

**Thursday, March 24**

**Morning - Joint Plenary Session  
NWSA and Central Oregon Fire Science Symposium (Wille Hall)**

- 8:00 **Geoff Babb/Gregg Riegel** Opening Remarks  
*Forests, People, Fire: Interactions, Dynamics and Adaptation in Fire-prone Landscapes of the eastern Cascades of Oregon*
- 8:15 **Tom Spies** *Forests: Exploring alternative futures for fire-prone forest landscapes, eastern Cascades*
- 8:40 **Eric White** *People: Human systems in complex fire-prone landscapes*
- 9:05 **Ana Barros** *Fire: Fire occurrence under climate change in central Oregon*
- 9:30 Break
- Restoration of Dry-forest Landscapes in the Pacific Northwest**
- 10:00 **Paul Hessburg** *Restoring fire-prone Inland Pacific landscapes: Seven core principles*
- 10:25 **Ryan Haugo** *Applying the principles of landscape restoration within the east Cascades*
- 10:50 **Andrew Merschel** *Historical fire regimes across dry to moist forest ecotones in central Oregon, and the role of landscape context*
- 11:15 **Paul Anderson** *Tree vigor responses to restoration thinning and fuels reduction at Lookout Mountain*
- 11:40 **LUNCH**

**Thursday afternoon**  
Cascades Hall

COFSS Session continues in Wille Hall (see [www.centraloregonfiresymposium.org](http://www.centraloregonfiresymposium.org))

**NWSA Symposium: Convergence of Arts, Humanities, & Ecology in Inspiring Northwest Landscapes (Cascades Hall Rm 117/118)**

- 1:20 **Frederick J. Swanson** *Confluence of Arts, Humanities, and Ecology at Sites of Long-Term Ecological Inquiry*
- 1:40 **Charles Goodrich** *Confluence of arts, humanities, and ecology at H.J Andrews Experimental Forest*
- 2:00 **Sarah Greene** *The intersection of art and ecology at the Sitka Center: an uncontrolled experiment*
- 2:20 **Deborah Ford** *Confluence and collaboration: Art and science at Playa (A Residency Program in the Oregon Outback)*
- 2:40 **BREAK**
- 3:00 **Rebecca Lawton** *Story as a way in: Response to change in climate and water.*
- 3:20 **Dick Linford** *America's rivers as creative stimuli*
- 3:40 **Mark E. Harmon** *Art inspired by the science of rot: The afterlife of trees*
- 4:00 **Jay Stratton Noller** *Emergence of art as a research method in a science lab*
- 4:30 – 6:30 **NWSA - COFSS Joint Poster Session with food & no-host bar**
- 5:00 – 6:00 **"Forest Under Story" Book Reading**
- 6:30 – 9:30 **Evening Banquet with guest speaker, Gordon Grant (USFS PNW Station)**  
**"Wetting our Appetites: the Changing Landscape of Water in the West"**  
Cascade Culinary Institute's Elevation Restaurant

**Thursday afternoon**

**Central Oregon Fire Science Symposium**  
Wille Hall

***Beyond the Sagebrush Rebellion: Contemporary Issues Impacting the Sage Steppe of Oregon***

- 1:00**    **Lisa Ellsworth** *Fire in the sagebrush steppe: 21<sup>st</sup> century challenges, successes and opportunities*
- 1:25**    **Christian Hagen** *Sage grouse in a post-wildfire landscape: The high price of site fidelity*
- 1:50**    **BREAK**
- 2:20**    **Roger Rosentreter** *Forbs: sage grouse food or just another pretty weed?*
- 2:45**    **Jesse Abrams** *When two worlds collide: Rangeland fire protection associations, federal agencies, and the politics of resilience*
- 3:10**    **Rick Miller** *Fire and Climate: Past, present and future*
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- 4:30 – 6:30**    **NWSA - COFSS Joint Poster Session with food & no-host bar (Cascades Hall)**

**NWSA 87th Annual Meeting, Bend, Oregon 2016 - Technical Program**  
[www.northwestscience.org](http://www.northwestscience.org)

**NWSA and COFSS Joint Poster Session – Cascades Hall**

*(1<sup>st</sup> author shown only – see NWSA Program Proceedings for complete abstract)*

Jarrett Cellini	CLIMATE EFFECTS ON THE RELATIONSHIP BETWEEN INVASIVE ANNUAL GRASSES AND BIOLOGICAL SOIL CRUST IN EASTERN WASHINGTON
Joseph Di Meglio	<i>Aspicilia reptans</i> : MORPHOLOGICAL TRAITS SUPPORTING PHYLOGENETIC DATA
Jessica L. Dodd	TEPHRA CHRONOLOGY OF THE TONNEMAKER - FRENCHMAN HILLS MAMMOTH SITE: SHEDDING LIGHT ON ITS GEOLOGIC HISTORY
Robin Lee Gyorgyfalvy	INTERPRETING ECOLOGY BY COMMUNICATING A CONSERVATION LAND ETHIC THROUGH STORYTELLING, CULTURE, AND ART
Alex Heimerdinger	<i>Thamnophis</i> HEAD MORPHOLOGY: SIZE AND CONSTRAINTS AS A RESULT OF DIET
Elizabeth Johnson	UNDERSTORY RESPONSE TO TREATMENTS OF VARIOUS FIRE RETURN INTERVALS AND SEASONALITY IN AN OLD-GROWTH PONDEROSA PINE FOREST IN CENTRAL OREGON
Rick G. Kelsey	BRINE SHRIMP ( <i>Artemia salina</i> ) CYTOTOXICITY SCREENING OF PACIFIC NORTHWEST FOREST PLANTS
Rick G. Kelsey	ETHANOL'S KEY ROLE IN PRIMARY ATTRACTION OF <i>Dendroctonus valens</i> TO PONDEROSA PINE STEMS HEAT STRESSED BY FIRE
Kyle Krueger	SPECIES-SPECIFIC LITTERFALL INPUTS OF MERCURY TO A 2ND ORDER STREAM IN A SECOND-GROWTH TEMPERATE RAINFOREST
Neil Mara	PHOTOGRAMMETRY, CT SCANS, DIGITAL FILE MANIPULATIONS, AND 3D PRINTED REPLICAS OF SUB-FOSSIL BONES FROM SOUTH CENTRAL WASHINGTON
Ricardo Miranda-Gonzalez	CATERpillARS AS INTERIOR DESIGNERS? USING LICHENS AS BUILDING MATERIALS FOR MOBILE HOUSES
Melissa R.A. Pingree	WILDFIRE AND WILDFIRE-DEPOSITED CHARCOAL IN RAIN-SHADOW FOREST SOILS OF THE OLYMPIC PENINSULA
Ryan W. Reihart	WHITE STURGEON ( <i>Acipenser transmontanus</i> ) LARVAE FEEDING ECOLOGY AND PREY AVAILABILITY IN THE UPPER COLUMBIA RIVER, USA
Chris Ringo	AVAILABLE SOIL RESOURCE INFORMATION ON FOREST LANDS IN THE PACIFIC NORTHWEST REGION - RETRIEVAL OF LEGACY FOREST SERVICE SOIL RESOURCE INVENTORY DATA
Tiffany D. Salveson	SOIL TEXTURAL ANALYSIS USING THE HYDROMETER METHOD VS. ONLINE SOIL SURVEY DATABASE FOR RESEARCH AND MANAGEMENT PURPOSES
Teresa M. Vail	HIGH-TECH TREE HUGGERS: WHAT THE ELECTRONIC DENDROMETERS' EMBRACES HAVE REVEALED ABOUT TREE GROWTH
Abby J. Watt	SMALL DIFFERENCES IN ELEVATION MAKE A BIG DIFFERENCE FOR PHYSIOLOGICAL RESPONSES OF UNDERSTORY PLANTS TO DROUGHT CONDITIONS
Douglas J. Westlind	MODELS WITH PRESENCE/ABSENCE OF RED TURPENTINE BEETLE AND WESTERN PINE BEETLE IMPROVE PREDICTIONS OF PONDEROSA PINE POST- FIRE MORTALITY IN THE PACIFIC NORTHWEST
Douglas J. Westlind	REPEATED SPRING AND FALL PRESCRIBED BURNING MAY NOT ACHIEVE DESIRED FUEL STRUCTURES FOR PONDEROSA PINE FORESTS IN THE BLUE MOUNTAINS OF OREGON
Jenae Yri	DETERMINING THE EFFECTS OF BROOK STICKLEBACK ( <i>Culaea inconstans</i> ) PRESENCE ON THE TURNBULL NATIONAL WILDLIFE REFUGE, CHENEY, WASHINGTON

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**Central Oregon Fire Sciences Symposium (COFSS) Posters**

*(1<sup>st</sup> author shown only – see NWSA Program Proceedings for complete abstract)*

Kevin Credo	TRAJECTORIES OF FIRE HAZARD AND PACIFIC MARTEN HABITAT FOLLOWING FUEL TREATMENT IN LASSEN NATIONAL FOREST
Benjamin Hart	FUEL TREATMENTS OF PONDEROSA PINE ( <i>Pinus ponderosa</i> ) IN THE BLUE MOUNTAINS OF EASTERN OREGON: A MYCORRHIZAL PERSPECTIVE
Tim Ingalsbee	A 'LEOPOLDIAN' FIRE ETHIC TO INSPIRE ECOLOGICAL FIRE MANAGEMENT
Kayla Johnston	HISTORICAL PATTERNS OF STAND DEVELOPMENT IN PONDEROSA FORESTS DURING NATURAL FIRE REGIMES
Kat Morici	FUEL TREATMENT LONGEVITY IN THE BLUE MOUNTAINS OF OREGON
Dana Skelly	INNOVATIONS AND LESSONS LEARNED IN POST FIRE FUELS TREATMENT EFFECTIVENESS ASSESSMENTS, MALHEUR NATIONAL FOREST, CANYON CREEK COMPLEX
Amanda Stamper	OREGON'S PRESCRIBED FIRE COUNCIL: WORKING IN THE FUTURE WITH PRESCRIBED BURNING AND MANAGED WILDFIRE

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Friday, March 25, morning

	Cascades Hall Rm 107	Cascades Hall Rm 114/115	Cascades Hall Rm 117/118	Cascades Hall Rm 246/247/248
Time	Lichen and Bryophyte Ecology	Plant, Soil and Climate Interactions	Ecology and Restoration of Wetland and Riparian Systems	Management and Restoration in Fire Adapted Ecosystems
8:20-8:40	<b>Abby Glauser</b> <i>Retooling Lichenland: Outreach and Education in the Field of Lichenology</i>	<b>Roger Long</b> <i>Stable Isotopes and Determination of Nitrogen Availability in Sagebrush Steppe</i>		<b>Ryan McCarley</b> <i>Improving Landsat Estimation of Lidar Derived Changes in Canopy Cover Using Pre-Fire Beetle Outbreak and Timber Harvest on the Pole Creek Fire, Oregon</i>
8:40-9:00	<b>Daphne Stone</b> <i>Observations on Rarity and Identification of Some Soil Crust Lichens</i>	<b>Clayton Marlow</b> <i>Predicators of Soil Organic Matter in the <u>Artemisia tridentata</u>/<u>Festuca idahoensis</u> Habitat Type, Southwestern Montana</i>	<b>Emily Wolfe</b> <i>Fungal Endophyte-Infected <u>Acer macrophyllum</u> Leaf Litter Negatively Influences Aquatic Fungal Sporulation</i>	<b>Allison Rossmann</b> <i>Understory Responses to Dry Forest Restoration Differ in the Short and Long Term</i>
9:00-9:20	<b>Amanda Hardman</b> <i>Calicioid Lichens and Fungi from Gifford Pinchot and Okanogan National Forests: New Records and a Summary of Findings</i>	<b>Greg Retallack</b> <i>Effects of Soils on Taste of Pinot Noir Wines from the Willamette Valley, Oregon</i>	<b>Carri Leroy</b> <i>Stream Community Assembly Following the Catastrophic Eruption of Mount St. Helens, Washington</i>	<b>Anna Clark</b> <i>The Impact of Residential Development Pattern on Wildland Fire Suppression Expenditures</i>
9:20-9:40	<b>David Kofranek</b> <i>Rare Moss and Lichen Surveys of BLM Vale District, North Umatilla Co., OR</i>	<b>Chris Ringo</b> <i>An Approach to Modeling Soil Moisture Drought Potential at Regional Scales in the Pacific Northwest</i>	<b>Matt Goslin</b> <i>Modeling Species Distribution of an Ecosystem Engineer, <u>Carex nudata</u>, A Disturbance-Adapted Riparian Sedge</i>	<b>Benjamin Hart</b> <i>Fuels Treatments of Ponderosa Pine in the Blue Mountains of Eastern Oregon: A Mycorrhizal Perspective</i>
9:40-10:00	<b>Elisa Di Meglio</b> <i><u>Stereocaulon</u> of Three Alaskan National Parks — Katmai, Lake Clark and Kenai Fjords</i>	<b>Constance Harrington</b> <i>Phenology of Pacific Northwest Tree Species</i>	<b>Joe Rocchio</b> <i>Peatland Types of Washington: Their Classification and Conservation Values</i>	<b>Becky Kerns</b> <i>Burn Season and Interval Effects on Understory Vegetation in an Eastern Oregon Ponderosa Pine Forest</i>
10:00-10:20	<b>BREAK</b>	<b>BREAK</b>	<b>BREAK</b>	<b>BREAK</b>

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Friday, March 25, morning (continued)

	Cascades Hall Rm 107	Cascades Hall Rm 114/115	Cascades Hall Rm 117/118	Cascades Hall Rm 246/247/248
Time	Lichen and Bryophyte Ecology (continued)	Biogeoscience and Paleontology	Ecology and Restoration of Wetland and Riparian Systems (continued)	Management and Restoration in Fire Adapted Ecosystems (continued)
10:20-10:40	<b>Bruce McCune</b> <i>Nitrophilous Lichens Vary in Frequency along a Precipitation Gradient in Alaska</i>	<b>Geoffrey Johnson</b> <i>Environmental History of Dissolved Oxygen, Coos Bay Estuary, Oregon Coast Range</i>	<b>BREAK</b>	<b>Craig Bienz</b> <i>Improving Ecosystem Resiliency to Drought with Prescribed Fire</i>
10:40-11:00	<b>Robert Smith</b> <i>Twenty-Five Years of Climate Indication in Lichen Communities from Alaska to California</i>	<b>Ken Tabbutt</b> <i>Morphology and Spatial Character of the Mima Mounds, Thurston County, Washington</i>	<b>Rick Dewey</b> <i>Inventory and Characterization of Montane Fens on USFS Lands in Oregon and Washington</i>	<b>Steve Acker</b> <i>Biomass Dynamics and Tree Regeneration Following Wildfire in a Mountain Hemlock (<i>Tsuga mertensiana</i>) Forest</i>
11:00-11:20	<b>Lea Condon</b> <i>Morphometric Functional Trait Abundance of Biological Soil Crusts in Response to Fire Across the Northern Great Basin</i>	<b>Patrick Pringle</b> <i>From Native American Oral Histories to Studying Past Geologic Events and Climate History—Use of Tree-Ring-Data, Research, and Curriculum Modules in Undergraduate Science Labs and Research Projects</i>	<b>Michael Cummings</b> <i>Rain Versus Snow-Dominated Winter Precipitation and Recharge of the Perched Pumice Aquifer, Walker Rim Study Area, Fremont-Winema NF, Oregon</i>	<b>David Peter</b> <i>Heat Tolerance of Prairie Associated Native and Exotic Dormant Seeds from Western Washington</i>
11:20-11:40	<b>John Villella</b> <i>A Test of Survey Methods for an Old-Growth Tree Canopy Lichen</i>	<b>Natalie Hollis</b> <i>Tracking Late Devonian Reactivation of the Tooele Arch with Detrital Zircon Provenance, Great Basin</i>	<b>Peter Sussmann</b> <i>Restoring a Slough Floodplain of the Deschutes River</i>	<b>Justin Bastow</b> <i>Impacts of the Watermelon Hill Fire on Soil Carbon Dynamics and Food Webs a Year After the Fire</i>
11:40-12:00	<b>Diane Haughland</b> <i>East Meets West in Alberta's Grassland Lichen Communities</i>	<b>Jonathan Caledo</b> <i>Mammalian Biodiversity in the Northern Rocky Mountains during the Arikareean: Five Million Years of Faunal Change Through the Cabbage Patch Beds</i>	<b>Christina Veverka</b> <i>Big Marsh Restoration: An Ongoing Success Story</i>	<b>Lalita Calabria</b> <i>Prescribed Fire Decreases Lichen and Bryophyte Biomass and Functional Group Diversity in Pacific Northwest Prairies</i>
12:00-1:40	<b>NWSA Business Lunch</b>			

**Friday, March 25, afternoon**

	Cascades Hall Rm 117/118	Cascades Hall Rm 246/247/248	Science Hall Fuller Lab Rm 120
Time	Wildlife Ecology	Historical and Prehistorical Ecosystem Baselines	Lichen Workshop
1:40 – 2:00	<b>Audrey Taylor</b> <i>Now You See Me, Now You Don't: Shifts in Black Turnstone Migration Patterns in Prince William Sound, Alaska</i>	<b>Jim Meacham</b> <i>The Atlas: A Regional Synthesis, Translation, and Baseline of Scientific Data for the Public and Resource Managers</i>	Lichens on the East Side – Rare, Threatened, Endangered, New Finds, and Interesting Species
2:00 – 2:20	<b>Lindsay Hermanns</b> <i>Breeding Ecology Variations in Adult and Second-Year Female Tree Swallows (<u>Tachycineta bicolor</u>) at Otter Lakes, Anchorage, Alaska</i>	<b>Miles Lefevre</b> <i>Informing Forest Restoration: An Application of Spatial Reference Conditions of the Colville National Forest, Washington</i>	
2:20 – 2:40	<b>Tesia Forstner</b> <i>Linking Stable Isotopes and Geolocator Data to Infer Migratory Connectivity</i>	<b>Sean Jeronimo</b> <i>Monitoring Restoration Treatments at Stand and Landscape Scales</i>	
2:40 – 3:00	<b>Stan Sovern</b> <i>Roosting Habitat Use and Selection by Northern Spotted Owls During Natal Dispersal</i>	<b>Donald Zobel</b> <i>Environmental Relationships in Forests of Early 20th Century Coos County, Oregon, Based on Timber Cruise Data</i>	
3:00 – 3:20	<b>BREAK</b>		
3:20 – 3:40	<b>Michelle Toshak</b> <i>Diversity and Abundance of the Birds and the Bees under Intensifying Agriculture</i>	<b>Keala Hagmann</b> <i>Mixed Conifer and Ponderosa Pine Forests 90 Years Ago in Central Oregon</i>	
3:40 – 4:00	<b>David Vesely</b> <i>Conservation Status of the Kit Fox (<u>Vulpes macrotis</u>) in Oregon</i>	<b>James Johnston</b> <i>Successional Accretion along a Productivity Gradient Following Fire Exclusion in the Southern Blue Mountains, Oregon</i>	
4:00 – 4:20	<b>Timothy Harrington</b> <i>Effects of Variable-Retention Forest Harvesting and Soil Disturbance on Chipmunk (<u>Tamias</u> spp.) Abundance in Western WA and OR</i>	<b>Robin Leshner</b> <i>The Mystery of the 700 Year-Old Trees</i>	
4:20 – 4:40	<b>Johanna Thalmann</b> <i>Social Organization and Sexual Segregation in American Bison</i>	<b>Dusty Pilkington</b> <i>Two Holocene Sagebrush Steppe Fire Records at the Wildland-Urban Interface, Eastern Cascades, Washington</i>	
4:40 – 5:00		<b>Daniel Gavin</b> <i>Watershed Erosion Estimated from a High-Resolution Sediment Core Reveals a Non-Stationary Frequency-Magnitude Relationship</i>	

Friday, March 25

Central Oregon Fire Science Symposium  
Wille Hall

8:00 **Geoff Babb** Opening Remarks

***Hazardous Fuels Treatments in the Inland PNW***

8:05 **John Bailey** *Recent trends in wildland fires and fuels treatments in the Pacific Northwest*

8:30 **Nicole Vaillant** *An evaluation of the Forest Service hazardous fuels treatment program— Are we treating enough in the right places?*

8:55 **Ali Dean** *Lessons learned from 15 years of monitoring fire effects in Central Oregon*

9:20 **Alissa Cordner** *Waiting for the next big one: Catastrophic wildfire and other motivators of improved wildfire risk management*

9:45 **BREAK**

***Smoke Management and Fire Severity***

10:00 **Roger Ottmar** *Smoke management and RxFire: Fuel bed components that contribute to smoldering smoke and evening intrusions*

10:20 **Susan O'Neill** *Understanding smoke transport from prescribed burning in the wildland urban interface of Bend, Oregon*

10:40 **Michelle Agne** *Post mountain pine beetle lodgepole pine forests: Assessing fire and cumulative disturbance effects in the Pole Creek Fire*

11:05 **Bryce Kellogg** *Can satellite derived temperature data improve estimates of burn severity*

11:30 **Gordie Reeves** *Fish and wildfire: A new perspective*

11:55 **LUNCH**

***Improving the Safety and Efficiency of Large Fire Management***

1:30 **Tim Sexton** *Planning for wildfire management in the 21<sup>st</sup> century*

1:55 **Jennifer Anderson** *A novel application of wildfire risk assessments in land management plans (LMP)*

2:20 **William Aney** *Making long term fire analyses relevant to decision makers*

2:45 **BREAK**

3:05 **Christopher Dunn** *How do we develop optimal incident management strategies for a new large-fire management paradigm?*

3:30 **Brenda Hallmark** *Case study - 2015 Corner Creek Fire: Fuels treatment effectiveness and invasive species*

3:45 **Alex Robertson** *Case study - 2015 Corner Creek Fire: Operation planning and implementation*

4:00 **Panel Discussion** with Session speakers *Managing large fires in a changing environment*

4:30 **Geoff Babb** Closing remarks



**Saturday, March 26**

**NWSA Field Trips**

**Cinder Cones to Super Volcanoes: The Diverse Volcanic History of Central Oregon**

Leader - **Daniele McKay**, Geologist

Location - meet at *Cascades Hall, 9:00 am*, carpool

**Bridging Science and Collaborative Forest Restoration in the Mixed-Conifer Forests of Central Oregon**

Leaders – **Andrew Merschel** and **Nicole Strong** (OSU), **Deschutes Collaborative Forest Project**

Location - meet at *Cascades Hall, 9:00 am*, carpool

**Rangeland Restoration on the Crooked River National Grassland**

Leaders - **Steve Gibson**, Range Program Manager, Deschutes and Ochoco NF and Crooked River Natl Grassland

**Jim David**, Forest Soil Scientist, Ochoco NF and Crooked River Natl Grassland

**Bryan Scholz**, Asst. Fire Management Officer (retired), Central Oregon Fire Management Services, Prairie Division

**Sarah Callaghan**, Invasive Plant Program Manager, Ochoco NF and Crooked River Natl Grassland

**Kristen Mc Bride**, Natural Resource Staff Officer, Deschutes and Ochoco NF and Crooked River Natl Grassland

Location - meet at *Cascades Hall, 8:30 am*, return 1:30 pm, carpool

**Lichens of Juniper Woodlands on a Volcanic Landscape** (Northwest Lichenologists)

Leader – **Rick Demmer**, Lichenologist and Biologist

Location - meet at *Cascades Hall, 8:00 am*, carpool