

Jessie Thoreson

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Summary

I am a fire ecology research scientist III at the University of Washington in the Fire, Landscapes, Adaptive Management, and Ecology (FLAME) Lab with a range of projects including landscape fire and vegetation dynamics modeling, 3-dimensional fuel modeling across the US, and scientific illustration work. I completed my graduate program at Oregon State University where I studied fire and forest ecology with a focus on collaborative governance, fire resilience, and social-ecological systems. My research experience involves a mix of participatory qualitative social science and quantitative forest and fire ecology methodologies. As an educator and research assistant, I have worked across Washington state in Okanogan/Wenatchee NF, Mt.Baker/Snoqualmie NF, Gifford Pinchot NF, Olympic NF, Rainier NP, North Cascades NP, Lake Roosevelt NRA, and San Juan Island National Monument.

Education

MS in Forest Ecosystem and Society at Oregon State University (2023)

Advisors: Dr. Meg Krawchuk and Dr. Reem Hajjar

Working Group: Collaborative Governance and Wildland Fire Ecology Working Group

Thesis: Understanding Xánthiip (Black Oak) Ecocultural Revitalization in the Western Klamath Mountains.

Thesis work was done in partnership with the Karuk Tribe's Department of Natural Resources to assess cultural and ecological metrics vigor of black oak trees that were historically stewarded by Indigenous fire. The research employed both qualitative social science research techniques and quantitative ecological monitoring techniques to answer participatory and co-developed research questions about black oak and Karuk land stewardship.

BA in Environmental Education at Western Washington University (2017) with an Anthropology Minor

Work History

2023-Present – Fire Ecology Research Scientist III

University of Washington, School of Environmental and Forestry Science, FLAME (Fire, Landscapes, Adaptive Management, and Ecology) Lab, Seattle, WA

- Conducting literature reviews and assembling datasets to inform wildland fuel characterization and fire behavior modeling.
- Conducting quantitative and statistical analyses and keeping abreast of advancing technological approaches.
- Conducting field research on wildland fuels and prescribed fire.
- Contributing to report writing and peer-reviewed scientific articles. Presenting research findings at scientific conferences and other invited presentations.

- Engaging with external research collaborators, including Tribal representatives and Indigenous practitioners, and contributing to positive relationships through timely and professional communication.
- Supervising staff and students in the completion of research tasks in the field and laboratory.
- Mentoring SEFS graduate students within the FLAME Lab.
- Fielding interviews with high school and undergraduate students about fire ecology for coursework.

2019-Present – Scientific Illustration Commission Work

Original illustrations/figures appear in the following publications:

- 2025 Parks, S. A., Guiterman, C. H., Margolis, E. Q., Lonergan, M., Whitman, E., Abatzoglou, J. T., ... & Yocom, L. L. (2025). A fire deficit persists across diverse North American forests despite recent increases in area burned. *Nature communications*, 16(1), 1493.
- 2024 Eisenberg, C., Prichard, S., Nelson, M. P., & Hessburg, P. (2024). Braiding Indigenous and Western knowledge for climate-adapted forests: an ecocultural state of science report. *Wise Path Forward*.
- 2024 Hamilton, D. S., Kelley, D. I., Perron, M. M., Lloret, J., Burton, C., Liguori-Bills, N., ... & Völker, C. (2024). The Fire science Learning AcROSS the Earth System (FLARE) Working Group FLARE: Fire science Learning AcROSS the Earth System Igniting Progress: Outcomes from the FLARE workshop and 3 challenges for the future of transdisciplinary Fire Science (Doctoral dissertation, Zenodo).
- 2024 Thoreson, J., McCovey, K., Rossier, C., Lake, F. K., Hajjar, R., Hillman, C., Halpern, A., Tripp, B., & Krawchuk, M. (2024). Monitoring of black oak (*xánthip*) to center indigenous ecocultural revitalization. *Earth Stewardship*, 1(1), e70002. <https://doi.org/10.1002/eas2.70002>
- 2019 Mustoe, G. E. (2019). Lower Eocene footprints from northwest Washington, USA. Part 1: reptile tracks. *Geosciences*, 9(7), 321.

2019-2021 - Research Scientist and Engineer Assistant

University of Washington, Pacific Wildland Fire Sciences Laboratory (PWFSL), Seattle, WA

- Conducted fire ecology field work in unique bioregions across the US (including Florida, Washington, Oregon, Montana, New Mexico, and Utah) to model fuels and fire behavior.
- Assisted with prescribed burning operations (ignitions, holding, fuel moisture sampling, and post-fire drone surveys).
- Worked closely with a crew of five in remote living conditions for up to two weeks.
- Organized lodging, gear transportation and safety planning for cross-country travel. Collected, transported, processed, entered and quality-controlled data in the Seattle PWFSL lab.

Specific projects included:

- **FASMEE** (Fire and Smoke Model Evaluation Experiment): Collected fuels data during large scale prescribed burning in Utah for the FASMEE project. This work included setting up 500 square ft plots in rugged terrain, completing downed woody debris transects, collecting 1,000hr fuel moisture samples using a chainsaw, destructively sampling clip plots and measuring the health/dimensions of trees using a laser ranger finder.

- **3D Fuels Project:** Conducted fieldwork for 3D fuels modeling of unique bio-regions around the US (including Florida, Washington, Oregon, New Mexico and Montana) to help build a fine-scale universal fuel model. Assisted in collection of 3D Fuels data from a TLS laser, close-range photogrammetry, long range drone footage and destructively sampled ground cover at less than 2m. Meticulously labeled, transported, sorted and weighed all samples.
- **AMFAV** (Aerial Mapping of Fire Behavior and Vegetation): Completed ignitions, holding, fuel moisture sampling and post-fire drone surveying for the AMFAV project in the South Puget Sound region. Worked closely with UW Aeronautics Lab students to safely conduct drone flights during the prescribed burns.

Summer 2018 and Summer 2021 - Wildlife Field Technician and Field Lead

Cascade Carnivore Project, Winthrop, WA

- Conducted scat surveys in the Cascade Mountains for Wolverine, Red Fox, Marten, and Lynx. (We found the only confirmed genetic sequence of a Cascade Red Fox north of interstate 90!)
- Safely handled and processed carnivore DNA samples without contamination. Consistently hiked an average of 10 miles daily (Up to 20 mile days with a full backpacking pack).
- Trip planned, organized/entered data and processed samples.

2017 - Conservation Technician

Swan Valley Connections, Missoula, MT

- Led groups of 10+ volunteers from around the country in a citizen science research project regarding the Grizzly bear and huckleberry populations of NW Montana.
- Taught fieldwork protocols, data collection strategies and safety in the field to a wide range of ages and physical abilities.
- Helped coordinate and facilitate the communication between all parties involved in the project: EarthWatch, Swan Valley Connections, USFS and USGS. Organized housing accommodations and food for each volunteer group.

Summer 2016 - Fire Effects Monitor

North Cascades National Park, Marblemount, WA

- Conducted plant identification surveys using specific fire effect protocols that involved determining percent plant cover, measuring health of trees, comparing species diversity between plots, and keying out every species in the area.
- Conducted ground-truthing fieldwork in burned areas to determine the accuracy of satellite imagery as it pertains to burn severity calculations. Participated in ignitions, holding and fire effects monitoring during prescribed burns.

Leadership and Service Activities

2023	Task Force for Developing Best Practices for Partnering with Tribal Nations: Member <i>OSU College of Forestry</i>
2023	Western Forestry Graduate Research Symposium Organizing Committee: Member, <i>OSU College of Forestry</i>
2021-23	Student Association for Fire Ecology: Member, Secretary, <i>OSU College of Forestry</i>

2022 National Traditional Ecological Knowledge Summit Organizing Committee: Member, Panel Moderator, *OSU*

Instruction

2025 **Guest Presentation**, Fire Ecology lecture for the Jamestown S’Klallam Department of Natural Resources

2025 **Guest Presentation**, Fire Ecology lecture for the Natural Disasters course, Bellevue Community College

2023 **Teaching Assistant**, Wildland Fire Ecology (FES 440), Oregon State University

2022 **Teaching Assistant**, Forest Ecology (FES 341), Oregon State University

2017 **Resident Teaching Assistant**, Biogeography, Watershed Dynamics, Forests and Communities, Agriculture and Sustainability, University of Montana, Landscape and Livelihood Field Program

2017 **Field Program Coordinator and Instructor**, Biogeography of the Pacific Northwest, Environmental Education BA curriculum writing and implementation capstone, Western Washington University

Public Research Presentations

2025 Western Klamath REBURN Workshop presentation and facilitation in Orleans, California. June 2025. *Western Klamath REBURN: In-Person Workshop*.

2023 Thoreson J. Northwest Scientific Association Annual Meeting. Bellingham, WA. March 2023. *Understanding Xánthiip (black oak, Quercus kelloggii) Ecocultural Revitalization in the Western Klamath Mountains*.

2023 Thoreson J. Western Forestry Graduate Research Symposium. Corvallis, OR. April 2023. *Understanding Xánthiip (Black Oak, Quercus kelloggii) Ecocultural Revitalization in the Western Klamath Mountains*.

2023 Thoreson J. Western Klamath Restoration Partnership Lecture Series/ Karuk Tribe Píkyav Speaker Series. Orleans, CA. May 2023. *Ecocultural revitalization of black oak groves and their Karuk stewardship in the Western Klamath Mountains*.

Publications

2024 Thoreson, J., McCovey, K., Rossier, C., Lake, F. K., Hajjar, R., Hillman, C., Halpern, A., Tripp, B., & Krawchuk, M. (2024). Monitoring of black oak (*xánthiip*) to center indigenous ecocultural revitalization. *Earth Stewardship*, 1(1), e70002.
<https://doi.org/10.1002/eas2.70002>

In Review Prichard, S.J., Nemens, D., Rowell, E., Batchelor, J., Bright, B., Cova, G.R., Drye, B., Hudak, A., Eagle, P., Cronan, J., Redford, H., Parsons, R., Silva, C., Skowronski, N., and Thoreson. In review. Hierarchically-scaled remote sensing and field datasets for three-dimensional wildland fuel characterization. *Fire Ecology*.

- In Review Prichard, S.J., Nemens, D., Thoreson, J., Satterfield, L., Eagle, P., Rowell, E., Hudak, A.T., Kennedy, M., and Sánchez-López, N. In review. Forest floor properties in pine forests of the southeastern and western United States. *Fire Ecology*.
- In Prep Thoreson, J., McCovey, K., Rossier, C., Lake, F. K., Hillman C. C., Tripp A., Tripp B., Hajjar, R., Halpern, A., & Krawchuk, M. In Prep. Karuk Indigenous stewardship of Xánthiip (black oak, *Quercus kelloggii*) in the Western Klamath Mountains, United States. *Ecology and Society*.
- In Prep Prichard, S.J., Rowell, E., Thoreson, J., Nemens, D., Cova, G., Eagle, P., Drye, B., and Batchelor, J. In prep. Characterizing understory fuel structure and biomass in pine-dominated forests using coupled terrestrial lidar scanning, close-range photogrammetry, and field sampling. *Fire Ecology*.