season following fires in Ventura County, and in the San Bernardino, San Gabriel and San Jacinto Mountains of southern California are defined by $I = 12.5D^{-0.4}$, and $I = 7.2D^{-0.4}$, respectively. A threshold defined for flood and debris flow conditions following a year of vegetative recovery and sediment removal for the San Bernardino, San Gabriel and San Jacinto Mountains of $I = 14.0D^{-0.5}$ is approximately 25 mm/h higher than that developed for the first year following fires.

Specific location: Colorado and southern California

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
DeGraff 1994	California		x	x	x	x	

Reference

DeGraff, J.V. 1994. The geomorphology of some debris flows in the southern Sierra Nevada, California. *Geomorphology and Natural Hazards*. Elsevier, 1994. 231-252. [https://doi.org/10.1016/0169-555X\(94\)90019-1](https://doi.org/10.1016/0169-555X(94)90019-1)

Abstract

Debris flows are one of the natural hazards present in the southern Sierra Nevada of California. Historic debris flow activity is documented at a USDA Forest Service research facility in the Kings River drainage related to a 1937 storm event. No subsequent study of this phenomenon was undertaken until 1982. Observations of debris flows over the succeeding 10 years offer an initial assessment of the physical geomorphology of debris flows in this area. This information provides a starting point for future efforts to avoid or limit the effect of this natural hazard.

Observations were made in the Tuolumne, Merced, San Joaquin, and Kings River drainages. Of the twenty-six debris flows observed, six were examined in detail to provide specific data on this phenomenon. Triggering events for debris flows in the southern Sierra Nevada include intense rainfall, rain-on-snow storms, and seasonal melting of heavy snowpacks. Movement typically occurs at depths between 0.3 and 5 m below ground surface. This is representative of depths for the three interfaces associated with initiation of movement: (1) at the base of the root zone, (2) at the contact of well-weathered and less-weathered soil, and (3) at the contact between soil and unweathered bedrock. Measurement of debris flow velocity based on indirect methods found values ranging from 2.6 m/s to 7.2 m/s (9 km/h to 26 km/h). Recurrence intervals based on radiocarbon dates are between 425 and 500 years BP.

Roads and other land use investments have suffered damage from debris flow activity during the 1982 to 1993 period. Stump Springs road in the San Joaquin river drainage required US\$1.4 million to repair damage primarily from 1982 debris flows. The threat to life arising from debris flows is illustrated by the consequences of vegetation losses from wildfire near El Portal, California. The projected population growth

with associated increased infrastructure raises concern for greater impacts from future debris flow occurrence in the southern Sierra Nevada.

Specific location: southern Sierra Nevada of California, Tuolumne, Merced, San Joaquin, and Kings River drainages

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Dunham et al. 2007	Idaho		x		x	x	x

Reference

Dunham, J.B., A.E. Rosenberger, C.H. Luce, and B.E. Rieman. 2007. Influences of wildfire and channel reorganization on spatial and temporal variation in stream temperature and the distribution of fish and amphibians. *Ecosystems* 10:335–346. <https://doi.org/10.1007/s10021-007-9029-8>

Abstract

Wildfire can influence a variety of stream ecosystem properties. We studied stream temperatures in relation to wildfire in small streams in the Boise River Basin, located in central Idaho, USA. To examine the spatiotemporal aspects of temperature in relation to wildfire, we employed three approaches: a pre–post fire comparison of temperatures between two sites (one from a burned stream and one unburned) over 13 years, a short term (3 year) pre–post fire comparison of a burned and unburned stream with spatially extensive data, and a short-term (1 year) comparative study of spatial variability in temperatures using a “space for time” substitutive design across 90 sites in nine streams (retrospective comparative study). The latter design included streams with a history of stand-replacing wildfire and streams with severe post-fire reorganization of channels due to debris flows and flooding. Results from these three studies indicated that summer maximum water temperatures can remain significantly elevated for at least a decade following wildfire, particularly in streams with severe channel reorganization. In the retrospective comparative study we investigated occurrence of native rainbow trout (*Oncorhynchus mykiss*) and tailed frog larvae (*Ascaphus montanus*) in relation to maximum stream temperatures during summer. Both occurred in nearly every site sampled, but tailed frog larvae were found in much warmer water than previously reported in the field (26.6_C maximum summer temperature). Our results show that physical stream habitats can remain altered (for example, increased temperature) for many years following wildfire, but that native aquatic vertebrates can be resilient. In a management context, this suggests wildfire may be less of a threat to native species than human influences that alter the capacity of stream-living vertebrates to persist in the face of natural disturbance.

Specific location: Boise River basin in central Idaho

Aquatic species: Rainbow trout (*Oncorhynchus mykiss*), Rocky Mountain tailed frog (*Ascaphus montanus*) and bull trout (*Salvelinus confluentus*)

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Gorsevski 2023	Idaho		x				

Reference

Gorsevski, P.V. 2023. A free web-based approach for rainfall-induced landslide susceptibility modeling: Case study of Clearwater National Forest, Idaho, USA. Environmental Modelling & Software. 161: 105632. <https://doi.org/10.1016/j.envsoft.2023.105632>

Abstract

This study presents an interactive web-based approach for modeling rainfall-induced landslide susceptibility using Free Open Source Software (FOSS). The design is based on the R statistical framework and Shiny package coupled with the shallow slope stability model (SHALSTAB) from SAGA GIS. The easy-to-use real-time application extends the potential of current modeling efforts to non-expert R and GIS users and can also be used in an educational context for classroom teaching activity and enabling research-informed learning. The parsimonious approach (i.e. few parameter inputs) is accomplished in two sequential steps including modeling and validation by the use of site-specific datasets. The approach was tested in a case study on the Clearwater National Forest and the results from the validation showed an overall accuracy of 0.894, kappa of 0.789 and AUC from ROC curve was 0.715. The modeled landslide potential may be used as a decision-support tool for local planning.

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Istanbulluoglu et al. 2003	Idaho		x	x	x	x	

Reference

Istanbulluoglu, E., D.G. Tarboton, R.T. Pack, and C.H. Luce. 2003. A sediment transport model for incision of gullies on steep topography. Water Resources Research 39,1103. <https://research.fs.usda.gov/treesearch/8362>

Abstract

We have conducted surveys of gullies that developed in a small, steep watershed in the Idaho Batholith after a severe wildfire followed by intense precipitation. We measured gully length and cross sections to estimate the volumes of sediment loss due to gully formation. These volume estimates are assumed to provide an estimate of sediment transport capacity at each survey cross section from the single gully-forming thunderstorm. Sediment transport models commonly relate transport capacity to overland flow shear stress, which is related to runoff rate, slope, and drainage area. We have estimated the runoff rate and duration associated with the gully-forming event and used the sediment volume measurements to calibrate a general physically based sediment transport equation in this steep, high shear stress environment. We find that a shear stress exponent of 3, corresponding to drainage area and slope

exponents of $M = 2.1$ and $N = 2.25$, match our data. This shear stress exponent of 3 is approximately 2 times higher than those for bed load transport in alluvial rivers but is in the range of shear stress exponents derived from flume experiments on steep slopes and with total load equations. The concavity index of the gully profiles obtained theoretically from the area and slope exponents of the sediment transport equation, $q_c = (M-1)/N$, agrees well with the observed profile concavity of the gullies. Our results, although preliminary because of the uncertainty associated with the sediment volume estimates, suggest that for steep hillslopes such as those in our study area, a greater nonlinearity in the sediment transport function exists than that assumed in some existing hillslope erosion models which calculate sediment transport capacity using the bed load equations developed for rivers.

Specific location: Idaho batholith region - Trapper Creek within the North Fork of the Boise River in SW Idaho

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Kirchner et al. 2001	Idaho		x		x	x	x

Reference

Kirchner, J.W., R.C. Finkel, C.S. Riebe, D.E. Granger, J.L. Clayton, J.G King, and W.F. Megahan. 2001. Mountain erosion over 10 yr., 10 k.y., and 10 m.y. time scales. *Geology* 29, 591–594.
<https://research.fs.usda.gov/treearch/23971>

Abstract

We used cosmogenic ^{10}Be to measure erosion rates over 10 k.y. time scales at 32 Idaho mountain catchments, ranging from small experimental watersheds (0.2 km²) to large river basins (35 000 km²). These long-term sediment yields are, on average, 17 times higher than stream sediment fluxes measured over 10–84 yr, but are consistent with 10 m.y. erosion rates measured by apatite fission tracks. Our results imply that conventional sediment-yield measurements—even those made over decades—can greatly underestimate long-term average rates of sediment delivery and thus overestimate the life spans of engineered reservoirs. Our observations also suggest that sediment delivery from mountainous terrain is extremely episodic, sporadically subjecting mountain stream ecosystems to extensive disturbance.

Specific location: central Idaho

Aquatic species: species that recolonize disturbed habitats

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
McGuire et al. 2016	Colorado		x	?	x	x	

Reference

McGuire, L., F. Rengers, J. Kean, J. Coe, B. Mirus, R. Baum, and J. Godt. 2016. Elucidating the role of vegetation in the initiation of rainfall-induced shallow landslides: Insights from an extreme rainfall event in the Colorado Front Range. *GEOPHYSICAL RESEARCH LETTERS*. 43(17): 9084–9092.

<https://doi.org/10.1002/2016GL070741>

Abstract

More than 1100 debris flows were mobilized from shallow landslides during a rainstorm from 9 to 13 September 2013 in the Colorado Front Range, with the vast majority initiating on sparsely vegetated, south facing terrain. To investigate the physical processes responsible for the observed aspect control, we made measurements of soil properties on a densely forested north facing hillslope and a grassland-dominated south facing hillslope in the Colorado Front Range and performed numerical modeling of transient changes in soil pore water pressure throughout the rainstorm. Using the numerical model, we quantitatively assessed interactions among vegetation, rainfall interception, subsurface hydrology, and slope stability. Results suggest that apparent cohesion supplied by roots was responsible for the observed connection between debris flow initiation and slope aspect. Results suggest that future climate-driven modifications to forest structure could substantially influence landslide hazards throughout the Front Range and similar water-limited environments where vegetation communities may be more susceptible to small variations in climate.

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Meyer et al. 2001	Idaho		x	?	x	x	

Reference

Meyer, G., J. Pierce, S. Wood, and A. Jull. 2001. Fire, storms, and erosional events in the Idaho batholith. *Hydrological Processes* 15(15): 3025–3038. <https://doi.org/10.1002/hyp.389>

Abstract

In late December 1996, the South Fork Payette River basin in west-central Idaho experienced a prolonged storm that culminated on January 1, 1997, with intense rain on melting snow that triggered slide failures, producing debris flows and sediment-charged floods. Failures occurred in saturated, cohesionless, grussy colluvium derived from Weathered Idaho batholith granitic rocks. Many failures along the South Fork Payette River originated in ponderosa pine forests burned in the 1989 stand-replacing Lowman fire. An

example is the 0.49 km² 'Jughead' Creek basin. where a single large colluvial failure produced almost 40% of the total volume eroded from the basin and generated a massive and rapid debris flow. Failures also occurred in steep, unburned, and unforested drainages such as Hopkins Creek. In this south-facing 0.58 km² basin, 15 colluvial hollows failed, but no single failure produced more than 10% of the total eroded volume. Sediment transport in Hopkins Creek occurred by prolonged sediment-charged sheetflooding. Despite vegetation differences, sediment yields from the geomorphically similar Hopkins Creek (similar to 42 000 Mg km⁻²) and Jughead Creek (similar to 44 000 Mg km⁻²) basins were quite similar. These 1997 erosion events are equivalent to several thousand years of sediment yield at low rates (2.7-30 Mg km² year⁻¹) measured by short-term sediment trapping and gauging in Idaho batholith watersheds. If similar large events were solely responsible for sediment export, recurrence intervals (RIs) of several hundred years would account for higher sediment yields averaged over similar to 10⁴ year from Idaho batholith watersheds. Dating of small fire-induced sheetflooding events in an early Holocene tributary junction fan of Jughead Creek indicates that frequent small sedimentation events (RI approximate to 33-80 year) occurred between 7400 and 6600 cal year BP, with an average yield not greatly exceeding 16 Mg km⁻² year⁻¹. Compared with the Holocene average, erosion rates during that 800-year period were unusually low, suggesting that sediment yields have not been constant over time, and that climatic variations and related fire regime changes may exert a strong influence on the probability of major erosional events.

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Meyer et al. 1992	western US		x		x	x	

Reference

Meyer, G.A., S.G. Wells, R.C. Balling Jr, and A.J.T. Jull. 1992. Response of alluvial systems to fire and climate change in Yellowstone National Park. NATURE. 357(6374): 147–150. <https://doi.org/10.1038/357147a0>

Abstract

Projections of the ecological effects of global climate change often include increased frequency and/or intensity of forest fires in regions of warmer and drier climate 1-3. In addition to disturbing biological systems, widespread intense fires may influence the evolution of the physical landscape through greatly enhanced sediment transport 4. Debris-flow to flood-streamflow sedimentation events following the 1988 fires in the Yellowstone National Park area (Wyoming and Montana, USA) have allowed us to examine the geomorphological response to fire in a mountain environment. Abundant analogous deposits in older alluvial fan sequences bear witness to past fire-related sedimentation events in northwestern Yellowstone, and radiocarbon dating of these events yields a detailed chronology of fire-related sedimentation for the past 3,500 years. We find that alluvial fans aggrade during periods of frequent fire-related sedimentation events, and we interpret these periods as subject to drought or high climatic variability. During wetter periods, sediment is removed from alluvial fan storage and transported down axial streams, resulting in floodplain aggradation. The dominant alluvial activity is strongly modulated by climate, with fire acting as a drought-actuated catalyst for sediment transport.

Specific location: Montana, Wyoming

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Moody and Martin 2009	western US		x		x	x	

Reference

Moody, J.A., and D.A. Martin. 2009. Synthesis of sediment yields after wildland fire in different rainfall regimes in the western United States. *International Journal of Wildland Fire* 18: 96–115. <https://doi.org/10.1071/WF07162>

Abstract

Measurements of post-fire sediment erosion, transport, and deposition collected within 2 years of a wildfire were compiled from the published literature (1927–2007) for sites across the western United States. Annual post-fire sediment yields were computed and grouped into four measurement methods (hillslope point and plot measurements, channel measurements of suspended-sediment and sediment erosion or deposition volumes). Post-fire sediment yields for each method were then grouped into eight different rainfall regimes. Mean sediment yield from channels (240 t ha⁻¹) was significantly greater than from hillslopes (82 t ha⁻¹). This indicated that on the time scale of wildfire (10–100 years) channels were the primary sources of available sediment. A lack of correlation of sediment yield with topographic slope and soil erodibility further suggested that sediment availability may be more important than slope or soil erodibility in predicting post-fire sediment yields. The maximum post-fire sediment yields were comparable to long-term sediment yields from major rivers of the world. Based on 80 years of data from the literature, wildfires have been an important geomorphic agent of landscape change when linked with sufficient rainfall. These effects are limited in spatial scale to the immediate burned area and to downstream channel corridors.

Specific location: western U.S., including the Sub-Pacific rainfall regime, which spans eastern Oregon and eastern Washington

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Pierce et al. 2004	Idaho		x		x	x	

Reference

Pierce, J., G. Meyer, and A. Jull. 2004. Fire-induced erosion and millennial scale climate change in northern ponderosa pine forests. *Nature*. 432(7013): 87–90. <https://doi.org/10.1038/nature03058>

Abstract

Western US ponderosa pine forests have recently suffered extensive stand-replacing fires followed by hillslope erosion and sedimentation(1-4). These fires are usually attributed to increased stand density as a result of fire suppression, grazing and other land use, and are often considered uncharacteristic or unprecedented(1-3). Tree-ring records from the past 500 years indicate that before Euro-American settlement, frequent, low-severity fires maintained open stands(1-3). However, the pre-settlement period between about AD 1500 and AD 1900 was also generally colder than present(5-10), raising the possibility that rapid twentieth-century warming promoted recent catastrophic fires. Here we date fire-related sediment deposits in alluvial fans in central Idaho to reconstruct Holocene fire history in xeric ponderosa pine forests and examine links to climate. We find that colder periods experienced frequent low-severity fires, probably fuelled by increased understory growth. Warmer periods experienced severe droughts, stand-replacing fires and large debris-flow events that comprise a large component of long-term erosion(11) and coincide with similar events in sub-alpine forests of Yellowstone National Park(12). Our results suggest that given the powerful influence of climate, restoration of processes typical of pre-settlement times may be difficult in a warmer future that promotes severe fires.

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Rengers et al. 2023	New Mexico		x		x	x	

Reference

Rengers, F.K., L.A. McGuire, K.R. Barnhart, A.M. Youberg, D. Cadol, A.N. Gorr, O.J. Hoch, R. Beers, and J.W. Kean. 2023 The influence of large woody debris on post-wildfire debris flow sediment storage. *Natural Hazards and Earth System Sciences* 23(6): 2075–2088.

Abstract

Debris flows transport large quantities of water and granular material, such as sediment and wood, and this mixture can have devastating effects on life and infrastructure. The proportion of large woody debris (LWD) incorporated into debris flows can be enhanced in forested areas recently burned by wildfire because wood recruitment into channels accelerates in burned forests. In this study, using four small watersheds in the Gila National Forest, New Mexico, which burned in the 2020 Tadpole Fire, we explored new approaches to estimate debris flow velocity based on LWD characteristics and the role of LWD in debris flow volume retention. To understand debris flow volume model predictions, we examined two models for debris flow volume estimation: (1) the current volume prediction model used in US Geological Survey debris flow hazard assessments and (2) a regional model developed to predict the sediment yield associated with debris-laden flows. We found that the regional model better matched the magnitude of the observed sediment at the terminal fan, indicating the utility of regionally calibrated parameters for debris flow volume prediction. However, large wood created sediment storage upstream from the terminal fan, and this volume was of the same magnitude as the total debris flow volume stored at the terminal fans. Using field and lidar data we found that sediment retention by LWD is largely controlled by channel reach slope and a ratio of LWD length to channel width between 0.25 and 1. Finally, we demonstrated a method for

estimating debris flow velocity based on estimates of the critical velocity required to break wood, which can be used in future field studies to estimate minimum debris flow velocity values.

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Rengers 2020	California		x		x	x	

Reference

Rengers, F.K., L.A. McGuire, N.S. Oakley, J.W. Kean, D.M. Staley, and H. Tang. 2020. Landslides after wildfire: initiation, magnitude, and mobility. *Landslides* 17(11): 2631–2641. <https://doi.org/10.1007/s10346-020-01506-3>

Abstract

In the semiarid Southwestern USA, wildfires are commonly followed by runoff-generated debris flows because wildfires remove vegetation and ground cover, which reduces soil infiltration capacity and increases soil erodibility. At a study site in Southern California, we initially observed runoff-generated debris flows in the first year following fire. However, at the same site three years after the fire, the mass-wasting response to a long-duration rainstorm with high rainfall intensity peaks was shallow landsliding rather than runoff-generated debris flows. Moreover, the same storm caused landslides on unburned hillslopes as well as on slopes burned 5 years prior to the storm and areas burned by successive wildfires, 10 years and 3 years before the rainstorm. The landslide density was the highest on the hillslopes that had burned 3 years beforehand, and the hillslopes burned 5 years prior to the storm had low landslide densities, similar to unburned areas. We also found that reburning (i.e., two wildfires within the past 10 years) had little influence on landslide density. Our results indicate that landscape susceptibility to shallow landslides might return to that of unburned conditions after as little as 5 years of vegetation recovery. Moreover, most of the landslide activity was on steep, equatorial-facing slopes that receive higher solar radiation and had slower rates of vegetation regrowth, which further implicates vegetation as a controlling factor on post-fire landslide susceptibility. Finally, the total volume of sediment mobilized by the year 3 landslides was much smaller than the year 1 runoff-generated debris flows, and the landslides were orders of magnitude less mobile than the runoff-generated debris flows.

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Welcker 2011	Idaho		x		x	x	x

Reference

Welcker, C. 2011. Bulking debris flow initiation and impacts. PhD Thesis, University of Idaho. 196pp. https://www.academia.edu/89622446/Bulking_Debris_Flow_Initiation_and_Impacts

Abstract

Bulking debris flows (BDFs) are generated by infiltration excess (Horton) overland flow, eroding sufficient sediment on steep, sparsely-vegetated hillslopes to achieve debris-flow rheology. BDFs erode sediment from hillslopes and previously unchanneled hollows, entering the perennial stream network and scouring alluvium along their path to junctions with larger streams, where they typically deposit. Although BDFs have been documented in arid or burned sites throughout the western United States for over 100 years, their initiation is poorly understood, as are their geomorphic and ecological effects.

I developed a numerical model of BDF initiation from overland flow to test the hypothesis that BDFs can be generated without mass failure or episodic addition of sediment. The model incorporated erosion of sediment as bedload, transfer of bedload to suspended load, and alteration of fluid properties based on increased suspended load, which in turn increased bedload and suspended sediment transport. The predicted transition to debris-flow sediment concentrations and the pattern of hillslope erosion showed good agreement with field observations.

Debris-flow generation in arid landscapes that experience progressive sediment bulking should lead to measurably different slope area trends of channel-head locations and topography than humid landscapes by shallow landslide debris flows (SLDFs). I hypothesized that the slope area trend of BDF channel heads would follow the underlying hillslope topography, rather than previously described theoretical relationships, and this expectation was confirmed by field surveys. I also hypothesized that the lack of bedrock erosion by BDFs would result in a different topographic signature than the profile previously attributed to SLDFs. Surprisingly, survey results revealed longitudinal profiles for BDFs similar to SLDFs, but they did not correspond with the observed extent of BDF erosion.

I hypothesized that BDF disturbance would reduce riparian vegetation and shading, leading to increased stream temperatures and adverse effects on aquatic biota. Field work demonstrated that BDF effects on stream temperature lasted for 7-40 years and were found to be greater than for wildfire disturbance alone. Stream temperature was well correlated with solar radiation, but reach heating was complicated by site-specific cooling, which appears to be related to the size of the local, alluvial aquifer.

Specific location: Idaho batholith

Aquatic species: fish

Reference	Location	Question (Q1 or Q2)	Process relevant	Forest harvest-related activities	Hillslope processes - mass wasting	Environmental similarity to eastern Oregon	HCP covered species and their habitats
Zung et al. 2009	Wyoming	Q2?			x	x	

Reference

Zung, A.B., C.J. Sorenson, and E. Winthers. 2009. Landslide Soils and Geomorphology in Bridger-Teton National Forest, Northwest Wyoming. *Physical Geography*. 30(6): 501–516. <https://doi.org/10.2747/0272-3646.30.6.501>

Abstract

Active landslides are evident throughout Bridger-Teton National Forest (BTNF), and northwestern Wyoming has one of the highest landslide densities in the country. Land use changes and increased demands for infrastructure challenge BTNF personnel to better understand landslide processes in order to make informed land management decisions. Despite recent population growth in the region, research on landslide phenomena is lacking. In this study, soil and geomorphic properties related to landslide occurrence were studied at 18 landslides in the BTNF. Landslides were categorized as active or inactive based on geomorphic features. Landslide soil characteristics including texture, shrink-swell potential, clay mineralogy, and horizonation were compared on active and inactive landslides. The results indicate that soil characteristics related to the degree of soil formation are different on active and inactive landslides. Soil characteristics such as plasticity, shrink-swell potential, and clay mineralogy influence slope stability and were distinctly different on active and inactive landslides, especially in C horizons. This study shows that soil characteristics and slope geomorphic properties may be useful for assessing landslide frequency. Our results support a hypothesis that landslide occurrence in the BTNF is related to weathering of soil and unconsolidated material, which affects clay mineralogy.

Appendix E. Literature Review Examples

The methods and structure of two literature reviews found as part of the search process were analyzed as examples (Barrett and Reilly 2017; Herrera Environmental Consultants Inc. 2004). Both reports were commissioned by Washington's adaptive management program. The following paragraphs summarize key aspects of these studies that may be relevant for the development of IRST's research proposal.

Research questions: Barrett and Reilly (2017) reviewed the potential effects of salvage logging on riparian areas for Washington eastside forests, whereas Herrera (2004) focused on wood loading dynamics in and around streams in eastern Washington forests. Herrera was given a list of 41 specific research questions grouped into nine topic areas. Barrett did not have a list of questions, but they identified five relevant research subthemes (Silviculture/Forest Practices, Fuels/Fire, Erosion/Soils, Riparian/Aquatic, and Biodiversity/Ecosystems).

Process context: The Herrera study was embedded in a broader process, which included a kick-off workshop with the sponsoring committee, followed by the literature search, a broader workshop to review the literature found, consolidation of results in a literature database, and a final report. Barrett did not report on broader process but presented their findings to the sponsoring committee at project conclusion.

Eligibility criteria (Study area): Both studies expanded their search to include similar environments outside of the target state. Barrett's search encompassed Oregon, Idaho, western Montana, northern California, northern Nevada, southeastern British Columbia, and southwestern Alberta and searched for specific forest types. Herrera (2004) described three location categories: eastern Washington, "analogous regions" (they did not further define this), and other studies relevant to the topic.

Search: Both studies searched literature databases and solicited documents from subject matter experts. Barrett mentions searching in Google Scholar and ResearchGate and provided a few keyword examples. Herrera provided an appendix explicitly listing all databases searched (but not keywords) and all individuals and institutions contacted.

Selection (Screening): Barrett includes a short section on screening but without much description of an explicit methodology or number of documents screened. They reviewed 75 documents. Herrera reports compiling more than 5,000 documents, however, no further information on screening is provided.

Data extraction: Barrett was given a number of elements to extract, including topics/keywords, location, forest types, forest practices, and analysis methods. In addition, they assigned studies to five relevant research subthemes (Silviculture/Forest Practices, Fuels/Fire, Erosion/Soils, Riparian/Aquatic, Biodiversity/Ecosystems). They used an Excel workbook to store and analyze the information.

Results: Herrera structured the main body of their report around the 41 specific research questions grouped into nine topic areas, addressing each one in a separate section. Each relevant literature source that contains quantitative data is briefly discussed, and an assessment is made of the extent to which data collected for the question covers eastern Washington stream channel sizes and forest types. Both reports started with a large number of specific questions (15 for Barrett and 41 for Herrera) and summarized the literature for each question. Barrett identified five relevant research subthemes (Silviculture/Forest Practices, Fuels/Fire, Erosion/Soils, Riparian/Aquatic, Biodiversity/Ecosystems) and summarized the literature for each. Barrett mapped the location of each study and noted certain clusters around large fires.

Additional products: Barrett produced a database of publications in Excel format; Herrera compiled the literature found in a Procite bibliographic database.

STAFF REPORT

Agenda Item No.:	6
Work Plan:	Forest Resources Division
Topic:	Board of Forestry Updates
Presentation Title:	Committee for Family Forestlands Annual Report
Date of Presentation:	September 03, 2025
Contact Information:	Wendy Gerlach CFF Chair wendy@wgerlachlaw.com . Mike Kroon, Forest Resources Deputy Chief 503-400-4815 mike.e.kroon@odf.oregon.gov

SUMMARY

The purpose of this agenda item is to provide a report on the Committee for Family Forestlands (CFF), discuss progress on key issues, and make recommendations on policy topics affecting family forestland.

CONTEXT

The CFF, a standing committee of the Oregon Board of Forestry, provides advice to the Board of Forestry and the State Forester on methods to help improve the vitality of family forestlands, including improving owners' ability to manage and market their timber and other forest products. The Committee for Family Forestlands continues to evaluate the impact of policy and regulatory changes on family forestland owners.

BACKGROUND AND ANALYSIS

Over the past year, the Committee focused on the objectives/issues identified in their 2024-2025 work plan. The annual report informs the Board of the committee's progress in addressing issues affecting family forestland (Attachment 1).

RECOMMENDATION

The Committee for Family Forestland recommends the Board accept the CFF annual report.

ATTACHMENT

- (1) Committee for Family Forestlands Annual Report to the Board Fiscal Year 2024-2025.

Committee for Family Forestlands Annual Report to the Board

Fiscal Year 2024-2025

Annual Report presented to the Board of Forestry September 03, 2025
By Wendy Gerlach, Chair, Committee for Family Forestlands



The Committee for Family Forestlands (“CFF”) is a standing committee established by the Oregon Board of Forestry to assist and advise the State Forester and the Board on issues relevant to Oregon’s ~70,000 family forestland owners, including advice on the formulation of policy and potential effects of changes in forest policy on those lands. The CFF is supported by and works with the Oregon Department of Forestry (“ODF”) in fulfilling that role, while also serving as a liaison to the small forestland owner community.

The CFF has received many helpful briefings on key topics from ODF staff, particularly from the Private Forests Division, and thank Mike Kroon, Heather Henderson, and Miriam Miller in particular for outstanding support of the CFF.

The CFF thanks the Board and State Forester for their service to the state and its forests, and appreciates its awareness of contributions and needs of small forestland owners. A special thank-you goes to Ben Deumling for attending many of our meetings and acting as a connection to the Board. We hope that the Board will consider the CFF a resource to the Board and ODF in their work, and look forward to continued work together.

CFF 2024-2025 voting members:

Wendy Gerlach, Chair (Citizen at Large)
David Bugni (Northwest Oregon Family Forestland Owner)
Gary Jensen (Southern Oregon Family Forestland Owner)
Maurizio Valerio (Eastern Oregon Family Forestland Owner)
Kate McMichael (Landowner at Large)
Kaola Swanson, Vice-Chair (Conservation Community Representative)
Eric Kranzush (through 2024), followed by Jake Ryan (Industry Representative)

Kaola Swanson left the CFF this summer after six years of service as the CFF Conservation Community Representative. The CFF is investigating a successor and expects to have a recommendation to the Board by the end of 2025. Kaola has dedicated many hours to the CFF and provided valuable input, over the years, and we thank her for all her contributions.

CFF 2024-2025 ex-officio members:

The CFF benefits from the time and expertise of the CFF ex-officio members, and thanks them for their input. They are:

- Amanda Sullivan-Astor for Associated Oregon Loggers (AOL)
- Rick Zenn (through 2024), and Mike Cafferata (from July, 2025) for Oregon Small Woodlands Association (OSWA)
- Glenn Ahrens for Oregon State University (OSU) College of Forestry, OSU Extension Forestry and Natural Resources Program
- Julie Woodward for Oregon Forest Resources Institute (OFRI)

2024-2025 CFF Activities, Accomplishments, and Recommendations

- Fire—Awareness, Prevention, Fighting, Funding.
Wildfire issues are an ongoing concern and priority of the CFF. In 2024, the CFF identified public messaging about wildfire as a topic of interest, and suggested more data-based, modernized messaging. In consequence, the CFF heard from Kristen Babbs of Keep Oregon Green about their work on public communications about wildfire. The CFF shared its thoughts on the issue, including the need for more fact-sharing with the public about the causes of wildfire, such as that equipment fires, mainly cars, are currently the leading cause of fire. The CFF has noted the role rural fire districts play in local fire management, and the importance of their being equipped to effectively protect their communities. HB 3349, enacted in the 2025 legislative session, addresses this issue by allowing ODF to provide equipment to rural districts. The CFF has supported the SB 762 Landscape Resiliency grant program and its continued funding, which can assist with fire mitigation and recovery.
- Fire—Post-Fire Recovery. The CFF has consistently focused on the challenges Small Forestland Owners (“SFOs”) face in recovering from wildfire. SFOs must meet reforestation and other obligations while suffering timber loss and other economic impacts. The SFO office can play a role in supporting SFOs in understanding post-fire obligations and helping them understand how to meet expenses of doing so, including possible grant funds.
- Reforestation. Reforestation—both post-harvest and post-disturbance—is a major concern and will be a particular focus of the CFF in the coming year. There is concern among groups such as OSWA and Oregon Tree Farm System (OTFS) over the results of the recent reforestation compliance monitoring report. The CFF will seek to find ways to support SFOs in understanding and meeting reforestation requirements.
- Private Forest Accord—Post-Disturbance Harvest Rules. Consistent with its focus on fire and fire recovery, the CFF has agreed on the importance of these rules, and CFF members in their private capacity commented on the proposed rules. This is an area where ODF and the Board can play a positive role by supporting the crafting of place-based management prescriptions, working with individual SFOs, that are rooted in desired outcomes and the best path to reach them.
- Private Forest Accord SFISH.
The CFF followed the growth of the Accord’s SFISH grant program, and was briefed on the projects funded and the selection process. Erik Kranzush of the CFF assisted with application review, and CFF member assistance with grant applications is expected to continue. The CFF notes the ongoing funding of the SFISH program as an important incentive for SFOs under the Accord.
- Private Forest Accord Stream Rules/Classification. The CFF discussed the stream classification rules on several occasions, and emphasizes the importance of communications to landowners about new classifications, of reliable mapping of streams as a compliance resource, and of clear guidelines about perennality and other classification criteria (and access to survey data). Ground-truthing what is on the maps, and straightforward processes to deal with incorrect modeling, is critical to landowners. CFF is happy to work with ODF on making this happen.
- Small Forestland Owner Office.
The CFF has consistently emphasized the need for coordinated provision of information about resources available to SFOs. ODF’s buildout of the SFO Office is consistent with this need. CFF discussion identified the need for leadership by the SFO Office in coordinating various organizations in their support for SFOs and in providing access to information and resources. CFF members have talked about the fact that many SFOs are as yet unengaged with ODF, or groups such as OSWA, OTFS, or OSU Extension, and that the SFO Office could be a leader in coordinating outreach to SFOs. The CFF met with ODF staff about how the SFO Office and public affairs staff plan to reach out to SFOs, and CFF provided feedback.
- Infrastructure—Mills and Transportation Costs.

SFOs, especially those in eastern Oregon, face particular challenges due to the lack of local mills. The CFF has noted numerous mill closures and discussed the relationship of log prices and transportation prices. SFOs are statistically known to manage forestland for numerous benefits, including timber, habitat, and water, but as it was noted in one CFF meeting, “If there is no value to timber, funding stewardship becomes difficult.” Gordon Culbertson spoke to the CFF about mill infrastructure, log pricing, and economics of bringing logs to market.

- SFOs, Stewardship Economy, and New Revenue Sources.

The CFF discussed various aspects of forest economics, including revenue streams from timber, biochar, carbon offset credits, and conservation actions (such as conservation easements). The CFF discussed the possibility of allowing local use of local timber, and certification challenges. Legislation passed in the 2025 legislative session (SB 1061), which establishes a pilot local-certification program, is a step toward removing the barrier that certification requirements may pose to locally sourcing timber products. Nils Christofferson of Wallowa Resources spoke to the CFF about “Stewardship Economy” and how rural areas, including SFO ownerships, can pursue stewardship that links to traditional and nontraditional revenue streams.

- SFO Resources for Mapping, Unified Management Plans, and More.

CFF was briefed by Jake Barker of the OSU Extension about the Landmapper software program. Landmapper is a free online resource that provides spatial information and mapping tools for forest management. It is a collaborative project of Ecotrust and the Partnership for Forestry Education (particularly OFRI, OTFS, and OSU Extension). Ecotrust and the Partnership are also working on a Unified Management Planning tool, intended to provide landowners with a simpler way to create management plans that meet requirements of various agencies and organizations. The feasibility of management plans, and complexity of overlapping requirements, is an issue that the CFF has flagged in the past, and will continue to monitor.

- Avoided Conversion and Ownership Succession Issues.

CFF’s reports have consistently identified, as a priority, avoiding conversion of forestlands to other uses. One approach to this issue, as discussed above, is to support the economic viability of small forestlands, including providing management resources, access to mill infrastructure, economic incentives and relief, and varied revenue streams. SFOs also need access to seedlings and skilled workforce (and CFF has consistently been involved with these issues). This year, CFF heard from OSU’s Lauren Grand about their Ties to the Land Program, aimed at informing landowners about ownership succession strategies and mechanisms. CFF also heard from landowner Jeff Gersh about possible ways to transfer land (such as transfer to a land trust specializing in forest management) when successor family ownership isn’t possible.

2025-2026 Upcoming Activities and Priorities

Issues important to small forest landowners remain largely the same over the years, and have been reviewed above and in prior CFF reports. They include the Private Forest Accord (new rules, SFO Office, incentives), technical assistance to landowners, stewardship forester availability, wildfire issues, economic viability (seedlings, markets, workforce, infrastructure), and climate change. The CFF expects to continue its focus on these issues in the coming year. Some specific areas of expected focus, consistent with CFF’s general priorities and building on the activities described above, include:

- Private Forest Accord. Implementation of the Private Forest Accord is a priority for the CFF, including development of an effective Small Forestland Owner Assistance Office and strong landowner incentive programs (including SFISH program funding, and tax credit for riparian management beyond minimum option). As information becomes available about the success of these programs (including the collection

of data about the impact of the Accord) the CFF would like to consider and advise on which programs are successful, which are not, and what might need to be adjusted. For instance, the SFO tax credit option is apparently not being highly utilized, and the CFF would like to investigate why this is so. The CFF has also expressed a desire to learn more about the Adaptive Management Program. The CFF has appreciated its meetings with SFO Office leadership, and looks forward to continuing to provide input about the SFO Office.

- SFO Reforestation Activities. The CFF expects further engage on issues related to SFO reforestation compliance (as described above), especially how to support and encourage successful reforestation efforts.
- Board of Forestry Vision and Strategic Plan. As ODF develops a strategic plan, with specific goals and actions consistent with the Board's Vision document, CFF would like to be involved in making sure that the plan takes SFOs into account and is sensitive to their role and management objectives. Board decisions have an impact on SFOs, and that impact should be assessed and be considered in developing the strategic plan.
- Climate Smart Forestry. The Board Vision refers to climate smart forestry; the CFF would like to follow what that looks like for SFOs, and to track ODF's Climate Change and Carbon Plan generally.
- CFF is available to help the Board arrange tours of SFO property tours, and suggests that such tours would be useful to the Board in building trust with the SFO community—members of which can feel left out of policy conversations and undermined in their efforts to actively manage their forests.

CONCLUSION

The CFF is grateful for the opportunity to engage with the Board and ODF on issues important to small forestland owners. This year's activities have included providing advice (for example, on SFO Office activities and outreach), and receiving information through presentations and ODF briefings that allow the CFF and members to engage in an informed way with the small forestland owner community. A frequent comment at our meetings is "now that we know this, how do we turn this knowledge into action?" We can do so through our work with the Board, and community partners, to support programs and practices that will contribute to successful small forestlands. As the CFF charter says, small forestland owners make essential contributions to Oregon's vitality, "including timber availability and the protection and enhancement of watersheds and fish and wildlife habitat." As the Board and ODF build out the Vision, further develop the Accord and SFO Office, and address ongoing issues such as fire resilience, the CFF stands by to assist and act as a bridge to local communities.

Thank you, Chair Kelly and Board Members, for your service to the State, and for the opportunity to present this report.

Agenda Item No.	7
Work Plan:	Forest Resources Division
Topic:	Modifying an Administrative Deadline in Rule
Date of Presentation:	September 3, 2025
Contact Information:	Josh Barnard, Division Chief, Forest Resources Division, ODF, josh.w.barnard@odf.oregon.gov , Nicole Stapp, Policy Advisor, Forest Resources Division, ODF, nicole.l.stapp@odf.oregon.gov

SUMMARY

This agenda item requests the Board consider a minor rule modification related to an administrative deadline, determine the type of forest practice rule being considered and direct the Oregon Department of Forestry (Department) to take the next steps in rulemaking. This is a decision item.

CONTEXT

In 2020, conservation and forest industry groups offered to revise the Forest Practices Act (FPA) and forest practice rules through a memorandum of understanding to include mediated discussions, known as the Private Forest Accord (PFA). Later that year, the Legislature passed [SB 1602](#) which set helicopter pesticide application requirements and required the Governor to facilitate mediated sessions between conservation and forest industry groups. As a product of this collaborative process, the [2022 PFA Report](#) was drafted and released by an author group comprised of representatives from those discussions. During the 2022 Legislative Session, [SB 1501](#) and [SB 1502](#) passed making substantial changes to the FPA and requiring the Board to incorporate the recommendations of the PFA Report into the forest practice rules through the adoption of a single rule package to support the development of the PFA habitat conservation plan (HCP) and prescribed two additional rulemaking efforts.

BACKGROUND

Within the PFA single rule package adopted by the Board in November 2022 and effective January 2024, Oregon Administrative Rule (OAR) 629-635-0200 (18) set the process and timeline for the Department to update and publish maps related to perennial flow of streams. The rule text is shown below for reference:

(18) By July 1, 2023, the State Forester shall update all published maps and the department's reporting and notification system to include flow duration for streams in Western Oregon and Eastern Oregon. The State Forester shall maintain in the department's reporting and notification system a map of perennial flow utilizing the following:

(a) Phase 1 Initial Mapping. The State Forester shall initially map perennial flow of Type N Streams using U.S. Geological Survey NHD high resolution data. The NHD stream layer may assist operational field surveys as described in OAR 629-643-0130 or 629-643-0143 but shall not provide for a modeled end. During this phase landowners shall apply the riparian management area prescriptions to all small Type N streams as described in OAR 629-643-0130 and OAR 629-643-0143, whether or not a stream is mapped as perennial. This requirement ends once the State Forester implements the Phase 2 model.

(b) Phase 2 Model. When advised by Department of Fish and Wildlife that an approved flow duration model sufficient for regulatory purposes is available, the State Forester shall promptly publish the information, including the modeled end, in all maps and the department's reporting and notification system, and in no event later than July 1, 2025.

(c) Field Verification. The operator may conduct field surveys for verification of the modeled end in accordance with Department of Fish and Wildlife field protocols for model verification. Once the verified end is approved by the Department of Fish and Wildlife, the State Forester shall substitute the verified end for the modeled end in all maps and the department's reporting and notification system.

OAR 629-635-0200 (18)(b) provides that Phase 2 involves shifting to a model after a flow duration model sufficient for regulatory purposes is available and sets a deadline of July 1, 2025. Currently, the Oregon Department of Fish and Wildlife (ODFW) and the Department are in agreement there is not a sufficient model available to be implemented and are collaborating to develop a conforming, viable model.

Development of this model is estimated to take about one year. Therefore, the Department is requesting the Board amend OAR 629-635-0200 (18)(b) in the following way:

- (b) Phase 2 Model. When advised by the Department of Fish and Wildlife that an approved flow duration model sufficient for regulatory purposes is available, the State Forester shall promptly publish the information, including the modeled end, in all maps and the department's reporting and notification system, and in no event later than July 1, 2025~~6~~.

ANALYSIS

Oregon Revised Statute ([ORS 527.710](#)) grants the Board authority to adopt forest practice rules and [ORS 527.714](#) establishes procedures the board must follow when adopting such rules. ORS 527.714 requires the Board to determine which type of rule is being considered prior to filing an Administrative Procedures Act (APA) rulemaking notice.

The rule types are summarized below:

- Type (1)(a)- Implement administration, procedures or enforcement that support but do not directly regulate standards of forest practices.
- Type (1)(b)- Provide definitions or procedures for forest practices where the standards are set in statute.
- Type (1)(c)- Regulate forest practices and are within the Board's discretion to set the standards for forest practices.

The Department believes the proposed rule is a Type 1(a) rule as OAR 629-635-0200 (18)(b) establishes a procedure that supports but does not directly regulate the standards for forest practices. If the Board concurs and determines the proposed rule is a Type 1(a) rule, under ORS 537.714 (3), rulemaking may proceed under the typical APA rulemaking process and additional Forest Practices Act rulemaking requirements do not apply to the rulemaking.

RECOMMENDATIONS

The Department recommends the Board:

- 1) Determine that OAR 629-635-0200 (18) is a Type 1(a) rule; and
- 2) Direct the Department to file a notice of proposed rulemaking to amend OAR 629-635-0200 (18)(b) as reflected in the background section of this staff report.

NEXT STEPS

If the Board adopts the above recommendations, the Department will continue with rulemaking under the APA process and return to the Board for a decision regarding adoption following the close of the public comment period.

STAFF REPORT

Agenda Item No.:	8
Topic:	Legislative Update
Date of Presentation:	September 3, 2025
Contact Information:	Derrick Wheeler Legislative Director 971-375-1258; derrick.wheeler@odf.oregon.gov

SUMMARY

The purpose of this agenda item is to provide a brief overview of the 2025 Legislative session. The following summary is not all-inclusive of legislative matters affecting Oregonians or state agencies but is intended to be a succinct view of bills the agency tracked through the session and are most impactful to Oregon Department of Forestry (ODF) processes.

BACKGROUND AND ANALYSIS

The agency prepared for legislative bill review, analysis, and testimony preparation by designating bill managers for each division and program. An internal training and coordination session was held in early January. Our agency utilizes the BillTracker software program, provided by the Department of Administrative Services for all state agencies to track bills and conduct bill analysis.

The agency reviewed and prioritized the record breaking 3,466 bills throughout the Session and closely tracked 1,032 bills. Engaging in weekly meetings with natural resource agencies and all executive branch agencies for information gathering and coordination on bills that affected multiple agencies was essential for staying connected during the fast-paced session.

The transportation package that ultimately failed to come to fruition was a dominating theme throughout the Session. Any potential transportation package would have a large fiscal cost. With this transportation package at the forefront, other business—including other funding packages—needed to navigate carefully. This included ODF's most pressing bill, the Wildfire Funding Bill, HB 3940.

ODF's Legislative Session was very successful; the agency's primary bills passed. This includes HB 2817 Forestland Closure, HB 2819 Citation Authority and HB 3940 the Wildfire Funding Bill.

In addition to the funding found with the passage of HB 3940, the Christmas Tree bill, SB 5006, earmarked \$195 Million dollars in one time biennium funding for ODF's fire and mitigation programs. Because HB 3940, the main Wildfire Funding Bill, was largely stripped of fiscal costs, those appropriations were put into the Christmas Tree bill. This includes a \$24 million special purpose appropriation (SPA) for severity including aviation costs, an additional \$7

million for mitigation funding, \$9 million for immediate landowner rate offsets and \$4 million for wildfire cameras. Also included is a \$150 million SPA for natural disaster response that would be used by ODF and Oregon State Fire Marshall (OSFM) for fire expenses.

The Bonding Bills, SB 5505 and 5506, have the bonding for ODF's capital projects. These include the Veneta campus remodel, Klamath Fire Cache replacement, Santiam Facility replacement, Toledo facility replacement, and \$1.5 million toward the State Forester's building maintenance.

Attachment one summarizes the agency's priority bills that were passed or pending at the end of the Session and their status. In addition, the Legislative Policy and Research office (LPRO) updated its website to allow a bill search by topics of interest, those with public hearings, and the outcome of the bill. The Session summaries can be found at the following link, <https://www.oregonlegislature.gov/lpro/Pages/summary-of-legislation.aspx>.

The key themes from the 2025 legislative session were tracked by the agency and included with this report.

Wildfire Funding: The biggest success for the Department of Forestry was the passage of HB 3940. The bill introduced many policy changes to our Wildfire Fighting system and brought a long-term funding source for our fire prevention and mitigation work.

The primary goal of the wildfire funding workgroup (Fire 35) and HB 3940 was to achieve long-term, durable funding for wildfire mitigation and response in Oregon, while addressing several policy issues including treasury loans and modernizing the fire protection system through fire districts classification adjustments and landowner assessments. Through the bill, the policy issues were addressed and received some funding with dedicated funding sources identified for a portion of the landscape resiliency and community risk reduction only.

The Legislative Session produced significant funding for the state's readiness and suppression costs through SB 5006. However, this funding is one time and must be considered each biennium. Going forward, the goal of establishing long-term, durable funding will need to continue.

Mitigation Funding: Proactive fire prevention and mitigation work is critical for decreasing the future threat of wildfires. Two new revenue streams for funding were identified in HB 3940. The first was 20% of the interest from the Rainy-Day Fund (estimated \$29 M biennium) and the second was a new tax on oral nicotine adjacent products, known generally as the "Zyn tax" (estimated \$14 M biennium). These new and ongoing funding streams of \$43M have been specifically designated for wildfire mitigation work, with ODF receiving one-third for the Landscape Resiliency Fund and OSFM claiming the remaining two-thirds for Community Risk Reduction Fund.

- **ODF Landowner rates:** Landowner rates that the Department of Forestry charges for its fire protection services have quickly increased to the point of unaffordability. The policy changes for landowner assessment rates passed in HB 3940 were significant in reducing

those rates. These policy changes primarily involve the detachment of centralized administration costs from the local landowner assessments.

- **Rural Fire Protection Districts (RFPD):** While the Department of Forestry charges rates to protect areas from landowners, there are some jurisdictional areas whose wildfire coverage is provided by Rural Fire Protection Districts. Often, they are unable to charge for their services. HB 3940 adjusted specific language within Rural Fire Protection District statutes to reach greater equity among local Rural Fire Protection Districts and ODF forest protection districts through land classification adjustments. This allows RFPD's to receive revenues for services they have been providing.
- **Treasury Loans:** With the passage of HB 3940, ODF and OSFM will now be able to establish loans with the Treasury to seek timely payments to firefighters who are hired by the agencies to respond to fires. This is intended to allow for improved cash flow management and to avoid future Special Sessions. The initiation of the loans will require legislative action through the Emergency Board, upon receipt of a report from the borrowing agency and Treasury.

Wildfire Hazard Map: SB 83 Repeals the Wildfire Hazard Map. The Wildfire Hazard Map originated in 2021 with the passage of SB 762. This sweeping wildfire legislation had a provision to produce the original Wildfire Risk Map. The map was intended to classify the state's lands into risk categories to establish wildfire resilience through increased mitigation measures and prioritization of funding to the highest risk lands. The first map was finalized in 2022 but was met with intense scrutiny by the public and withdrawn.

The passage of SB 83 in 2023 brought revisions to the Map, including renaming it to the Wildfire Hazard Map. After two years of public input and revisions, the Wildfire Hazard Map was released in January of 2025. This new Map also faced similar public outcry as the first map. Legislative efforts to repeal the Map began with the beginning of the 2025 Legislative. SB 83 was the primary vehicle for this repeal. The bill removed the Map from statute as well as the Map's mandatory regulatory structures that enforced building codes and defensible space standards in high hazard areas. Both the building code and defensible space codes were left intact for the possibility of local adoption.

Family Forests Estate Tax: Senate Bill 485 expands the conditions under which small forestlands are exempt from the Estate Tax. Previously, Oregon's Estate Tax was imposed when a property transfer is caused by the owner's death. The tax is based on the total value of property transferred. The tax applies above an excluded amount of \$1 million with a tax rate of 10%. The tax rate increases with estate value, with the top rate of 16% for estates above \$9.5 million.

SB 485 changes the qualification criteria of forestland for the natural resource estate tax exemption. Specifies qualifying forestland must be between 10 and 5,000 acres, and held by decedent and managed by decedent or a family member during at least five years prior to date of death, and held and managed by a family member during the five years after the date of death.

ODF Specific Business:

HB 2817 was ODF's bill that eliminates the closure of forestland, due to fire danger, by permit closure. There were three separate levels of forest closures: Regulated Use Closure, Permit Entry Closure, and Absolute Closure. All of which impose requirements, that in the judgement of the Forester, are necessary to prevent danger to life, forest resources, or property. When Permit Entry Closures are imposed, fire personnel are required to post signs in identified areas, and the public is required to obtain a permit that is posted in their vehicle that allows access. It was found that this Permit Closure option went unused and was unneeded.

HB 2819 was ODF's bill that authorizes people who enforce fire protection laws to issue citations if there are reasonable grounds to believe violations have occurred. This allows for an investigation and possible citation into a violation when an enforcement officer was not actually present for the violation. Previously The general requirements in statute are that an officer can only issue a citation if the "conduct alleged to constitute a violation takes place in the presence of the enforcement officer."

SB 494 Directs the Department of Administrative Services (DAS) to study classification and compensation of forestry and wildland fire positions, addressing wage and management compression, identifying deficiencies in the Department of State Forestry, and providing recommendations. This is seen as an important first step in employee retention as well as transitioning to more permanent positions.

State Forester: SB 1051 transfers the authority to appoint a State Forester from the State Board of Forestry to the Governor, subject to Senate confirmation. It establishes that the State Forester shall serve a four-year term and is eligible for reappointment. The bill removes the mandate that this position be filled by a "practical forester" and replaces with the requirement that the State Forester have organizational management experience, and executive or operational experience and expertise overseeing forest and wildfire management on western forestlands.

Rangeland Fire Protection Associations: HB 3349 authorizes the State Forestry Department to address administrative hurdles related to transferring used motor vehicles and other equipment to use by the RFPA's. HB 3349 was combined with HB 3350 to create the policy mechanisms needed for these transfers to the RFPA's, created a fund for RFPA use, and also populated that fund with \$1 Million.

Harvest Tax: HB 2087 extends three components of the harvest tax for two years that would otherwise expire at the end of the 2025 calendar year. These components fund a portion of the activities of the OSU Forest Research Laboratory, a portion of the administration of the Forest Practices Act by the Oregon Department of Forestry, and professional forestry education at OSU. The bill adjusts the rate pertaining to the administration of the Forest Practices Act, changing the rate of per thousand board feet from 253.46 cents per thousand board feet to 265.44 cents per thousand board feet.

The Wildfire Funding Bill, HB 3940, also contained a provision to increase the Forest Products Harvest Tax used for the payment of benefits related to fire suppression from 62.5 cents to \$1

per thousand board feet beginning January 1, 2026, and indexes the rate to inflation in subsequent years. This was incorporated into the final Forest Products Harvest Tax.

Agency Budget: HB 5521 is the base budget bill for the Oregon Department of Forestry. The details of our agency budget bill will be discussed in our Budget attachment. Legislative actions can be found in Senate Bill 5521 for the 2025-27 biennial budget, Senate Bill 5505 for 2023-25 Capital Construction Projects, Senate Bill 5506 for 2023-25 Bond Authorizations, and Senate Bill 5006 for 2025-27 E-Board Budget Reconciliation.

ATTACHMENT

- (1) 2023 Legislative Session – ODF End of Session Priority Bill Status Report (SEE CORRESPONDING PDF ATTACHMENT FOR BUDGET)



Board of Forestry Public Meeting

9. Board Retreat Planning

The Department will provide key updates for the Board's awareness leading up to the Board's annual planning retreat. This item will also serve as an opportunity for the Board to discuss priorities for discussion at the retreat.

This is an information item.

Agenda Item No.:	10
Topic:	Natural Climate Solutions Fund Update
Date of Presentation:	September 3, 2025
Contact Information:	John Tokarczyk, Resource Planning Manager John.A.TOKARCZYK@odf.oregon.gov Danny Norlander, Forest Climate, Carbon and Health Analyst Danny.Norlander@ODF.Oregon.gov

SUMMARY

- The Legislature provided funding to four natural resource agencies to address climate change issues in 2023. This funding is approved and coordinated through the Oregon Climate Action Commission, formerly the Oregon Global Warming Commission. This Board meeting item provides an update on ODF Natural Climate Solutions Fund and what the anticipation is for these funds down the road.
- This is an informational item.

CONTEXT

In 2023, the Oregon Legislature passed HB 3049 and provided ten million dollars to be allocated to four different natural resource agencies: the Oregon Watershed Enhancement Board (OWEB), Oregon Department of Agriculture (ODA), Oregon Department of Forestry (ODF), and the Oregon Department of Fish and Wildlife (ODFW). The funds were allocated to OWEB to be disbursed to the other agencies after projects were approved by the Oregon Climate Action Commission (OCAC) with support from the Oregon Department of Energy (ODOE) which houses the OCAC. Through a coordinated process between the agencies and the Governors Office, the four “fund agencies” put forth a proposal for the funding. This was approved by the OCAC and the agencies began to work on administration and implementation of the funds and projects. Since then, the agencies have been working to implement their projects, including ODF, and this work is ongoing.

In the 2025 Legislature, there was an interest in providing additional funding to this work. While ultimately unsuccessful, there is still broad interest and continued support for efforts around natural and working lands as natural climate solutions. The department will continue to work through its existing funding and strive to support Oregonians in their interest around natural climate solutions.

BACKGROUND AND ANALYSIS

The department has been involved with climate change research and planning going back to the early 1990s. Previous work includes items like the Oregon Task Force on Global Warming, the Forest Resource Trust, and inclusion of climate change and carbon in the Forestry Program for Oregon as a specific goal. Various research and monitoring efforts have taken place over time, culminating in the Forest Ecosystem Carbon Report

and the Harvested Wood Products Report which will continue to be updated with fresh data in the future.

When the Legislature took up legislation related to carbon cap and invest in 2019 and 2020, there was extensive language around incorporation of natural and working lands and their utilization as natural climate solutions. When these failed to pass, Governor Brown signed executive order 20-04 which provided a multitude of directions to many agencies including ODF. One result of this was direction to the department to develop a climate change plan, the genesis of the Climate Change and Carbon Plan (CCCP), which the Board was extensively involved in the development of. At the same time, the OGWC was developing its own natural and working lands proposal that would help to guide the natural resource agencies in the state towards increasing sequestration and climate mitigation. These projects, while conducted separately, were aware of the work of the other and utilized information from each other in their development. Both were completed in the fall of 2021. Efforts to implement the CCCP Have been ongoing since it approval by the board and this continues today.

In the 2023 legislative session, house Bill 3904 passed and provided \$10 million to four state agencies tasked with implementation of Natural Climate Solutions Funds. These included OWEB, ODA, ODFW, and ODF. The agencies worked through the Governor's Office to develop a holistic, cross agency proposal to take to the OCAC (renamed OGWC). The OCAC approved the project proposal and OWEB distributed the funds to the four agencies by the start of FY 2025. Throughout this time, ODF staff were working on coordination and planning to expend these funds.

ODF presented three projects to be funded as part of the initial funding process. The enabling legislation directed agencies to prioritize work with Tribes and traditionally disadvantaged landowners. To that end, the department put forth two projects:

- \$1.5 million to advance implementation of Climate-Smart Forestry as outlined in ODF's Climate Change and Carbon Plan, and
- \$1.0 million to incentivize Climate-Smart Forestry Implementation in partnership with Tribal and Environmental Justice Communities.

Additionally, the department proposed \$750,000 for:

- Establishment of climate-ready seed orchards to support small, disadvantaged, and tribal forestry.

Utilization of these funds has provided the ability to further implement the supporting actions contained in the CCCP, which had no previous funding. These funds are in permanent accounts and available past a single biennium, helping to facilitate the ongoing work that the department is undertaking and allowing for continued relationship building to take place. The following is a summary of the project goals and implementation.

Small and disadvantaged landowners climate-smart forestry implementation—This project is working with Soil and Water Conservation Districts (SWCDs) to implement climate smart forestry at the local level. Many of the SWCDs have strong existing relationships with forest landowners in their districts. To leverage these relationships and increase adoption of climate-smart forestry practices, ODF is partnering with them to provide incentives, technical assistance, and payment for practice programs managed by the SWCD. Work to finalize the first of the intergovernmental agreements with Tualatin SWCD is near and an increase in pace is expected with further

efforts with additional SWCDs across the state taking place. One barrier to further success in expending these funds has been a high staff turnover and reallocation inside ODF and within the SWCDs. This has greatly slowed efforts.

Incentivize Climate-Smart Forestry Implementation in partnership with Tribal and Environmental Justice Communities— Much like the small and disadvantaged landowner project, these funds are intended to be provided to Tribes to implement the climate-smart forestry practices that apply to their own management direction. These funds will flow through the department's Urban and Community Forestry program, which has been conducting extensive outreach and relationship building with the Tribes through a federally funded grant program. These funds will help to provide additional resources for Tribes in areas that the federal funds may not have been available or for climate-smart practices that are beyond the scope of those grants.

Establishment of climate-ready seed orchards to support small, disadvantaged, and tribal forestry— The department tried to be forward thinking with its proposal. With current ecosystem projections suggesting that forests are likely to undergo extensive range shifts and species composition changes in the future, the department is working to ensure that forests will stay forests by providing climate-ready seed to landowners through its seed orchard. This means that there will need to be alternative species available including ponderosa pine, Oregon white oak, red alder, among others. This is a departure from the traditional timber species grown at the seed orchard and extensively utilized across the region. The time horizon is long on this project and some funds are going to the needed infrastructure to ensure that the seed orchard will be successful both in the development of the seed stock, but also the long-term storage of collected seed. Department staff really are trying to exemplify and get ahead of the old saying that “the best time to plant a tree was 20 years ago, the next best is today.”

Overall, these projects will strengthen the adaptation and mitigation efforts that the department is striving for in the CCCP. There have been unfortunate barriers around the full utilization of these funds. Primarily among these are staff changes and loss of capacity which have been difficult to regain. With that stated, there is headway being made and it is expected that there will be further fund utilization in the near term.

It was noted that these funds were originally provided in 2023. There was an effort to provide additional funding in the 2025 legislative session which was unsuccessful. While expected, it is uncertain when additional funding for this type of work will be realized, but the department has undertaken planning efforts to prepare proposals when additional funding becomes available.

ATTACHMENTS *[as applicable]*

- OCAC presentation from 8/8/2025
- Joint proposal from the four fund agencies in 2024
- OCAC NWL annual report



Oregon Climate Action Commission



Natural & Working Lands Fund
Biennial Report
December 2024

AGENDA ITEM 10
Attachment 1
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Oregon Climate Action Commission

Voting Members

Catherine Macdonald (Chair)	North America Natural Climate Solutions Director, The Nature Conservancy
Nora Apter	Director of Programs, Oregon Environmental Council
David Ford	Senior Fellow, American Forest Foundation
Aurora Jackson	Senior Vice President, Transit & Rail NW Pacific Market Lead, WSP USA
Tom Rietmann	Owner/Operator, Rietmann Ranch
Karenga Ross	School Board Member at Gaston SD
Kristen Sheeran	Director of Sustainability and Resource Planning, Portland General Electric
Cheryl Shippentower	Ecologist, Confederated Tribes of the Umatilla Indian Reservation
Eliza Garcia	States Associate, Climate Power
Michael Seavers	Shoreside Manager, F/V Miss Sue Incorporated
Yaseen Arifin	Student at Sunset High School, Beaverton

Non-Voting Members

Brenda Bateman	Director, Department of Land Conservation and Development
Janine Benner	Director, Oregon Department of Energy
Andrea Bell	Director, Department of Housing and Community Services
Lisa Charpilloz Hanson	Director, Oregon Department of Agriculture
Sophorn Cheang	Director, Business Oregon
Debbie Colbert	Director, Oregon Department of Fish and Wildlife
Megan Decker	Chair, Oregon Public Utility Commission
Leah Feldon	Director, Oregon Department of Environmental Quality
Ivan Gall	Director, Water Resources Department
Dr. Sejal Hathi	Public Health Director, Oregon Health Authority
Berrie Leslie	Director, Department of Administrative Services
Cal Mukumoto	State Forester, Oregon Department of Forestry
Sara O'Brien	Executive Director, Oregon Watershed Enhancement Board
Andrew Stolfi	Director, Department of Consumer and Business Services
Kristopher Strickler	Director, Oregon Department of Transportation
David Brock Smith	Senator, Oregon State Legislature
Michael Dembrow	Senator, Oregon State Legislature
Ken Helm	Representative, Oregon State Legislature
Bobby Levy	Representative, Oregon State Legislature

Contributing Report Authors

Catherine Macdonald	Chair, Oregon Climate Action Commission
Alan Zelenka	Assistant Director for Planning and Innovation, Oregon Department of Energy
Geoff Crook	Senior Climate Policy Analyst, Oregon Department of Energy
Amy Schlusser	Senior Clean Energy Policy Analyst, Oregon Department of Energy

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NATURAL & WORKING LANDS FUND BIENNIAL REPORT - 2024

EXECUTIVE SUMMARY

Natural climate solutions work to enhance or protect natural carbon storage and removal strategies and maintain or increase ecosystem resilience and human well-being. Projects that are eligible for funding aim to optimize the social, health, ecological, and economic benefits that increase overall resilience to climate change. Among the benefits listed in statute are improving soil health, wildfire resilience and community protection, drought resilience, improved wetland and waterway function and health, fish and wildlife habitat resilience, reducing heat island effects, ensuring long-term local food and fiber sources, and improving public health.

The Oregon Legislature established the Natural & Working Lands Fund (Fund) in 2023 to support investments in natural climate solutions on Oregon's natural and working lands, and appropriated \$10 million into the Fund for distribution to the Oregon Department of Agriculture (ODA), Oregon Department of Fish and Wildlife (ODFW), Oregon Department of Forestry (ODF), and the Oregon Watershed Enhancement Board (OWEB).

Oregon has a long history of valuing natural and working lands and the myriad benefits they provide. Over the last decade, the state has increasingly grappled with and invested in strategies to address climate-related impacts, like wildfire risk and water scarcity, that harm valued Oregon economic sectors, such as outdoor recreation and agribusiness tourism, and that negatively affect community events and festivals around the state that shape the Oregon's culture and identity. This newly established Fund will not only directly address climate challenges to Oregon's landscape, it is also an important catalyst to coordinate cross-sector government and voluntary landowner activities. As strategic deployment matures, this Fund will help landowners, private and public, take place-based personal and collective action that will help their community with the resilience challenges they are experiencing. Metrics, once established, will track progress of increased carbon storage and removal of the funded projects to help achieve voluntary state goals and help track the progress of critical ecosystem and community services and benefits that will help communities across the state.

Over the last year, the Fund has provided \$9,767,198 in aggregate funding for 13 projects, programs, and positions. Recipient agencies have worked diligently to maximize the potential of the Fund. As of October 2024, the four agencies and their subrecipients have raised nearly \$9 million in additional funding from other state, federal, and private sources. Some examples include the Natural Resource Conservation Service, the Bureau of Reclamation, the National Oceanic and Atmospheric Administration, the Bureau of Land Management, Bonneville Power Administration, Bureau of Indian Affairs, the U.S. Fish and Wildlife Service, Business Oregon, the Oregon Department of Forestry, and the Oregon Watershed Enhancement Board. Projects funded this year are being implemented in all of the current N&WL sectors: agricultural landscapes, forests, rangelands, blue carbon landscapes, and urban/suburban settings. They range from coastal wetland restoration projects to additional technical assistance for private landowners to benefit from state and federal funds.

Over the last year, the Natural & Working Lands Fund has **provided \$9.8 million in aggregate funding** for 13 projects, programs, and positions.

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Current pending funding requests total an additional \$600,000 and the four agencies expect many additional opportunities after hiring staff whose focus will be to maximize funding source opportunities and manage grant reporting and monitoring requirements. Outcomes of additional pending funding requests and planned activities will be addressed in future reports.

Recipient agencies are working to integrate Fund programs, projects, positions, and management measures into existing agency programs to also leverage the administrative infrastructure and agency programs that are complementary to carbon storage and removal strategies. The report details additional agency progress to date and describes the administrative and management duties undertaken to successfully deploy the funds that were distributed in April 2024. Highlights include posting position recruitments, hiring and onboarding new staff, submitting grant applications to leverage funds, community and landowner outreach, and contract execution for funded projects.

The N&WL Fund has been instrumental in increasing state investment in natural climate solutions on Oregon's natural and working lands. Landowners and managers, Tribes, conservation districts, watershed councils, conservation groups, and community-based organizations have shown great interest in deploying natural climate solutions, and demand for financial and technical assistance will likely exceed available funding. To fully realize the myriad benefits that natural climate solutions can provide, agencies require reliable funding to sustain the projects and programs that were made possible by the N&WL Fund.

This report is available online: <https://climate.oregon.gov/reports>

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NATURAL & WORKING LANDS FUND BIENNIAL REPORT - 2024

I. INTRODUCTION

The Legislature established the Natural & Working Lands Fund in 2023 to support investments in natural climate solutions on Oregon's natural and working lands.¹ The Legislature appropriated \$10 million into the Fund for distribution to the Oregon Department of Agriculture (ODA), Oregon Department of Fish and Wildlife (ODFW), Oregon Department of Forestry (ODF), and the Oregon Watershed Enhancement Board (OWEB). The four agencies must use their Fund allocations for specific purposes outlined by statute. The Oregon Climate Action Commission (OCAC) is responsible for determining the N&WL Fund allocations for the four agencies and must coordinate with the agencies on the development and implementation of natural climate solutions programs and activities. The OCAC is also required to provide annual and biennial reports on N&WL Fund activities and expenditures to the Legislative committees related to the environment.

This Biennial Report must include the following elements:

- “(a) A list of projects funded by the Natural and Working Lands Fund during the previous 24 months and the amount expended for each project.
- (b) A summary of state, federal and private sources of funding for natural climate solutions projects funded by the Natural and Working Lands Fund established under section 55 of this 2023 Act.
- (c) An assessment of projects described in paragraphs (a) and (b) of this subsection in light of the baseline and metrics adopted under section 58 of this 2023 Act.
- (d) A list of projects, grants or other activities that are planned for the upcoming calendar year.
- (e) A list of projects deployed in environmental justice communities.”²

Part II of this report lists the projects funded by the N&WL Fund and the amount expended on each project. Part III summarizes the amounts and sources of funding secured or requested from other state, federal, and private sources. Part IV provides brief assessments of each funded project or program. Part V summarizes the environmental justice benefits of each funded project or program. Part VI lists the N&WL Fund-related projects, grants, or other activities planned for 2025. Finally, Part VII describes some of the funding needs and opportunities to increase investment in natural climate solutions across the state's natural and working lands.

¹ HB 3409, s. 2023, sections 53 to 63 (Ore.).

<https://olis.oregonlegislature.gov/liz/2023R1/Downloads/MeasureDocument/HB3409>.

² HB 3409, sec. 57.

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II. NATURAL & WORKING LANDS FUND PROJECTS AND ALLOCATIONS

The N&WL Fund has provided \$9,767,198 in aggregate funding for 13 projects, programs, and positions implemented by ODA, ODFW, ODF, and OWEB. In this report, these four agencies are referred to as the N&WL Fund agencies. The funded projects and programs and their associated N&WL Fund allocations are listed in Table 1 below.

Table 1. Natural & Working Lands Fund Projects

Agency	Program/Project	Fund Allocation
ODA	Invasive Annual Grasses	\$396,000
ODA	Oregon Native Seed Strategy	\$582,928
ODFW	Floodplain Forestation on North Santiam	\$412,500
ODFW	Carbon Capture and Restoration in North-Central Rangelands	\$750,000
ODFW	Carbon Capture in Coastal Estuaries	\$1,100,000
ODFW	Red Hills Wildfire Risk Reduction	\$170,770
ODFW	Natural Climate Solutions Biologist	\$320,000
ODFW	Natural Climate Solutions Assistant Biologist	\$285,000
ODF	Climate-Smart Forestry	\$1,500,000
ODF	Climate-Smart Forestry: Tribal and EJ Partnerships	\$1,000,000
ODF	Climate-Ready Seed Orchards	\$750,000
OWEB	Open Solicitation Grants for Restoration & Technical Assistance	\$1,625,000
OWEB	Conservation Management Planning, Technical Assistance, Payment for Practices	\$875,000

III. OTHER STATE, FEDERAL, AND PRIVATE FUNDING SOURCES

N&WL Fund agencies and project implementation partners have successfully leveraged N&WL Fund awards to raise additional funding from a variety of state, federal, and private sources. As of October 2024, the four agencies and their subrecipients have raised nearly \$9 million in additional funding from other state, federal, and private sources. Subsection A summarizes the agencies' additional funding awards and sources. Subsection B summarizes pending and planned funding requests.

As of October 2024, the four N&WL agencies and their subrecipients have raised nearly **\$9 million in additional funding** from other state, federal, and private sources.

A. Secured Funding

Invasive Annual Grass Partnership (ODA)

In June 2024, ODA finalized an agreement with Natural Resources Conservation Service (NRCS) to leverage the first installment (\$430,589) of over \$1.7 million in federal funds to support two full-time equivalent staff positions (FTE) over five years. NW&L funds have been fully leveraged as match by 470

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percent.³ Project activities are expected to facilitate or contribute to the further investment of federal dollars.

Carbon Capture in Coastal Estuaries (ODFW)

To date, ODFW's Carbon Capture in Coastal Estuaries program has been awarded \$5.98 million in additional funds. As of January 2024, \$3 million had been awarded from the Bureau of Reclamation's Aquatic Ecosystem Restoration Grant program. As of July 2024, the project has leveraged an additional \$2.98 million from state and federal sources, including:

- Partnership for the Umpqua Rivers was awarded \$1,737,389 in funds from the Private Forest Accord Grant to improve tidelands in the Glover and Kennedy Sloughs.
- Trout Unlimited was awarded \$700,000 in funds from NOAA to replace the tide gate in Esther Creek.
- Business Oregon funded the design phase of the Kennedy Slough Project (\$160,000) and Esther Creek Project (\$70,000), which produced the 60 percent engineering designs that will be used to permit and implement the tide gate replacements for both projects.
- The Oregon Watershed Enhancement Board is providing \$300,591 for the channel restoration work at the Glover Ranch and purchased the concrete farm bridges currently on site.

Carbon Capture and Restoration in North-Central Oregon Rangelands (ODFW)

ODFW's Carbon Capture and Restoration in North-Central Oregon Rangelands project leverages the existing Natural Resources Conservation Service investment in a shared position with ODFW. During a six-month period of 2023, this position worked with more than 50 landowners on projects funded by NRCS's Environmental Quality Incentives Program (EQUIP) and Conservation Reserve Program (CRP) on over 2,000 acres of private land. Opportunities to leverage additional federal funds for this project are contingent on the willingness of adjacent landowners to the wildlife area.

Floodplain Reforestation on the North Santiam River (ODFW)

To date, the Floodplain Reforestation on the North Santiam River project has received \$767,586 from other federal funding sources. Other funds supporting this project include:

- \$54,848 from the Bureau of Land Management, Secure Rural Schools for plant establishment efforts on 62 acres of re-planted floodplain forest.
- \$396,315 from the Bonneville Power Administration, Anchor Habitats Investments for improving floodplain forest on 19 acres and improving three fish passage issues.
- \$102,785 from the Bureau of Indian Affairs, Invasive Species Program for improving floodplain forest on 40 acres.
- \$195,579 from the US Fish & Wildlife Service, Tribal Wildlife Grant for re-planting 40 acres of floodplain forest and conducting plant establishment efforts.
- \$18,059 from Natural Resources Conservation Service, Conservation Stewardship Program to reestablish oak habitat on seven acres.

³ ODA successfully leveraged \$360,000 of its N&WL Fund allocation as matching funds to secure \$1.7 million in federal funding.

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Watershed Natural Climate Solutions Fund (OWEB)

OWEB received \$350,000 in federal funding from the National Resources Conservation Service (NRCS) for the current biennium to support the Water and Climate Coordinator position, with the aim of helping OWEB advance climate adaptation and mitigation across its grantmaking portfolio. In 2025, grantees of Open Solicitation restoration grants (and the N&WL grants within that portfolio) are required to provide a 25 percent match from non-OWEB sources.

B. Pending and Planned Funding Requests

The N&WL Fund agencies are continuing to explore opportunities to leverage their funding allocations, and several agencies have submitted grant requests that are still under review as of October 2024. Agency efforts to secure additional funding are described briefly below.

Oregon Native Seed Strategy (ODA)

ODA has submitted multiple applications for competitive grant offerings that are pending review or approval. As of September 2024, more than \$400,000 in additional funds have been requested. ODA will continue to leverage Natural & Working Lands Funds in the 2025 grant cycles.

Red Hills Conservation Area Wildfire Risk Reduction (ODFW)

With partner organizations that include three Tribes, ODFW submitted a National Fish and Wildlife Foundation America the Beautiful Challenge Grant proposal in July 2024. This grant request included \$200,000 for additional forest and vegetation treatments at Red Hills Conservation Area and leverages the Natural and Working Lands funding awarded for this project.

Natural Working Lands Climate Biologist (ODFW)

The Natural Working Lands Climate Biologist position will be instrumental in leveraging federal funds. To date, ODFW has successfully secured a considerable amount of federal funding for the conservation and management of natural resources. This large effort to leverage federal funds has been led by existing staff who have other workloads and priorities, so the establishment of the Natural Working Lands Climate Biologist will significantly increase staff capacity to pursue new and additional federal funds.

Natural Working Lands Assistant Climate Biologist (ODFW)

The Natural Working Lands Assistant Climate Biologist position will leverage carbon sequestration work out of several of ODFW's federally funded restoration programs, including USFWS's Wildlife and Sportfish Restoration, Bonneville Power Administration's Willamette Wildlife Mitigation Program, and NRCS Farm Bill. A total amount of federal funding is unknown and will be based on the partnerships and projects identified by this staff position.

Advance Implementation of Climate-Smart Forestry (ODF)

ODF anticipates that N&WL funds will enable cooperators to leverage additional federal resources to support climate-smart forestry practices. No funds have been leveraged to date, but efforts are underway to identify potential funding sources.

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IV. PROJECT ASSESSMENTS

This biennial report is intended to provide an assessment of the projects funded by the N&WL Fund in light of the net biological carbon sequestration and storage baseline and activity-based and community impact metrics established by ODOE and the OCAC.⁴ However, many of the programs, projects, and positions supported by the Fund are still in the early stages of implementation, and the baseline and metrics will be developed in 2025. Due to these constraints, the project assessments provided in this section summarize the purpose and intended future effects of funded projects, rather than observed quantitative or qualitative outcomes. Future iterations of this report will provide a more detailed picture of project outcomes and progress toward increasing net biological carbon sequestration and storage on natural and working lands.

A. Oregon Department of Agriculture

Invasive Annual Grass Partnership

The Invasive Annual Grass Partnership within ODA's Noxious Weed Control Program creates capacity for ODA to engage in ongoing and future work to protect and restore Oregon's public and private rangelands by creating two new Rangeland Health Specialist positions. The first of these positions was open for recruitment through September 2024. Their focus will be to develop and implement landscape scale management plans to protect high-value rangelands, improve and protect at-risk rangelands, and mitigate the further decline of heavily degraded lands. ODA will act as a liaison between private landowners and agencies to assist landowners and managers in obtaining funding to implement climate smart practices on their lands that will increase productivity, capacity to sequester carbon, and make them more resilient to climate change and wildfire.

In addition to leveraging the project's N&WL Fund award to raise an additional \$1.7 million in federal funds, ODA has started to identify and prioritize landscapes that were affected by the 2024 wildfires in Eastern Oregon. The first of two Rangeland Health Specialists was filled in mid-November 2024; these positions will immediately begin to engage with landowners and land managers across Oregon. The Rangeland Health Specialists will present to more than 200 natural resource managers at the Interagency Noxious Weed Symposium in December 2024.

Oregon Native Seed Strategy

The Oregon Native Seed Strategy (ONSS) is a project within ODA's Native Plant Conservation Program that aims to meet restoration and conservation needs by ensuring that adequate supplies of ecologically appropriate native seed are available whenever and wherever they are needed. The NW&L funds awarded to this project are supporting the identification, collection, and storage of important workhorse and niche species across various rangelands and savanna habitats in Oregon. NW&L funds also support the buildout and strengthening of new and existing Native Seed Cooperatives, seed amplification, and further storage. Finally, NW&L funds are enabling ODA to provide \$100,000 in financial assistance to Tribal Native Plant Programs that work to preserve First Foods and other culturally significant species.

⁴ HB 3409 sec. 57 (2023), codified at ORS 468A.193.

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In June 2024, ODA executed a \$235,663.28 contract for services with The Understory Initiative (TUI) to begin implementation of project activities as outlined in the proposal. Work is already underway, including seed collection, storage, partner and stakeholder engagement, and tribal outreach.

In December 2024, ODA will award \$100,000 to Tribal and/or Tribal member-owned native plant programs to support the implementation of practices that support natural climate solutions.

B. Oregon Department of Fish & Wildlife

Carbon Capture in Coastal Estuaries

ODFW's Carbon Capture in Coastal Estuaries project will support the vegetation and habitat restoration components of two large tidal wetland restoration projects and leverage a large amount of federal funding. N&WL Funds will be used for each estuary restoration project to connect historic tidal channels identified through LiDar (light detection and ranging) elevation data and imagery, remove earthen embankments to restore tidal inundation areas and hydrologic exchange with freshwater streams, protect and plant seagrass beds of native vegetation within estuary habitat, and remove invasive plant species to assist with establishing native spruce tidal swamps.

Coastal habitats capture and store carbon in marine plants and sediments. Ten percent of organic carbon sequestered in the Pacific Ocean is buried in seagrass beds. Healthy and sustainable seagrass beds provide flood protection and shoreline stabilization. Restoration of seagrass meadows and estuary function will contribute to carbon storage and the extent of the area may increase storage in the magnitude of 108 megagrams of organic carbon per hectare (Mg/ha).⁵

ODFW's vision is for Oregon to have modern tide gate infrastructure that benefits carbon storage and estuary function, fish habitat connectivity, and underserved communities. As a result, coastal agricultural communities are more resilient to the impacts of sea level rise and increased flood frequency and severity. The ecological function of Oregon's estuaries and access to key rearing areas is improved, resulting in healthier and more abundant estuary habitats that can store carbon.

Carbon Capture and Restoration in North-Central Oregon Rangelands

ODFW's Carbon Capture and Restoration in North-Central Oregon Rangelands project seeks to prevent the conversion of native perennial bunchgrass communities and native shrub steppe vegetation to invasive annual grasses and restore deep rooted perennial grasses to the Lower Deschutes Wildlife Area (LDWA) as part of a comprehensive restoration project across multiple land ownerships. The project will provide technical and financial assistance to landowners in the project area, helping address invasive grass issues and improve forage quality for their working rangelands. N&WL funds will primarily support herbicide treatments for approximately 5,000 acres of annual grasses, re-seeding with deep rooted perennial grasses, and purchase/planting of native shrubs, forbs, and other grasses.

⁵ Based on globally averaged estimates, seagrass meadows have an estimated mean soil organic carbon stock of 108 Mg/ha, with a range of 10 to 829 Mg/ha depending on the ecosystem. The Blue Carbon Initiative. Coastal Blue Carbon: Methods for Assessing Carbon Stocks and Emissions Factors in Mangroves, Tidal Salt Marshes, and Seagrass Meadows.

https://research.csiro.au/iora-blue-carbon-hub/wp-content/uploads/sites/321/2021/05/English_Blue_Carbon_LR_190306.pdf.

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This rangeland restoration project has two primary tactics with supporting actions to enhance the quality of grassland and shrub steppe habitats for the numerous wildlife species that occupy this area:

- Tactic 1: Prevent conversion to invasive annual plant dominated systems.
 - 1a. Monitor and treat moderately infested annual grass invaded areas (10-60 percent of ground cover) with an existing stand of perennial grasses, forbs, and shrubs.
 - 1.b. Establish fuel breaks using existing features such as roads or ridgetops to minimize wildfire impacts.
- Tactic 2: Restore deep-rooted perennial grasses, forbs, legumes, and shrubs to areas impacted by wildfire and invasive species.
 - 2.a. Where ground disturbing practices are necessary to restore deep rooted vegetation (drill seeding and shrub planting), conduct archeological surveys prior to beginning work.
 - 2.b. Plant native shrubs, forbs, and grasses (plugs, container, or bareroot) in strategic locations best suited for survival success.
 - 2.c. In areas highly infested with annual grasses (greater than 60 percent of ground cover), complete herbicide treatment to target annual grasses and re-seed with perennial grasses, forbs, and legumes.

Floodplain Reforestation on the North Santiam River

The Floodplain Reforestation on the North Santiam River project will reestablish 30 acres of floodplain forest within the 462-acre Chahalpam Wildlife Area by planting agricultural fields with native riparian hardwood trees and shrubs in high densities to achieve canopy cover in five to seven years. The reestablishment of floodplain forest will increase net carbon sequestration in newly planted trees and shrubs and restore habitat and floodplain function.

Replanting the floodplain forest will have additional localized co-benefits of increased water storage in the riparian area and reduced stream temperatures through shading, benefiting aquatic habitat during more frequent, intense, and extended heat events and droughts anticipated in the Willamette Valley under climate change. The replanted floodplain forest will also attenuate high flow events and slowly release water in winter as precipitation patterns shift to rain-dominated systems.

The restoration of ecological function of historic habitat will increase the complexity necessary for fish and wildlife and improve habitat conditions for 18 terrestrial and aquatic species, including ESA-listed spring Chinook salmon and winter steelhead, State-sensitive and culturally important Pacific lamprey, and several Oregon Conservation Strategy species, including Northwestern pond turtle, Northern red legged frog, and willow flycatcher.

Red Hills Conservation Area Wildfire Risk Reduction

The Red Hills Conservation Area Wildfire Risk Reduction project will remove Douglas fir and non-native tree species to restore oak savanna on 24 acres of a 278.5-acre property owned by the Confederated Tribes of the Warm Springs of Oregon, which is permanently protected under a conservation easement held by the Bonneville Power Administration (BPA) as part of ODFW's Willamette Wildlife Mitigation Program (WWMP).

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This oak woodland restoration project addresses the recommendation of reducing wildfire risk in forestlands. The Institute for Natural Resources' Natural & Working Lands Report (INR Report) notes that a century of fire exclusion has resulted in many western forested ecosystems carrying a "carbon debt," or a known excess of carbon. This phenomenon is most typically associated with drier east-side forest types such as ponderosa pine forests, but it is just as applicable to Willamette Valley woodlands that have become overstocked and unsustainable as climate change has led to large-scale dieback and mortality in conifers on some drier sites.

Removal of encroaching Douglas fir and non-native shrubs and trees from oak woodlands will result in a short-term reduction in carbon storage. But as the INR Report notes, citing numerous studies, fuels reduction treatments can result in long-term climate benefits by fostering resilience, paying off the "carbon debt," and reducing the risk of uncharacteristic wildfire.

Natural Working Lands Climate Biologist

ODFW leads or supports habitat restoration and enhancement across thousands of acres of natural and working lands each year with many existing staff located in various programs and geographies, and with existing budget resources, both state and federal. Historically, the primary objective of this work has been to maximize benefits for fish, wildlife, and working lands. By providing funding for two positions, including a Climate Biologist described here and an Assistant Climate Biologist described in the next subsection, the Fish and Wildlife N&WL Fund has given ODFW an opportunity to strategically advance habitat restoration efforts to accelerate the state's carbon sequestration goals.

The Natural Working Lands Climate Biologist position is a new, limited duration Natural Climate Solutions Lead in the Habitat Division. The primary purpose of this position is to align ODFW's habitat restoration activities with Oregon's N&WL goals related to the implementation of Natural Climate Solutions across the landscape and to pursue federal funding for these activities. This position will:

- Guide ODFW Natural Climate Solutions priorities and track related federal grant opportunities.
- Assist ODFW staff across the Habitat, Fish, and Wildlife Divisions as well as the Regions and Watersheds to develop grant applications for federal opportunities.
- Assist with administration of new and existing federal grants for fish and wildlife habitat and natural climate solutions projects.
- Work toward equitable distribution of natural climate solutions projects and benefits to landowners, Tribes, land managers, and environmental justice communities.
- Communicate the benefits of natural climate solutions projects to Oregon's N&WL and fish and wildlife.

Natural Working Lands Assistant Climate Biologist

The Natural Working Lands Assistant Climate Biologist is a new, limited duration position whose primary duty is to elevate ODFW's habitat restoration projects that accelerate carbon sequestration, quantify the carbon impacts of existing and future habitat restoration projects, and enhance project design to meet both carbon sequestration and habitat restoration goals. This position will provide technical assistance and project design advice to promote carbon sequestration practices. This position will also coordinate

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and consult with the Oregon Climate Action Commission to advance strategies for measurement and monitoring of carbon sequestration practices in service of the Commission's N&WL goals.

This position will:

- Identify fish and wildlife habitat restoration projects that maximize carbon sequestration, as well as the research needed to assess those co-benefits.
- Assess existing ODFW restoration practitioners with project design and implementation to better integrate carbon sequestration practices.
- Inventory and monitor, track, and report on ODFW's carbon sequestration-focused habitat restoration efforts, and tell the story of these initiatives.
- Support the Natural Climate Solutions biologist in the pursuit and acquisition of federal funds.

C. Oregon Department of Forestry

Advance Implementation of Climate-Smart Forestry

ODF is expanding implementation of parts of its Climate Change and Carbon Plan (CCCP), which was released in November 2021. This holistic plan is centered around climate-smart forestry (CSF) and has eight broad goals including research and monitoring, urban forestry, and silviculture, among others. Through this work the department will incentivize climate-smart forestry practices directed toward natural and working lands adaptation, climate mitigation, and social resilience (the three legs of CSF).

Through this program, ODF will provide financial incentives to small forest owners that largely lack the resources to implement climate-smart forestry practices on their own. The program will provide a mechanism to incentivize landowners to consider climate change and take management action they may otherwise not consider or be unable to realize.

Funded projects will work toward achieving the goals set in the ODF Climate Change and Carbon Plan. These eight goals have listed supporting actions that are outlined in the plan and the expectation is that the cooperators receiving funds will work on these actions. Anticipated outcomes include an increase in adaptation and mitigation activities that continue to support local communities and economies, including appropriate forest management and treatments that create climate adapted forests and resilient ecosystems that continue to provide ecosystem function to both the natural world and human populace. The short time frame for administering N&WL funds makes it difficult to measure carbon flux in forests, so ODF will use other metrics to measure climate-related outcomes.

Climate-Smart Forestry through Tribal and Environmental Justice Partnerships

This project is an extension of ODF's Climate-Smart Forestry program that is specifically focused on supporting Tribal and environmental justice community partners. These funds will be directed toward small, disadvantaged landowners and Tribes that are looking to pursue more climate-smart forest practices. The funds may be provided to Tribes and small landowners through ODF's existing granting programs or via direct partnerships with Tribes or third parties that work with traditionally disadvantaged landowners.

While western science has, and continues to provide, a wealth of knowledge on climate and forestry, there is also a substantial amount of traditional ecological knowledge that has not been included in

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current silvicultural practice. Elevating this knowledge can help inform current forest managers on traditional approaches to some of today's more sticky issues facing the state's forests. ODF aims to partner with Tribes to provide more bi-directional communication and information transfer that can help improve holistic outcomes across forest ownerships. Additionally, embracing a commitment to integrating traditional practices into the processes and outcomes of this climate-related work, as well as general agency work, can help to build trust, respect, and ecological benefits as the climate changes.

Climate-Ready Seed Orchards

ODF's Climate-Ready Seed Orchards project aims to produce and distribute seed for native, climate-adapted tree species. While more than 40 million seedlings are planted in Oregon forests each year, the vast majority are of a single species and often sourced from the same local seed. The margins of existing forest land are experiencing decline and a shift in species composition is expected in coming decades due to climate change. However, native and adapted species seed that will be viable in shifted landscapes is not currently available or is in exceptionally limited supply due to narrow forest seed orchard capabilities and directives.

To meet the need for native, diverse, and climate-adapted species necessary to maintain the state's forests as forests (a key climate mitigation strategy), ODF will use its existing seed orchard to produce seed and potentially seedlings for Tribal, small, and disadvantaged forest landowners. This facility currently produces a substantial amount of genetically improved seed of limited species, and it has tremendous capacity for additional seed production to meet shifting climate and landscape needs.

D. Oregon Watershed Enhancement Board

Watershed Natural Climate Solutions Fund

OWEB's Watershed Natural Climate Solutions Fund offers two categories of grants to support investments in natural climate solutions, including grants for Restoration and Technical Assistance and grants for Conservation Management and Planning, Technical Assistance, and Payment for Practices.

Restoration and Technical Assistance Grants: OWEB will invest \$1.5 million in N&WL funds into restoration and technical assistance grants for projects that provide climate benefits. Restoration grants will provide incentives that help landowners, tribes, land managers, and environmental justice communities adopt practices that support natural climate solutions while optimizing the resilience benefits of those solutions. Examples of resilience benefits include natural flood control, soil health, drought and fire resiliency, and resilient fish and wildlife populations. Technical assistance grants will support the development and design of projects as well as other activities that directly support on-the-ground restoration and implementation of natural climate solutions. Specifically, technical assistance grants fund OWEB partners to provide technical support for the entities listed above for the adoption of natural climate solutions.

Many of the recommended activities to capture and store more carbon and reduce greenhouse gases in Oregon's natural and working lands sector (i.e., those natural climate solution activities found in Institute for Natural Resources, 2023) are eligible for OWEB grants, including:

- Tidal wetland conservation and restoration.
- Restoring perennial grasses and riparian areas on rangelands.

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- Preventing conversion to invasive annual plant dominated systems on rangelands.
- Preventing conversion of existing grasslands, shrublands, and savannas to juniper woodlands.
- Reducing wildfire risks on forestlands.

Conservation Management and Planning, Technical Assistance, and Payment for Practices: OWEB will invest \$750,000 in N&WL funds into grants administered through the Oregon Agricultural Heritage Program (OAHP). This program is administered by OWEB and includes two grant types that have a direct connection to carbon sequestration on natural and working lands. These grant types are conservation management planning (which includes both development of conservation management plans and a climate-smart payment-for-practices component) and technical assistance. OWEB will use the funds to support projects that have carbon sequestration and greenhouse gas emissions reduction benefits.

Funding will be prioritized for the following OAHP components: development of conservation management plans, implementation of conservation management plans via a payment-for-climate-smart-practices approach, and technical assistance projects.

In OWEB's proposal to the OCAC, the agency committed to doing a public engagement process around the N&WL funds. This process is currently in fall 2024, with a survey that was open to respondents until October 4 and listening sessions held on October 31 and November 7. Feedback from the survey and listening sessions will be combined with other reports on equitable grantmaking to ensure that OWEB's N&WL grants in early 2025 are inclusive of Tribal and environmental justice communities.

V. ENVIRONMENTAL JUSTICE BENEFITS

Oregon's Natural Climate Solutions legislation directs ODOE, the OCAC, and the N&WL Fund agencies to track and report on N&WL Fund projects that have been deployed in environmental justice communities. As defined by statute, environmental justice communities include "communities of color, communities experiencing lower incomes, communities experiencing health inequities, tribal communities, rural communities, remote communities, coastal communities, communities with limited infrastructure and other communities traditionally underrepresented in public processes and adversely harmed by environmental and health hazards, including seniors, youth, and persons with disabilities."⁶ The vast majority of Oregon's natural and working lands are located in or adjacent to tribal, rural, remote, coastal, or other environmental justice communities. As a result, every project and program supported by the N&WL Fund is being deployed in or near an environmental justice community. In addition to this geographic proximity, each of the funded projects is designed to provide tangible benefits to environmental justice communities through a variety of mechanisms. For example, funded projects are designed to provide financial and technical assistance to Tribes and rural landowners and increase community resilience to natural hazards like wildfire, flooding, and drought. This section summarizes the environmental justice benefits of the N&WL Fund projects.

Every project and program supported by the N&WL Fund is being deployed in or near an environmental justice community.

⁶ HB 4077 (2022); ORS 182.535(4).

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A. Oregon Department of Agriculture

ODA's **Invasive Annual Grass Partnership** activities occur almost entirely within, or adjacent to environmental justice communities, as defined by HB4077 (2022), and will provide resilience to climate change and wildfire for communities with lower incomes, rural communities, remote communities, communities with limited infrastructure and other communities traditionally underrepresented in public processes and adversely harmed by environmental and health hazards.

ODA's **Native Seed Strategy** benefits numerous environmental justice communities, as defined by HB4077 (2022), as it provides assistance to federally recognized tribes and will provide climate and wildfire resilience infrastructure to communities with lower incomes, rural communities, remote communities, coastal communities, communities with limited infrastructure and other communities traditionally underrepresented in public processes and adversely harmed by environmental and health hazards. In December 2024, ODA will award \$100,000 to Tribal Native Plant Programs that work to preserve First Foods and other culturally significant species. In 2024, ODA presented at the State-Tribal Cultural Resource Cluster meeting as well as the State-Tribal Natural Resource Working Group meeting to solicit feedback from Tribal partners for the strategic and equitable distribution of Tribal financial assistance.

B. Oregon Department of Fish and Wildlife

Funds invested through ODFW's **Carbon Capture in Coastal Estuaries** program will directly benefit underserved communities by protecting natural and working lands from the risk of flooding, sea level rise, and help to mitigate climate change through increased blue carbon sequestration. Projects will directly benefit the ecological habitat and biological production of Oregon Coast Coho evolutionary significant unit (ESU), Oregon Coast Chinook Salmon ESU, Coastal Steelhead and Rainbow Trout (Summer) ESU/species management unit (SMU), and Coastal Cutthroat Trout to benefit the underserved communities in Douglas and Tillamook Counties, as well as the Confederated Tribes of the Grand Ronde, the Cow Creek Band of Umpqua Tribe of Indians, and the Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians.

In partnership with ODFW's Natural Resource Conservation Service liaison, ODFW's **Carbon Capture and Restoration in North-Central Oregon Rangelands** project will provide technical and financial assistance, project planning, and conservation planning that will benefit rural agricultural communities surrounding the Lower Deschutes Wildlife Area.

ODFW will pass funds directly to the Confederated Tribes of the Grand Ronde to implement **Floodplain Reforestation on the North Santiam River**, which the Tribe identified as the highest priority restoration site within their portfolio of Willamette Wildlife Mitigation Program properties.

ODFW will pass funds directly to the Confederated Tribes of Warm Springs for the **Red Hills Conservation Area Wildfire Risk Reduction** project, which the Tribe identified as the highest priority restoration site within their portfolio of Willamette Wildlife Mitigation Program properties.

ODFW's **Natural Working Lands Climate Biologist** position will leverage the existing relationships between ODFW field biologists and tribal and environmental justice communities to pursue grants to advance community priorities. Communities and organizations frequently have limited capacity to write and manage large grants. In some instances, states are the only eligible applicant for federal funding

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opportunities. ODFW has found that additional staff capacity enables the agency to develop more projects in partnership with Tribes and community organizations, as well as pass through more funds to these communities.

ODFW's **Natural Working Lands Assistant Climate Biologist** position will leverage the existing relationships between ODFW field biologists and tribal and environmental justice communities to pursue grants for their priorities. As a service provider, ODFW expects this position will be most effective when working with these partners.

C. Oregon Department of Forestry

Through its efforts to advance implementation of **Climate-Smart Forestry**, ODF will provide financial assistance to small forest landowners that lack the resources to implement climate-smart forestry practices. ODF will also provide technical assistance to landowners and managers in rural environmental justice communities.

ODF is also working to implement **Climate-Smart Forestry through Tribal and Environmental Justice Partnerships**. ODF will work to partner with Tribes as directly as possible, likely through the Tribes' forestry or natural resource departments that manage and steward their lands. Many of these relationships currently exist at the local level, and the agency will work to strengthen and build upon those existing relationships. Supporting disadvantaged forest owners has long been an agency focus. This will continue to be a priority with the recent development of the Small Landowner Office (thanks to the Private Forest Accord), which ODF may use to distribute funds to small, disadvantaged landowners.

Through its **Climate-Ready Seed Orchards** project, ODF will use its existing seed orchard to produce seed and potentially seedlings for Tribal, small, and disadvantaged forest landowners.

D. Oregon Watershed Enhancement Board

OWEB will prioritize grants awarded through its **Watershed Natural Climate Solutions Fund** for projects or activities administered or proposed by an environmental justice community or Tribe. The Board's current public engagement process is collecting information about the N&WL activities Tribes and environmental justice communities are most interested in funding and some of the barriers they face in doing so. The rollout of these funds will be as responsive as possible within the parameters of the statute to this feedback.

VI. ACTIONS PLANNED FOR 2025

The N&WL Fund agencies have a variety of projects, grants, and other activities planned for the upcoming calendar year to continue implementing funded projects and programs. The agencies' 2025 N&WL Fund-related activities are listed below.

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A. Oregon Department of Agriculture

Invasive Annual Grass Management and Rangeland Resilience

- Hire first Rangeland Health Specialist (November 2024)
- Establish state and regional Invasive Annual Grass (IAG) working groups (Q1 AY2025)
- Develop 20-year goals and 10-year action plan (AY2025/2026)
- Hire second Rangeland Health Specialist (Q2 AY2025)
- Develop BIL funding proposals to support IAG work on state & private lands (Q4 AY 2024)

Oregon Native Seed Strategy Implementation

- Award \$100,000 in Tribal Assistance (January 2025)
- Seed banking of seeds collected in 2024 (Q1 AY2025)
- Continue seed collection and storage (April-September 2025)
- Publish final Oregon Native Seed Strategy Document⁷ (Q1 AY2025)
- Continue development of Native Seed Co-Ops (Throughout AY2025)
- Develop federal funding proposals for projects within BLM Restoration Landscapes that leverage N&WL funds as match (AY2025)
- Produce a needs assessment for fire-impacted rangelands

B. Oregon Department of Fish and Wildlife

- Hire and implement the Natural Working Lands Climate Biologist and Assistant Climate Biologist positions. The staff in these positions will immediately begin scoping federal grant opportunities and partnerships with landowners within ODFW's highest priority landscapes for habitat restoration and carbon sequestration. These landscapes will likely include coastal estuaries, sagebrush rangelands, oak and prairie habitats, and floodplains and beaver-modified landscapes.
- Plant native riparian hardwoods and shrubs in the Chahalpam Wildlife Area by the Confederated Tribes of the Grande Ronde as part of the North Santiam Floodplain Restoration Project.
- Follow-up treatment of non-native invasive grasses and seeding/planting of native perennial bunchgrasses in the Lower Deschutes Wildlife Area as part of the Carbon Capture in North-Central Oregon Rangelands Project. ODFW's Farm Bill Conservation Liaison will continue to provide technical assistance and NRCS Farm Bill Program enrollment to working landowners in the area to expand the scope and impact of the project's goals.
- In the Carbon Capture in Oregon Coastal Estuaries Project, ODFW's project partners, including the Salmon Superhighway Project and the Partnership for Umpqua Rivers, are preparing for the in-water work period in the summer of 2025 to implement channel restoration and plant native seagrass in their project areas.
- Significant progress in project planning and contracting is anticipated on the Confederated Tribes of the Warm Spring's Red Hills Conservation Area Wildfire Risk Reduction project. ODFW will be helping to support the tribes in advancing this important project.

⁷ This portion of the project is not funded by the Natural & Working Lands Fund.

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C. Oregon Department of Forestry

- Provide funding to local districts to increase adoption of climate-smart forestry activities through incentives and technical assistance for existing programs.
- Provide funding to Tribes that want to implement climate-smart forestry practices on tribal forest lands.
- Work on implementation of ODF's climate-ready seed efforts to provide species and seed that are more climate adapted as informed by future projections.
- Continue implementing associated ODF efforts, such as the Climate-Smart Forestry Award; supporting long-lived wood fiber utilization (*e.g.*, mass timber); and administering forest health treatments to increase resistance, increase adaptation, or direct the forest ecosystem dependent on the local conditions.
- Track and work to secure national and international climate and carbon-related funding through grants and other opportunities.
- Continue efforts around the adoption of a Habitat Conservation Plan (HCP) and a Forest Management Plan for State Forests, and an HCP for private riparian areas, which include climate considerations.
- Continue research projects and efforts that will inform interests in carbon stocks and cycles, land use issues related to forestry, and the effects of climate on insects, diseases, and abiotic factors.

D. Oregon Watershed Enhancement Board

- OWEB is currently conducting a public engagement process around the N&WL funds, with a survey in fall 2024 and listening sessions held on October 31 and November 7.
- Feedback from the survey and listening sessions will be combined with other reports on equitable grantmaking to ensure that OWEB's N&WL grants reflect Tribal and environmental justice partner priorities and their program needs.
- Applications for OWEB's N&WL grants will open in January 2025 for both general Restoration and Technical Assistance projects, as well as funding for payments-for-practice on agricultural land.

VII. LOOKING FORWARD: NATURAL CLIMATE SOLUTIONS INVESTMENT POTENTIAL

The legislature's initial investment of \$10 million and creation of the N&WL Fund were instrumental in getting new programs and projects off the ground to implement natural climate solutions across the state. The initial appropriation also enabled the N&WL agencies and their subrecipients to leverage their allocations to secure additional funding from outside sources. While these additional funds will enable the agencies to expand the reach and impacts of their programs for a period of time, interest in implementing climate-smart natural and working lands projects and practices continues to grow. There is tremendous potential to invest in natural climate solutions across the state, and demand for financial

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assistance will quickly exhaust the funds currently available to support these projects. To fully realize the myriad benefits that natural climate solutions can provide, agencies require reliable funding to sustain the projects and programs that were made possible by the N&WL Fund.

The following subsections describe the potential and need for additional investments in natural climate solutions identified by ODA, ODFW, and OWEB.⁸

A. Oregon Department of Agriculture

ODA recognizes the opportunity to enhance investments through the N&WL Fund. The agency's experience with current projects has shown that achieving meaningful outcomes requires intentional planning and coordination. Creating resilient landscapes and communities involves more than implementing individual projects; it requires a clear vision, a strategic approach, and sustained investment.

Building on successful models from other states and federal initiatives, ODA aims to leverage funding to lead the development and strategic goal setting of an agency-wide plan for Climate-Smart Agriculture in Oregon. The agency's strategy will focus on fostering climate resilience by promoting the adoption of climate-smart practices and the markets that support them, while also complementing existing initiatives at the local, state, and federal levels. Strategic planning will include evaluating ODA programs and initiatives that support climate and community resilience, as well as identifying ways to expand opportunities for collaboration across public and private sectors. By integrating these efforts, ODA can align state and national strategies to meet Oregon's unique needs for its agricultural and working landscapes.

A well-designed strategic plan will coordinate projects to effectively target and leverage investments, fostering partnerships that align with broader initiatives. This approach will maximize the impact of ODA's efforts and ensure resources are used efficiently and effectively.

ODA's ultimate goal is to build a culture of action and awareness. Through its strategic plan, the agency seeks to cultivate this culture while supporting both the agricultural sector and community resilience across Oregon by offering incentives and solutions that protect natural lands and keep working lands productive. By taking an integrated approach, ODA can strengthen its strategies and develop a robust framework for Climate-Smart Agriculture in Oregon.

Invasive Annual Grass Management and Rangeland Resilience

With additional funding, ODA sees numerous opportunities for future investment and would prioritize direct grants to landowners to implement projects on private lands. These grants could serve as match to leverage additional federal funding or, when not eligible for federal funding, to fund these projects entirely. This type of investment would complement ODA's current efforts, and the agency is well-positioned to administer these funds and provide dedicated technical assistance through its staff of Rangeland Health Specialists.

Many of the fires that burned over one million acres of rangeland in 2024 were fueled by invasive annual grasses. These lands, and the more intact rangelands that also burned, are even more susceptible to invasion and the effects of climate change, and have diminished resiliency to drought, flooding, and

⁸ The Oregon Department of Forestry declined to provide content for this section.

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future wildfires. These burned landscapes create immediate opportunities for engagement in our current efforts but also a demand for even more investment in restoration and increase the need for conservation of landscapes that remain intact.

Oregon Native Seed Strategy Implementation

The Native Plant Conservation Program has identified numerous opportunities for further investment in Oregon Native Seed Strategy implementation if more funds become available. Specifically, demand for financial assistance from Oregon Tribes and tribally affiliated organizations far exceeds what is available through ODA's current project. All nine federally recognized Tribes have expressed interest in receiving funding; however, many of them need much more than ODA currently has to offer. Future proposals for continued implementation of the Oregon Native Seed Strategy would include a request for up to \$500,000 for tribal assistance.

The number of acres requiring preservation and restoration has only increased since ODA's first proposal, particularly after the devastating rangeland fires of 2024. Over one million acres were affected by these fires and many, if not all, occurred in or near underserved communities that are most vulnerable to the effects of climate change. Internally, ODA would further invest in the collection, amplification, and storage of keystone and specialized species needed for restoration of these landscapes and the continued buildout of native seed co-ops. Large scale native seed production is an emerging agricultural sector that comes with unique risks and there is a great deal of work to be done to develop and build value that will attract farmers to the sector. Due to a lack of funding, ODA is not soliciting external proposals for projects, but there are myriad opportunities to address the priorities of the Oregon Climate Action Commission if funding was available.

The initial \$10 million investment of N&WL Funds has been a great catalyst for addressing the challenges presented by a changing climate. However, it is nowhere near enough to create reliable resiliency across Oregon's diverse landscape. Through implementation of the initial offering, ODA has begun to understand the breadth and depth of other work that is needed to make meaningful impacts on the landscape and within and across the communities that depend on them. There is a need for continued policy work to streamline the delivery of funds, to create mechanisms for more organic collaboration across agencies to leverage available funds to maximum potential, and to provide support for community outreach to capture and incorporate the needs of stakeholders while creating awareness of current opportunities for assistance.

B. Oregon Department of Fish and Wildlife

ODFW is prioritizing its work on climate resiliency and focusing on the critical role that natural and working lands play in securing the future for fish and wildlife in Oregon. By partnering with working landowners, the agency helps sustain their operations and way of life, as well as the fish and wildlife habitat they steward, and achieves a co-benefit of carbon sequestration. ODFW will continue to prioritize its work at this intersection of natural climate solutions and is bringing its capacity and resources to bear.

There are some key geographies and habitat types in which ODFW is planning to focus its work in the near term. Each of these areas provide numerous opportunities to create the intersectional co-benefits of supporting working lands, restoring wildlife habitat, and sequestering carbon. Key areas and habitat types include:

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- Coastal estuaries and high-priority aquatic habitats, particularly in areas that will help with delisting of Oregon Coast Coho.
- Sagebrush ecosystems at risk of loss to non-native grasses and fires, particularly in core areas for sage-grouse.
- Oak and prairie habitats in the Willamette Valley, Klamath-Siskiyou, and East Cascades given the incredibly high biodiversity in these systems and the great working lands partnerships already in place.
- Beaver-modified landscapes given the role these features play in climate resiliency and biodiversity, and in line with ODFW's Beaver Action Plan.
- Priority Wildlife Connectivity Areas and High Priority Fish Passage Barriers to ensure species' ability to move and adapt to a changing climate, with a particular focus on projects that provide co-benefits for working lands and irrigators.

There are literally hundreds of thousands of acres and large landscapes in need of this focus and work to restore resiliency and support working lands. ODFW anticipates working with many different landowners and managers, multiple partnerships, and federally recognized Tribes in each of these landscapes and habitat types. The demand remains high; there are always more projects and more interested landowners than there is funding.

Critical to the advancement of this work and the agency's ability to prepare specific projects and partners will be the continuation of ODFW's Natural Working Lands Climate Biologist and Assistant Biologist positions. They are the hub for this work, connecting on-the-ground implementers and landowners with funding, permitting, and contracts necessary to complete this work. They are also the critical connection back to the carbon sequestration techniques, measurement, and reporting/storytelling. ODFW will be requesting continuation of these positions to advance its natural and working lands efforts into the future.

C. Oregon Watershed Enhancement Board

OWEB is currently conducting a public engagement process and surveying potential grant applicants to identify priorities and program needs. More than 100 people and organizations responded to OWEB's survey, reflecting a high level of demand for this grant offering. Many respondents were from traditional grantees like Soil and Water Conservation Districts (21 percent), Watershed Councils (9 percent), and producers or landowners/land managers (19 percent). There was also notable interest from environmental justice groups, which represented 10 percent of the respondents, and from Tribes, which represented 6 percent of responses. Both traditional and non-traditional OWEB-eligible grantees may apply for N&WL funds to support projects in partnership with Tribes and environmental justice groups.

Based on a review of Fall 2024 Open Solicitation applications, the total potential requests for N&WL funds is \$925,798, which would equate to 62 percent of OWEB's *total* available N&WL funding in a single round of Open Solicitation grants (there are two rounds per year). Proposed projects in this review included restoration activities with a focus on cultural foods, traditional ecological knowledge, or native plant revegetation at a former industrial landfill. It is important to emphasize that this estimate of demand is before OWEB has: conducted any intentional outreach to solicit input from Tribes and environmental justice communities about the climate solutions they would be most interested in implementing; engaged with eligible applicants; removed internal barriers, such as match requirements.

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or complicated application processes; or conducted outreach and facilitated application pathways via relevant partner organizations.

Based on the level of interest expressed in the N&WL survey results and applications received to date, OWEB anticipates that the \$750,000 of available N&WL funds for Oregon Agricultural Heritage Program (OAHP) will likely not be enough to meet demand for the development and subsequent implementation of conservation management plans, which will have 20- to 50-year time horizons. One of the considerations under discussion for these payment-for-practices grants is the length of time that these grants should provide payments to producers, which would significantly affect the reach of these funds.

One-on-one conversations with multiple Tribal members and environmental justice groups have shown that those communities appreciate the inclusion of community co-benefits and traditional ecological knowledge in these funds. Given that the scope of these funds is wider than carbon sequestration alone, we can anticipate greater interest from these groups and communities in securing funds in the future.

VIII. CONCLUSION

The N&WL Fund has been instrumental in increasing state investment in natural climate solutions on Oregon's natural and working lands. The Fund's initial \$10 million appropriation is supporting 13 programs, projects, and positions that will increase carbon sequestration and storage and provide valuable co-benefits for communities and the environment. The N&WL agencies have successfully leveraged their Fund allocations to raise additional funding from other federal, state, and private sources. Most N&WL Fund projects are still in the early stages of implementation, and a variety of projects and other activities are scheduled for 2025. Landowners and managers, Tribes, conservation districts, watershed councils, conservation groups, and community-based organizations have shown great interest in deploying natural climate solutions, and demand for financial and technical assistance will likely exceed available funding. To fully realize the myriad benefits that natural climate solutions can provide, agencies require reliable funding to sustain the projects and programs that were made possible by the N&WL Fund.



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APPENDIX: SUMMARY OF PUBLIC COMMENTS RECEIVED

The OCAC received comments from The Nature Conservancy, the Oregon Association of Conservation Districts, and the Oregon Climate Agriculture Network. All three organizations, which work with land stewards across Oregon, urged the legislature to sustain current funding and provide additional funding for the newly established Natural and Working Lands Fund (N&WL Fund) to continue building on Oregon's initial commitment and success. Two of the organizations also highlighted that the state N&WL Fund has acted as critical match for millions of dollars available through federal funding streams. They mentioned that the N&WL Fund has been used to secure nearly \$9 million in additional funding from other state, private, and federal funding sources, nearly doubling the state's initial investment. All commentors emphasized the importance of continuity of funding from year to year for land stewardship practices that require time to deploy and to yield their intended benefits. Lastly, the commentors pointed out that natural climate solutions are a win-win for climate and communities, and that continuing to invest in natural climate solutions land management practices benefits everyone by creating more resilient landscapes. The individual comments received are summarized below.

Oregon Climate & Agriculture Network (OrCAN)

OrCAN referenced [recent research](#) that provides county-level information on greenhouse gas emission and carbon sequestration estimates for cropland and grazing land under current and projected conservation management practice scenarios. The research indicates that changes to current practices could result in the removal of approximately 295,053 tonnes CO₂e annually. They stated that soil carbon sequestration provides one of the most ready, cost-effective carbon removal strategies available. OrCAN emphasized that farmers who want to employ practices like those listed in the research need financial incentives and technical support provided by the N&WL Fund.

OrCAN reported that there is high interest in the N&WL Fund among the community. Previously, more than 100 stakeholders engaged and weighed in on the proposed uses of the N&WL Fund, and this September, 112 people and organizations responded to the Oregon Watershed Enhancement Board's (OWEB) recent survey as part of the engagement process for the deployment of N&WL funds. OrCAN requested that agencies work to keep interested and engaged producers informed about upcoming engagement opportunities and program applications as agencies implement the N&WL Fund.

The Nature Conservancy (TNC)

TNC in Oregon is a science-based, non-partisan organization with 80,000 supporters and members in every county. TNC reports high demand to fund natural climate solutions and expressed concern that agencies will quickly exhaust their initial N&WL Fund allocations. TNC emphasized that that realizing change on a landscape level to meaningfully address climate challenges requires sustained commitment and effort. They also pointed out that the N&WL Fund enabled the Oregon Department of Agriculture and the Oregon Department of Fish and Wildlife to hire staff positions focused on applying for federal funds that will leverage the N&WL funds, advance the state's restoration and mitigation efforts, and accelerate N&WL sequestration goals.

Oregon Association of Conservation Districts (OACD)

OACD represents Oregon's 45 Soil and Water Conservation Districts (SWCDs), which are special districts governed by elected boards. SWCDs deploy key programs and technical assistance for landowners and

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managers implementing carbon sequestration practices across the Oregon landscape. OACD emphasized that investment in natural climate solutions will help Oregon reduce its climate impacts through increased carbon sequestration and will increase resiliency. They report that initial interest in the N&WL Fund is high as demonstrated by the number of open solicitation applications received by OWEB that met the natural climate solution criteria in a single round. These applications would have used over 60 percent of OWEB's total fund allocation. They added that without the continuity of funds, Oregon will remain in a 'start-up' phase, without reaping the efficiencies and effectiveness that comes with program continuity and predictability.



Natural Working Lands Fund Proposal: ***Advancing the Pace and Scale of Natural Climate Solutions on Oregon's Natural and Working Lands***

Background

In 2023, the Legislature set aside \$10 million for the Oregon Department of Fish and Wildlife (ODFW), Oregon Department of Agriculture (ODA), Oregon Watershed Enhancement Board (OWEB) and Oregon Department of Forestry (ODF) in the Natural and Working Lands Fund.

The statute directs ODA, ODF, and OWEB to:

- Provide incentives to help landowners, Indian tribes, land managers and environmental justice communities adopt practices that support natural climate solutions; and
- Provide financial assistance for technical support for landowners, Indian tribes, land managers and environmental justice communities for the adoption of natural climate solutions.
- Priority should be given to expenditures for:
 - Technical assistance to environmental justice communities or Indian tribes; and
 - Incentives for programs or activities supported by an environmental justice community or supported by a resolution of an Indian tribe, with priority given to those projects or activities administered or proposed by an environmental justice community or an Indian tribe.

The statute directs ODFW to focus on opportunities to:

- Promote natural climate solutions and mitigate the future impacts of climate change by conducting research;
- Relying on existing programs where possible, secure federal matching funds or other sources of funding to support investments in natural climate solutions on natural and working lands; and
- Ensure the benefits of natural climate solutions are equitably distributed among landowners, Indian tribes, land managers and environmental justice communities.

The Governor's Natural Resources Office worked with representatives from the four agencies to develop a coordinated spend plan consistent with these statutory requirements. The proposal was previewed with the Oregon Climate Action Commission (OCAC, formerly Oregon Global Warming Commission) on December 11, 2023. Agencies adjusted the proposal based on the December 11 discussion and further discussion with interested stakeholders.

Criteria for Distribution of Funds

The OCAC must approve the distribution of the funds to agencies in consultation with the agencies. By statute, the two criteria for OCAC's determination of allocations are:

1. The expected ability of each agency to carry out programs or other activities and
2. The degree to which moneys allocated to the agency may be used to secure federal funding or other sources of funding.

Once the allocations are determined, OWEB will transfer funds to each agency based on the amounts distributed, and each agency must obtain technical adjustments to their Legislatively Approved Budget based on those amounts.

Proposal Summary

The proposal includes 13 investment areas totaling \$9,767,198 distributed across the four eligible agencies, implementing a range of strategies to advance natural climate solutions to mitigate the future impacts of climate change. The spend plan for each investment area is shown in Table 1 and described in greater detail in Attachment 1.

FY2024 Budget	FY2025 Budget	FY2026 Budget	FY2027 Budget	FY2028 Budget	Total
\$2,945,912	\$6,282,286	\$288,000	\$163,000	\$88,000	\$9,767,198

Agency	Total Spend Plan	Statutory Fund
OWEB	\$2,500,000	Watershed Natural Climate Solutions Fund
ODFW	\$3,038,270	Fish and Wildlife Natural Climate Solutions Fund
ODF	\$3,250,000	Forestry Natural Climate Solutions Fund
ODA	\$978,928	Agricultural Natural Climate Solutions Fund

The proposal provides for natural climate solutions across a range of Oregon’s natural and working land sectors including blue carbon ecosystems, natural lands, rangelands, forestlands, and agricultural lands. The proposal is built on existing agency programs but focused on strategic investments in programs where additional, targeted funding can advance the pace and scale of natural climate solutions.

The proposal is also focused on investments that are ready to be made quickly to demonstrate the value and feasibility of these natural climate solutions. Proposed investments beyond FY2025 are all related to follow-up and retreatment of invasive annual grasses, where success is contingent on multi-year commitments.

Designed to leverage millions of dollars in federal funding, the package of investments advances natural climate solutions through incentives, technical assistance, and on-the-ground projects with a focus on accessibility and funding for tribes and environmental justice communities. The technical and direct financial assistance will help remove barriers for Indian tribes, environmental justice communities, landowners, and land managers to engage in natural climate solutions or access funding to support natural climate solutions.

Beyond these benefits, these investments will provide important co-benefits including increasing the climate resilience of fish, wildlife, and their habitats, improving soil health and productivity, and improving forest and stream health, wetland recovery and riparian functionality.

Key Elements of the Proposal

1. Leverages federal funding resources (IIJA, IRA, Farm Bill)

Collectively, the proposal is estimated to immediately leverage more than \$25 million across a variety of federal funding sources:

- Bonneville Power Administration, BPA;
- Bureau of Reclamation, BOR;
- National Resources Conservation Service, NRCS;
- National Oceanic and Atmospheric Administration, NOAA;
- Bureau of Land Management, BLM;
- US Fish and Wildlife Service, USFWS; and
- US Forest Service, USFS.

Many of the investments to landowners via grants and technical assistance have unknown immediate federal leverage but are in alignment with federal programs where state investment is likely to boost the ability of grantees to pursue larger federal investments now or in the future. For example, in addition to the federal funds leveraged in its proposed on-the-ground projects, **ODFW** is proposing two limited-duration positions to pursue future federal funding and accelerate the agency's and partner's work on natural climate solutions. To date, ODFW has successfully brought \$58 million in IIJA and IRA funds to Oregon for habitat restoration work. ODFW's maximum capacity to manage more federal grants has been reached, but federal programs from NOAA, USFWS, NRCS, BLM, and USFS still have two years of opportunities in the funding queue. To address this gap and maximize the leveraging of the state Natural and Working Lands Funds, ODFW is proposing:

- A) A Natural Climate Solutions Lead to track, apply for, and administer new and existing federal grants for natural climate solutions projects and
- B) A Carbon Sequestration & Habitat Restoration Service Provider to support the Natural Climate Solutions Lead in the pursuit and acquisition of federal funds while assisting ODFW and partner restoration practitioners with project design to better integrate carbon sequestration practices.

ODA's invasive annual grass initiative will immediately leverage over \$1.7 million in federal funds to provide coordination and technical assistance to landowners, and land managers to implement practices that support natural climate solutions. In addition, ODA will provide technical assistance by acting as a liaison between landowners and land managers and federal agencies to leverage further federal funding through existing and emerging programs funded by IRA, IIJA and the Farm Bill.

2. Maximizes carbon sequestration outcomes

Natural climate solutions are defined as activities that enhance or protect net biological carbon sequestration on natural and working lands, while maintaining or increasing ecosystem resilience and human well-being. Biological carbon sequestration is defined as the removal of carbon from the atmosphere by plants and microorganisms and storage of carbon dioxide in vegetation, such as grasslands, marshes or forests, or in soils and oceans. By undertaking or supporting climate-smart practices and ecological restoration actions, the state agencies will be using natural climate solutions to help advance the state's overall carbon sequestration goals.

Each investment area is linked to natural climate solutions described in the draft report from the Institute of Natural Resources that the OCAC is currently considering. The outcomes of the investments can be measured in acres restored, planting and seeding rates by species, acres deferred or rested, climate-adapted seed orchard implementation, etc. **Agencies will report on these outcomes to the**

Oregon Department of Energy and the OCAC for use in their carbon sequestration calculations once the methods, baseline, and inventory have been established by the OCAC as required by statute.¹

Agencies will also report on federal funding leveraged, organizations funded, and landowners supported.

Some examples of state agency investments that will help maximize carbon sequestration outcomes in Oregon (*the complete list can be found in Table 1 and Attachment 1*):

OWEB proposes to invest \$2.25 million into grants for technical assistance and on-the-ground projects that implement natural climate solutions on natural and working lands. OWEB proposes to do this by distributing grant funds through the following existing competitive grant programs:

- *Open Solicitation Programs* - OWEB proposes to support climate-smart restoration and technical assistance projects submitted to OWEB's Open Solicitation grant programs.
- *Oregon Agricultural Heritage Program* - OWEB proposes to support climate-smart technical assistance, conservation management planning, and climate-smart payment-for-practices projects submitted to the Oregon Agricultural Heritage Program.

Many of the recommended activities to capture and store more carbon and reduce greenhouse gases in Oregon's natural and working lands sector (i.e., those natural climate solution activities found in Institute for Natural Resources, 2023) are eligible for OWEB grants. These activities also provide myriad resilience benefits including improving flood control, improving soil health, improving wildfire and drought resilience, and improving stream health and riparian functionality, among others.

ODA's investment in rangeland resilience will conserve and enhance current sequestration capacity of Oregon's rangelands by protecting high-value, high-functioning lands from invasion by annual grasses, conserving deep-rooted perennial bunchgrass habitats, and growing these core areas through implementation of climate-smart restoration practices and the 'Defend the Core, Grow the Core' management framework. Meanwhile, **ODA's** investment in the Oregon Native Seed Strategy helps create the framework for infrastructure elements that will be critical to supporting the work proposed in the rangeland resiliency work of ODA, the work proposed and supported by other state agencies in this application, and the work that is being proposed and supported by myriad other partners and federal agencies across the state.

ODF proposes to provide funding to local, place-based organizations that will implement portions of the department's Climate Change and Carbon Plan. These efforts will be conducted in cooperation with the department and include goals around climate-informed silviculture, maintaining forests as forests, and reforestation or afforestation. Investments totaling \$1.5 million (\$125,000 for agency coordinator) will be directed to partner agencies, organizations, and entities that will provide incentives and technical assistance for implementation of climate-smart forest practices for small forest landowners. This relies on existing relationships and department programs to be utilized and initial outreach has returned positive interest.

ODFW proposes to invest \$2.43 million in on-the-ground, natural climate solutions on natural and working lands. Projects are proposed on the coast, in the Willamette Valley, and in the Columbia Basin covering a variety of vegetation communities and hitting on several sequestration strategies identified in

¹ Section 58 of HB3409 (2023 Legislative Session) requires **the State Department of Energy and Oregon Global Warming Commission** to establish and maintain activity-based metrics and to use those metrics to evaluate progress toward net biological sequestration and storage in working and natural lands.

the INR 2023. Projects include:

- Carbon capture and restoration in north-central Oregon rangelands, \$750,000 requested
 - o ODFW Lower Deschutes Wildlife Area and surrounding private lands, Wasco County
 - o Perennial bunchgrass restoration, non-native invasive grass removal
- Carbon capture in Oregon Coastal Estuaries, \$1.1 million requested
 - o Otter Slough and Ester Creek on private lands in the Umpqua Basin
 - o Tidal channel reconnection, seagrass protection and re-plantings, and invasive species removal
- Floodplain reforestation on the North Santiam River, \$412,500 requested
 - o Confederated Tribes of the Grand Ronde will lead restoration of 30 acres of native riparian forests on old agricultural land owned by the Tribes
- Wildfire risk reduction in oak woodland habitat in Yamhill County, \$170,770 requested
 - o Confederated Tribes of the Warm Springs will lead restoration of oak woodland habitat on their 278.5-acre Red Hills Conservation Area property to reduce the “carbon debt” by reducing excessive fuel loads

3. Centers environmental justice considerations

The state agencies are prioritizing engagement with Tribes and environmental justice communities in all investment areas. For example:

ODFW is proposing to pass project funds directly to two Tribes for projects on tribal lands:

- The floodplain reforestation project proposed on the North Santiam River will be led by the Confederated Tribes of the Grand Ronde. The project will occur on the Tribe’s Chahalpam Wildlife Area. The Grand Ronde have identified this project as a high priority, particularly for the benefits it will convey to spring Chinook salmon, winter steelhead, and Pacific lamprey which are culturally important to the Tribes.
- The wildfire risk reduction project at the Red Hills Conservation Area will be led by the Confederated Tribes of the Warm Springs on lands owned and managed by the Tribe. This project will help the Tribe offset the costs of reducing fire risk and sustaining oak woodland habitats on their property.

ODFW’s proposed investments would also support rural and coastal agricultural communities. The estuary project would support better hydrology, provide flood management and create structural protection from flooding for coastal agricultural producers. The rangeland restoration project in Wasco County will benefit rural landowners in the project area by removing invasive grasses less optimal for livestock and enhance preferred forage for rangeland operations.

ODF will provide \$1.0 million directly to Tribes and environmental justice communities to implement and establish climate-smart forest practices in line with natural climate solutions, their management goals and reflective of the agency’s Climate Change and Carbon Plan. Beyond providing for additional sequestration, we expect that there will be many co-benefits like habitat resilience, access to traditional foods and resources, and the potential to leverage additional federal funding as it is made available. One element of this effort would be to provide for bidirectional learning where the agency’s staff and partners are able to provide technical assistance on climate projections and impacts and Tribes are able to provide reciprocal traditional ecological knowledge, including how to use it in a changing environment. The department will rely on its Tribal liaison and deputy liaison in the implementation of this portion of the funding.

As prioritized in section 54 of HB3409, **ODA’s** investment into implementation of the Oregon Native Seed Strategy *removes barriers for Indian tribes, environmental justice communities, landowners and land managers to engage in natural climate solutions or access funding to support natural climate solutions* by providing stipends to Oregon Tribes that will facilitate their participation and contribution.

to the Oregon Native Seed Coalition and by providing financial assistance to Tribal nurseries and native plant programs that provide the supply of native seeds that currently limits implementation of some natural climate solutions that rely on native plants.

Prior to any grant solicitation release, **OWEB** plans to conduct a public engagement process with traditional partners, tribes, environmental justice communities, and others to identify priorities for the funding. For example, environmental justice communities or tribes could express a significant need for technical support for the adoption of natural climate solutions. OWEB will use the guidance from Section 54 of HB3409, along with priorities identified during the public engagement process, during the grant review process to select projects that meet the intent described in HB 3409.

4. Ensures accessibility of grants for landowners and land managers

The proposal also seeks to ensure that a diversity of landowners and managers can voluntarily participate in incentive-based programs for natural climate solutions and climate resilience through activities that may include, but are not limited to, directing resources to land managers to incentivize voluntarily adopting practices that optimize natural climate solutions and strengthening education, engagement and technical assistance efforts for land managers.

For example, **OWEB's** proposed uses of the Watershed Natural Climate Solutions Funds will provide incentives via grants to help landowners, tribes, land managers, and environmental justice communities implement on-the-ground projects that support natural climate solutions and provide financial assistance to partners to provide technical support for the entities listed above to adopt natural climate solutions. Eligible applicants for OWEB-administered funds include tribes, local governments, non-profit organizations, and schools and institutions of higher learning. While landowners are not directly eligible for OWEB programs, grantees may reimburse landowners for eligible costs to implement projects.

Also, as previously mentioned, **ODF** is looking to partner with more local organizations (soil and water conservation districts, watershed councils and others) who have strong local relationships and knowledge to distribute funds to small and disadvantaged landowners and Tribes for management of their own lands. The department is also expecting to work with OSU forestry extension faculty and staff for additional technical assistance and information dissemination through their networks. The department has previous experience and expertise through its small landowner office and grants staff that will assist with disseminating funds.

Numerous federal agencies have funding opportunities for landowners to implement practices that support climate resiliency but currently lack the capacity to efficiently put funds on the ground. As part of the investment in rangeland resilience and invasive annual grass management, ODA will act as a liaison between those federal agencies, landowners and land managers to help identify and develop projects that qualify and align with those funding opportunities. Specifically, ODA will provide technical assistance to landowners and land managers seeking to leverage federal resources and funding available through the NRCS in support of the USDA Working Lands for Wildlife Initiative and USDA Grazing Lands Conservation Initiative. ODA will also provide technical assistance to landowners and land managers on projects that seek to be funded by the Oregon State Weed Board Grant Program, which gives special consideration to projects that incorporate climate change resilience.

5. Utilizes existing programs and leverage existing capacity wherever possible

This proposal seeks to use the agencies' existing capacity while strategically filling funding gaps that have had limited capacity to implement natural climate solutions in the past. For the Watershed Natural Climate Solutions Fund, **OWEB** will use their existing Open Solicitation grant programs, which

includes restoration and technical assistance grants, as well as the Oregon Agricultural Heritage Program, which includes grants for the development and implementation of conservation management plans and technical assistance. For both programs, OWEB anticipates using existing grant applications, with some modifications of applications and guidance to ensure applicants are proposing projects that implement or support adoption of natural climate solutions.

The two limited-duration positions identified within **ODFW's** proposed investments would leverage habitat restoration work already occurring on its 20 wildlife management areas and through more than 30 regional habitat positions. These new positions would elevate ODFW's ongoing habitat restoration work to better emphasize carbon sequestration and natural climate solutions, providing technical advice to ODFW's restoration practitioners and pursuing additional federal funds to support that work. The proposed positions would also crosswalk ODFW's ongoing work with the practices recommended by the INR, 2023 report to improve on state reporting of carbon sequestration efforts and identify areas for improvement in habitat restoration to ensure the co-benefit of carbon sequestration is achieved.

ODF has identified the need to increase future, climate-adapted seed available from its existing and successful seed orchard. The department will invest \$750,000 to implement new orchards with a variety of species and from a variety of locations that are more adapted to Oregon's future climate. These funds would be used in a variety of ways including, but not limited to: orchard preparation, seed collection and sowing, planting, and maintenance of the new and existing (e.g., Willamette Valley ponderosa pine) orchards. There are existing requirements and stipulations for providing small and family owned forests with seed from the seed orchard as well as for nurseries purchasing seed to supply seedlings to them as a requirement for purchasing seed from the seed bank. Some federal funds have already been awarded, and the department is hopeful that future federal funds can be leveraged for this effort. Funding would provide the seed orchard with two limited duration FTEs to conduct the work at the orchard in parallel to the existing orchard programs.

Both of **ODA's** proposed investments utilize the expertise and infrastructure of existing programs within the agency. These investments strike a balance between creating immediate impacts and fostering sustainable, long-term outcomes by leveraging and augmenting these established programs to focus on natural climate solutions in lieu of standing up new ones. With future agency budgets and funding availability unknown, this approach meets the urgency of this funding opportunity to support the work being proposed.

6. Filling gaps in existing funding

This proposal seeks to fill some funding gaps for the state related to natural climate solutions. Some natural climate solutions have received less attention in this package because there are other, robust funding sources and existing programs. For example, reducing wildfire risk and enhancement of urban forests have recently seen major investments from the Congress as well as from the Oregon legislature in recent biennia, including within HB 3409.

Table 1. Summary of spend plan across each of the 13 investment areas.

Agency	Area of Investment	Description: Funds will be invested in	FY2024 Budget	FY2024 FTE	FY2025 Budget	FY2025 FTE	Total	Federal Fund Leverage (if available include projected amount and source)	Connection to Tribal and Environmental Justice Communities	Lands: Natural	Lands: Ag & Range	Lands: Forest
ODA	Invasive Annual Grasses	The focus of this project is to provide technical assistance to landowners and land managers that will support coordination, collaboration, and outreach efforts to identify priority treatment areas and high value partnerships for invasive grass management. These efforts will help prioritize projects that align with the goals and objectives identified by the Global Warming Commission, HB3409, the USDA Working Lands for Wildlife Initiative, USDA Grazing Lands Conservation Initiative, Western Weed Action Plan, Oregon Sagecon Partnership, and others aimed at protecting rangeland and forests from numerous threats like invasive annual grasses, fire and climate change.	\$44,000	0.4	\$88,000 (FY2026: \$88,000 FY2027: \$88,000 FY2028: \$88,000)	0.4	\$396,000	Through NRCS via Farm Bill, IRA, IJJA, EQIP, approximately \$1.7M	Protects tribal lands, cultural resources, consultation	X	X	X
ODA	OR Native Seed Strategy Implementation	The focus of this project is to protect, conserve and improve the resiliency of rangelands in Oregon from the effects of climate change through the implementation of the Oregon Native Seed Strategy. High-functioning rangelands are a crucial component of carbon sequestration across Oregon and implementation of the Strategy supports numerous priorities of HB3409 and State Policies for Natural Climate Solutions and practices outlined in the Institute for Natural Resources’ Natural Working Lands Report for rangeland and forest sectors including: reducing wildfire risks, prevention of conversion to annual-dominated systems, restoration of deep-rooted perennial grasses impacted by invasive species and increased climate resilience of wildlife habitat. Funds proposed here will support Tribal participation in the ODA-led Oregon Native Seed Collective (ONSC) working group and provide \$100K dollars of financial assistance for Tribal farmers, Tribal nurseries and Tribal native plant programs. ODA will partner with agencies, landowners and land managers to source and collect target species identified by the ONSC with priority given to restoration workhorse species as well as historically underutilized specialist species. ODA will leverage existing partnerships to dedicate a portion of this investment to the development of a farmer’s cooperative that supports growers and processors of native seed crops. The cooperative will jointly seek further federal funding opportunities such as the USDA’s Specialty Crop Block Grant Program, Value-Added Producer Grant Program, and others. With existing program staff and through agreements with partners, ODA will also collect, clean and bank priority native species. A portion of collected seeds will also be redistributed to seed growers, free of charge, to help minimize risk to farmers and encourage participation in the cooperative while also bringing native seed to the supply chain.	\$210,242	0.25	\$372,686	0.5	\$582,928	None identified at this time. Once strategy is complete opens up possibility for FF	includes a tribal focused goal, cultural resource, first foods, funding for participation, consultation	X	X	X

Agency	Area of Investment	Description: Funds will be invested in	FY2024 Budget	FY2024 FTE	FY2025 Budget	FY2025 FTE	Total	Federal Fund Leverage (if available include projected amount and source)	Connection to Tribal and Environmental Justice Communities	Lands: Natural	Lands: Ag & Range	Lands: Forest
ODF	Advance implementation of Climate-Smart Forestry as outlined in ODF's Climate Change and Carbon Plan	Technical assistance, incentives, and projects focused on climate-smart forestry practices directed towards adaptation, climate mitigation, and social/human dimension. This includes climate-smart forestry in silviculture, reforestation and afforestation, and maintaining and conserving forests and woodlands. Will be implemented through IGAs. This work will rely on the ground implementation through third parties like SWCDs, WCs, and CBOs who work with small landowners on a regular basis. Grant and agreement structure exists within ODF.	\$500,000	0.5	\$1,000,000	0.5	\$1,500,000	Potential for leveraging USFS Legacy Program and NRCS conservation funding		X		X
ODF	Incentivize Climate-Smart Forestry Implementation in partnership with Tribal and Environmental Justice Communities	This funding will provide financial capacity to incentivize landowners to consider climate change and take management action they may otherwise not consider or be unable to realize. These funds will be directed towards small, disadvantaged landowners and Tribes that are looking to pursue more climate-smart forest practices. Largely rely on Tribal and community-based organizations for on the ground implementation. Provide an opportunity for learning in both directions, provide for western science and traditional ecological knowledge cross pollination. Utilize tribal liaison capacity to work with tribes more extensively. Grant and agreement structure exists within ODF.	\$250,000	0.5	\$750,000	0.5	\$1,000,000		small, disadvantaged landowners and Tribes	X		X
ODF	Establishment of climate-ready seed orchards to support small, disadvantaged, and tribal forestry (at existing facility)	There are over 40 million seedlings planted in Oregon forests each year. The vast majority are a single species and often are sourced from the same local seed that is used from generation to generation. Empirical observation along with climate projections and scientific findings indicate that the margins of existing forest land are experiencing and are further expected to consist of different species types in coming decades as a function of climate change. Production of native and adapted species seed that will be viable in shifted landscapes is currently not available or in exceptionally limited supply due to narrow forest seed orchard capabilities and directives. To meet the need for native, diverse, and adapted species necessary to maintain the state's forests as forests (a key to climate mitigation), the department looks to increase the utilization of its existing seed orchard in providing the seed and potentially seedlings for Tribal, small, and disadvantaged forest landowners. This facility currently produces a substantial amount of genetically improved seed of limited species as a function of directives and funding, but has tremendous capacity for additional seed production and seeks advance the capability to meet climate and landscape needs. Utilizes the existing ODF seed orchard and seed bank program. This will be a long-term project and effort with utilization in coming decades.	\$300,000	2	\$450,000	2	\$750,000	\$160,000 federal funds (BIL)	Ability to provide seed and seedlings to non-industrial lands.	X		X

Agency	Area of Investment	Description: Funds will be invested in	FY2024 Budget	FY2024 FTE	FY2025 Budget	FY2025 FTE	Total	Federal Fund Leverage (if available include projected amount and source)	Connection to Tribal and Environmental Justice Communities	Lands: Natural	Lands: Ag & Range	Lands: Forest
OWEB	Restoration and technical assistance grants – Open Solicitation Programs	OWEB proposes to invest \$1.5M in restoration and technical assistance grants for projects submitted to Open Solicitation Grant Programs that provide climate benefits. OWEB will use the funds to provide incentives to help landowners, tribes, land managers, and environmental justice communities adopt practices that support natural climate solutions; and provide financial assistance for technical support for landowners, tribes, land managers, and environmental justice communities for the adoption of natural climate solutions. Open solicitation restoration grants support on-the-ground projects that provide benefits such as carbon sequestration, soil health, flood control, drought and fire resiliency, and resilient fish and wildlife populations. Open solicitation technical assistance grants help OWEB partners develop and design projects that directly support on-the-ground restoration and implementation of natural climate solutions. OWEB also requests a total of \$250,000 in administrative costs between our natural and ag working lands requests, as allowed in HB 3409, as well as a .25 FTE for the remainder of the 2023-2025 biennium to provide project management across both investment areas.	25,000	0.125	\$1,600,000	0.125	\$1,625,000	Possible depending upon the individual projects proposed to OWEB; no amount available	Projects with EJ/Tribal link will be given priority as outlined in HB 3409	X		
OWEB	Conservation management planning, technical assistance, and payment-for-practices	OWEB proposes to invest \$750,000 in climate-smart technical assistance, conservation management planning, and implementation of climate-smart practices projects submitted to the Oregon Agricultural Heritage Program. The Oregon Agricultural Heritage Program includes these grant types that have a direct connection to carbon sequestration on natural and working lands. OWEB will use the funds for grants to provide incentives to help landowners, tribes, land managers, and environmental justice communities adopt practices that support natural climate solutions; and provide financial assistance for technical support for landowners, tribes, land managers, and environmental justice communities for the adoption of natural climate solutions. Funds will support projects that have carbon sequestration and greenhouse gas emissions reduction benefits. As noted above, OWEB requests a total of \$250,000 for administrative costs between our natural and ag working lands requests as well as a .25 FTE for the remainder of the 2023-2025 biennium.	\$25,000	0.125	\$850,000	0.125	\$875,000	Possible depending upon the individual projects proposed to OWEB; no amount available	Projects with EJ/Tribal link will be given priority as outlined in HB 3409		X	
ODFW	Natural Climate Solutions Lead	ODFW has been extremely successful at tracking and receiving federal Infrastructure Investment and Jobs Act (IIJA) and Inflation Reduction Act (IRA) funds, however the capacity to continue that endeavor is becoming increasingly limited. Moreover, while the focus of those federal funding pursuits has been around habitat restoration, ODFW has not used the lens of carbon sequestration. ODFW proposes a position to acquire more federal funding to support ODFW's natural climate solutions projects and advance Oregon's Natural & Working Lands goals. The Natural Climate Solutions Lead will guide natural climate solutions priorities and track related federal grant opportunities, develop grant applications on behalf of ODFW and partners, assist with administration of new and existing federal grants for fish and wildlife natural climate solutions projects, work toward equitable distribution of projects and benefits to landowners, Indian tribes, land managers, and environmental justice communities, and communicate the benefits of natural climate solutions projects to Oregon's natural and working lands and fish and wildlife.	\$160,000	1	\$160,000	1	\$320,000	To date, ODFW and partners have been awarded \$58.1 million in federal IIJA and IRA funds. This position would pursue new - and manage existing - opportunities.	Position will work toward equitable distribution of projects and benefits to landowners, tribes, and EJ communities	X	X	X

Agency	Area of Investment	Description: Funds will be invested in	FY2024 Budget	FY2024 FTE	FY2025 Budget	FY2025 FTE	Total	Federal Fund Leverage (if available include projected amount and source)	Connection to Tribal and Environmental Justice Communities	Lands: Natural	Lands: Ag & Range	Lands: Forest
ODFW	Floodplain Reforestation on North Santiam River	This funding would support the Confederated Tribes of Grand Ronde in the restoration of native riparian forest on old agricultural land acquired via ODFW's Willamette Wildlife Mitigation Program. The project would re-establish 30 acres of floodplain forest within the 462-acre Chahalpam Wildlife Area, owned and managed by the Grande Ronde tribes. Requested funds would cover project management, plant materials, and contractual costs for planting and 3 years of plant establishment. Goal is to increase net carbon sequestration and restore floodplain function, restore ecological function for 18 terrestrial and aquatic species including ESA-listed spring Chinook salmon and winter steelhead and State sensitive culturally important Pacific lamprey as well as several Oregon Conservation Strategy amphibians and birds. The project will help meet the collective call for restoring riparian forests in the Willamette Valley.			\$362,500 (FY2026: \$25,000 FY2027: \$25,000)		\$412,500	\$54,848 from the Bureau of Land Management Secure Rural Schools; \$396,315 from Bonneville Power Administration, Anchor Habitats Investment; \$102,785 from the Bureau of Indian Affairs, Invasive Species Program; \$195,579 from US Fish and Wildlife Service, Tribal Wildlife Grant, \$18,059 Natural Resources Conservation Service, Conservation Stewardship Program	Confederated Tribes of Grand Ronde as project lead		X	X
ODFW	Carbon Capture and Restoration in North-Central Oregon Rangelands	Restoration of perennial bunchgrasses and removal of invasive species are practices identified in the Natural and Working Lands Report as priority carbon sequestration actions. With this on the ground project, ODFW proposes a 5,000-acre invasive annual grass treatment and reseeded/replanting of native perennial bunchgrasses on ODFW's Lower Deschutes Wildlife Area to be leveraged with Natural Resources Conservation Service (NRCS) funds on adjacent private lands as pursued by ODFW's existing NRCS Liaison position in The Dalles. The funds would support herbicide treatments of invasive annual grasses, re-seeding with deep-rooting perennial grasses, and purchase/planting of native shrubs, forbs, and other grasses. The outcome is landscape scale habitat restoration that supports working rangelands and ODFW's natural area management while advancing the state's carbon sequestration goals. The project can the amount of funds available; more acres are available than what is requested herein.	\$125,000		\$400,000 (FY2026: \$175,000 FY2027: \$50,000)		\$750,000	ODFW NRCS Liaison Position (FF 80%) time will be leveraged on this project. Farm Bill Funding, amount TBD. US Fish and Wildlife Service Wildlife and Sportfish Restoration Fund from the Wildlife Areas will be leveraged (amount TBD).	Farm Bill program has additional considerations for underserved landowners.	X	X	

Agency	Area of Investment	Description: Funds will be invested in	FY2024 Budget	FY2024 FTE	FY2025 Budget	FY2025 FTE	Total	Federal Fund Leverage (if available include projected amount and source)	Connection to Tribal and Environmental Justice Communities	Lands: Natural	Lands: Ag & Range	Lands: Forest
ODFW	Carbon Capture in Oregon Coastal Estuaries	ODFW requests funding to support estuary restoration in the Umpqua Basin, specifically for the Smith/Umpqua Estuary Restoration and Tillamook estuary (Ester Creek) projects. Natural Working Lands funds would go toward tidal channel reconnection, seagrass protection and re-plantings, and invasive species removal. The state funds would complement federal funding proposals focused on tidegate replacements on both projects; the federal funds can only go toward the tidegate infrastructure, so these state funds would go toward channel and vegetation restoration to achieve the broader habitat restoration and carbon sequestration goals. Estuary restoration is identified in the Natural Working Lands Report as a priority action focused on 'blue carbon', given the significant role that tidal wetlands and seagrass beds in sequestering carbon. The amount requested here can be scaled up to include other coastal estuaries, as opportunities become available.	1,100,000				\$1,100,000	\$1.56 million NOAA infrastructure funds through Wild Salmon Center; \$3 million recently announced from a Bureau of Reclamation grant	Coastal agricultural landowners benefitting from water control and flood mitigation	X	X	
ODFW	Carbon Sequestration & Habitat Restoration Service Provider	ODFW is requesting a statewide service provider position whose primary duties are to accelerate carbon sequestration and quantify the carbon impacts of ODFW's existing and future habitat restoration projects. The position will assist restoration practitioners with their project design and implementation to better integrate carbon sequestration practices, and will inventory, monitor, track, and report on ODFW's carbon sequestration/habitat restoration efforts. The position will serve numerous programs: 200,000 acres across 20 ODFW Wildlife Areas, 5 ODFW - Natural Resources Conservation Service Liaison Positions implementing millions of dollars in Farm Bill projects on private lands, the Willamette Wildlife Mitigation Program, and 30+ regional habitat biologists involved in habitat restoration projects on natural and working lands.	\$142,500	1	\$142,500	1	\$285,000	This position could leverage carbon sequestration work out of several of ODFW's federally funded restoration programs including USFWS Wildlife and Sportfish Restoration, Bonneville Power Authority, NRCS Farm Bill.		X	X	X
ODFW	Red Hills Conservation Area Wildfire Risk Reduction	This funding would support the Confederated Tribes of the Warm Springs as they lead restoration of oak woodland habitat on their 278.5-acre Red Hills Conservation Area property in Yamhill County. This property is permanently protected under a conservation easement paid for and held by the Bonneville Power Administration, as part of the Willamette Wildlife Mitigation Program. Oak woodland restoration addresses the Natural Working Lands Report recommendation of reducing wildlife risk in forestlands, thereby reducing the "carbon debt" (excess carbon at risk of release in the event of wildfire). Funding would go toward the following treatments, all identified in the INR NWL Report: 1) thinning to stocking levels more resilient to fire and drought, 2) removal of trees killed or damaged by insects and disease, 3) mechanical understory removal, and 4) prescribed fire.	\$64,170		\$106,600		\$170,770	\$3,632,833 in Federal Bonneville Power Authority (BPA) funds were used in 2014 to acquire the permanent conservation easement.	Confederated Tribes of the Warm Springs as the project lead	X		

Attachment 1. Description of Each Investment Area
Oregon Department of Agriculture
Invasive Annual Grasses

Spend Plan Summary

Purpose	FY2024 Budget	FY2024 FTE	FY2025 Budget	FY2025 FTE
Invasive Annual Grasses	\$44,000 (includes 10% admin)	0.4	\$88,000 (FY2026: \$88,000 FY2027: \$88,000 FY2028: \$88,000) (Includes 10% admin)	0.4

Description of Investment

Program/Project Description

High-functioning rangelands are a crucial component of carbon sequestration across Oregon and this project's primary focus will be on preserving and protecting intact or high value perennial bunchgrass habitat and rangeland. This project is facilitated by a partnership with USDA-NRCS and will implement an Invasive Annual Grass (IAG) Management Strategy (i.e., Defend and Grow the Core) that will support numerous State Policies for Natural Climate Solutions outlined in HB 3409 and the conservation practices outlined in the Institute for Natural Resources' Natural and Working Lands Report. This project will engage partners at the state, federal, tribal and local levels to support control efforts and management of invasive annual grasses to preserve, protect and restore rangelands and forests and prevent conversion to invasive annual grass dominated ecosystems.

The focus of this project is to provide technical assistance to landowners and land managers that will support coordination, collaboration, and outreach efforts to identify priority treatment areas and high value partnerships for invasive grass management. These efforts will help prioritize projects that align with the goals and objectives identified by the Global Warming Commission, HB3409, the USDA Working Lands for Wildlife Initiative, USDA Grazing Lands Conservation Initiative, Western Weed Action Plan, Oregon Sagecon Partnership, and others aimed at protecting rangeland and forests from numerous threats like invasive annual grasses, fire and climate change.

By immediately leveraging over \$1.76 million in federal funds, ODA will provide technical assistance and subject matter expertise to landowners, land managers and Tribal partners who seek to adopt practices that prevent conversion of rangelands to annual dominated ecosystems, reduce wildfire risk and restore deep-rooted perennial grasses. Acting as liaison to federal partners, ODA will provide further technical assistance by connecting landowners and land managers to the appropriate existing and emerging funding opportunities that support adoption of Natural Climate Solutions and other conservation practices.

The protection and restoration of these landscapes will protect and improve their resilience to catastrophic wildfire, protect and improve drought resilience, and increase the climate resilience of wildlife habitat. This project will also expand existing program efforts for the prevention and control of priority State-listed noxious weed species that threaten perennial bunchgrass communities, shrublands, and savanna habitats in the areas identified by the defend and grow the core strategy. ODA staff will identify, develop, and coordinate the implementation of on-the-ground projects among partners, as well as monitor their effectiveness to improve future outcomes. ODA may also subaward funds as grants for the implementation of on-the-ground work that addresses State priorities. This project complements the work proposed by other agencies and demonstrates that ODA's priorities are in sync with partners

Attachment 1. Description of Each Investment Area

statewide. This request of \$360,000 will support 0.4 FTE over five years by leveraging \$1.76 million from USDA-NRCS.

Ability of Agency to Implement the Program

By using it to leverage federal funds, this investment will allow ODA to create capacity with 2 FTE over 5 years and ODA is well positioned and well partnered for this work as the state authority on State-listed noxious weeds and threatened and endangered plants. The agency has the technical expertise and the infrastructure to support this project and the need for ODA to serve in this role has been identified through numerous planning and consultation efforts but the agency has lacked the capacity to do so in a meaningful way.

Description of Current Federal Funds Leveraged or Anticipated

The Commission's investment of \$360K will be immediately leveraged to secure over \$1.76M of federal funds via the cooperative agreement with NRCS with funds derived from various federal mechanisms including BIL, IRA, Farm Bill and others. Long-term federal funding leverage may exceed \$20M over five years with ODA acting as a liaison between the NRCS, project managers, and landowners to access existing funding opportunities provided through the USDA Working Lands for Wildlife Initiative, the USDA Grazing Lands Conservation Initiative, and others while ODA will also contribute to additional efforts to secure federal funds from opportunities like the America the Beautiful Challenge.

Connection to Tribal and Environmental Justice Communities

Including forested rangelands and prairie ecosystems, nearly 1/2 of Oregon is covered by rangeland. All of this land is ancestral tribal land and nearly every modern-day tribal land holding is impacted by invasive annual grass and noxious weeds, extreme wildfires driven by climate change and degraded habitats. This work will prioritize inclusion of tribal partners and consider tribal priorities such as first foods, culturally significant species and priority habitats. To make meaningful progress towards restoration and long-term conservation of Oregon's rangelands, it is essential to engage and partner with Oregon Tribes and this project will prioritize that engagement and partnership.

Measurable Outcomes for Reporting (Check all that apply, or add in project-specific metrics)

Natural Climate Solutions Outcomes	
Acres treated/restored (by treatment type)	Acres treated/restored as result of projects facilitated by, or contributed to, through NWL project.
Acres protected	Acres of high-value, intact rangelands protected by project activities
Funds leveraged	Total funds leveraged over project term
10 Year Action Plan	Develop 10-year action plan that focuses on high value returns, i.e., Natural Climate Solutions (prevention, protecting intact rangeland and high value habitats, results-based planning, and management)
Assistance Provided	Number of landowners and land managers who were provided with technical assistance

Attachment 1. Description of Each Investment Area

Oregon Department of Agriculture

Oregon Native Seed Strategy Implementation

Spend Plan Summary

Purpose	FY2024 Budget	FY2024 FTE	FY2025 Budget	FY2025 FTE
Oregon Native Seed Strategy Implementation	\$210,242 (includes 10% admin)	0.25	\$372,686 (includes 10% admin)	0.5

Description of Investment

Program/Project Description

The focus of this project is to protect, conserve and improve the resiliency of rangelands in Oregon from the effects of climate change through the implementation of the Oregon Native Seed Strategy. High-functioning rangelands are a crucial component of carbon sequestration across Oregon and implementation of the Strategy supports numerous priorities of HB3409 and State Policies for Natural Climate Solutions and practices outlined in the Institute for Natural Resources' Natural Working Lands Report for rangeland and forest sectors including: reducing wildfire risks, prevention of conversion to annual-dominated systems, restoration of deep-rooted perennial grasses impacted by invasive species and increased climate resilience of wildlife habitat.

As myriad agencies, landowners and land managers prioritize and implement rangeland conservation and restoration projects, there is a defined need for ecologically appropriate native seedstock that is not currently met. Funds proposed here will support Tribal participation in the ODA-led Oregon Native Seed Collective (ONSC) working group and provide \$100K dollars of financial assistance for Tribal farmers, Tribal nurseries and Tribal native plant programs. ODA will partner with agencies, landowners and land managers to source and collect target species identified by the ONSC with priority given to restoration workhorse species as well as historically underutilized specialist species.

ODA will leverage existing partnerships to dedicate a portion of this investment to the development of a farmer's cooperative that supports growers and processors of native seed crops. The cooperative will jointly seek further federal funding opportunities such as the USDA's Specialty Crop Block Grant Program, Value-Added Producer Grant Program, and others. With existing program staff and through agreements with partners, ODA will also collect, clean and bank priority native species. A portion of collected seeds will also be redistributed to seed growers, free of charge, to help minimize risk to farmers and encourage participation in the cooperative while also bringing native seed to the supply chain.

Together, project activities will ensure that landowners, land managers and tribal partners have access to the tools, technical expertise and financial resources required to meet their native seed needs as they endeavor to protect and restore Oregon rangelands. With access to technical assistance, access to markets and access to native seed, landowners, land managers and Tribal communities will be empowered to adopt practices that prevent conversion to invasive annual plant dominated systems, restore deep-rooted perennial grasses and reduce wildfire risk.

Approximately 20% of this investment will support up to .5FTE annually for the next two years with the remaining 80% supporting Tribal incentives and financial assistance, technical assistance to landowners

Attachment 1. Description of Each Investment Area

and managers and on-the-ground work by project partners. This project complements the work proposed by other agencies and demonstrates that ODA's priorities are in sync with partners statewide.

Ability of Agency to Implement the Program

ODA is well positioned and well partnered to implement this project as the drafting agency of the Oregon Native Seed Strategy and leader of the Oregon Native Seed Collective. ODA has an active working group with relevant partners who meet monthly to draft the Strategy, and therefore, many partners are invested in project implementation. Further, ODA already has agreements in place to facilitate the Strategy's implementation such as an agreement with the Rae Selling Seed Bank at Portland State University, among others.

Description of Current Federal Funds Leveraged or Anticipated

This project has potential to directly leverage up to \$2M in federal funds over the next five years as these funds will be matched out to multi-year federal cooperative agreements. The published Oregon Native Seed Strategy will provide the framework for myriad projects by ODA and members of the Oregon Native Seed Collective over the next 20 years, creating an opportunity to leverage this investment repeatedly over that time. Finally, a driving force behind the development of the native seed cooperative is to better position farmers to compete for existing and emerging funding opportunities, providing innumerable opportunities to indirectly leverage this investment into the future.

Connection to Tribal and Environmental Justice Communities

This project removes barriers for Indian tribes, environmental justice communities, landowners, and land managers to engage in natural climate solutions and provides access to funding to support natural climate solutions. This investment will provide \$100K in financial assistance to Oregon Tribes, Tribal nurseries and Tribal native plant programs. Tribal representation in the ONSC will also ensure that tribal values and culturally significant plants and habitats are incorporated and prioritized into statewide planning efforts. As such, this proposal should be prioritized as set forth in Section 56 of HB3409.

Measurable Outcomes for Reporting (Check all that apply, or add in project-specific metrics)

Natural Climate Solutions Outcomes	
Species conserved	Number of species banked
Oregon Tribes supported	Number of Oregon Tribes supported through financial and technical assistance; outcomes and impacts of financial support
Technical Assistance provided	Number of farmers, landowners and land managers provided technical assistance
Policies supported	Summary report on State Policies for Natural Climate Change Solutions and Natural Working Lands Practices that were supported and implemented
Funding leveraged	Amount and source of federal funding leveraged during project

Attachment 1. Description of Each Investment Area

Oregon Department of Forestry

Advance implementation of Climate-Smart Forestry

Spend Plan Summary

Purpose	FY2024 Budget	FY2024 FTE	FY2025 Budget	FY2025 FTE
Implementation of Climate-Smart Forestry	\$500,000	0.5	\$1,000,000	0.5

Description of Investment

Program/Project Description

The Department of Forestry will look to expand implementation of parts of its Climate Change and Carbon Plan (CCCP, November 2021). This holistic plan is centered around climate-smart forestry (CSF) and has eight broad goals including research and monitoring, urban forestry, and silviculture, among others. Implementation of the plan has been challenging due to limited resources, however with these funds and additional federal investments, substantive results can be accomplished.

Through this work the department will incentivize climate-smart forestry practices directed towards natural and working lands adaptation, climate mitigation, and social resilience (the three legs of CSF). Many of the goals of the CCCP and the initial recommendations provided to the OCAC by the Institute for Natural Resources (INR) are complementary:

CCCP goals	INR Recommendation
Climate-smart forestry in silviculture	Improved forest management
Reforestation and afforestation	Afforestation/reforestation
Maintain and conserve forest	Prevent conversion of forest to non-forest land uses

Additional parallels exist at the action level where the CCCP recognizes managing the fire environment, urban forestry efforts, encouraging low-carbon impact materials in Oregon, among others.

The ODF is involved with other sections of HB3409 and will work within those program areas to further the state's climate goals. These include topics like urban forestry and harvest residue utilization and the department is well partnered in those areas.

Ability of Agency to Implement the Program

The implementation of these efforts would utilize relationships with third parties like SWCDs, WCs, and CBOs. These organizations are highly capable and provide place-based planning expertise and knowledge as well as landowner, Tribal, and traditionally underserved community relationships. Grant and agreement structure exists within ODF through its many different programs that provide landowner assistance. It also has extensive experience with successfully implementing intergovernmental agreements that could be used.

Description of Current Federal Funds Leveraged or Anticipated

Potential for leverage with existing NRCS funds as well as climate-smart commodity funds that would flow through it.

Attachment 1. Description of Each Investment Area

There are expected to be additional funding that will become available from the USDA Forest Service in coming years. This has the potential to be directed towards reforestation and climate-smart forestry efforts. At this time, it is unknown the scale of these potential funds.

Connection to Tribal and Environmental Justice Communities

Funds that are available to CBOs and partners can flow to environmental justice communities, however, a separate project utilizing these funds is directly proposed for Tribal and environmental justice communities.

Measurable Outcomes for Reporting (Check all that apply, or add in project-specific metrics)

Natural Climate Solutions Outcomes	
Acres treated/restored (by treatment type)	Acres treated towards ecosystem function resilience. Forward looking and not geared towards restoration.
Seeding/planting rates/density (by species)	Acres of appropriate seedling density planted with appropriate species based on current and projected ecotype of the site.
Ecological function repaired	Count of degraded watersheds where function returned.
Seedlings grown (by species and estimated future impact/purpose)	
Other applicable	Number and acres of binding covenants put in place.

Attachment 1. Description of Each Investment Area

Oregon Department of Forestry

Incentivize Climate-Smart Forestry Implementation in partnership with Tribal and Environmental Justice Communities

Spend Plan Summary

Purpose	FY2024 Budget	FY2024 FTE	FY2025 Budget	FY2025 FTE
Incentivize Climate-Smart Forestry Implementation in partnership with Tribal and Environmental Justice Communities	\$250,000	0.5	\$750,000	0.5

Description of Investment

Program/Project Description

With respect to advancing change in action necessary to realizing climate-smart practices, incentives and tax breaks have repeatedly been recognized as a meaningful and at times necessary mechanism to encourage change in practice. While we, as agencies, cannot provide tax breaks, this funding will provide a mechanism to incentivize landowners to consider climate change and take management action they may otherwise not consider or be unable to realize. These funds will be directed towards small, disadvantaged landowners and Tribes that are looking to pursue more climate-smart forest practices. The funds could be provided to Tribes and small landowners through ODF's existing granting programs or via direct partnerships with Tribes or third parties that work with traditionally disadvantaged landowners.

While western science has, and continues to provide, a wealth of knowledge on climate and forestry, there is also a substantial amount of traditional ecological knowledge that has not been included in current silvicultural practice. Elevating this knowledge can help inform current forest managers on traditional approaches to some of today's more sticky issues facing the state's forests. The department would like to partner with Tribes to provide more bi-directional communication and information transfer that can help improve holistic outcomes across forest ownerships. Additionally, embracing a commitment to integrating traditional practices into the processes and outcomes of this climate-related work, as well as general agency work, can help to build trust, respect, and ecological benefits as the climate changes. Modern scientific information can provide the technical aspects of climate change (e.g., projections, plant physiology, etc.) that are key as forest types shift.

Ability of Agency to Implement the Program

ODF has a variety of granting programs that could be utilized as a mechanism to pass fund to the field practitioners. It can also utilize direct agreements through intergovernmental agreements or other such tools. This effort will largely rely on Tribal and community-based organizations for on the ground implementation. Grant and agreement structure exists within ODF.

Attachment 1. Description of Each Investment Area

Description of Current Federal Funds Leveraged or Anticipated

It is anticipated that additional funding will become available from the USDA Forest Service through their State, Private, and Tribal Forestry program. At this time, it is unclear as to if this will be competitive funding or provided to the states by a formula. With time this will become clearer.

Connection to Tribal and Environmental Justice Communities

Efforts will be made to partner with Tribes as directly as possible. This will likely be through the Tribes forestry or natural resource departments that manage and steward their lands. Many of these relationships exist at the local level currently and the agency will work to strengthen and build upon those existing relationships. Supporting disadvantaged forest owners has long been one of the agencies focuses. This will continue to be a priority with the recent development of the Small Landowner Office (thanks to the Private Forest Accord) and may be utilized as a means to distribute funds to small, disadvantaged landowners.

Measurable Outcomes for Reporting (Check all that apply, or add in project-specific metrics)

Natural Climate Solutions Outcomes	
Acres treated/restored (by treatment type)	Potentially acres treated or moved to a more resilient state
Seeding/planting rates/density (by species)	Where applicable, seeding and planting for afforestation, reforestation, or planting of alternative species. all at future climate appropriate densities.
Ecological function repaired	Number of watersheds with improvements to their ecological function.
Seedlings grown (by species and estimated future impact/purpose)	Potentially, if the Tribe or organization has, or has access to, a forest seedling nursery.
Other applicable	Opportunities for bidirectional learning.

Attachment 1. Description of Each Investment Area

Oregon Department of Forestry

Establishment of climate-ready seed orchards to support small, disadvantaged, and tribal forestry

Spend Plan Summary

Purpose	FY2024 Budget	FY2024 FTE	FY2025 Budget	FY2025 FTE
Establishment of climate-ready seed orchards to support small, disadvantaged, and tribal forestry (at existing facility)	\$300,000	2	\$450,000	2

Description of Investment

Program/Project Description

There are over 40 million seedlings planted in Oregon forests each year. The vast majority are a single species and often are sourced from the same local seed that is used from generation to generation. Empirical observation along with climate projections and scientific findings indicate that the margins of existing forest land are experiencing decline and further expected to consist of different species types in coming decades as a function of climate change. Production of native and adapted species seed that will be viable in shifted landscapes is currently not available or in exceptionally limited supply due to narrow forest seed orchard capabilities and directives. To meet the need for native, diverse, and climate adapted species necessary to maintain the state's forests as forests (a key to climate mitigation), the department looks to increase the utilization of its existing seed orchard in providing the seed and potentially seedlings for Tribal, small, and disadvantaged forest landowners. This facility currently produces a substantial amount of genetically improved seed of limited species as a function of directives and funding but has tremendous capacity for additional seed production and seeks to advance its capability to meet climate and landscape needs.

Ability of Agency to Implement the Program

ODF has an existing seed orchard facility with available space to achieve the goals of this effort. It has existing infrastructure and partnerships but will need operational funding to collect and sow the seed for the new species orchards.

Description of Current Federal Funds Leveraged or Anticipated

Federal funds for seed and seedling efforts may become available through the infrastructure reduction act or other mechanisms. On going planning activities and efforts around seed, seedlings, and reforestation at the federal and state levels will help to identify and distribute additional funding.

Connection to Tribal and Environmental Justice Communities

An aspect of the ODF seed orchard responsibilities is providing seed for small landowners. This in addition to a desire to partner with Tribes will be beneficial to a successful endeavor. While this specific effort is targeted at long-term benefits, there may be some near-term as there will be an initial need for seed collection and establishment and an economic benefit through that work.

Attachment 1. Description of Each Investment Area

Measurable Outcomes for Reporting (Check all that apply, or add in project-specific metrics)

Natural Climate Solutions Outcomes	
Acres treated/restored (by treatment type)	
Seeding/planting rates/density (by species)	
Ecological function repaired	
Seedlings grown (by species and estimated future impact/purpose)	Long-term, pounds of seed produced and seedlings sown of different seedlings.
Other applicable	Orchards established with new species.

Attachment 1. Description of Each Investment Area

Oregon Watershed Enhancement Board

Restoration and technical assistance grants – Open Solicitation Programs

Spend Plan Summary

Purpose	FY2024 Budget	FY2024 FTE	FY2025 Budget	FY2025 FTE
Restoration and technical assistance grants – Open Solicitation Programs*	\$25,000	0.125	\$1,600,000	0.125

*OWEB proposes to use \$250,000 across both investment areas for administrative costs, as allowed in HB 3409, and request 0.25 FTE for the remainder of the 2023-2025 biennium to provide project management across both investment areas.

Description of Investment

Program/Project Description

OWEB proposes to invest \$1.5M in restoration and technical assistance grants for projects that provide climate benefits. Restoration grants will provide incentives that help landowners, tribes, land managers, and environmental justice communities adopt practices that support natural climate solutions while optimizing the resilience benefits of those solutions. Examples of resilience benefits include natural flood control, soil health, drought and fire resiliency, and resilient fish and wildlife populations. Technical assistance grants will support the development and design of projects as well as other activities that directly support on-the-ground restoration and implementation of natural climate solutions. Specifically, technical assistance grants fund OWEB partners to provide technical support for the entities listed above for the adoption of natural climate solutions.

Many of the recommended activities to capture and store more carbon and reduce greenhouse gases in Oregon’s natural and working lands sector (i.e., those natural climate solution activities found in Institute for Natural Resources, 2023) are eligible for OWEB grants, including:

- Tidal wetland conservation and restoration
- Restore perennial grasses and riparian areas on rangelands
- Prevent conversion to invasive annual plant dominated systems on rangelands
- Prevent conversion of existing grasslands, shrublands, and savannas to juniper woodlands
- Reduce wildfire risks on forestlands

OWEB is requesting \$250,000 for administrative costs for the combination of our Open Solicitation and Oregon Agricultural Heritage Program investments. We are requesting .25 FTE for the remainder of the 2023-2025 biennium for project management. The \$250,000 requested for administrative costs will also be used for personnel costs in future biennia and for other supplies and services such as legal costs for grant agreement review.

Ability of Agency to Implement the Program

OWEB is a state grant-making agency, with a long and successful track record of getting conservation and restoration dollars on the ground for projects around the state. For the Watershed Natural Climate Solutions Fund, OWEB will use our existing Open Solicitation grant program, which includes restoration and technical assistance grants. We anticipate using existing restoration and technical assistance grant applications, with some modifications to ensure applicants are proposing projects that implement or

Attachment 1. Description of Each Investment Area

support adoption of natural climate solutions. Prior to any grant solicitation release, OWEB plans to conduct a public engagement process with our traditional partners, tribes, environmental justice communities, and others to identify priorities for the funding. For example, environmental justice communities or tribes could express a significant need for technical support for the adoption of natural climate solutions. OWEB will identify projects that address these priorities during reviews of grant proposals. OWEB will apply additional review criteria in consultation with subject matter experts to select projects that provide carbon and resilience benefits and include engagement with and input from local communities disproportionately impacted by climate change.

Eligible applicants for OWEB restoration and technical assistance grants include non-profit organizations, tribes, local governments, and schools and institutions of higher learning. Although landowners and private businesses are not directly eligible to apply for the funds, in many cases, our grants offset the cost of doing a restoration project, and our technical assistance grants often cover the cost that a landowner would have had to spend for project development and design services. Additionally, a grantee may request reimbursement and provide payments to landowners for eligible project costs. Lastly, it is important to note that OWEB grants operate on a reimbursement basis, although in some cases we can provide funding in advance, depending on the situation.

Description of Current Federal Funds Leveraged or Anticipated

Projects funded through the OWEB Open Solicitation restoration grant program will leverage 25% non-OWEB match. This match requirement for restoration projects leverages in-kind contributions as well as cash contributions, depending on the project.

It is possible that projects funded through the Watershed Natural Climate Solutions Fund could serve as an additional source of match funding for federal Pacific Coastal Salmon Recovery (PCSRF) dollars. To qualify as another state matching source that leverages PCSRF federal funds, the projects would be required to address salmon and steelhead habitat and other limiting factors within recovery domains of those species. OWEB is the state's applicant for PCSRF dollars and administers a portion of the dollars through the agency's grant programs. Currently, Measure 76 Lottery Funds provide the non-federal match that leverages PCSRF. The Watershed Natural Climate Solutions Funds could diversify the state funds used to leverage PCSRF funding.

Connection to Tribal and Environmental Justice Communities

As stated in HB 3409, priority shall be given to expenditures for technical assistance to environmental justice communities or tribes and incentives for programs or activities supported by an environmental justice community or supported by a resolution of a tribe, with priority given to those projects or activities administered or proposed by an environmental justice community or tribe. OWEB will use the above guidance, along with priorities identified during the public engagement process, during the grant review process to select projects that meet the intent described in HB 3409.

Measurable Outcomes for Reporting (Check all that apply, or add in project-specific metrics)

Natural Climate Solutions Outcomes	
Acres treated/restored (by treatment and land type)	X
Seeding/planting rates/density (by species)	X

Attachment 1. Description of Each Investment Area

Ecological function repaired	X
Seedlings grown (by species and estimated future impact/purpose	
Other applicable	

Attachment 1. Description of Each Investment Area

Oregon Watershed Enhancement Board

Conservation management planning, technical assistance, and payment for practices

Spend Plan Summary

Purpose	FY2024 Budget	FY2024 FTE	FY2025 Budget	FY2025 FTE
Conservation management planning, technical assistance, payment for practices, and (possibly) conservation easements and covenants*	\$25,000	0.125	\$850,000	0.125

*OWEB proposes to use \$250,000 across both investment areas for administrative costs, as allowed in HB 3409, and requests 0.25 FTE across the two investment areas for the remainder of the 23-25 biennium to provide project management (the FTE are reflected in the spend plan summary in the Open Solicitation investment area of our proposal).

Description of Investment

Program/Project Description

OWEB proposes to invest \$750,000 in grants administered through the Oregon Agricultural Heritage Program (OAHP). This program is administered by OWEB and includes two grant types that have a direct connection to carbon sequestration on natural and working lands. These grant types are conservation management planning (which includes both development of conservation management plans and a climate-smart payment-for-practices component) and technical assistance.

OWEB will use the funds to support projects that have carbon sequestration and greenhouse gas emissions reduction benefits. Funding will be prioritized for the following OAHP components: development of conservation management plans, implementation of conservation management plans via a payment-for-climate-smart-practices approach, and technical assistance projects.

OWEB is requesting \$250,000 for administrative costs for the combination of our Open Solicitation and Oregon Agricultural Heritage Program investments. We are requesting .25 FTE for the remainder of the 2023-2025 biennium for project management. The \$250,000 requested will also be used for personnel costs in future biennia and for other supplies and services costs such as legal costs for grant agreement review.

Ability of Agency to Implement the Program

OWEB is a state grant-making agency, with a long and successful track record of getting conservation and restoration dollars on the ground for projects around the state. For a portion of the Watershed Natural Climate Solutions Fund, OWEB will use its Oregon Agricultural Heritage Program, which includes funding for the development and implementation of conservation management plans as well as technical assistance grants. Through the implementation of conservation management plans, OWEB will pay for the implementation of climate-smart practices on farm and ranch land throughout the state.

Attachment 1. Description of Each Investment Area

These investments will be designed to support farmers who are mitigating for and adapting to climate change. The program is designed to complement existing federal conservation investments made through the Natural Resource Conservation Service.

Prior to any grant solicitation release, OWEB plans to conduct a public engagement process with our traditional partners, tribes, environmental justice communities, and others to identify priorities for the funding. For example, environmental justice communities or tribes could express a significant need for technical support for the adoption of natural climate solutions. OWEB will identify projects that address these priorities during reviews of grant proposals. OWEB will apply additional review criteria in consultation with subject matter experts to select projects that provide carbon and resilience benefits and include engagement with and input from local communities disproportionately impacted by climate change.

Eligible applicants for OAHP conservation management plan and technical assistance grants include non-profit organizations, tribes, and land trusts. Although landowners and private businesses are not directly eligible to apply for the funds, they are eligible to receive payments for climate-smart practice implementation through the entity they partner with to draft and implement their conservation management plan. Lastly, it is important to note that OWEB grants operate on a reimbursement basis, although in some cases we can provide funding in advance, depending on the situation.

Description of Current Federal Funds Leveraged or Anticipated

NWL funding for the Oregon Agricultural Heritage Program has the potential to leverage federal dollars through several Farm Bill programs. These include federal conservation dollars from the USDA-Natural Resources Conservation Service via the Environmental Quality Incentives Program and Conservation Stewardship Program.

Many of the recommended practices in the INR 2023 report are eligible for OWEB grants through the OAHP due to their connections to working farm and ranchlands and watershed health. Practices from the INR report eligible for OAHP grant programs include:

- Restore perennial grasses and riparian areas on rangelands
- Avoided rangeland conversion
- Reduce wildfire risks
- Improved irrigation strategies and efficiencies
- Edge-of-field conservation practices
- Cover crops and conservation crop rotations
- Prescribed grazing and pasture management
- Protect agricultural lands from conversion

Connection to Tribal and Environmental Justice Communities

As stated in HB 3409, priority shall be given to expenditures for technical assistance to environmental justice communities or tribes and incentives for programs or activities supported by an environmental justice community or supported by a resolution of a tribe, with priority given to those projects or activities administered or proposed by an environmental justice community or tribe. OWEB will use the above guidance, along with priorities identified during the public engagement process, during the grant review process to select projects that meet the intent described in HB 3409.

Attachment 1. Description of Each Investment Area

Measurable Outcomes for Reporting (Check all that apply, or add in project-specific metrics)

Natural Climate Solutions Outcomes	
Acres treated/restored (by treatment type)	X
Seeding/planting rates/density (by species)	X
Ecological function repaired	X
Seedlings grown (by species and estimated future impact/purpose)	
Other applicable	

Attachment 1. Description of Each Investment Area

Oregon Department of Fish and Wildlife

Natural Climate Solutions Lead

Spend Plan Summary

Purpose	FY2024 Budget	FY2024 FTE	FY2025 Budget	FY2025 FTE
Salary & OPE, S&S	\$160,000	1 FTE	\$160,000	1 FTE

Description of Investment

Program/Project Description ODFW has submitted or collaborated on more than 87 grant applications, submitted to 20 different IJA and IRA grant programs, requesting ~\$338.5 million for conservation and management of natural resources across Oregon, and we have been successfully awarded approximately \$58.1 million, with 32 of the award announcements still pending. This large effort to leverage federal funds has been led by staff in two existing Natural Resource Specialist 5 positions in the Director's Office and the Fish Division. These projects cover diverse landscapes and include estuary restoration, dam repair and modernization, forest restoration, grassland restoration, and riparian ecosystem recovery.

There are three primary challenges that this NWL request addresses:

- 1) ODFW's focus on pursuing federal funds and accelerating the pace of habitat restoration with these federal resources has resulted in a delay in the work for the existing positions, including technical assistance and policy support for implementation of ODFW's Climate and Ocean Change Policy.
- 2) ODFW's success in securing these new federal opportunities has created a large and growing need for capacity to ensure that the state and our partners successfully implement the funded projects and demonstrate Oregon's value as a project partner for the federal agencies.
- 3) ODFW has pursued these federal funds under a suite of fish and wildlife conservation and management priorities. There are strong linkages between habitat restoration and management activities and natural climate solutions, but ODFW currently lacks expertise to ensure that all of these projects and all future projects can maximize co-benefits for carbon sequestration and climate resilience.

This proposal would create a limited duration Natural Resource Specialist 3 position at ODFW, a Natural Climate Solutions Lead in the Habitat Division. The total cost is \$320,000 over two years.

The primary purpose of this position is to align ODFW's habitat restoration activities with the state of Oregon's Natural and Working Lands goals related to the implementation of Natural Climate Solutions across the landscape and to pursue federal funding for these activities. The person in this position would:

- Guide ODFW Natural Climate Solutions priorities and track related federal grant opportunities,
- Assist ODFW staff across the Habitat, Fish, and Wildlife Divisions as well as the Regions and Watersheds to develop grant applications for federal opportunities,
- Assist with administration of new and existing federal grants for fish and wildlife habitat and natural climate solutions projects,
- Work toward equitable distribution of natural climate solutions projects and benefits to landowners, Indian tribes, land managers, and environmental justice communities, and
- Communicate the benefits of natural climate solutions projects to Oregon's Natural and Working Lands and Fish and Wildlife.

Attachment 1. Description of Each Investment Area

This proposal specifically addresses this section of HB 3409: “ODFW shall use moneys allocated from the fund to promote natural climate solutions” and, “securing federal matching funds or other sources of funding to support investments in natural climate solutions on natural and working lands.”

Ability of Agency to Implement the Program

ODFW staff have already demonstrated great success tracking and pursuing federal grants under IJIA and IRA. This position would be a part of ODFW’s Habitat Division, in the Land Resources Program and will immediately begin working with existing staff who have been tracking federal grants. See evidence of ODFW’s grant tracking here: <https://dfw.state.or.us/IJIA/>.

Description of Current Federal Funds Leveraged or Anticipated

At the end of November 2023, ODFW and partners had been awarded \$58.1 million in federal IJIA and IRA funds. Additional awards have been announced in December 2023. This position would have a role in ensuring that those funds are all spend in Oregon as committed and will seek to scale up the federal investment for two more years.

Connection to Tribal and Environmental Justice Communities

ODFW has strong partnerships with Oregon’s nine federally recognized tribes and organizations across rural communities. Many rural, agricultural landowners are key participants in federal grants that ODFW pursues for natural climate solutions. A large percentage of the \$58.1 million referenced above has been for projects granted by the America the Beautiful Challenge (ATBC), all of these ATBC projects are led-by or strongly partnered with tribes in western Oregon.

The staff in this position will be able to leverage the existing relationships between ODFW field biologists and tribal and environmental justice communities to pursue grants for their priorities. Frequently, capacity to write and manage grants at this financial scale is limited for these communities or organizations and sometimes states are the only eligible applicant for the federal funding opportunities. ODFW has found that added capacity within the state allows us to develop more projects in partnerships as well as pass through more funds to these communities.

Measurable Outcomes for Reporting (Check all that apply, or add in project-specific metrics)

Natural Climate Solutions Outcomes	
Acres treated/restored (by treatment type)	X
Seeding/planting rates/density (by species)	X
Ecological function repaired	X
Seedlings grown (by species and estimated future impact/purpose)	X
Other applicable	<i># and financial amount of federal grants submitted, # and financial amount of federal grants awarded, # of acres or miles of streams receiving natural climate solutions work, types of natural climate solutions supported</i>

Attachment 1. Description of Each Investment Area

Oregon Department of Fish and Wildlife

Floodplain Reforestation on North Santiam River

Spend Plan Summary

Purpose	FY2024 Budget	FY2024 FTE	FY2025 Budget	FY2025 FTE
Chahalpam Floodplain Reforestation			\$362,500 *FY2026: \$25,000 *FY2027: \$25,000	

*\$25,000 in FY2026 and again in FY2027 for plant establishment activities (watering, weed suppression, mowing etc.).

Description of Investment

Program/Project Description

The is project would re-establish 30 acres of floodplain forest within the 462-acre Chahalpam Wildlife Area by planting agricultural fields with native riparian hardwood trees and shrubs in high densities to achieve canopy cover in 5 – 7 years utilizing the Rapid Riparian Revegetation (R3) method. This project requires no additional positions and will cost \$412,500.

The Confederated Tribes of Grand Ronde successfully re-acquired the 462-acre Chahalpam property through ODFW's Willamette Wildlife Mitigation Program (WWMP). Although WWMP funds habitat acquisitions and provides some funding for operations and maintenance from Bonneville Power Administration, it does not provide restoration funding to achieve desired future conditions. Requested funds will cover project management, plant materials, and contractual costs for planting and 3 years of plant establishment.

This project will increase net carbon sequestration and restore floodplain function through re-establishing floodplain forest on 30 acres. The restoration of ecological function of historic habitat will increase the complexity necessary for fish and wildlife, and improve habitat conditions for 18 terrestrial and aquatic species, including ESA-listed spring Chinook salmon and winter steelhead, State sensitive and culturally important Pacific lamprey, and several Oregon Conservation Strategy species including Northwestern pond turtle, Northern red legged frog and willow flycatcher.

This project will help meet a collective call for restoring riparian habitats in the Willamette Valley by converting agricultural lands back to historic floodplain forest habitat. Contributing to restoring riparian habitats at a landscape level, this project has a larger resource benefit. Locally, Chahalpam is permanently protected by conservation easements and habitat restoration efforts will be secured investments that compound with others over time. Regionally, the site is situated in the Santiam Confluences Conservation Opportunity Area and its restoration contributes to priorities identified by the OCS (ODFW 2016) and the Willamette Synthesis (TNC 2010). This project also contributes to the USFWS's Partners for Fish and Wildlife Program as it is located within the Willamette Valley Focus Area for riparian habitats.

Carbon Sequestration and Climate Resiliency

In the face of climate change, this project will contribute to resiliency by re-establishing native forest habitat and understory on 30 acres previously managed as agriculture. Trees and shrubs will capture

Attachment 1. Description of Each Investment Area

carbon throughout their lifetime, which will help reduce carbon dioxide in the atmosphere. Replanting the floodplain forest will have additional localized co-benefits of increased water storage in the riparian area and reduced stream temperatures through shading, benefiting aquatic habitat during more frequent, intense, and extended heat events and droughts anticipated in the Willamette Valley under climate change. The replanted floodplain forest will also attenuate high flow events and slowly release water in winter as precipitation patterns shift to rain-dominated-systems.

This proposal specifically addresses this section of HB 3409: “ODFW shall use moneys allocated from the fund to promote natural climate solutions and mitigate the future impacts of climate change” and, “Relying on existing programs...to support investments in natural climate solutions on natural and working lands. Ensure the benefits of natural climate solutions are equitably distributed among landowners, Indian tribes, land managers and environmental justice communities.” The project also uses the recommended practice of “restore functioning riparian areas.”

Historical Context

Since time immemorial, the Confederated Tribes of Grand Ronde has been the historical caretaker of the Willamette Valley. The native plants and animals are intrinsic resources to the Tribe as they form the foundation to historic traditions and values. The North Santiam River (River) holds significant historical and cultural importance, once being the home of the Santiam band of the Kalapuya. Most noted for their indigenous burning of the Valley, the Kalapuya have deep connections to place along the river and its salmon resources.

The habitats of this River were historically complex and diverse. The open, low gradients fostered multi-channeled, densely braided, and dynamic side-channel, back-channel and off-channel habitats. However, conversion of floodplain forest to agricultural production led to devastating impacts on natural river processes.

Project Site

Along the River, the Tribe successfully re-acquired Chahalpam in 3 phases through ODFW’s Willamette Wildlife Mitigation Program during 2013 – 2019. Chahalpam totals 462 acres, contains more than a mile of riverfront, and crosses both banks of the river. The Tribe owns the property, and the Bonneville Power Administration holds 3 conservation easements, permanently protecting the entire site as fish and wildlife habitat. Chahalpam has 3 land management plans that identify desired future habitat conditions and describe management actions to achieve those. The site has a Combined Habitat Assessment Protocol (CHAP) analysis that identifies baseline habitat conditions for which restoration efforts can be measured against. A Floodplain Restoration Alternatives Analysis identifies actions to improve floodplain connectivity, complexity, and function.

Ability of Agency to Implement the Program

Work will be completed by the Tribe, who has a long track record of successful restoration projects as well as a large staff and youth volunteers who can do this restoration work.

Description of Current Federal Funds Leveraged or Anticipated

Since re-acquisition, the Tribe has secured \$1.6M in restoration funds for Chahalpam from multiple sources including federal, state, local, and non-governmental organizations. The Tribe has a proven track record for seeking and receiving funds and implementing those funds on-the-ground for improving habitat conditions. If awarded, these NWL will contribute to the following projects that are in-progress: \$54,848 from the Bureau of Land Management, Secure Rural Schools for plant establishment efforts on 62 acres of re-planted floodplain forest;

Attachment 1. Description of Each Investment Area

- \$396,315 from the Bonneville Power Administration, Anchor Habitats Investments for improving floodplain forest on 19 acres and improving 3 fish passage issues;
- \$102,785 from the Bureau of Indian Affairs, Invasive Species Program for improving floodplain forest on 40 acres; and
- \$195,579 from the US Fish & Wildlife Service, Tribal Wildlife Grant for re-planting 40 acres of floodplain forest and conducting plant establishment efforts; and
- \$18,059 from Natural Resources Conservation Service, Conservation Stewardship Program to re-establish oak habitat on 7 acres.

In the Tribe's experience, "grant funds attract other grant funds," and these NWL funds would be used to leverage future restoration dollars on the site. Habitat restoration is a layered process with several actions over a long period of time to achieve desired future conditions, often with multiple co-benefits. Additional federal funds to be sought for continued restoration efforts may include, but are not limited to: NRCS: Environmental Quality Incentives Program; US FWS: Tribal Wildlife Grant; BPA: Anchor Habitats Investments; BLM: Secure Rural Schools; BIA: Invasive Species or Endangered Species Programs; NOAA: Coastal Resilience for Underserved Communities or PCSRF; America the Beautiful.

Connection to Tribal and Environmental Justice Communities

This project was identified by the Tribe as the highest priority restoration site within their portfolio of WWMP properties. ODFW will pass funds directly to the Tribe for this project.

Measurable Outcomes for Reporting (Check all that apply, or add in project-specific metrics)

Natural Climate Solutions Outcomes	
Acres treated/restored (by treatment type)	X
Seeding/planting rates/density (by species)	X
Ecological function repaired	X
Seedlings grown (by species and estimated future impact/purpose)	
Other applicable	

Attachment 1. Description of Each Investment Area

Oregon Department of Fish and Wildlife

Carbon Capture and Restoration in North-Central Oregon Rangelands

Spend Plan Summary

Purpose	FY2024 Budget	FY2024 FTE	FY2025 Budget	FY2025 FTE
Herbicide treatment- annual grasses (~10,000 acres) (Tactics 1.a, 1.b & 2.c)			\$400,000 (FY2025*)	
			\$50,000 (FY2027)	
Re-seeding with grasses/forbs and/or seeding fuel breaks (~500 acres) (Tactics 1.b & 2.c)			\$45,000 (FY2026)	
Archeological surveys for shrub plantings (~1000 acres) (Tactic 2.a)	\$50,000			
Native shrub, forb, grass grow-out/purchase and planting (30,000 plants) (Tactic 2.b)	\$75,000		\$130,000 (FY2026)	

Description of Investment

Program/Project Description

This project seeks to prevent the conversion of native perennial bunchgrass communities and native shrub steppe vegetation to invasive annual grasses and restore deep rooted perennial grasses to the Lower Deschutes Wildlife Area (LDWA) as part of a comprehensive restoration project across multiple land ownerships. NWL funds would primarily support herbicide treatments for approximately 5,000 acres of annual grasses, re-seeding with deep rooted perennial grasses, and purchase/planting of native shrubs, forbs, and other grasses. The project will cost \$750,000 and will require no new FTE.

This proposal specifically uses the recommended practice of “prevent conversion to invasive annual plant dominated systems,” and “restore deep rooted perennial grasses to areas impacted by invasive species”. It also addresses this section of HB 3409: “ODFW shall use moneys allocated from the fund to promote natural climate solutions and mitigate the future impacts of climate change” and, “Relying on existing programs where possible, securing federal matching funds or other sources of funding to support investments in natural climate solutions on natural and working lands.”

This project would support actions on ODFW’s wildlife area. If awarded funding, these funds will leverage additional conservation action and funding to go toward adjacent private and federal lands. ODFW’s Mid-Columbia Wildlife District is already in the process of establishing a Good Neighbor

Attachment 1. Description of Each Investment Area

Authority agreement with the BLM in the Lower Deschutes and John Day basins to complete restoration activities such as these, particularly treating invasive annual grasses and planting native shrubs. NWL funds would provide incentive to the BLM to allocate more funding to these actions through collaboration with ODFW.

Similarly, Wasco County NRCS has existing programs in the county to complement these activities on private lands. ODFW shares 1.0 FTE in The Dalles with NRCS who is dedicated to working with private working lands to secure NRCS funds for conservation and will be able to leverage the NWL funds for greater investment from federal partners. NRCS has an Environmental Quality Incentives Program (EQIP) Rangeland Enhancement Conservation Implementation Strategy that is currently being prioritized in south Wasco county, however if NWL funds are awarded to ODFW, Wasco NRCS will adjust the priority areas to include the private lands adjacent to or in between the southern and northern parcels of the wildlife area. Other available USDA programs such as the FSA Conservation Reserve Program- State Acres for Wildlife Enhancement (CRP-SAFE) program and NRCS's Conservation Stewardship Program (CSP) would be promoted more for landowners within this focal area, particularly practices in those programs that align with the NWL recommended practices to sequester carbon. All of these programs provide incentives to private landowners to address invasive annual grasses, establish perennial bunchgrass communities, and incorporate rotational grazing through improved prescribed grazing practices.

Project Details

The ODFW Lower Deschutes Wildlife Area, Mid-Columbia Wildlife District, and NRCS Conservation Liaison propose a cross-boundary carbon sequestration rangeland restoration project focused on the upper and lower sections of the Lower Deschutes Wildlife Area, as well as the private and federal (Bureau of Land Management- BLM) lands in between. This area, similar to many areas across eastern Oregon, has been severely impacted by annual grass invasion, decrease of native perennial bunchgrass communities, and continued loss of valuable native shrub steppe vegetation. Historic grazing practices combined with changes to the historic fire regime and the increase in high severity wildfires have altered the plant communities across the lower Deschutes landscape.

This rangeland restoration project has two primary tactics to enhance the quality of grassland and shrub steppe habitats for the numerous wildlife species that occupy this area, all of which are recommended actions through the Oregon Natural and Working Lands proposed practices to reduce greenhouse gas emissions and sequester carbon.

- Tactic 1: Prevent conversion to invasive annual plant dominated systems
 - 1.a. Monitor and treat moderately infested annual grass invaded areas (10-60% cover) with an existing stand of perennial grasses, forbs, and shrubs.
 - 1. b. Establish fuel breaks using existing features such as roads or ridgetops to minimize wildfire impacts.
- Tactic 2: Restore deep-rooted perennial grasses, forbs, legumes, and shrubs to areas impacted by wildfire and invasive species
 - 2.a. Where ground disturbing practices are necessary to restore deep rooted vegetation (drill seeding and shrub planting), conduct archeological surveys prior to beginning work.
 - 2.b. Plant native shrubs, forbs, and grasses (plugs, container, or bareroot) in strategic locations where best suited for survival success.
 - 2.c. In areas highly infested with annual grasses (>60% cover), complete herbicide treatment to target annual grasses and re-seed with perennial grasses, forbs, and legumes.

Attachment 1. Description of Each Investment Area

Ability of Agency to Implement the Program

ODFW shares 1.0 FTE with NRCS in The Dalles. This staff position will manage this project in partnership with ODFW's staff on the Lower Deschutes Wildlife Area. This position's primary job responsibility is to work with private landowners to design and implement projects like this on their land with NRCS resources. With this investment on ODFW's lands, the NRCS Liaison staff will focus on partnerships with private landowners in the area to have a landscape-level impact.

Description of Current Federal Funds Leveraged or Anticipated

This project leverages the existing NRCS investment in a shared position with ODFW. During a six-month period of 2023, this position worked with over 50 landowners on projects funded by NRCS's EQUIP and CRP programs on over 2,000 acres of private land. New federal funds to be leveraged with this project are contingent on the willingness of adjacent landowners to the wildlife area.

Connection to Tribal and Environmental Justice Communities

The agricultural communities surrounding the Lower Deschutes Wildlife Area will benefit from technical assistance, project planning, and conservation planning in partnership with ODFW's NRCS Liaison.

Measurable Outcomes for Reporting (Check all that apply, or add in project-specific metrics)

Natural Climate Solutions Outcomes	
Acres treated/restored (by treatment type)	X
Seeding/planting rates/density (by species)	X
Ecological function repaired	X
Seedlings grown (by species and estimated future impact/purpose)	
Other applicable	

Attachment 1. Description of Each Investment Area

Oregon Department of Fish and Wildlife

Carbon Capture in Oregon Coastal Estuaries

Spend Plan Summary

Purpose	FY2024 Budget	FY2024 FTE	FY2025 Budget	FY2025 FTE
Smith/Umpqua Estuary Restoration	\$750,000			
Ester Creek and Tillamook Estuary Restoration	\$350,000			

Description of Investment

Program/Project Description

Over time, thousands of acres on the Oregon Coast have been drained, and infrastructure—such as tide gates, levees, and channels—has been built to control the tide, reduce flooding, and drain the land. This infrastructure is at, or nearing, the end of its life and is at risk of failure, putting communities at significant risk. While challenging, this issue also represents an opportunity to achieve significant improvements in estuarine ecosystem function and carbon sequestration while addressing the flooding risk to rural coastal communities. This proposal includes two projects for a total cost of \$1.1 million without the need for additional FTE.

ODFW and partners have prioritized estuary restoration projects in the Umpqua Watershed. Multiple estuary restoration projects are the targets of a large federal grant application recently submitted to NOAA and NRCS, making use of IJA and IRA. These federal funds will only be eligible to go toward the water control infrastructure. The related vegetation and habitat restoration work is not eligible for federal funding. This request from the Fish and Wildlife NWL Fund would support the vegetation and habitat restoration components of two of these large tidal wetland restoration projects and leverage a large amount of federal funding. NWL Funds will be used for each estuary restoration project to connect historic tidal channels identified through LiDar elevation data and imagery, remove earthen embankments to restore tidal inundation areas and hydrologic exchange with freshwater streams, protect and plant seagrass beds of native vegetation within estuary habitat, and remove invasive plant species to assist with establishing native spruce tidal swamps.

This proposal specifically addresses this section of HB 3409: “ODFW shall use moneys allocated from the fund to promote natural climate solutions and mitigate the future impacts of climate change” and, “Securing federal matching funds or other sources of funding to support investments in natural climate solutions on natural and working lands.” Each of these projects seeks to achieve tidal wetland restoration, a recommended practice in the INR Report.

Specifics for each project

The Smith/Umpqua Estuary Restoration is located between miles 4 and 5 of the Smith River, immediately adjacent to two other project sites. Otter slough is located at the confluence of Otter Creek, a coho bearing stream. Previous tidal wetland prioritization ranked the project site as High and Medium/High for restoration and/or conservation (Brophy 2005b). Funds from the NWL will be used for each estuary restoration project to connect historic tidal channels identified through LiDar elevation data and imagery, remove earthen embankments to restore tidal inundation areas and hydrologic

Attachment 1. Description of Each Investment Area

exchange with freshwater streams, protect and plant seagrass beds of native vegetation within estuary habitat, and remove invasive plant species to assist with establishing native plants. Low marsh elevational habitat at the site is expected to restore *Distichlis spicata* (salt grass), green algae (e.g., *Ulva*), *Triglochin maritima*, small spike rush (*Eleocharis parvula*), sandspurry (*Spergularia*), glaux (*Glaux maritima*), pickleweed (*Sarcocornia perennis*), three square (*Schoenoplectus pungens*) and *Bolboschoenus maritimus*.

The proposed restoration improvements at the **Ester Creek and Tillamook Estuary project** will provide flood resiliency in the interior of the site by improving drainage of flood waters during low tide swings via removal of man-made berms and improved connectivity of existing and new channel networks. Flood drainage under existing conditions is not as efficient, resulting in increased peak tidal water levels after successive high tides. Proposed conditions result in a substantial increase in tidal inundated area at Mean Higher High Water (MHHW) which indicates significant potential for uplift of tidal marsh habitat in the interior of the site where we anticipate most of the restored estuary will provide the carbon sequestration benefits. The existing culvert under the county-owned road that passes water into the northwest side of a historic Oxbow is substantially undersized (the existing culvert diameter is 4 feet, while the estimated natural channel top width is on the order of 40 to 60 feet); while this current restoration project does not propose to replace this culvert (or the timber debris barrier downstream or seaward of the culvert), proposed restoration will replace the native plant species and based on sea level change in the vicinity of the project we anticipate sediment accretion in the restored wetland will provide for native vegetation establishment and carbon storage.

Project Background

Carbon capture, or sequestration, is a pivotal element of climate change strategies and marine ecosystems like estuaries can store carbon ten times as quickly as sediments in forests. Coastal habitats that capture and store this carbon in marine plants and sediments include sea grasses and estuaries. Seagrass can help us adapt and mitigate the effects of climate changes. Ten percent of organic carbon sequestered in the Pacific Ocean is buried in seagrass beds. Seagrass also provides 1/5 of world's largest fisheries that depend on seagrass. Flood protection and shoreline stabilization is protected through healthy and sustainable seagrass beds. Restoration of seagrass meadows and estuary function will contribute to carbon storage and the extent of the area will increase storage in the magnitude of 108 Mg/ha.

Estuaries are also exceedingly valuable for the biodiversity they harbor and the ecosystem services they provide to resident and migratory fish species. Despite their importance and value to both biodiversity and humans, estuaries represent some of the most degraded habitats and continue to be stressed by human activities on the ocean, on land, and in freshwater. Over time, thousands of acres on the Oregon Coast have been drained, and infrastructure—such as tide gates, levees, and channels—has been built to control the tide, reduce flooding, and drain the land. This infrastructure is at, or nearing, the end of its life and is at risk of failure, putting agricultural communities at significant risk of flooding. While challenging, this issue also represents an opportunity to achieve significant improvements in estuarine ecosystem function and carbon sequestration while addressing the flooding risk to rural coastal communities.

Our vision is that Oregon has a modern tide gate infrastructure that benefits carbon storage and estuary function, fish habitat connectivity, and underserved communities. As a result, coastal agricultural communities are more resilient to the impacts of sea level rise and increased flood frequency and severity. The ecological function of Oregon's estuaries and access to key rearing areas is improved, resulting in healthier and more abundant estuary habitats that can store carbon.

Attachment 1. Description of Each Investment Area

Ability of Agency to Implement the Program

ODFW will passthrough NWL funds to conservation partners that will complete the contractual agreements and construction of estuary restoration activities for each project. Subawards will be developed with Mid-Coast Watershed Council, Trout Unlimited and Tillamook Estuary Partnership, Partnership for Umpqua River, and Lower Nehalem Watershed Council.

Description of Current Federal Funds Leveraged or Anticipated

We have applied for federal funding to support the actual tide gate infrastructure needs to catalyze implementation of adaptation actions that will reduce future damage from weather and climate impacts. Through multiple NOAA and NRCS federal grants we will invest funds to repair and replace tide gates within each project, significantly reducing flood risk to natural lands-associated buildings and other infrastructure. Already, \$3 million has been awarded from the Bureau of Reclamation's Aquatic Ecosystem Restoration Grant program.

Connection to Tribal and Environmental Justice Communities

These large-scale infrastructure projects will provide significantly reduced flood risk to rural, agricultural communities' built infrastructure.

Measurable Outcomes for Reporting (Check all that apply, or add in project-specific metrics)

Natural Climate Solutions Outcomes	
Acres treated/restored (by treatment type)	X
Seeding/planting rates/density (by species)	X
Ecological function repaired	X
Seedlings grown (by species and estimated future impact/purpose)	
Other applicable	

Attachment 1. Description of Each Investment Area
Oregon Department of Fish and Wildlife
Carbon Sequestration & Habitat Restoration Service Provider

Spend Plan Summary

Purpose	FY2024 Budget	FY2024 FTE	FY2025 Budget	FY2025 FTE
Salary & OPE, S&S	\$142,500	1 FTE	\$142,500	1 FTE

Description of Investment

Program/Project Description

ODFW leads or supports habitat restoration and enhancement across thousands of acres of natural and working lands each year with many existing staff located in various programs and geographies and with existing budget resources, both state and federal. Historically, the primary objectives of this work have been to maximize benefits for fish, wildlife, and working lands. With the establishment of the Fish and Wildlife Natural Working Lands Fund, we have an opportunity to get even more strategic with ODFW's habitat restoration efforts to accelerate the state's carbon sequestration goals. However, ODFW does not currently have the capacity to develop and implement this strategic focus or to measure the success of the outcomes.

ODFW is proposing a Limited Duration, Natural Resource Specialist-2 position to serve as the Carbon Sequestration & Habitat Restoration Service Provider within the Habitat Division. The total cost is \$290,000 over two years. This would be a statewide position whose primary duty is to elevate ODFW's habitat restoration projects that accelerate carbon sequestration, quantify the carbon impacts of existing and future habitat restoration projects, and enhance project design to meet both carbon sequestration and habitat restoration goals. This will be accomplished by:

- Identifying fish and wildlife habitat restoration projects that maximize carbon sequestration, as well as the research needed to assess those co-benefits,
- Assisting existing ODFW restoration practitioners with project design and implementation to better integrate carbon sequestration practices,
- Inventory and monitoring, tracking and reporting, and storytelling of ODFW's carbon sequestration = habitat restoration efforts.
- Supporting the Natural Climate Solutions lead in the pursuit and acquisition of federal funds.

This proposal specifically addresses this section of HB 3409: "ODFW shall use moneys allocated from the fund to promote natural climate solutions mitigate the future impacts of climate change" by, "relying on existing programs where possible to support investments in natural climate solutions on natural and working lands."

Ability of Agency to Implement the Program

There are a number of existing ODFW programs and staff whose ongoing work would be leveraged by the Sequestration & Restoration Service Provider's efforts to accelerate carbon sequestration. Those include:

- Nearly 200,000 acres of natural lands owned and managed by ODFW across 20 wildlife areas, each of which are staffed by wildlife area managers involved in habitat maintenance and restoration as well as agricultural activities but who historically have not had a carbon sequestration lens to their work,

Attachment 1. Description of Each Investment Area

- Five (5) Oregon Conservation Strategy Farm Bill Biologists, funded 80% by NRCS, who implement Farm Bill Programs and fish and wildlife habitat practices on thousands of acres of working lands annually,
- The Willamette Wildlife Mitigation Program (WWMP), which has protected nearly acres 16,000 of natural and working lands with federal BPA funds and is now seeking technical and financial assistance for habitat restoration and carbon sequestration long-term on these lands,
- Eighteen (18) ODFW stream and fish habitat restoration biologists located throughout Western and Eastern Oregon whose focus is on restoring and enhancing aquatic riparian and wetland habitats at landscape scales but for whom carbon sequestration has not yet been a focus,
- Fifteen (15) ODFW Regional Habitat Biologists who review land use permit applications and design/implement upland, wetland, and estuary habitat restoration projects on natural and working lands across the state.
- Fish and Wildlife District Biologists (>24 FTE) across ODFW's Watershed Districts who are also involved in habitat restoration projects on natural and working lands across the state, using federal and state funds and involving many diverse partners.

Description of Current Federal Funds Leveraged or Anticipated

This position could leverage carbon sequestration work out of several of ODFW's federally-funded restoration programs including USFWS's Wildlife and Sportfish Restoration, Bonneville Power Authority, and NRCS Farm Bill. A total amount of federal funding is unknown and will be based on the partnerships and projects identified by this staff position.

Connection to Tribal and Environmental Justice Communities

ODFW has strong partnerships with Oregon's nine federally recognized tribes and organizations across rural communities. Many rural, agricultural landowners are key participants in federal grants that ODFW pursues for natural climate solutions.

The staff in this position will be able to leverage the existing relationships between ODFW field biologists and tribal and environmental justice communities to pursue grants for their priorities. As a service provider, we expect that this position will be most effective when working with these partners.

Measurable Outcomes for Reporting (Check all that apply, or add in project-specific metrics)

Natural Climate Solutions Outcomes	
Acres treated/restored (by treatment type)	X
Seeding/planting rates/density (by species)	X
Ecological function repaired	X
Seedlings grown (by species and estimated future impact/purpose)	
Other applicable	Partners assisted, estimated carbon sequestration potential of future habitat restoration projects and activities for projects influenced by this position

Attachment 1. Description of Each Investment Area

Oregon Department of Fish and Wildlife

Red Hills Conservation Area Wildfire Risk Reduction

Spend Plan Summary

Purpose	FY2024 Budget	FY2024 FTE	FY2025 Budget	FY2025 FTE
Red Hills Wildfire Risk Reduction	\$64,170		\$106,600	

Description of Investment

Program/Project Description

This project would remove Douglas-fir and non-native tree species to restore oak savanna on 24 acres of a 278.5-acre property owned by the Confederated Tribes of the Warm Springs of Oregon that is permanently protected under a conservation easement held by the Bonneville Power Administration (BPA) as part of ODFW's Willamette Wildlife Mitigation Program (WWMP). The total project cost is \$170,770 and no new FTE.

The proposed oak woodland restoration addresses the recommendation of reducing wildfire risk in forestlands. The INR NWL report notes that a century of fire exclusion has resulted in many western forested ecosystems carrying a "carbon debt", i.e., an excess of carbon. This phenomenon is most typically associated with drier east-side forest types such as ponderosa pine forests, but it is just as applicable to Willamette Valley woodlands that have become overstocked and unsustainable as climate change has led to large-scale dieback and mortality in conifers on some drier sites.

Removal of encroaching Douglas-fir and non-native shrubs and trees from oak woodlands will result in a short-term reduction in carbon storage. But as the INR NWL Report notes, citing numerous studies, fuels reduction treatments can result in long-term climate benefits by fostering resilience, paying off the "carbon debt", and reducing the risk of uncharacteristic wildfire. The following treatments, identified in the INR report, will all be used in implementing the Forest Management Plan for Red Hills:

- Thinning to stocking levels more resilient to fire and drought
- Removal of trees killed or damaged by insects and diseases
- Mechanical understory removal
- Prescribed fire

Background

The Red Hills Conservation Area is a 278.5-acre property acquired by the Confederated Tribes of the Warm Springs of Oregon in 2014 and is part of the Tribes' Conservation Lands portfolio, which includes both East-side and Willamette Valley parcels. The property is permanently protected under a conservation easement held by the Bonneville Power Administration (BPA) as part of the Willamette Wildlife Mitigation Program (WWMP). The property is in an area with extensive recent vineyard development in Yamhill County and is adjacent to the Trappist Abbey, also conserved through the WWMP.

Historically, the property was dominated by oak woodlands and grasslands, designated as Strategy Habitats in the Oregon Conservation Strategy. Native burning practices kept these lands oak-dominated

Attachment 1. Description of Each Investment Area

for millennia prior to white settlement and fire exclusion. Human development, agriculture, and encroachment by conifer forests threaten these habitats throughout the Willamette Valley.

Douglas-fir has encroached on oak habitats throughout the property, both through ecological succession in the absence of fire as well as forestry plantations initiated by previous owners. Drought stress over the past decade has led to high mortality levels in Douglas-fir on portions of the property, creating concentrations of flammable wildland fuels that increase the risk of uncharacteristically large wildfire. In addition, invasive plants such as Himalayan blackberry, Scotch broom, false brome, English hawthorn, and orchard cherry have developed large infestations that reduce habitat quality and add to the fuel loads and wildfire risk.

This was a relatively expensive acquisition for the WWMP due to the vineyard potential of the site. As a result, the WWMP project sponsors did not request stewardship funding through the program to make the application as competitive as possible. Consequently, the Warm Springs Tribes have been left without this funding source to offset on-going operations and maintenance costs for the site. The WWMP does not provide restoration funding for acquired properties.

The Tribes are just completing a Forest Management Plan (subject to review and approval by BPA and ODFW) that includes a detailed forest inventory and habitat assessment, and a multi-year phased approach to oak habitat restoration. Douglas-fir and non-native species will be removed to restore oak savanna on 24 acres and to restore native oak woodlands on 156 acres. The oak savanna restoration is excluded from this proposal based on the recommendations in the INR NWL Report.

Ability of Agency to Implement the Program

The work on this project will be completed by the Tribe in partnership with ODFW's WWMP program staff.

Connection to Tribal and Environmental Justice Communities

This project was identified by the Tribe as the highest priority restoration site within their portfolio of WWMP properties. ODFW will pass funds directly to the Tribe for this project.

Measurable Outcomes for Reporting (Check all that apply, or add in project-specific metrics)

Natural Climate Solutions Outcomes	
Acres treated/restored (by treatment type)	X
Seeding/planting rates/density (by species)	
Ecological function repaired	
Seedlings grown (by species and estimated future impact/purpose)	
Other applicable	



Natural and Working Lands Fund

Annual Update

August 8, 2025
Oregon Climate Action Commission



Background

- HB 3409 (2023) established natural climate solution policy for the state and created the Fund to support implementation of NCS
- Four agencies receive funds (OWEB, ODFW, ODA, ODF)
- 2023: \$10 million allocation
2024: Commission approved 13 proposed projects
- Annual report due to the legislature Sept 15th of each year



Fund Aims

- Provide incentives, technical assistance, and financial assistance to advance natural climate solutions
- Prioritize programs administered or proposed by an environmental justice community or Tribe
- Prioritize the use of existing programs and seek to leverage federal investments
- Optimize the social, health, ecological, climate resilience, and economic co-benefits of natural climate solutions



Role of Commission *(ORS 468A.189)*

-  Commission determines amount to be allocated
 - Ability of agency
 - Other sources of funding
-  Consults with agencies prior to decision-making to understand proposed uses
-  Reviews progress of, and barriers to, implementing NCS
-  Coordinates on development and implementation of NCS programs and activities
-  ODOE staff supports the Commission in these duties.
 - Statute also allows the state to contract to support these duties.

ODFW SUMMARY

- ❖ \$3.04 million to support diverse projects, including
 - Floodplain restoration with Confederated Tribes of Grand Ronde
 - Estuary restoration - Tillamook, Umpqua
 - Fire resilience in oak woodland with Confederated Tribes of Warm Springs
 - Grassland Restoration - Wasco County
 - Natural Climate Solutions Biologists
- ❖ Co-benefits for working lands, carbon sequestration, and fish and wildlife habitat

ODFW UPDATE

Estuary restoration

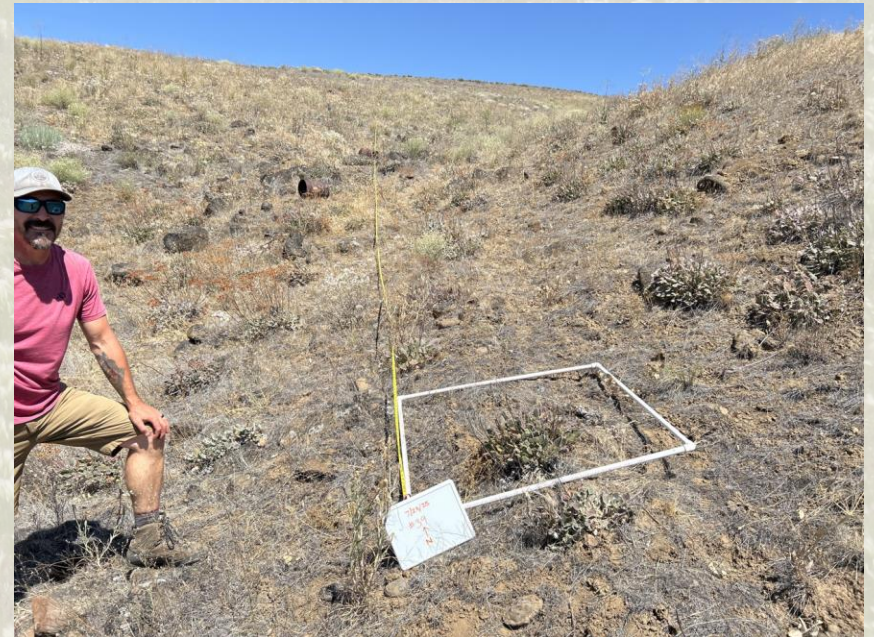
- Both Tillamook and Umpqua projects will be complete after this summer's IWW

Fire resilience in oak woodland with CTWS

- Thinning begins August 2025

Grassland Restoration in Wasco County

- Shrub plantings- December 2025
- Post-treatment monitoring completed



ODFW UPDATE

Floodplain restoration with CTGR

- 30 acres planted
- Weed management next

2-3 years



ODFW UPDATE

Natural Climate Solutions Biologists

- Pygmy rabbit habitat
- High Desert Shrub Steppe
- Tidal permitting assistance
- ONSS- native plant production exploration



ODFW FUTURE OPPORTUNITIES

- Sustaining Natural Climate Solutions Biologist Positions
- Eelgrass mapping in Yaquina Bay
- Beaver habitat restoration- Crooked River Watershed
- Gallagher Slough Tide Gate Relocation Design
- Little Butte Oak Initiative Habitat Enhancement
- Deschutes High Desert Shrub Steppe
- Explore native seed production opportunities- eastern OR

ODF SUMMARY

Increase adoption of climate-smart forestry practices for sequestration and continued ecosystem function as forest types shift:

- ❖ \$1.5M for implementation of Climate-Smart Forestry as outlined in Climate Change and Carbon Plan
- ❖ \$1M to incentivize Climate-Smart Forestry in partnership with Tribes and traditionally marginalized landowners
- ❖ \$750k to build capacity for climate-ready seed and seedlings at existing ODF facility

ODF UPDATE

Implementation underway at the J.E. Schroeder Seed Orchard.

- Management and harvest planning for existing, acorn-bearing Oregon white oak for use now and in the future
- Irrigation and water supply planning and implementation
- Partnering with USFS for new future climate ready orchards
- Ensuring infrastructure is ready for future and existing seed storage (current inventory ~\$14 million).

ODF UPDATE

- Initial climate-smart forestry project getting ready with Tualatin SWCD with more anticipated around the state.
- Additional interest from other areas of the state, especially for projects related to ecotype shifts to more adapted and resilient species and post disturbance reforestation with climate-smart forests.
- Tribal engagement with the ODF Urban and Community Forestry Program.
 - UCF completing granting of federal funds for tribal projects, NCS funds to assist further these existing projects.
 - Full \$1 million to be allocated through this process.
- Overall intent is to provide funds for place-based solutions at the local level.

ODA SUMMARY

- ❖ \$530,000 for Oregon Native Seed Strategy, which ensures access to reliable supply of ecologically appropriate native seed collection, storage, and production
 - Includes \$125,000 for Tribal assistance/incentives
 - Native seedstock is critical to conservation and restoration of natural and working lands and the ecosystem services they provide
- ❖ \$360,000 for Rangeland Resilience/Invasive Annual Grass
 - 5-year project in partnership with NRCS
 - Healthy, functional rangelands are crucial to carbon sequestration, resilience to wildfires, and climate change

RANGELAND RESILIENCE/INVASIVE ANNUAL GRASS

❖ OUTREACH

NE OREGON RANGELAND SUMMIT & SAGECON 2025
OREGON BOARD OF AGRICULTURE
TECH TRANSFER PARTNERSHIP WITH TNC AND OSU
OREGON ASSOCIATION OF CONSERVATION DISTRICTS

❖ FIELD CONSULTATIONS IN 9 COUNTIES

❖ MONITORING

FIRST FOODS RESEARCH WITH EASTERN OR AG RESEARCH, UNION STATION
MCFARLANE'S 4'O'CLOCK

❖ TRAININGS & PROFESSIONAL DEVELOPMENT

SOCIETY FOR RANGE MANAGEMENT
OREGON RANGELAND MONITORING PROGRAM
NATURAL RESOURCE PROFESSIONAL RANGELAND ECOLOGY & MANAGEMENT FIELD COURSE

❖ ENGAGEMENT

BAKER LIT, MALHEUR RANGE PARTNERSHIP, HARNEY COUNTY WILDFIRE COLLABORATIVE, 4 COUNTY RCPP

ODA UPDATE

Oregon Native Seed Strategy

Contracted with The Understory Initiative and Institute for Applied Ecology in 2024

- Technical assistance to producers interested in native seed sector
- Tribal assistance
- Climate-resilient species production – 10+ species
- Stakeholder Engagement and Collaborative Workshops
- Oregon Restoration Growers Guild (ORGG) platform

ODA plant conservation seed banking

- Species conserved (banked) – 16+ species in 2025 from 8 counties

Leveraged NWL funds with Center for Plant Conservation grant

- Additional species conserved

Matched NWL funds to NFWF Conservation Partners grant (ODFW proposal)

- Potential \$770k award

Matched NWL funds to NFWF Monarch Butterfly grant (TUI proposal)

- Potential \$300k award



OWEB SUMMARY

- ❖ \$1.5M for Restoration/Technical Assistance grants on rangeland, forestland, urban areas, or blue carbon ecosystems
- ❖ \$750,000 for development and implementation of Conservation Management Plans on agricultural land
- ❖ 3-month public engagement process from Oct-Dec 2024, to gather input from potential applicants, with focus on Tribes and environmental justice communities
- ❖ Applications for both offerings open February-April; high demand for offerings
 - Equity considerations
- ❖ Evaluations by technical review teams, participation from other NWL agencies
- ❖ Funding recommendations to OAHC and OWEB board in July

OWEB FUNDING RECOMMENDATIONS

❖ Restoration/Technical Assistance

- 5 Restoration awards for riparian restoration, oak habitat, post-wildfire reforestation, and forest management
 - Co-benefits include workforce development, technical resources for landowners, wildfire resilience in under-resourced rural community
- 1 Technical Assistance award for scoping cover cropping incentives

❖ Conservation Management Plans

- 5 funded projects totaling 38,235 acres
- Plans support development of long-range plans that focus on implementing conservation measures while maintaining agricultural operations on working lands
- Projects include cropland, pastureland, rangeland, and upland areas

CONTACT INFORMATION

DISCUSSION

Sarah Reif

Oregon Dept. of Fish and Wildlife
Habitat Division Administrator
sarah.j.reif@odfw.oregon.gov
503-991-3587

Danny Norlander

Oregon Dept. of Forestry
Forest Climate, Carbon, and Health Analyst
danny.norlander@odf.oregon.gov
(503) 508-3797

Troy Abercrombie

Oregon Dept. of Agriculture
Natural Resource Protection and Sustainability Manager
troy.abercrombie@oda.oregon.gov
503-983-4065

Alexa Schmidt

Oregon Watershed Enhancement Board
Water and Climate Coordinator
alexa.m.schmidt@oweb.oregon.gov
971-718-4904



Board of Forestry

Public Meeting

11. Oregon State University College of Forestry



Board of Forestry Public Meeting

12. Closing Comments

This item serves as an opportunity for the Board Chair to mop-up outstanding business and allow for closing comments from any of the Board members.



Board of Forestry Public Meeting

13, 14, 15. Field Tour Placeholder