

Forest Management in SW Oregon: the climate intersection

Key references · Terry Fairbanks, Southern Oregon Forest Restoration Collaborative · SOCAN general meeting, September 29, 2026 · tfairbanks@sofrc.org · sofrc.org · rogueforestpartners.org

Where the dry forest is, and what the climate is doing

- Truettner, C.M., et al. (incl. K.L. Metlen, M.D. Hurteau). 2026. Fire-adapted natural climate solutions to reduce wildfire emissions in US forests. *BioScience*. — the "wet westside / dry eastside" framing; thinning-plus-fire is central in dry forests; wildfire as ~1/3 of global forest loss. <https://doi.org/10.1093/biosci/biag128>
- OSU Extension. 2025. Not All Flame's the Same: fire ecoregions of Oregon (EM 9459). — Southwest Oregon as its own fire region; fire every 8–12 years historically. <https://extension.oregonstate.edu>
- Halofsky, J.E., D.L. Peterson, R.A. Gravenmier (eds.). 2022. Climate Change Vulnerability and Adaptation in Southwest Oregon. USDA Forest Service PNW-GTR-995. — the Forest Service assessment for this landscape: warming, water deficit doubling, burned area up 3–5× per 1.2 °C; accelerating restoration in dry forests as the dominant adaptation. <https://www.fs.usda.gov/pnw/publications>
- Oregon Climate Change Research Institute. 2025. Seventh Oregon Climate Assessment. Oregon State University. — statewide temperature, precipitation and snowpack trends. <https://blogs.oregonstate.edu/occri/oregon-climate-assessments/>

What these forests were, and what they have become

- Metlen, K.L., C.N. Skinner, D.R. Olson, C. Nichols, D. Borgias. 2018. Regional and local controls on historical fire regimes of dry forests and woodlands in the Rogue River Basin, Oregon, USA. *Forest Ecology and Management* 430:43–58. — fire scars at 13 sites back to 1650: median 8-year return interval; about half of fires in spring or fall. <https://research.fs.usda.gov/treearch/56923>
- Skinner, C.N., A.H. Taylor, J.K. Agee. 2006. Klamath Mountains Bioregion. In *Fire in California's Ecosystems*, UC Press, pp. 170–194. — frequent low- to moderate-intensity fire, Native burning, and the post-1920 fire-free period without precedent in 400 years.
- Rodne, S.K. 2025. 100 Years of Change in Forest Structure, Composition, and Spatial Patterning in Southwest Oregon's Rogue Basin. M.S. thesis, Oregon State University. — 1911 vs. 2011 at 11 sites: 125 → 522 trees per hectare (about 4×); relative density 0.16 → 0.64; pines and oaks lost ground; the mosaic of singles and small clumps gone. Stem map: Fig. 2.15. https://ir.library.oregonstate.edu/concern/graduate_thesis_or_dissertations/6108vm08m
- Hagmann, R.K., et al. 2021. Evidence for widespread changes in the structure, composition, and fire regimes of western North American forests. *Ecological Applications* 31:e02431. — the West-wide synthesis of the same changes, and the answer to "historical forests were dense too." <https://doi.org/10.1002/eap.2431>
- Bennett, M., D.C. Shaw, L. Lowrey. 2023. Recent Douglas-fir mortality in the Klamath Mountains ecoregion of Oregon: evidence for a decline spiral. *Journal of Forestry* 121(3):246–261. — dense Douglas-fir on hot, dry sites + record drought + flatheaded fir borer.
- SOFR / Rogue Forest Partners. 2026. Douglas-fir Mortality in Southwest Oregon: Conditions, Needs and Opportunities. — ~861,000 acres across six counties since 2015; 378,629 in Jackson County; about half on former pine-oak sites. <https://sofrc.org>

Ecological forestry, old trees, and fire refugia

- Franklin, J.F., and K.N. Johnson. 2012. A restoration framework for federal forests in the Pacific Northwest. *Journal of Forestry* 110(8):429–439. — retain trees >150 years; reduce density to what the site carries; favor pine, oak, incense cedar; skips and gaps; then fire.
- Hood, S.M. 2010. Mitigating old tree mortality in long-unburned, fire-dependent forests: a synthesis. USDA Forest Service RMRS-GTR-238. — the raking guidance behind legacy-tree protection. https://www.fs.usda.gov/rm/pubs/rmrs_gtr238.pdf
- Davis, R.J., et al. 2022. Northwest Forest Plan — the first 25 years (1994–2018): status and trends of late-successional and old-growth forests. USDA Forest Service PNW-GTR-1004. — gains in moist old forest balanced by losses in drier, fire-prone old forest; on federal land ~¼ of old-growth loss was wildfire. <https://doi.org/10.2737/PNW-GTR-1004>
- Lesmeister, D.B., R.J. Davis, J.T. Rockweit. 2025. Resolving conservation conflict through fire refugia: integrating landscape resilience into forest management. *Journal of Environmental Management* 393:126974. — across 470 large fires, owl nesting forest burned at lower severity than its surroundings; the 2013 Douglas Complex in SW Oregon. <https://doi.org/10.1016/j.jenvman.2025.126974>
- Krawchuk, M.A., et al. 2026. Fire refugia in forest ecosystems of the Pacific Northwest, USA: science and applications for conservation, adaptation, and stewardship. *Conservation Science and Practice* 8(1):e70173. — refugia types and how managers use them; map viewer at firerefugia.forestry.oregonstate.edu. <https://doi.org/10.1111/csp2.70173>

Do treatments work?

- Davis, K.T., J. Peeler, J. Fargione, R.D. Haugo, K.L. Metlen, M.D. Robles, T. Woolley. 2024. Tamm review: a meta-analysis of thinning, prescribed fire, and wildfire effects on subsequent wildfire severity. *Forest Ecology and Management* 561:121885. — 40 studies, 172 sites, 43 fires: thin + burn –72%; prescribed fire alone –62%; thinning alone –27% and not significant; effect holds across fire weather, halves after 10 years. <https://doi.org/10.1016/j.foreco.2024.121885>
- Prichard, S.J., et al. 2021. Adapting western North American forests to climate change and wildfires: 10 common questions. *Ecological Applications* 31:e02433. — the fire-science consensus, question by question. <https://doi.org/10.1002/eap.2433>

- Hessburg, P.F., et al. 2021. Wildfire and climate change adaptation of western North American forests: a case for intentional management. *Ecological Applications* 31:e02432. — why passive management produces the severe fires it means to avoid. <https://doi.org/10.1002/eap.2432>
- The Nature Conservancy. 2022. Wildfire resilience treatments work — the Bootleg Fire at Sycan Marsh. — untreated ~90% mortality; thinned and burned, very little; thinned only, surprising mortality. <https://blog.nature.org/2022/03/14/wildfire-resilience-treatments-work/>

The Rogue Basin Strategy

- Metlen, K.L., D. Borgias, B. Kuhn, M. Schindel, C. Thompson, et al. 2017. Rogue Basin Cohesive Forest Restoration Strategy: a collaborative vision for resilient landscapes and fire adapted communities. The Nature Conservancy, Portland, OR. — the Strategy itself — the full 2017 report behind the 2021 paper. <https://sofrc.org/science-delivery/rogue-basin-strategy/>
- Metlen, K.L., T. Fairbanks, M. Bennett, J. Volpe, B. Kuhn, M. Thompson, J. Thraillkill, M. Schindel, D. Helmbrecht, J. Scott, D. Borgias. 2021. Integrating forest restoration, adaptation, and proactive fire management: Rogue River Basin case study. *Canadian Journal of Forest Research* 51:1292–1306. — five public objectives; sideboards first; treat 25% of the landscape for a 70% cut in wildfire risk, 50% to homes, 47% to owl cores; 63% of risk to homes comes from private land; 88% of treated acres lose money. <https://doi.org/10.1139/cjfr-2020-0480>
- Dye, A.W., J.B. Kim, A. McEvoy, F. Fang, K.L. Riley. 2021. Evaluating rural Pacific Northwest towns for wildfire evacuation vulnerability. *Natural Hazards*. — Williams ranks #1 of 696 rural Oregon and Washington towns; Takilma #2, Glendale #6. <https://doi.org/10.1007/s11069-021-04615-x>
- Povak, N.A., P.F. Hessburg, et al. 2023. System-level feedbacks of active fire regimes in large landscapes. *Fire Ecology* 19. — how much of a landscape has to be treated to change fire behavior (~20–40%). <https://doi.org/10.1186/s42408-023-00197-0>
- Gray, R.W., et al. 2025. Wildfire management at a crossroads: mitigation and prevention or response and recovery? *Science* 390:30–33. — 87% of disaster spending on response, 13% on mitigation; home hardening must proceed in parallel with landscape fuel treatment, not instead of it. <https://doi.org/10.1126/science.adx1230>

Carbon

- Hurteau, M.D., et al. 2019. Managing for disturbance stabilizes forest carbon. *PNAS* 116:10193–10195. — fire exclusion packed in carbon that is unstable; restoring surface fire cuts the chance of stand-replacing fire 60–80%. <https://doi.org/10.1073/pnas.1905146116>
- Mildrexler, D.J., L.T. Berner, B.E. Law, R.A. Birdsey, W.R. Moomaw. 2020. Large trees dominate carbon storage in forests east of the Cascade crest in the United States Pacific Northwest. *Frontiers in Forests and Global Change* 3:594274. — trees over 21 inches are 3% of stems and hold 42% of the carbon. <https://doi.org/10.3389/ffgc.2020.594274>
- Buotte, P.C., B.E. Law, W.J. Ripple, L.T. Berner. 2020. Carbon sequestration and biodiversity co-benefits of preserving forests in the western United States. *Ecological Applications* 30:e02039. — preservation priorities chosen for high sequestration and low fire/drought vulnerability — the Coast Range and Cascades, not the Rogue Basin. <https://doi.org/10.1002/eap.2039>

Fire as a cultural practice

- Long, J.W., and F.K. Lake. 2018. Escaping social-ecological traps through tribal stewardship on national forest lands in the Pacific Northwest, United States of America. *Ecology and Society* 23(2):10. — fire exclusion as a "social-ecological trap"; escaping it takes changes in societal mindsets, not just technique. <https://doi.org/10.5751/ES-10041-230210>
- Coughlan, M.R., N. Serio, H. Loeb, D.G. Lewis, S. Thompson. 2023. Indigenous fire stewardship for fire management and ecological restoration in the Pacific Northwest: a literature synthesis and annotated bibliography. *Ecosystem Workforce Program Working Paper* 118, University of Oregon / Northwest Fire Science Consortium. — Indigenous fire stewardship is distinct from prescribed fire in its broader intentions; prioritize Indigenous-led efforts. <https://nwfirescience.org>
- Rogue Basin Fire Learning Network. 2018. Learning about burning: the wisdom of old trees (brief on Metlen et al. 2018). — 100 trees, 200+ fires back to 1650; quotes from Bill Kuhn, Paul Hessburg and Frank Lake.

On the ground

- Rogue Forest Partners. rogueforestpartners.org. — ten partners, six priority landscapes; through 2024: 5,370 acres thinned, 6,110 underburned, 25,197 legacy trees protected, 155 private landowners. <https://rogueforestpartners.org>
- Rogue Forest Partners. 2026. Rogue Forest Connectivity Initiative Strategic Action Plan, 2027–2032. — the next five years: linking the Little Applegate and Jackson Creek watersheds.
- Beaudoin, J., K.L. Metlen, T.L. Fairbanks. 2026. Scaling Vision: Rogue Forest Partners. — ~15,000 acres a year treated now; ~100,000 a year needed to keep the basin resilient.

Most journal articles above are open access at the DOI shown. Drafts and internal reports (Radcliffe et al. 2025 on treatment longevity; the Scaling Vision) are available from SOFRC on request.