

Arielle A. Halpern

EDUCATION

- University of California, Berkeley**, Berkeley, CA. 2009 - 2016
Ph.D. in Integrative Biology (Ecology and Evolutionary Biology)
Dissertation: Prescribed fire and tanoak (*Notholithocarpus densiflorus*) associated cultural plant resources of the Karuk and Yurok Peoples of California.
- Northwestern University**, Evanston, IL. 2007 - 2008
Post-baccalaureate courses in biology, general and organic chemistry
- Oberlin College**, Oberlin, OH 1999 - 2003
B.A. in Theater, Acting and Directing

POSITIONS HELD

- Sealaska Heritage Institute** 2023-present
Higher Education and High School STEAM Program Manager
- Oversight, management, and implementation of Opening the Box of Traditional Ecological Knowledge: HS STEAM-Making in Southeast Alaska Project.
 - Supports Alaska Native youth participation in culturally-centered STEAM activities and STEAM college/career preparation.
 - Oversight, management, and implementation of Indigenous People's Commission on Marine Mammals Harbor Seal Conservation and Outreach Project.
 - STEAM skill and content building for Alaska Native youth though Harbor Seal subsistence hunting and processing.
 - Supported and advanced partnerships with Tribal communities, universities, federal agencies.
 - Co-developing emerging research program investigating increasing *Licmophora* spp. (marine diatom) aggregates on Black Seaweed (*Pyropia abbotiae*).
 - Developed funding proposals in support of Indigenous-led research and education.
- Southern Oregon University** 2019-2023
Co-Chair, Environmental Education Graduate Program (M.S. EE Program)
- Administered all aspects of a nationally accredited, cohort-based graduate (Master of Science) program including recruitment, financial management, and program assessment.
 - Taught courses in environmental interpretation, current issues, teaching and leadership, and program development and delivery in environmental education.
 - Evaluated applicants for program admission.
 - Negotiated new partnership agreements for EE program delivery.
 - Mentored graduate student research projects.
 - Chaired thesis committees and served on oral examination committees.
 - Created and supervised graduate capstone experiences
- Assistant Professor of Biology
- Developed and taught upper division/graduate lecture-based, field-based, CUREs, and seminar courses.
 - Taught introductory majors/non-majors labs focusing on ecology and evolutionary biology.

- Composed funded grant proposals for the Indigenous Garden Network and the M.S EE Program.
- Conducted collaborative research on chemical composition of smoke-infused water.
- Initiated black/white oak acorn infestation monitoring and fire research with the Indigenous Gardens Network (IGN).
- Expanded collaborative research with the Karuk Tribe and the Western Klamath Restoration Partnership (WGRP) on prescribed fire and tanoak/black oak acorn infestation.

Director, Southern Oregon University Herbarium

- Managed collections (~22,000 specimens) with a regional focus on the Klamath Siskiyou Ecoregion.
- Shared data and specimens with partnering national organizations, regional consortia, and researchers.
- Supported university and research projects utilizing collections, databases, and equipment.

College of the Siskiyous

2017 - 2019

Adjunct Faculty of Biology

- Created undergraduate introductory online environmental science course
- Taught introductory undergraduate biology course for non-majors.
- Developed online courses using Canvas CMS.

Mount Shasta Bioregional Ecology Center

2017 – 2019

Senior Program Director

- Developed collaborative forest monitoring and collaborative community fire ecology programs.
- Leveraged funds for monitoring, program development, education and outreach programs.
- Developed K-12 curriculum for monarch butterfly and pollinator workshops.

Western Klamath Restoration Partnership (WGRP)

2016 - 2017

Partnership Coordinator

- Coordinated a 1.2 million-acre, multi-stakeholder National Cohesive Wildland Fire Management Strategy demonstration project in the Klamath River watershed dedicated to restoring resilient ecosystems, economies, and communities.
- Developed multi-scale partnership implementation, effectiveness, and validation monitoring plans.
- Leveraged funds for monitoring, project implementation, and partner involvement.
- Co-organized prescribed fire training events (TRES), workshops, educational events, and scientific conferences focusing on Klamath fire science and ecology.

PEER-REVIEWED PUBLICATIONS

Lake, F.K., **Halpern, A.A.** (in press) “Tanoak (*Notholithocarpus densiflorus*) Species Profile” in *Guidebook for Selecting Tree and Shrub Species for Agroforestry in the U.S.* United States Forest Service.

Halpern, A.A., Sousa, W. P., Lake, F. K., Carlson, T. J., & Paddock, W. Tripp, B. on behalf of the Karuk Tribe (2022). Prescribed fire reduces insect infestation in Karuk and Yurok acorn resource systems. *Forest Ecology and Management*, 505, 119768.

Khodarev, N.N., Labay E., Beckett M., Darga T., **Halpern A.**, Roizman B.& Weichselbaum. R.R. (2004). Stat1 as mediator of acquired tumor radio resistance and potential target for anti-tumor therapy *European Journal of Cancer* (EJC) 2(8) 193.

Gorski, D. H., Mauceri, H. J., Salloum, R. M., **Halpern, A.**, Seetharam, S., & Weichselbaum, R. R. (2003). Prolonged treatment with angiostatin reduces metastatic burden during radiation therapy. *Cancer Research*, 63(2), 308-311.

Thoreson J., Krawchuk M., Rossier C., McCovey K., Hajjar R., **Halpern A.**, Hillman C., Lake F., Tripp A., and B. Tripp. Xánthiip (Karuk name for black oak, *Quercus kelloggii*) Monitoring to Center Indigenous Ecocultural Revitalization. *In preparation*

Koyak, M., Videau, P., **Halpern, A.**, Gaylor, M., Rojas, M., Hilligoss, C., Locke, J., Paddock, W., Hamil, N., Loughran, R. Assessment of multiple solvents for compound inventory determination from smoke water. *In preparation*

Halpern, A.A., Lake F.K., Tripp, B. Effects of non-traditional prescribed fire and acorn gathering on Karuk and Yurok cultural plant diversity. *In preparation*

Halpern, A.A., Lake F.K., Tripp B. Karuk and Yurok external acorn assessments describe internal cotyledon state. *In preparation*

INVITED AND CONTRIBUTED TALKS

Cascadia Prairie Oak Partnership Conference Halpern, A. Prescribed fire effects on acorn frugivores and oak cultural resources systems	2022
Native Plant Society of Oregon Halpern, A. Prescribed fire and tanoak	2021
K-S Wild: Wildland Fire Series Halpern, A. Fire, Communities, and a Changing Climate	2019
California-Pacific Fall Meeting Halpern, A. Prescribed Fire and Oak Health	2018
Mount Tam Science Summit Halpern, A. Reciprocal Relationships: Fire and Indigenous Acorn Resource Systems	2018
International Association for Wildland Fire Workshop Halpern, A., Harling W., Tripp, B. Western Klamath Restoration Partnership: Traditional and Contemporary Knowledge, Collaborative Engagement, and Early Implementation	2017

CONTRIBUTED POSTERS

Investigating behavioral responses to fire exposed plant material in *C. elegans*
Kanaili Singkeo, Jahna Thompson, Charles Fisher, Arielle Halpern, Melissa LaBonty

Southern Oregon University, Department of Biology
Presented at the 24th International C. elegans Conference, June 24-28th, 2023, Glasgow, Scotland.

Understanding Xanthiip (*Quercus kelloggii*, black oak) ecocultural revitalization in the western Klamath Mountains

Jessie Thoreson¹, Colleen Rossier², Arielle Halpern³, Kathy McCovey², Meg Krawchuk¹
¹College of Forestry, Oregon State University, ²Karuk Tribe, ³Southern Oregon University
Presented at the 93rd Annual Meeting of the Northwest Scientific Association, March 21-24, 2023, Western Washington University. Bellingham, WA.

Assessment of multiple solvents for compound inventory determination from smoke water

Marc Koyak¹, Patrick Videau², Arielle Halpern², Michael Gaylor³, Maria Rojas¹, Caitlin Hilligoss¹, Janey Locke¹, Will Paddock, Nathaniel Hamil¹, Rachel Loughran²
¹Department of Chemistry, Southern Oregon University, ²Department of Biology, Southern Oregon University, ³Department of Chemistry, Dakota State University.
Presented at the American Chemical Society Fall 2021 Meeting, Atlanta GA.

Effects of altered fire regimes on tanoak acorn cultural resources of the Karuk and Yurok Peoples of California.

Arielle Halpern¹, Frank Lake², Thomas Carlson¹, Wayne Sousa¹, Bill Tripp³, Robert McConnell⁴.
¹University of California, Berkeley, Berkeley, CA, USA, ²United States Forest Service, PSW, Redding, CA, USA. ³Karuk Tribe of California, ⁴Yurok Tribe of California. Presented at the 99th Annual Meeting of the Ecological Society of America, 2014.

Effects of prescribed fire on California Indian cultural use plant species in a serpentine woodland.

Arielle Halpern*, Frank K. Lake**, Thomas J. Carlson*, and Wayne P. Sousa*
*Department of Integrative Biology, University of California Berkeley, **United States Forest Service, Pacific Southwest Research Station. Presented at the 96th Annual Meeting of the Ecological Society of America, 2011.

Distribution of CoFe₂O₄@TiO₂ Nanoparticles Coated with Glucose in Three-Month Old Transgenic Mice.

Arielle Halpern, Tatjana Paunesku, Michuel Wanzer, Felix Richter, Eric M.B. Brown, Aiguo Wu, Sunny Arkani*, Greg Karczmar*, Gayle Woloschak. Department of Radiation Oncology, Northwestern University. Presented at the 54th Annual Meeting of the Radiation Research Society, Boston, MA. 2008
*Department of Radiology, University of Chicago.

FUNDING

NSF-AISL: Indigenous Science, Research, and Education in Southeast Alaska (working title) in preparation
Co-PI (\$2,000,000, 3 years requested)

ANEP: Opening the Box of Traditional Ecological Knowledge in preparation
Co-PI (2,500,000/year, 3 years requested)

BLM OR/WA: Indigenous Gardens Network: First Foods Gathering, Management, and Education. 2022-2025
PI (\$150,000, 3 years)

Oregon State Extension Outdoor School: Equity, Diversity, Inclusion and Justice Coordinator Position at Southern Oregon University's Environmental Education Graduate Department: Fall in the Field Outdoor School Co-PI (~\$36,960)	2022
Oregon Cultural Trust: Indigenous Gardens Network Co-PI (~\$31,621)	2022
Oregon Cultural Trust: Indigenous Gardens Network Co-PI (~\$35,483)	2021
BLM OR/WA: Environmental Education: Fall in the Field at the Cascade-Siskiyou National Monument PI (~\$20,000)	2020
Northern California Botanists: Shasta Chapter PI (~\$1000)	2014-2015
USDA-AFRI: Enhancing Tribal Health and Food Security in the Klamath Basin of Oregon and California by Building a Sustainable Regional Food System Co-author (~\$3,997,061)	2012-2016
NSF-CNH: Indigenous Fire Regimes, Land-Use Ecology, and Contemporary Livelihoods in Northern California Co-author (~\$249,949)	2012

TEACHING

Southern Oregon University

Master of Science in Environmental Education Program

Environmental Issues (Sp20, 21, 22)

- 3 credits, ~10 students, graduate seminar course
- Content includes scientific communication for environmental issues, equity, diversity, and inclusion in environmental education, presentation of environmental information to different audiences.
- Projects include synthesis of scientific information for environmental issue of student choice, class presentation, and discussion facilitation.

Special Methods in Environmental Education (Fa19, 20, 21)

- 3 credits, ~10 students, graduate seminar and experience-based course
- Content includes evaluation of materials, methods, techniques, and strategies that promote the use of EE resources and environmental concepts and the creation of materials and assessments using NGSS and NAAEE guidelines.

- Projects include environmental education K-12 kit development, interpretive sign creation, and guided interpretive hikes.

Leadership in Environmental Education: Program Delivery (Fa19, 20, 21)

- 4 credit ~10 students, graduate experiential course.
- M.S. EE Capstone Course: Management of 7-8 weeks of field-based educational programs, both residential and non-residential. Includes budget management, participant communication, scheduling, and resource development.

Teaching in Environmental Education

- 4 credit, ~10 students, graduate experiential course.
- M.S. EE Capstone Course: Delivery and assessment of 7-8 weeks of field-based educational programming, both residential and non-residential.

Department of Biology

Capstone Research (W22)

- 1 credit, 3 students, undergraduate capstone course
- Piloted novel capstone experience investigating the effects of aqueous smoke extract application on germination and emergence of *Camassia spp.*
- Students present findings in a scientific poster that will be submitted for a national conference.

Ethnobotany (W20, W22)

- 4 credits, ~18 students, upper division elective (graduate and undergraduate)
- Content includes exploration of global food, fiber, medicine plants, decolonial methods in ethnobotany, ethical research practices, traditional ecological knowledge, PNW agroforestry systems, conservation, and biocultural diversity.
- Course projects on the development of a survey and plant list for the Shasta-Takelma Learning Garden, plant species presentation (taxonomy and ecology, overview of bioactive chemicals, conservation considerations and Indigenous use), and peer-reviewed paper reflections/presentations.
- Course received exemplary mention for the general education Equity, Diversity, and Inclusion Strand.

Conservation Biology (W20, W21, W22)

- 3 credits, ~18 students, upper division elective (graduate and undergraduate)
- Content includes exploration of biodiversity measurement, extinction, conservation and Indigenous collaboration, habitat degradation, invasive species, management of protected and unprotected lands,
- Course projects on species recovery plan development, the design of a preserve for an endangered species, and peer-reviewed paper reflections/presentations.

Vascular Plant Identification and Field Botany (Sp20, Sp22)

- 4 credits, ~ 13 students, upper division, field-based elective (graduate and undergraduate)
- Field-based course exploring floral diversity in the western Cascade and Klamath-Siskiyou ecoregions.
- Content includes overview of vascular plant evolution and systematics, introduction to vascular plant families, field identification techniques and dichotomous key use.
- Course projects include field journal development (Grinnell method), vascular plant family presentations, iNaturalist projects.

Plant Ecology (Sp21)

- 4 credits, ~13 students, CUREs field-based elective (graduate and undergraduate)
- Content includes exploration of plant phenology, population and community dynamics, trophic interactions, herbivory, competition, and endemism.
- Term-long, field-based research project comparing plant community composition in the Cascade-Siskiyou National Monument and lower Applegate River Watershed.
- Projects presented as scientific posters.

Natural History of the Pacific Northwest (Su19, Su20, Su21)

- 3 credits, ~10 students, graduate field-based course.
- Content includes exploration of northern California/southern Oregon landscapes, ecosystem processes, communities, and organisms, exploration of gradient-based diversity patterns, and the assemblage of science-based regional information into narratives of place.

Department of Environmental Science and Policy

Fire Ecology (W21)

- 4 credits, 17 students, upper division elective (graduate and undergraduate)
- Content includes fire effects (wildlife, vegetation, hydrology, soils), fire behavior, fire weather, fuel models, social dimensions of fire, and fire policy.
- Projects include fire modeling in the Rogue Valley using Wildfire Pocket Analyst, personal home hardening assessment, fire history in the Rogue Valley, and peer-reviewed paper reflections/presentations.

College of the Siskiyou

Environmental Principles (S17, Su17, F17, S18, Su18, F18, S19)

- 3 credits, 15-25 students, lower division core course
- Content includes include the structure and function of the biosphere, atmosphere, and lithosphere, nutrient cycling and energy flow through ecosystems, as well as human impacts on the atmosphere and aquatic terrestrial ecosystems, human use of natural resources, and sustainability.
- Delivered asynchronously via Canvas Learning Management Software.

Introduction to Life Sciences (S17, F17, S18, F18, S19)

- Non-majors course. Topics include elementary biological concepts, a general survey of living organisms, cells, genetics, ecology, and evolution.

MENTORING

- M.S. Environmental Education Program
Co-Chair, mentor and advise annual cohorts of 6-15 graduate students 2019 – present
- Shasta – Takelma Learning Garden
Faculty Contact: Student-led project creating a cultural food, fiber, and medicine garden on the SOU campus. An Indigenous Gardens Network (IGN) project. 2021 - present
- Master’s Student Research
 1. OSU master’s student Jessica Thoreson, thesis research/ Karuk research advisory board member 2022
 2. Caroline McIver, thesis research and committee member 2021
 3. SOU master’s student Julie Hanson, thesis research 2019
- Undergraduate biology capstone research
 1. Sarah Messier, David Teague, Amiee Bortolussi. Research on the effects of Aqueous smoke extract application on germination and emergence of *Camassia spp.* 2022
 2. Charles Fisher, Kanaili Sinkeo, Jahna Thomson. Research on the effects of burned and unburned acorn extracts on *C. elegans* behavior using chemotaxis assays 2023
- EDIJ- Coordinator, M.S. EE Program
Faculty Supervisor for former graduate student hired to improve departmental EDIJ curriculum and practice 2022

SERVICE

Southern Oregon University Departmental Service

- Co-Chair, M.S Environmental Education Program 2019 - 2023
- Biology Department search committee member 2021
- Graduate oral exam and final assessment committees 2019 – 2023
- Undergraduate capstone review 2019 – 2023
- Field Biology Working Group: Explored options for delivering field biology courses during the COVID-19 pandemic 2020
- Undergraduate and graduate student advising (Biology and EE) 2019 - 2023

Southern Oregon University, University Service

- Co-PI Indigenous Gardens Network (IGN) 2020 – 2023
 - Faculty Contact: Shasta-Takelma Learning Garden (IGN Project) 2021 – 2023
- Director, Southern Oregon University Herbarium 2019 – 2023
- Director, Southern Oregon University Greenhouse 2019 – 2023
- Director, Southern Oregon University Vertebrate Natural History Museum 2019 – 2021
- Graduate Council member 2021 – 2022
- Panelist: X-Factor, Picture a Scientist Seminar 2021
- Mentor/Organizer: Environmental Education Association of Oregon Annual Conference 2021

COMMUNITY AND ACADEMIC COLLABORATIONS

- Indigenous Gardens Network
 - Co-PI, facilitator 2020 - 2023
 - Research: Prescribed fire, black oak/white oak, camas
Invasive species removal, harvesting 2022 - 2023
- Rogue Forest Partners
 - Monitoring Advisory Committee (MAC), Member 2020 – 2023
- Klamath-Siskiyou Oak Network (KSON)
 - Member: Oak/acorn research and monitoring protocol development 2021 – 2023
- Cascade-Siskiyou National Monument
 - M.S. EE Capstone location 2019 – 2023
- Jackson County Parks
 - M.S. EE Capstone location 2022 – 2023
- Applegate Partnership and Watershed Council
 - M.S. EE Capstone supporter 2022 – 2023
- Southern Oregon Fire Ecology Education (SOFEE)
 - M.S. EE Graduate Internship 2009 - 2023
- Karuk Tribe
 - Research: Prescribed fire and black oak/tanoak research in
Karuk-Tribe/Western Klamath Restoration Council (WGRP)
Ikkxariatuuyship Project Area 2021 – present
 - Graduate Dissertation: Prescribed fire and tanoak
(*Notholithocarpus densiflorus*) associated cultural plant resources
of the Karuk and Yurok Peoples of California 2009 – 2016
- Yurok Tribe
 - Graduate Dissertation: Prescribed fire and tanoak
(*Notholithocarpus densiflorus*) associated cultural plant resources
of the Karuk and Yurok Peoples of California 2009 – 2016

- Klamath TREX planning team
Member 2017
- Rogue TREX planning team
Member 2022

Peer Reviewer

- *Forest Ecology and Management, Nature and Society*, Southwest Climate Adaptation Science Center.