



FIRE HISTORY AND CLIMATE SYNTHESIS IN WESTERN NORTH AMERICA



APRIL 30 - MAY 3, 2005 | NORTHERN ARIZONA UNIVERSITY | FLAGSTAFF, ARIZONA

Final Agenda and Schedule

April 29, Friday & April 30, Saturday

Participants travel to Flagstaff

April 30, Saturday

Field trip to examine tree-ring fire-scar & sediment charcoal studies. The ponderosa pine forest of the Mogollon Rim has one of the highest fire frequencies reported anywhere in the world. Pete Fulé and Megan Van Horne will lead participants to the Pearson Experimental Forest NW of Flagstaff to examine forest restoration and fire history studies there. Scott Anderson and Douglas Hallett will lead participants to Walker Lake, NW of the San Francisco Peaks, where ongoing research documenting long-term fire and vegetation histories in the ponderosa pine forest are being conducted.

May 1, Sunday

7:30-8:45 AM: Registration

Plenary Sessions (Havasupa A & B; all day)

8:45 AM: Introductions, Purpose and Goals of the Workshop: Organizers:

Scott Anderson & Tom Swetnam – 5 minutes

Craig Allen – 5 minutes

Self introductions by participants – 35 minutes

Regional Fire History & Climate (Moderator: Cathy Whitlock)

9:30-10:00: R. Scott Anderson, Craig D. Allen, J. L. Toney, R. B. Jass & A. N. Bair – Holocene vegetation & forest fire regimes in subalpine & mixed conifer forests, Southern Colorado & Northern New Mexico

10:00-10:30: Jennifer Marlon, Cathy Whitlock & Patrick J. Bartlein – Long-term relationships between fire, fuel and climate in the northwestern U.S.

10:30-11:00: Coffee Break

11:00-11:30: Thomas Kitzberger, Peter M. Brown, Emily K. Heyerdahl, Thomas W. Swetnam & Thomas T. Veblen – Multi-scale synchrony in wildfires and climate in

Western North America over the past 5 centuries

11:30-11:50: Jason S. Sibold & Thomas T. Veblen – Relationship of subalpine forest fires in the Colorado Front Range to interannual and multi-decadal scale climatic variation

11:50-1:30: Lunch

Modern Fire Climatology (Moderator: Tom Veblen)

1:30-1:50: Patrick J. Bartlein, S.W. Hostetler, S.L. Shafer, J.O. Holman, & A.M. Solomon -- A hierarchical view of climatic controls of wildfire in the Western United States

1:50-2:10: Anthony L. Westerling, Thomas W. Swetnam & Daniel R. Cayan – Climate and wildfire in Western North America

2:10-2:30: Jeremy S. Littell, Donald McKenzie, David L. Peterson, Anthony L. Westerling & Thomas W. Swetnam – Ecological context of climate impacts on fire: Wildfire area burned in the Western U.S. 1916-2003

2:30-2:50: Anthony L. Westerling – Western North America fire occurrence data

2:50-3:20: Coffee Break

Charcoal & Fire-Scar Comparisons (Moderator: Douglas Hallett)

3:20-4:40: Craig D. Allen, R. Scott Anderson, Renata B. Jass, Jaime L. Toney & Christopher H. Baisan -- Paired charcoal and tree-ring records of high-frequency fire from two New Mexico bog sites

3:40-4:00: Steve Wathen – Fire history of a red fir-dominated watershed in the northern Sierra Nevada using fire scars and lake sediments

4:00-5:20 -- Plenary Discussion

Linking Modern & Paleo Fire & Climate Data – Tom Swetnam & Tony Westerling, discussion leaders

Combining & Comparing Sediment & Tree-Ring Proxies – Scott Anderson & Craig Allen, discussion leaders

5:20-7:00: Poster Session (Havasupai C; no-host bar with wine/beer, snacks)

May 2, Monday

Plenary Sessions (Havasupai A & B)

Regional Fire History & Climate (Moderator: Tom Swetnam)

8:00-8:20: Mitchell J. Power, Cathy Whitlock & Patrick Bartlein -- Fire, climate, and vegetation history in the Northern Rocky Mountains during the last 13,000 years

8:20-8:40: Eric C. Grimm, K. J. Brown, J. S. Clark & J. J. Donovan -- Fire, drought and vegetation cycles on the northern Great Plains

8:40-9:00: Feng Sheng Hu, Linda B. Brubaker, Daniel G. Gavin, Phillip E. Higuera, Jason A. Lynch, T. Scott Rupp & Willy Tinner – How climate and vegetation influenced boreal fire regimes during the Holocene: The Alaskan perspective

9:00-9:20: Emily Heyerdahl, Penny Morgan, Carol Miller & James Riser -- Historical climate drivers of regional fire years in the Northern Rockies

9:20-9:40: Ellis Q. Margolis, Thomas W. Swetnam & Craig D. Allen – Stand-replacing fire history and climate analysis in the upper elevation forests of the Southwestern United States

9:40-10:00: Richard Guyette, Michael Stambaugh & Daniel Dey – Human-drought interactions in fire regimes

10:00-10:40: Coffee Break

Charcoal Sediment Methods (Moderator: Cathy Whitlock)

10:40-11:00: Dan Gavin & Phil Higuera -- Peak detection in sediment charcoal records using a Gaussian mixture distribution

11:00-11:20: Philip E. Higuera, Matthew E. Peters & Daniel G. Gavin – Understanding the origin of sediment-charcoal records with a simulation model

11:20-11:40: Mihaela Enache & Brian Cumming – Charcoal morphology and reconstruction of fire history from lake sediments in Opatcho, Big, and Prosser Lake, British Columbia

11:40-12:00: Grant A. Meyer & Jennifer L. Pierce – Records of fire and geomorphic response in alluvial sediments

12:00-1:30: Lunch

Fire-Scar Methods (Moderator: Tom Veblen)

1:30-1:50: William L. Baker & Kou, X-- Modern calibration and new approaches to fire-scar analysis

1:50-2:10: Calvin Farris, Christopher H. Baisan & Thomas W. Swetnam – Spatial and temporal validation of fire scar data in a frequently burned Arizona Wilderness area

2:10-2:30: Megan L. Van Horne & Peter Z. Fulé – Do fire scar sampling methods affect estimates of fire frequency?

2:30-2:50: Don Falk -- Analytical foundations for fire history in scaling probability theory

2:50-3:10: Peter Brown – Fire severity versus fire effects: What are we reconstructing?

3:10-3:30: Coffee Break

3:30-4:30: Breakout Discussion Groups (Havasupai A & B; Walnut Room)

Charcoal Methods Discussion Group – Cathy Whitlock, discussion leader

Fire-Scar Methods Discussion Group – Tom Veblen, discussion leader

4:30-5:30: Plenary Reports by Breakout Groups & Discussion

7:00: Buffet Dinner at Zane Grey Ballroom, Weatherford Hotel (optional)

May 3, Tuesday

Plenary Sessions (Havasupai A & B)

Alluvial Fire History & Climate (Moderator: Douglas Hallett)

8:00-8:20: Jennifer L. Pierce & Grant A. Meyer – Alluvial fan records of climate driven variability in Holocene fire regimes in ponderosa pine forests of Central Idaho

8:20-8:40: Erica Bigio, Thomas W. Swetnam, Christopher H. Baisan & Jedediah Frechette -- The integration of tree-ring and alluvial fan records of fire history at the Missionary Ridge Fire, Durango, Colorado

8:40-9:00: Linda B. Brubaker & Shelly Crausbay – Fire size and fire severity: Implications of small hollow charcoal records from the Puget Sound Lowlands, Washington

Fire-Scar Histories: Climate and Landscape Controls (Moderator: Tom Swetnam)

9:00-9:20: Lori D. Daniels – Climate-fire interactions in the Cariboo forests of British Columbia

9:20-9:40: Jose Iniguez, Thomas W. Swetnam & Christopher H. Baisan – Understanding the influence of landscape structure on fire history

9:40-10:00: Anthony C. Caprio – Topography, climate and patterns of past fire, Sequoia and Kings Canyon National Parks, California

10:00-10:30: Coffee Break

10:30-12:00: Breakout Discussion Group Sessions -- topics to be decided and refined in discussion with all participants

Potential topics or questions to be addressed:

- What are the highest priority fire history research questions, and methods development needs?
- What are the key fire climatology questions that need to be addressed in the coming decade?
- Spatial and temporal gaps in fire history data: where, when and how to fill?

12:00-1:30: Lunch

Plenary Discussions (Havasupai A & B)

1:30-3:00: Reports of Breakout Groups & Discussion

3:00-3:30: Coffee Break

Synthesis Products and Future Initiatives (Moderator: Craig Allen)

3:30-3:45: Mike Hartman & Connie Woodhouse – A fire history archive: The International Multiproxy Paleofire Database

3:45-5:00: Discussion of modern and paleo data networks, and other potential syntheses products, for example:

- Development of spatio-temporal maps of fire occurrence for the US, and northern Mexico.
- A modern fire occurrence database initiative/proposal (as complement to IMPD).
- NCEAS proposal for a working group on synthesis of fire & climate data and analyses.
- Other publications and proposal ideas?

Posters

(Note: Havasupai C on Sunday; Oak Creek Room on Monday & Tuesday)

Allison N. Bair, R. Scott Anderson & Craig D. Allen. A 15,000 Year Vegetation and Fire History Record, Southern Sangre de Cristo Mountains, New Mexico

R. Scott Anderson, R. B. Jass, Ed Berg, J. L. Toney, Douglas Hallett, C. S. de Fontaine & Andy DeVolder. Climate Change & the Development of Boreal Forest & Fire Regimes on the Kenai Lowlands, Alaska

Franco Biondi & Scotty Strachan. Historical Ecological Variability of Mt. Irish, South-Eastern Nevada, Derived from Tree-Ring Records

Christy Briles, Cathy Whitlock & Patrick Bartlein. Reconstructing a Holocene fire history from a mixed-conifer forest in southwestern Oregon

Richard Guyette. Riparian and upland fire frequency models and maps of the Current River, Missouri

Douglas J. Hallett & R. Scott Anderson. Long-term Fire History Reconstructions from Subalpine Forests in the Sierra Nevada, CA and Implications for Late Holocene Drought

Paul F. Hessburg, R. Brion Salter & Kevin M. James. Evidence for Variable Fire Severity and Non-Equilibrium Dynamics in Pre-Management Era Dry Forests of the Inland Northwest, USA

Philip Higuera, Linda Brubaker, Pat Anderson, Feng Sheng Hu, Ben Clegg, Tom Brown & Scott Rupp. Vegetational and Climatic Influences on Fire Regimes in the Southern Brooks Range, Alaska

Karen Jacobs & Cathy Whitlock. Fire and Vegetation History of the Last 2000 years in Jackson Hole, Wyoming

Cara B. Meeker, R. Scott Anderson, Susan J. Smith & Anthony Caprio. A high resolution record of macroscopic charcoal as an indicator of Holocene climate change from Swamp Lake, Yosemite National Park, California

M. M. McCoy, M. G. Pellatt & R. W. Mathewes. A high-resolution fire and vegetation history of a Garry Oak habitat in coastal British Columbia

Tania Schoennagel, T.T. Veblen, W.H. Romme, J.S. Sibold and E.R. Cook. ENSO and PDO interactions affect drought-induced fire occurrence in Rocky Mountain subalpine forests

Rosemary L. Sherriff & Thomas T. Veblen. Influences of regional climate variability on fire occurrence across the ponderosa pine zone of the northern Colorado Front Range

Elaine K. Sutherland, E.T. Zeigler, E.A. Mace, and E.K. Heyerdahl. Subalpine forest fire history: Evidence for mixed severity fire regimes in mixed-conifer and lodgepole pine forests in western Montana

J. L. Toney & R. Scott Anderson. A Postglacial Paleoecological Record from the San Juan Mountains of Colorado: Fire, Climate and Vegetation History

José Villanueva-Díaz, J. Cerano-Paredes, D.W. Stahle, M.D. Therrell, M.K. Cleaveland & J. Cerano-Paredes. New Climate Sensitive Tree-Ring Chronologies for Northern Mexico and the Potential for Long-Term Fire Frequency Studies

Megan Walsh, Cathy Whitlock, Emily Heyerdahl & Jane Kertis. Natural and anthropogenic influences on the Holocene fire regimes of the Willamette Valley, Oregon