

CATHY LYNN WHITLOCK

Regents' Professor Emerita in Earth Sciences
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EDUCATION

B.A. 1975 Colorado College, (Geology, magna cum laude)
M.S. 1979 University of Washington (Geological Sciences)
Ph.D. 1983 University of Washington (Geological Sciences)
NATO Postdoctoral Research Fellow
1983-84 Trinity College Dublin (Botany)

BRIEF BIOSKETCH

Dr. Cathy Whitlock is a Regents Professor Emerita of Earth Sciences and Fellow of the Montana Institute on Ecosystems. She is the lead author of the 2017 Montana Climate Assessment, and over the last five years, has met with and discussed climate change issues with organizations, communities, and educators across Montana. Dr. Whitlock co-authored a state-level Montana Climate Solution Plan (2020), requested by the Governor of Montana, and led a team to produce a special report focused on climate change and human health in Montana (2021). She also co-lead production of the Greater Yellowstone Climate Assessment (2021), which examines climate and hydrological change in the three-state Yellowstone region. In 2011, Dr. Whitlock was founding co-director of the Montana Institute on Ecosystems, which has hubs at Montana State Univ. and Univ. Montana and serves as the statewide center for interdisciplinary environmental science. She served in this position and as co-PI of the state-level NSF EPSCoR Track 1 grant until 2018.

Dr. Whitlock's research interests include Quaternary environmental change, paleoclimatology, and paleoecology, with a focus on long-term vegetation and climate dynamics. She is nationally and internationally recognized for her scholarly contributions and leadership activities in the field of past climatic and environmental change, and she has published over 225 reviewed journal articles and book chapters on this topic. Her research sites extend from Yellowstone and the western U.S. to New Zealand, Tasmania, and Patagonia. Since her arrival at MSU in 2004, the MSU Paleoecology Lab has become a world-renowned research and teaching facility for training post-docs, graduate students, undergraduates and visiting scientists in paleovegetation and paleofire research. Her research has been funded by national and international grant agencies, including the National Science Foundation, Joint Fire Sciences Program, National Park Service, Department of Energy, USDA Forest Service, and US Geological Survey. Current research, funded by NSF, focuses on the vegetation, fire, and hydroclimatic history of Yellowstone's hydrothermal regions.

Dr. Whitlock was elected to the National Academy of Sciences, the first person from the Montana University System. She has also received the Starker Leopold Award from



Yellowstone National Park (2022), AMQUA Distinguished Career Award (2017), the Association of Women Geoscientists Professional Excellence Award (2015), the Edmund O Wilson Biodiversity Technology Pioneer Award (2014), and the Charles and Nora Wiley Faculty Award for Meritorious Research (2009). In Spring 2020, she was the Montana State University convocation speaker.

RESEARCH INTERESTS

Quaternary environmental change and Quaternary paleoecology
Conservation applications of paleoecology
Vegetation, fire, and climate history of the western U.S. and southern South America
Climatic variability through the Cenozoic
Data-model comparison of past climate change

TEACHING INTERESTS

Paleoecology and Paleoclimatology
Quaternary pollen and plant macrofossil analysis
Biogeography, plant geography
Cenozoic vegetation history, environments, and climates

ACADEMIC AND PROFESSIONAL POSITIONS

Current	Regent's Professor Emerita of Earth Sciences, Montana State University (2021-present); Fellow, Montana Institute on Ecosystems (2017-present)
2018-2021	Regent's Professor of Earth Sciences, Montana State University Presidential Faculty Fellow (2019-2020) Director of the MSU Paleoecology Laboratory (2004-2021)
2011-2018	MSU co-PI for Montana Experimental Program to Stimulate Competitive Research EPSCoR RII (Track 1) project
2010-2018	Project Director and Lead PI, WildFIRE Partnership in Research and Education project
2004-2018	Professor, Department of Earth Sciences
2011-2017	MSU Director, Montana Institute on Ecosystems
2007-2011	Director for Interdisciplinary Research Initiatives, Office of the Vice President for Research, Montana State University
1990-2007	Associate Professor (1990-1995), Professor (1995-2005), Courtesy Faculty (2006-2008), Department of Geography; Adjunct Professor (1990-2004), Department of Geological Sciences, University of Oregon
2000-2004	Department Head, Department of Geography, University of Oregon
1998-2000	Consultant, Conservation Biology Institute, Corvallis
1996-1997	Fellow, Center for Environmental Change, Visiting Scientist, College of Oceanic and Atmospheric Sciences, Oregon State University and USDA Forest Service, Pacific Northwest Station, Corvallis

- 1993-1995 Consultant, Golder Associates, Inc., Seattle
- 1988-1990 Assistant Professor, Department of Geology and Planetary Sciences, University of Pittsburgh; Associate Curator in Charge of Paleobotany (with tenure), Carnegie Museum of Paleontology
- 1987 Adjunct Assistant Professor, Department of Geology and Planetary Sciences, University of Pittsburgh
- Visiting Scientist, Academia Sinica Institute of Vertebrate Paleontology and Paleoanthropology, Beijing
- Consultant, BWIP paleoclimate evaluation of the Columbia Basin, Rockwell Hanford Operation, Richland
- 1984-1988 Assistant Curator-in-Charge, Section of Paleobotany, Carnegie Museum of Natural History, Pittsburgh
- 1983-1984 Visiting Research Fellow, Department of Botany, Trinity College, Dublin
- 1981-1982 Research Assistant, Limnological Research Center, University of Minnesota
- 1980-1981 Research Assistant, Quaternary Research Center, University of Washington
- Consultant, pollen biostratigraphy of Jackson Hole, Wyoming. U.S. Bureau of Reclamation
- 1979-1980 Teaching Assistant, Dept of Geological Sciences, University of Washington
- 1978-1983 Graduate Research Fellow, National Science Foundation
- 1978 Consultant, peat stratigraphy of the Puget Lowland. Roger Lowe & Assoc.,
- 1977 Field Assistant, Conservation Division, U.S. Geological Survey
- 1976 Thomas J. Watson Fellow
- 1975 Field Assistant, Geological Division, U.S. Geological Survey
- 1974 Laboratory Assistant, Pollen Laboratory, U.S. Geological Survey

GRANTS AND CONTRACTS

- current National Science Foundation (Paleobiology & Sedimentary Geology; \$533,569; 7/1/22-6/30/26): Understanding past linkages between hydrothermal activity, climate change, and ecosystem dynamics (co-PI: D. McWethy)
- 2015-2022 National Science Foundation (Integrated Earth Systems; \$243,101): Collaborative Research: The Response of Continental Hydrothermal Systems to Tectonic, Magmatic and Climatic Forcing
- USFS Challenge Grant: GYCC: Climate Change Adaptation (\$20,000, 3/2020-6/1/22)

- USGS Cooperative Research Grant: Greater Yellowstone Climate Assessment (\$23,500, 4/1/21-3/31/23)
- 2015-2021 National Science Foundation (Geography and Regional Science; \$375,000, 5 years, starting 4/1/15): Understanding Fire-Human Dynamics Along a Forest-Steppe Ecotone (co-PIs: B. Poulter and D. Aig)
- 2010-2018 National Science Foundation (Partnerships in International Research and Education; \$3.95 million, 7 years, starting 9/1/10): Feedbacks and consequences of altered fire regimes in the face of climate and land-use change in Tasmania, New Zealand, and the western U.S. (lead PI, with 11 co-PIs/Sr Personnel)
- National Science Foundation EPSCoR RII Track 1 (Experimental Program to Stimulate Competitive Research; \$20 million, 6 years, starting 9/1/11); co-PI representing Montana State University
- 2010-2014 National Science Foundation (Geography and Regional Science; \$274,789, 3 years plus no-cost extension, starting 9/1/10): Ecosystem resilience to human impacts; ecological consequences of early human-set fires, New Zealand (co-PI with D. McWethy)
- USDA Forest Service (Pacific Southwest Research Station, \$144,000, 5 years, starting 9/1/11): Species responses to past climate change: A closer look at the histories of Douglas-fir and mountain hemlock in northern California
- Yellowstone Park Association (\$65,000; 5 years, starting 9/1/12): The last 2000 years of ecohydrology in Yellowstone National Park (funded by Canon Foundation)
- 2013 National Science Foundation EPSCoR RII Track 2 (Experimental Program to Stimulate Competitive Research; \$6 million, 4 years): Science co-PI and Lead at Montana State University in this year
- 2009-2013 National Science Foundation (Sedimentary Geology & Paleobiology; \$260,000, 3 years): Collaborative Research: Controls of ecosystem development during rapid environmental change: Yellowstone in the late-glacial and early-Holocene periods (Lead PI)
- 2008-2012 National Science Foundation (Atmospheric Sciences; \$290,289, 3 years): Collaborative Research: Holocene fire-climate linkages in Southern South America: explaining regional responses to large-scale climate forcing (Lead PI)
- 2007-2011 National Science Foundation (Geography and Regional Science, \$275,000, 3 years): Māori transformation of the New Zealand landscape through the use of fire: a case study from south-central South Island
- 2007-2009 DOE Inland Water Research Alliance (\$61,000, 2 years): Long-term ecohydrologic variability in the Sawtooth region of central Idaho

- 2006-2007 National Park Service Cooperative Agreement (\$25,000, 2 years): Mammoth Crystal Springs sediment core collection and analysis, Sylvan Pass, Yellowstone National Park
USDA Forest Service (Sawtooth National Forest (\$10,000, 2 years)): Investigation of insect remains in lake-sediments for developing a record of past insect
- 2006-2009 NASA Internship Program (\$15,000, 3 years): Beyond Hayden: Exploration, Inspiration, and Education in Yellowstone (collaborator on grant awarded to Yellowstone Ecological Research Center, Bozeman MT)
Marsden Fund Fellowship, New Zealand: The paradox of Māori settlement and widespread forest clearance (~\$65,000 US), (Associate investigator with M. McGlone, LandCare Research)
- 2005-2006 University of Wyoming-National Park Research Center Grant (\$5000, 2 years)
- 2006 InterAmerica Institute Director's Grant (\$7500, 1 year): Training Latin American students in charcoal techniques
- 2005-2008 USDA Forest Service (Pacific Southwest Lab, \$65,000, 3 years): Sensitivity of Klamath Forests to long-term changes in climate and disturbance regime
National Park Service Cooperative Agreement (\$5000, 3 years): Fire and vegetation history of Jackson Hole, Wyoming
- 2004-2007 Joint Fire Sciences Program: Historical fire regimes of the Willamette Valley, Oregon (\$90,000, 3 years) providing a long-term regional context for fire and fuels management
- 2003-2008 Yellowstone National Park: Research investigation of Crevice Lake
U.S. Geological Survey: Charcoal analysis of Crevice Lake
- 2003 NOAA ESDIM: Fire history database (PI: C. Woodhouse)
- 2002-2005 USDA Forest Service (Pacific Southwest Research Lab): Holocene fire history of the Klamath, Warner, and Siskiyou mountains of Northern California
- 2001-2006 National Science Foundation (Earth Systems History): Holocene fire-climate-vegetation linkages in the western mid-latitude forests of North and South America (co-PI: P. Bartlein).
- 2001 IGBP Pages Program; National Science Foundation; National Oceanic and Atmospheric Administration; and the Joint Fire Sciences Program: support for an international workshop on Fire-climate linkages in western temperate forests (to be held in Tucson 2002; T. Swetnam, co-convenor)
- 1999-2003 National Science Foundation (Earth Systems History): Early- versus late-Holocene drought variation in the Northern Rocky Mountains (co-PIs: L. Stevens and S. Fritz)
- 1999-2004 USDA Forest Service: Sensitivity of Klamath forests to climate change

- 1998-2003 USDA Forest Service: Vegetation and fire history of the Cascade Range
- 1997-2001 National Science Foundation (Geography): Climate-fire-ecosystem linkages on decadal-to-millennial time scales in the Northern Rocky Mountains (co-PIs: T. Swetnam and P. Morgan)
- 1997-1998 Inter-American Institute Phase I: Fire and climate linkages in the Americas (T. Veblen, PI).
- 1997 National Science Foundation (Climate Dynamics) and Inter-American Institute: Workshop on Charcoal Methods to Reconstruct Past Fires (Eugene, Oregon, 1-8 June)
- 1996-2001 National Science Foundation (Climate Dynamics): Heinrich-scale climate events in western North America and the Northeast Pacific? Testing Possible Mechanisms
- 1996-1999 U.S. Geological Survey: Modern pollen rain studies in the Pacific Northwest
- 1996-1997 University of Wyoming-National Park Service Research Center: Fire history of Trail Lake, southeastern Yellowstone National Park
- 1995-1999 USDA Forest Service: Fire history of the Klamath Mountains, northern California
- 1994-1997 National Science Foundation (Climate Dynamics): Response of the Pacific Northwest to large-scale changes in climate during the last 150,000 years.
- 1993-1998 USDA Forest Service: Long-term fire history of the Oregon Coast Range
- 1993-1997 National Park Service: Paleoecology of the Yellowstone Lake basin.
- 1995-1996 State of Montana Historical Society: Environmental history of the Flying D Ranch, Montana
- 1993-1994 National Science Foundation (Geography): Dissertation Improvement Grant for Sarah Millspaugh; postglacial fire history in Yellowstone National Park
- 1992-1993 National Science Foundation (Systematic Biology): A multidisciplinary study of evolution of the diatom *Stephanodiscus yellowstonensis*: paleontology, molecular biology, experimental morphology (E.C. Theriot, PI)
- National Institute for Global Environmental Change (Western Regional Center): Potential magnitude and rate of future vegetation change in the western United States in response to global warming [co-PI: P. Bartlein]
- 1991-1993 Golder Associates, Inc.: Paleoclimatic history of Carp Lake Washington
- 1990-1994 UW-NPS Research Grant: Postglacial fire frequency and its relation to long-term vegetational and climatic changes in Yellowstone Park
- 1989-1992 National Science Foundation (Climate Dynamics): Regional climatic response in the northwestern U.S. to changing boundary conditions during deglaciation

- 1988-1989 UW-NPS Research Grant, National Park Service: Late Quaternary vegetational and climatic history of the Yellowstone/Grand Teton region
M. Graham Netting Research Grant, Carnegie Museum of Natural History: Postglacial fire frequency and its relation to long-term vegetational and climatic changes in Yellowstone Park
- 1988 National Science Foundation (Climate Dynamics): COHMAP--Cooperative Holocene Mapping Project
National Science Foundation Grant (Systematic Biology): Barstovian mammals in the Rocky Mountains and mid-Miocene biogeography: Case study from Chalk Cliffs, Montana (PI: A.D. Barnosky)
Pennsylvania Historical and Museum Commission: Development of exhibit-related educational programs and publications.
- 1987-1988 National Science Foundation Grant (Ecology): Collaborative research on the postglacial history of the northern Great Plains
- 1986-1987 National Science Foundation Grant (Earth Science Equipment): Acquisition of Computerized Image Analysis System (co-PI: M.R. Dawson and J.L. Carter)
UW-NPS Research Grant, National Park Service: Postglacial vegetation and climate of Grand Teton National Park and vicinity
UW-NPS Research Grant, National Park Service: The relationship between climate and sedimentation rates in small lakes and ponds (co-PIs: H.E. Wright, Jr., D.R. Engstrom, and S.C. Fritz)
Pennsylvania Historical and Museum Commission: Renovation of Paleobotany exhibits and collections
M. Graham Netting Research Grant, Carnegie Museum of Natural History: Paleocology of the American West
- 1985 UW-NPS Research Grant, National Park Service: Postglacial vegetation and climate of Jackson Hole and the Pinyon Peak Highlands, Wyoming
Pennsylvania Historical and Museum Commission: Renovation and Curation of Paleobotany Collections
M. Graham Netting Research Grant, Carnegie Museum of Natural History: Late Quaternary paleoecology of the American West
- 1984 M. Graham Netting Research Grant, Carnegie Museum of Natural History: Middle to late Quaternary biota from the Trout Cave area, Pendleton Co., West Virginia (with A.D. Barnosky)
National Science Foundation grant (Ecology): Postglacial vegetation and climate of the northern Great Plains (with H.E. Wright, Jr.)
- 1983 NATO Postdoctoral Fellowship, Trinity College, Dublin

- 1982 Travel grants to XI INQUA Congress, Moscow. National Research Council and University of Washington
- 1981 National Science Foundation Dissertation Improvement Grant: Vegetation and climate history of southwestern Washington
Sigma Xi, grant in aid
Geological Society of America, grant in aid
- 1978-83 National Science Foundation Graduate Fellowship
- 1977-82 Corporation Fund Grant, Department of Geological Sciences, University of Washington
- 1977 National Science Foundation Graduate Fellowship, honorable mention

HONORS, AWARDS AND SCHOLARSHIPS

- 2022 Starker Leopold Award, Yellowstone National Park
- 2020 Montana State University Convocation Speaker
- 2019 Montana State University Faculty Excellence in Outreach Award
Presidential Fellow, Montana State University
Inducted into the National Academy of Sciences, one of six researchers invited to present their science at the annual meeting
- 2018 Elected member, National Academy of Sciences
Elected, Montana University System Regents Professor at MSU
Selected as one of 125 Extraordinary Ordinary Woman of MSU
- 2017 Fellow, Geological Society of America
Distinguished Career Award, American Quaternary Association
- 2016 Visiting Research Fellow, Swiss Federal Research Institute WSL
Visiting Scientist, Oeschger Centre for Climate Research, Universität Bern
Hans Sigrist Fellowship, Universität Bern
- 2015 Professional Excellence Award in Academic/Research, Association of Women Geoscientists
- 2014 Edmund O Wilson Biodiversity Technology Pioneer Award
MSU Provost's Distinguished Lecturer
Most Valuable Professor of the (Football) Game, September 27
- 2011 Fellow, American Association for the Advancement of Science
- 2009 Charles and Nora Wiley Faculty Award for Meritorious Research, Montana State University

- 2003-04 David and Nancy Petrone Faculty Fellow, University of Oregon
1983-04 NATO Postdoctoral Fellow, Trinity College, Dublin
1982 Robert K. Fahnestock Award in Geomorphology, Geological Society of America
1980 Scholarship, English-Speaking Union
1977-83 NSF Graduate Research Fellow
1976 Thomas J. Watson Fellow
1975 Outstanding senior in the Rocky Mountain region, Rocky Mountain Association of Geologists
Phi Beta Kappa
1972-75 Dean's List, Colorado College
1971 National Merit Award of Commendation

PROFESSIONAL SOCIETY MEMBERSHIPS (active)

- American Geophysical Union
Geological Society of America
American Quaternary Association
American Association of Stratigraphic Palynologists
American Association for the Advancement of Science

PROFESSIONAL SERVICE

Current/ongoing

- Member, US National Committee, Board on Environmental Sciences and Society (BECS) (2019-2025)
Member, Advisory Committee for Environmental Research and Education (AC-ERE) (2022-2025)
Editorial Board, *Quaternary Research* (2002-)
Editorial Board, *Review of Palaeobotany and Palynology* (1992-)
Editorial Board, *The Holocene* (2017-)
Editorial Board, *The Quaternary* (2017-2023)
Guest Editor, *Proceedings of the National Academy of Sciences* (2019-)
2022 Member at Large, Donath Award Nomination Committee, Geological Society of America (2019-2022)

- Member of the Class Membership Committee, National Academy of Sciences (2020-2022)
- Organizing Committee, 16th Biennial Yellowstone Science Meeting, May 2022 (2021-)
- Member, Climate change subcommittee, Greater Yellowstone Coordinating Committee (representing all federal agencies of the region) (2018-2022)
- 2020 Member, Planning Committee, America's Geologic Heritage Workshop II (2020-2021), National Academies of Sciences, Engineering and Medicine
- Member, State of Montana Science & Technology Committee (2020)
- 2019 Member, Governor's Climate Solutions Council (2019-2020)
- Co-editor, *Greater Yellowstone Climate Assessment* (2019-2021)
- 2018 Future Earth, Past Global Changes Program, Global Palaeofire Working Group, Science Advisory Committee member (2018-2021)
- Committee Member, Review of the draft Fourth National Climate Assessment, National Academies of Sciences, Engineering and Medicine
- Planning Committee Member, California Energy Commission workshop, National Academies of Sciences, Engineering and Medicine
- 2016 Reviewer, USDA Forest Service, Northwest Forest Plan Science Synthesis, Ecological Society of America (2016-2017)
- 2014 Editor, *Montana Climate Assessment* (2014-2017)
- Co-chair, 12th Biennial Yellowstone Science Conference Program Committee
- 2013 Excursion Leader, 37th International Moor Field Excursion in Greater Yellowstone
- 2012 Planning Committee member, USNC-INQUA/AMQUA/NSF DLESE workshop "Teaching Climate Change: Records from Large Lakes", University of Minnesota, June 2012
- Co-host and co-chair, 11th Biennial Yellowstone Science Conference, Yellowstone National Park
- Co-convener, PIRE/PAGES workshop on paleofire, Ca'Foscari University of Venice, Italy
- 2011 National Science Foundation Geography and Spatial Sciences Program, Review Panelist (2011-2012)
- Guest Lecturer, Yellowstone National Park Interpretative Staff training workshop (2011-2012)
- Key Contributing Scientist, NEON RFI proposal for Northern Rocky Mountains Core Wildland site

- 2010 Science Steering Committee; International Geosphere-Biosphere Programme, Global Palaeofire Working Group (2010- 2013)
Expert Panel member to develop Geological Society of America Position Statement on Climate Change (Ruddiman, 2010, *GSA Today* commentary, July issue, p. 40-41)
Chair, External Site Evaluation Committee, Northern Arizona University Geology Program
- 2008 Senior Scientist, AIMES Young Scholars' Network Workshop: Cultural Uses and Impacts of Fire: Past, Present, and Future. July 14-18, Boulder CO
National Science Foundation Review Panelist, Paleoperspectives on Climate Change Program
Lecturer, Yellowstone National Park Interpretative Staff training workshop
- 2006 Science Advisory Board member, Centro de Estudios del Cuaternario de Fuego-Patagonia y Antarctica, Universidad de Magallanes, Punta Arenas Chile (2006-2008)
Local Organizing Committee member, 2006 AMQUA biennial meeting, Bozeman MT
Organizing Committee member, USNC-INQUA/AMQUA/NSF DLESE workshop "Teaching Climate Change: Lessons from the Past", August 2006
- 2005 Science Steering & Executive Committee member, International Geosphere-Biosphere Project, Past Global Changes Program (PAGES) (2005-2011)
Chair, National Research Council of the National Academy of Sciences, U.S. Committee to the International Quaternary Association (2005-2011)
Co-organizer, Fire history and climate synthesis in western North America Workshop, Northern Arizona University
Professional Development leader, National Parks Ecological Research Fellowship Meeting, Bozeman
Steering committee for paleofire; IGBP Fast-track Initiative: Fire in the Earth System
Science Steering & Executive Committee member, International Geosphere-Biosphere Project, Past Global Changes Program (PAGES) (2005-2011)
- 2003 Editorial Board, *Palaeoclimatology, Palaeogeography, Palaeoecology* (2003-2017)
National Science Foundation Research Planning Participant: Earth Systems History, Abrupt Climate Change workshop
National Science Foundation Review Panel: Science and Technology Centers Scientific Advisory
- 2002 Past President, American Quaternary Association (2002-2004)

- 2001 Science Advisory Committee, NSF Earth Systems History Program (2001-2001)
- 2000 President, American Quaternary Association (2000-2002)
NOAA World Data Center for Paleoclimatology, Advisory Board member for the International Multiproxy Paleofire Database (2000-) and the North American Pollen Database (2000-2004)
- 1999 Editorial Board, *Geology* (1999-2002)
- 1998 Vice-President, President-elect, American Quaternary Association (1998-2000)
- 1998 Scientific Review Panel on Status of Mountain Goats in Olympic National Park, Conservation Biology Institute (1998-1999)
- 1997 PEP1: Paleoclimates of the Americas Program Committee (1997-1998)
- 1996 Executive Committee, American Association for the Advancement of Science, Pacific Division (1996-2001)
- 1996 Board Member of the Biogeography Specialty Group, Association of American Geographers (1996-1998)
Organizer and Judge, AAG Biogeography Specialty Group, Student Paper Competition (1996-1998)
Steering Committee, Bioregional Atlas Series of the Pacific Northwest, Ecotrust (1996-1998)
AMIGO participant (America's Interhemisphere Geo-Biosphere Organization), Paleoecology and Fire History
- 1995 Steering Committee, IGBP PAGES project, PEP I initiative; Western North America (1995-1998)
- 1995 Participant, Past Global Changes, PEP I workshop; La Paz
- 1994 Participant, International Geosphere Biosphere Project, Biome 6000 (1994-1998)
- 1994 Program Co-chair, Biennial meeting of the American Quaternary Association
- 1993 Review Panel, National Science Foundation Geologic Record of Global Change Program (1993-1995)
Western North American Coordinator for the NOAA National Geophysical Data Center, Global Paleovegetation Data Base
- 1991 Advisory Board, North American Pollen Data Base (1991-1996)
Advisory Board, Denver Natural History Museum
Holocene Commission, International Quaternary Union
- 1990 Elected Councilor, American Quaternary Association (1990-1994)

PUBLICATIONS IN JOURNALS, PROCEEDINGS, AND BOOKS (over 225 published or in press)

In review

Mark, S.Z., Abbott, M.B., Steinman, B.A., Fernandez, A., Wise, E.K., Walsh, M.K. Whitlock, C. A link between hydroclimate variability and biomass burning during the last millennium in the interior Pacific Northwest. *Geophysical Research Letters*.

- 2023 Morgan L.A., Shanks, W.C.P., Pierce, K.L., Iverson, N., Schiller, C.M., Brown, S.R., Zahajska, P., Cartier, R., Cash, R., Whitlock, C., Fritz, S.C., Best, J., Lovalvo, D.A., Lowers, H., Benzel, W., Licciardi, J. The dynamic floor of Yellowstone Lake: the last 14-ky of hydrothermal explosions, venting, doming and faulting. *Bulletin of the Geological Society of America* 135, 547-574. <https://doi.org/10.1130/B36190.1>
- 2022 Whitlock, C. Essay. *The Landscapes of Yellowstone In: Atlas of Yellowstone, Second Edition* (W.A. Marcus, J.E. Meacham, A.W. Rodman, A.Y. Steingisser, J.T. Menke, R. West, eds.), p. 117. University of California Press, Oakland.
- Gillson, L., Whitlock, C., Gell P., Prader S., Tinner, W., and Eggleston, S., editors. 2022. Using Paleocology in Restoration Ecology. *Past Global Changes Magazine* 30(1), 1-64. <https://doi.org/10.22498/pages.30.1>
- Gillson, L., Whitlock, C., Gell, P., Prader, S., Tinner. Mainstreaming paleoecology into ecosystem restoration (editorial). *Past Global Changes Magazine* 30(1), 3.
- Nanavati, W., Whitlock, C., de Porras, M.E., Gil, A., Navarro, D., Neme, G. Disentangling the last 1000 years of human-environment interactions along the eastern side of the southern Andes (34-52°S lat.). *Proceedings of the National Academy of Sciences* 119(9):e2119813119. <https://www.pnas.org/doi/10.1073/pnas.2119813119>.
- Nanavati, W., Whitlock, C., Holz, A. The role of paleoecology in restoring and managing the Patagonian landscape. *Past Global Changes Magazine* 30(1), 22-23.
- Schiller, C., and Whitlock, C. *Caldera Chronicles. 10000-year-history of geoecological change in lower geyser basin*. U.S. Geological Survey Yellowstone Volcano Observatory <https://www.usgs.gov/observatories/yvo/news/10000-year-history-geo-ecological-change-lower-geyser-basin>
- 2021 Adams, A, Byron, R, Maxwell, B, Higgins, S, Eggers, M, Byron, L, Whitlock, C. Climate change and human health in Montana: a special report of the Montana Climate Assessment. Bozeman MT: Montana State University, Institute on Ecosystems, Center for American Indian and Rural Health Equity. 216 p. <https://doi.org/10.15788/c2h22021>.

Andrews, B.N., Meltzer, D.J., Emslie, S.D., Briles, C., Whitlock, C. (in press) The environmental context. In *The Mountaineer Site: a Folsom Winter Camp in the Rockies*, B.N. Andrews, D.J. Meltzer and M. Stiger, editors. University Press of Colorado, Louisville, CO.

Brown, S.R., Cartier, R., Schiller, C.S., Zahajska, P., Fritz, S.C., Morgan, L.A., Whitlock, C., Conley, D.J., Lacey, J.H., Leng, M.J., Shanks, W.C.P. Multi-proxy record of Holocene paleoenvironmental conditions from Yellowstone Lake, Wyoming, USA. *Quaternary Science Reviews* 274, 107275.

Hostetler, S., Whitlock, C., Shuman, B.N., Leifert, D., Drimal, C., Bischke, S. The Greater Yellowstone Climate Assessment: Past, present and future climate change in Yellowstone's watersheds. Institute on Ecosystems, Montana State University. (www.gyclimate.org).

Whitlock, C., Hostetler, S., Shuman, B. Chapter 1. Introduction to the Greater Yellowstone Climate Assessment. In Hostetler, S., Whitlock, C., Shuman, B.N., Leifert, D. Drimal, C., Bischke, S. The Greater Yellowstone Climate Assessment: Past, present and future climate change in Yellowstone's watersheds. Institute on Ecosystems, Montana State University. doi.org/10.15788/GYCA2021(www.gyclimate.org).

Whitlock, C., Hostetler, S., Pederson, G., Leifert, D. Chapter 2. Climate, Climate Variability, and Climate Change in the GYA. In Hostetler, S., Whitlock, C., Shuman, B.N., Leifert, D. Drimal, C., Bischke, S. The Greater Yellowstone Climate Assessment: Past, present and future climate change in Yellowstone's watersheds. Institute on Ecosystems, Montana State University. (www.gyclimate.org).

Whitlock, C., Hostetler, S., Shuman, B., Leifert, D., Drimal, C.W. Bischke, S. Chapter 9. Concluding Remarks. In Hostetler, S., Whitlock, C., Shuman, B.N., Leifert, D. Drimal, C., Bischke, S. The Greater Yellowstone Climate Assessment: Past, present and future climate change in Yellowstone's watersheds. Institute on Ecosystems, Montana State University. (www.gyclimate.org).

Fletcher, M.-S., Bowman, D.M.J.S., Whitlock, C., Mariana, M., Beck, K., Stahle, L., Hopf, F., Benson, A., Heijnis, H., Zawadzki, A. The influence of climatic change, fire and species invasion on a southern temperate rainforest system. *Quaternary Science Reviews* 182, 37-47.

Whitlock C., Adams A. 2021. Introduction. In Adams, A., Byron, R., Maxwell, B., Higgins, S., Eggers, M., Byron, L., Whitlock, C. 2021. Climate change and human health in Montana: a special report of the Montana Climate Assessment. Bozeman MT: Montana State University, Institute on Ecosystems, Center for American Indian and Rural Health Equity. 216 p. <https://doi.org/10.15788/c2h22021>. (www.montanaclimate.org).

- Whitlock C. 2021. Climate Change and Human Health in Montana [Chapter 2]. In Adams, A, Byron, R, Maxwell, B, Higgins, S, Eggers, M, Byron, L, Whitlock, C. 2021. Climate change and human health in Montana: a special report of the Montana Climate Assessment. Bozeman MT: Montana State University, Institute on Ecosystems, Center for American Indian and Rural Health Equity. 216 p. <https://doi.org/10.15788/c2h22021>. (www.montanaclimate.org).
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SELECTED INVITED PRESENTATIONS (since 2000)

- 2020 Spring Convocation Speaker, Montana State University: Yellowstone on my Mind. January 13.

Trident Cement Board Meeting Event, Bozeman: Montana's Changing Climate. January 23.

- 2019 MSU Presidential Address: Looking backwards, thinking forwards: Reflections of a paleoecologist. Museum of the Rockies, Bozeman, January 15.

University of Washington School of the Environment and Forest Sciences: The Role of climate and people in shaping vegetation and fire history. Seattle, January 31.

UC Irvine, Forum for the Academy and the Public conference. Fires in the West: A Simple Story, February 5.

Montana Tech University: Montana's Changing Climate. Butte, February 14.

National Academy of Sciences. Invited Research talk, representing Class VI. Looking Backward, Thinking Forward: Perspectives of a Paleoecologist, April 28.

Greater Yellowstone Coalition meeting. A Greater Yellowstone Ecosystems Assessment. Bozeman, May 6.

University of Wyoming, Geology Department seminar: Paleoecology, Conservation and the Future, April 11.

International Quaternary Congress: Data-model comparisons reveal long-term vegetation dynamics in two semi-arid mountain regions, Dublin, August 27.

University of Illinois Nelson Lecture: Fire, climate, and human activity through the Holocene, Champaign Urbana. November 7.

Montana's Changing Climate talks: Montana County Planners annual meeting, Chico, MT; Wanderlust Friday Forum, Bozeman, MT; Gallatin County United Way Board meeting, MT; Gallatin County Helping Hands monthly meeting, Gallatin Gateway, MT; Sunrise Movement meeting, Bozeman MT; Greater Yellowstone Coalition, Bozeman, MT; Greater Yellowstone Coordinating Committee, Bozeman, MT, Spring Meadows retirement community, Bozeman, MT; National Advisory Board, Trust for Public Lands, Bozeman, MT; League of Women Voters, Bozeman MT; Governors Climate Solutions Council, Helena, MT; Trident Cement Advisory Board, Trident MT

- 2018 Montana's Changing Climate: The Montana Climate Assessment. Public talks in Red Lodge, Bozeman, Columbus, Great Falls, Billings, Helena, Ennis, Livingston, MT and invited talks to the Governor's Advisory Committee and the Interim Water Policy Committee.

National Academy of Science: The experience of the Montana Climate Assessment. Exploring California and other subnational climate assessments. Washington DC, Aug 14-15

- Atwood Lecture, Clark University: Paleoecology, climate change and conservation. November 5.
- 13th Greater Yellowstone Biennial Science Meeting: Building a stakeholder-driven, science-informed assessment of climate change in the GYE. Big Sky, Oct 11.
- 2017 Jackson Hole Geologists: A long-term perspective on climate change in the Greater Yellowstone Ecosystem, Jackson WY, February 21
- Future Earth Past Global Changes Open Science Meeting: Holocene climate-vegetation-fire linkages in the mid-latitudes of western Argentina and Tasmania, Zaragoza Spain May 10-13.
- A long perspective on climate change in Montana. Yellowstone-Bighorn Research Association, Red Lodge MT, August 15.
- Paleoecology of the Sawtooth Mountains. Rocky Mountain Friends of Pleistocene Field Trip, Stanley ID, Sept 9.
- The Role of Climate Change and People in Shaping Vegetation and Fire History. Ecology, Evolution and Behavior Graduate Program, Boise State University, Boise, Oct 19
- How EPSCoR made a difference in Montana. National EPSCoR meeting, Missoula MT, Nov. 7.
- Yellowstone's Ecological History. Wanderlust Lecture, Bozeman MT, Nov 13.
- Developing a Climate Change Boundary Organization: the Montana Adaptation Knowledge Exchange. American Geophysical Union Fall Meeting, Dec. 13.
- The Montana Climate Assessment. Face the State, A Weekly public affairs program seen on the Montana Television Network
- 2016 Geological Society of America (annual meeting) Herbert E. Wright symposia: Understanding Holocene fire-vegetation linkages and the role of humans and climate
- Universität Bern, Plant Sciences Institute: *Holocene fire and vegetation history: influences of climate and people in the western U.S. and beyond*
- Université Franche Comte, Besaçon: *Research on fire history*
- Future Earth Past Global Changes Symposium, Cluj-Napoca, Romania: *Advances in fire history research and their application for ecosystem management and conservation*

- Yellowstone Biennial Science Conference, Jackson WY: *A long-term perspective on fire and ecological change in the Greater Yellowstone region*
- 2015 Salish Kootenai College: *Why paleo matters: history of whites in Greater Yellowstone*
AGU PACLIM Workshop: *Look to the past to understand future conifer responses in the Greater Yellowstone Ecosystem*
Buffalo Bill Museum: *Yellowstone's Past, Yellowstone's Future*
Utah State University: *Yellowstone's Past, Present & Future; Understanding people and climate in shaping Holocene fire regimes*
- 2014 Simon Fraser University: *A Long View of Fire, Climate and People*
Colorado College Climate Change Forum: *Past climate change and your future*
Montana State University Distinguished Provost Lecture: *Yellowstone through time: Change, stability and the future*
Yellowstone National Park (Biennial Science meeting): *Are we underestimating the resilience of whitebark pine?*
American Geophysical Union (Fall meeting): *Subalpine species response to past climate change and fire activity: Are we underestimating the biotic resilience?*
- 2013 Ecological Society of America (Minneapolis, MN): *Understanding the Past to Shape the Future. A Symposium Honoring the Contribution of Minnesota Ecologists Margaret Davis, Eville Gorham, and Herbert Wright: Why Fire History Matters*
Southern Connections Congress (Dunedin NZ): *Human-caused and climate-driven thresholds in past fire activity: insights from paleoecological studies in temperate forests*
University of Montana: *Climate, vegetation, fire history of the western U.S.*
IGBP PAGES Open Science meeting (Goa India): *Assessing the importance of climate and human activity on past and present fire dynamics*
IGBP PAGES Public Meeting on Climate Change (Goa India): *Expert panelist to discuss climate change science and implications*
Café Scientifique, Bozeman: *Montana's Past and Future with Wildfires*
- 2012 Southern Illinois University: *Fire history in the western U.S.*
University of Venice/Paleofire workshop: *Advances in fire history*
University of Idaho: *Holocene fire-climate linkages in temperate forests*
University of Nebraska: *Fire-climate dynamics during the last 20,000 years*
Yellowstone Biennial Science Meeting: *The role of paleoecology in resource management*
- 2011 University of Tasmania: *Why fire history matters?*
Australian National University: *WildFIRE PIRE and fire-climate-land-use linkages*

- USDA Forest Service Rocky Mountain Research Station: *Why fire history?*
- US Geological Survey Northern Rockies Science Center: *What's New in Paleo?*
- University of Maine ADVANCE speaker: *Fire and ecological change*
- International Quaternary Union, Bern Switzerland: *Advances in Paleoecology*
- University of Maine ADVANCE lecture series: *Environmental change in the western U.S.*
- Monash University: *Fire-climate-vegetation linkages in the western US and beyond*
- Blackfeet Community College: *Opportunities for interdisciplinary environmental research in Montana*
- AGU Fall meeting symposium (co-organizer): *Pyrogenic Carbon: Modern cycling and paleoenvironmental applications*
- 2010 PAGES Open Science meeting, Nagoya Japan: *Fire in the Earth System*
- Southern Connection meeting, Bariloche Argentina: *Fire history and past fire regimes in the southern hemisphere*
- Yellowstone Biennial Science meeting: *Understanding climate change impacts from a paleoperspective*
- 2009 Yellowstone National Park: *Climate change: Past, present, future*
- Big Sky Institute: *What climate change means for the Greater Yellowstone region*
- North America Forest Ecology Workshop (plenary speaker): *Why history matters?*
- 2008 University of Minnesota, Minneapolis; Paleoecology seminar: *New developments in fire history*
- International Wildland Fire Congress, Jackson Hole: *Why does fire history matter?*
- University of Wyoming, Dept. of Geosciences: *Fire and vegetation in the western Americas*
- University of Washington, Paleoecology Group: *Linking fire, vegetation, and climate change into ecosystem history*
- American Quaternary Association biennial meeting: *Human-fire interactions in New Zealand*
- IGBP Congress, Cape Town: *Fires in New Zealand with the arrival of humans*
- 2007 Oregon State University, Department of Forest Sciences: *Fire-vegetation-climate linkages in southern and northern South America*
- University of Arizona, Department of Geography: *Fire history and its relevance to forest management*
- La Serena, Chile, Reunion bi Nacional de Ecología, La Serena: *La relación fuego-clima en comparaciones locales y regionales durante el Holoceno en Patagonia*

- La Serena, Chile: Techniques in Paleoecology: a teaching workshop offered to South American graduate students
- Montana State University; ADVANCE annual meeting: *Future climate change and its implications*
- International Quaternary Congress, Cairns: organized special session on human-fire-climate linkages and presented overview
- 2006 Malargüe, Mendoza Argentina: Reconstructing past regional climate variations in South America over the late Holocene: *Holocene fire, climate, and vegetation linkages in southern South America--local and regional comparisons*
- Smith Lecture series, Department of Geological Sciences, University of Michigan: *Climate-fire-vegetation linkages in the western Americas during the Holocene*
- University of Utah, Department of Geography, seminar lecture: *Climate-fire-vegetation history in the western U.S. and southern South America*
- Montana State University, Department of Ecology seminar lecture: *Understanding the fire-climate-vegetation linkages in the western U.S.*
- Museum of the Rockies Annual Membership meeting: *Recent research in Yellowstone*
- AGU symposium: *Comparison of Holocene fire-climate linkages in the mid-latitudes of western North and South America*
- Aspen Pointe Lecture series: *Climate and fire history in the Greater Yellowstone region*
- 2005 AGU symposium: *Early Holocene climate-vegetation-fire linkages in the Americas*
- Fire history and Climate Syntheses in western North America Workshop, Northern Arizona University: co-organizer and synthesis speaker
- ICSU Dark Nature-IGCP 490 meeting, Mar Chiquita, Cordoba Argentina: *Holocene fire reconstructions in Patagonia and the western U.S.: providing a context for recent catastrophic fires in temperate forests*
- Chilean Quaternary Society international symposium on New Approaches to the Quaternary Sciences in Fuego-Patagonia, Puerto Natales Chile: *Holocene fire history records from Patagonia: climate and vegetation controls along a latitudinal gradient*
- European Science Foundation Research Conference on Polar Regions and Quaternary Climates in Acquafreddi Maratea, Italy: *Environmental history of southern South America during the last 21 kyr*
- IGBP QUEST Fire-climate workshop in Exeter, England: *Fire history records from southern S. America*
- Big Sky Institute Mountains and Minds Lecturer: *Fires in the western U.S.*
- 2004 University of Washington, Quaternary Research Center: *Climate, fire, and people: Influences on the Holocene vegetation history of the northwestern U.S.*

- AAG symposium on vegetation history: *Reconstructing fire history from lake-sediment records in the western U.S.*
- AGU symposium co-organizer: *Fire, climate, and ecosystems (Biogeosciences)*
- University of Utrecht: *Fire, vegetation, climate, and people in the prehistory of the Pacific Northwest*
- Montana State University, Department of Earth Sciences: *Holocene fire, vegetation, and climate history in the western U.S.*
- 2003 International Quaternary Congress, Reno: *Holocene climate, vegetation, and fire history* (symposium co-organizer and speaker)
- Universidad Austral de Chile, Valdivia: *Holocene fire-climate-vegetation relationships in temperate forest of North and South America* (keynote address)
- AGU Pacific Climate Workshop: *Climate, fire, and vegetation in the northwestern U.S.: exploring the linkages on multiple scales*
- Second Conference on Klamath-Siskiyou Ecology, Siskiyou Field Institute: *Fire, climate, and vegetation change in Oregon's forests: an examination on multiple time scales*
- AGU Fall Meeting: *Disturbance frequency changes in western North and South America during the Holocene*
- American Meteorological Society 5th Symposium on Fire and Forest Meteorology and 2nd International Wildland Fire Ecology and Fire Management Congress: *Holocene fire reconstructions from the northwestern U.S.: an examination at multiple time scales*
- 2002 University of Wisconsin, Trewartha Lecturer: *Environmental history of the western U.S.*
- Oregon Academy of Science Keynote Speaker: *Environmental history of the Pacific Northwest*
- IGBP, Past Global Changes Meeting, University of Arizona: *Reconstructing past fires from lake-sediment records* (co-convenor)
- USDA Forest Science Fire Research Lab: *Fire history in the Pacific Northwest*
- USDA Rocky Mountain Research Station: *Fire and aquatic ecosystems: Lessons from a long-term perspective on fire history*
- Montana State University, Earth Sciences: *Holocene fire and vegetation history of the western U.S.*
- Association of Forest Service Employees for Environmental Ethics, workshop to Develop a blueprint for a new Fire Management Plan: *Fire history on long time scales*
- IGBP, GAIM workshop in Isle sur la Sorgue: *Fire history records*

- AGU State-of-the-Art in Ecohydrology Symposium: *Hydrologic and climate changes in the northwestern U.S.*
- Portland State University (Geography): *Climate, vegetation, and people and their role in shaping Pacific Northwest fire regimes*
- 2001 American Association for the Advancement of Science-Annual National meeting, symposium: *Pre-European Landscapes of the American West: pristine or anthropogenic?*
- AGU Pacific Climate Workshop: *Holocene history of fire in the Pacific Northwest and its climatic controls*
- Yellowstone Biennial Science Conference: *Reading Yellowstone's history from lake-sediment records*; keynote speaker
- University of Washington, Denton Lecturer: *History matters: Environmental change in shaping the modern flora*
- Society for Conservation Biology meeting: *Ecological insights gained from a comparison of past and future fire-climate conditions*
- University of Oregon, Department of Geological Sciences: *Holocene fire records from the western U.S.*
- University of Oregon, Ecology & Evolution series: *The development of the PNW's vegetation*
- Kiwanis Club, Eugene: *Using the present to study the past*
- 2000 Association of American Geographers meeting, Wildfires in Wilderness symposium: *Prehistoric fires in the Pacific Northwest: natural or human caused*
- Washington State University public lecture series: *Natural catastrophe and environmental change in the PNW: lessons for the new millennium*
- American Association for the Advancement of Science-Pacific Division symposium: *Fire in the Pacific Northwest: human and climate influences* (organizer and speaker)
- US Forest Service-US Bureau of Land Management: *Oak history in the Pacific Northwest*
- University of Washington Quaternary Research Center workshop: *Paleoclimate and paleohazards in the Pacific Northwest*
- American Quaternary Association biennial meeting: *Landscape and biotic responses to climate variability: future impacts and past lesson*
- American Geophysical Union symposium: *Paleoenvironmental evidence for prehistoric natural hazards and their impact on human societies*
- Royal Irish Academy, Dublin symposium in Honor of William A. Watts: *Variations in Holocene fire regimes and the implications for paleoecology and conservation*

University of California Berkeley, Department of Geography symposium: *Long-term records of fire and climate change in the northwestern U.S. and their relevance for ecosystem management* (invited)

University of California Berkeley, Department of Environmental Science, Policy, and Management symposium: *A long-term perspective on ecosystem change* (invited talk)

OTHER PROFESSIONAL ACTIVITIES

Served on an external review committee for the Department of Geography, University of Utah; Department of Geosciences, Northern Arizona University
Served as external evaluator for tenure and promotion cases at University of Tennessee, University of Arizona, University of Wyoming, University of California at Los Angeles, Louisiana State University, Trinity College Dublin, St. Olaf's College, Northern Arizona University, Portland State University, University of West Virginia, Trinity College Dublin, University of Wisconsin, Boise State University, University of Arizona.

Written letters of nomination for several colleagues to become professional society fellows (American Geophysical Union, American Association for the Advancement of Science, Geological Society of America, American Quaternary Association, Association of American Geographers) and prizes (Franklin Award)

Reviewed manuscripts for *Nature*; *Science*; *Proceedings of the National Academy of Sciences*; *Quaternary Research*; *Geology*; *Geological Society of America Bulletin*; *Ecological Monographs*; *Ecology*; *Ecological Applications*; *Canadian Journal of Botany*; *Canadian Journal of Earth Sciences*; *Canadian Journal of Forest Research*; *Review of Palaeobotany and Palynology*; *Quaternary Science Reviews*; *Ecoscience*; *Arctic, Alpine, and Antarctic Research*; *The Holocene*; *Palaeogeography, Palaeoclimatology, and Palaeoecology*; *Fenn. Acta Botanika*; *Western North American Naturalist*.

Reviewed book proposals for Blackwell Scientific, Edward Arnold Publishing, University Press of Colorado, Island Press, Yale University Press.

Reviewed grant proposals for various programs of the National Science Foundation, including Atmospheric Sciences, Ecosystems, Ecology, Earth Systems History, Geology and Paleontology, Continental Drilling Program, Geography and Regional Studies; NOAA Paleoclimatology Program; National Geographic Society; National Science Research Council (Canada); National Environmental Research Council (Britain); National Science Foundation (Germany), Research Grants Council (Hong Kong), Fondecyt (Chile), Israel Science Foundation, and Idaho State Research Program.

Invited panelist/participant:

Sustainability, Research and Innovation Congress: Change Face of Wildfire and Effects on Human Health (Zoom, Melbourne Australia, 6/13/21);

National Academies workshop: Identifying New Community-Driven Science Themes for NSF's Support of Paleoclimate Research (Zoom, 6/21-23-21).

COURSES TAUGHT AT MONTANA STATE UNIVERSITY

ERTH 212: Yellowstone: A Scientific Laboratory (2005-2018, 2020)
ERTH 582: Quaternary Paleoecology & Vegetation History (2005, 2007, 2009, 2012, 2014, 2017)
ERTH 583: Topics in Paleoecology (2005-2015)
ERTH 485/584: Quaternary Environments of the western US (2006, 2008, 2010, 2012, 2014, 2018)
ERTH 585: Advances in Geobiology (2006-2010)

COURSES TAUGHT AT UNIVERSITY OF OREGON

Geog. 101: The Natural Environment (1990- 1995, 1997)
Geog. 323: Biogeography (1991-1995, 1998- 2002)
Geog. 423, 523: Advanced Biogeography (1996, 1999; 2000, 2003; 2004)
Geog. 430, 530: Quaternary Environments (1990, 1992, 1993, 1994, 1995, 1996)
Geog. 431, 531: Quaternary Vegetation History (1991, 1993, 1995, 2000, 2003)
Geog. 607: Seminar: Quaternary of Pacific Northwest (1991, 1997, 2002)
Geog. 4/507, 607: Seminar: Disturbance History and Environmental Change (1994)
Geog. 607: Seminar: Biotic invasions, extinctions, and natural disturbance (2001)
Geog. 608: Seminar: Thesis Writing Workshop (2000, 2001, 2002, 2003)
Geog. 531: Progress in Physical Geography (every quarter prior to 2002)
Geog. 631: Progress in Physical Geography (every quarter since 2002)
Geog. 651: Advances in Paleoecology (2003)

Oregon State University: Course on Columbia Plateau (distance education) (2001)

MAJOR ADVISOR ON GRADUATE STUDENT COMMITTEES

M. Alt	M.S. (6/17), MSU Earth Sciences
J. Benes	M.S. (in progress), MSU Earth Sciences
L. Berkley	M.S. (12/00), UO Geography
M. Blinnikov	Ph.D. (8/99), UO Geography
C. Briles	M.S. (3/03), UO Geography; Ph.D. (6/08), Geography
A. Brunelle-Daines	Ph.D. (8/02), UO Geography
D. Firmage	M.S. (5/19), MSU Earth Sciences
H. Friefeld	Ph.D. (6/99), UO Geography
J. Gage	M.S. (12/08), MSU Earth Sciences
J. Gardner	M.A. (8/99), UO Geography
L. Grigg	M.A. (12/96), UO Geography; Ph.D. (12/00), Geography
K. Hakala	Ph.D. (12/99), University of Pittsburgh, Dept. of Earth & Planet. Sci.

M. Huerta	M.S. (12/07), MSU Earth Sciences
V. Iglesias	Ph.D. (12/12), MSU Ecology and Environmental Sciences
K. Jacobs	M.S. (5/07), MSU Earth Sciences
M. Knox	M.A. (9/01), UO Geography
T. Krause	Ph.D. (12/14), MSU Ecology and Environmental Sciences
C. Long	M.A. (3/96), UO Geography; Ph.D. (5/03), Geography
J. Marlon	M.A. (12/03), UO Geography
S. Millspaugh	M.S. (8/91), University of Pittsburgh, Dept. of Earth & Planet. Sciences Ph.D. (12/97), UO Geography
T. Minckley	M.A. (12/98), UO Geography; Ph.D. (6/03), Geography
J. Mohr	M.A. (12/97), UO Geography
S. Mumma	M.S. (12/09), MSU Earth Sciences
W. Nanavati	Ph.D. (in progress), MSU Earth Sciences
C. Pearl	M.A. (6/99), UO Environmental Studies
M. Power	Ph.D. (8/05), UO Geography
V. Rubinstein	M.S. (6/03), UO Geography
D. Sea	M.S. (12/93), UO Geological Sciences
C. Schiller	Ph.D. (12/20), MSU Earth Sciences
B. Sherrod	M.S. (12/90), University Pittsburgh, Dept. of Earth & Planet. Sciences
B. Swindell	M.S. (12/11), MSU Earth Sciences
L. Stahle	Ph.D. (in progress), MSU Earth Sciences
A. Tattersall	M.S. (6/99), UO Interdisciplinary Studies
B. Ulrich	M.S. (12/20), MSU Earth Sciences
M. Walsh	Ph.D. (12/08), UO Geography
A. White	M.S. (5/14), MSU Earth Sciences
M. Worona	M.S. (6/93), UO Geological Sciences

SUPERVISOR FOR POST-DOCTORAL FELLOWS

Christy Briles (2008-2009)
Andrea Brunelle (2002-2003)
Philip Higuera (2006-2009)
Virginia Iglesias (2013-2014, 2016-2017)
Colin Long (2004-2005)
Dave McWethy (2007-2010)
William Nanavati (2019)
Christopher Schiller (2020)
Gabriel Yospin (2012-2016)

ADVISOR ON OTHER GRADUATE STUDENT COMMITTEES

M. Alt	Ph.D. (in progress), MSU Earth Sciences
P. Armbruster	Ph.D. (6/97), UO Biology
M. Coble	M.A. (6/01), UO Environmental Studies
A. Bissel	Ph.D. (8/01), UO Biology
M. Brueckner	M.S. (6/07), MSU Earth Sciences
C. Florentine	M.S. (12/10), MSU Earth Sciences

J. Guz	Ph.D. (in progress), Geography, Clark University
K. Hakala	Ph.D. (4/00), Geology, University of Pittsburgh
S. Hendrickson	Ph.D. (12/02), UO Anthropology
U. Huber	Ph.D. (8/01), Geological Sciences, University of Colorado
R. Jensen	M.S. (in progress), MSU Earth Sciences
K. Johnson	Ph.D. (6/98), UO Biology
D. Keeling	Ph.D. (6/92), UO Geography
N. Kohler	Ph.D. (6/03), UO Geography
L. Kouwenberg	Ph.D. (2/04), University of Utrecht, Quaternary Studies
M. Knox	Ph.D. (12/05), UO Geography
J. Marlon	Ph.D. (6/07), UO Geography
R. McKeon	M.S. (12/06), MSU Earth Sciences
D. McWethy	Ph.D. (6/06), MSU Ecology
J. Miller	Ph.D. (6/04), UO Biology
C. Mock	Ph.D. (6/96, UO Geography)
D. Navarro	Ph.D. (12/10, Univ. Mar del Plata, Argentina, Biology)
T. Nadeau	Ph.D. (6/98), UO Biology
A. Ogunkoya	Ph.D. (in progress), MSU Ecology
J. Oliphant	Ph.D. (6/97), Botany, Oregon State University
E. Perkins	Ph.D. (12/97), Biology, University of Perth, Australia
J. Polhemus	M.A. (12/01), UO Environmental Studies
T. Rick	Ph.D. (5/04), UO Anthropology
T. Taylor	M.A. (6/99), UO Environmental Studies
P. Santibanez	PhD (in progress), MSU Land Resources and Environmental Sciences
S. Shafer	Ph.D. (8/00), UO Geography
S. Sly	M.S. (in progress), MSU Earth Sciences
K. Taylor	PhD (5/16), MSU Land Resources and Environmental Sciences
S. Wathan	Ph.D. (12/06), Biology, University of California at Davis
J. Wendt	Ph.D. (in progress), MSU Earth Sciences
M. Weingart	M.S. (in progress), MSU Earth Sciences

ADVISOR ON UNDERGRADUATE STUDENT THESIS COMMITTEES

I. Wick	B.A. (12/97), UO Honors College
H. Grant	B.A. (12/00), UO Environmental Studies Program
M. Moodhe	B.A. (12/01), UO Environmental Studies Program
J. Yale	B.S. (6/06), MSU Earth Sciences
M. Fernandez	B.S. (6/09), Columbia Univ. Environmental Studies

DEPARTMENTAL SERVICE

2020	MSU Earth Sciences Faculty Development Committee
2016-2019	MSU Earth Sciences Promotion and Tenure Committee
2010-2017	MSU Earth Sciences Faculty Search Committees, including Department Head
2008-2010	MSU Earth Sciences Budget Committee
2006-2007	MSU Earth Sciences Five-Year Plan Committee

2004-2006 MSU Earth Sciences Executive Committee
2000-2004 UO Department Head
2003 UO Faculty Search Committee
2001 UO Department Seminar Series
1997-2000 UO Undergraduate Program Director
UO Faculty Search Committee
UO Graduate Admission Committee
UO Department Seminar Series
UO Tenure and Promotion Committee
1997-1998 UO Trussell Family Scholarship Committee
1993-1995 UO Graduate Program Director
1994-1995 UO Faculty Search Committee
1994 UO Department Seminar Series
1992-1993 UO Charitable Fund Drive Chair
1991-1993 UO Trussell Family Scholarship Committee Chair
1990-1993 UO Library Representative
1990-1991 UO Graduate Admissions Committee

UNIVERSITY SERVICE

2019-2020 Presidential Fellow
Chair, University of the Yellowstone Initiative
Spring Convocation Speaker
MSU, Director of Paleoecology Lab (since 2004)
2011-2018 MSU EPSCoR RII Track 1 project, Co-PI
MSU, Planning Committee for Earth, Ecology & Environmental
Sciences at MSU
2017 Chair, VPRED Committee on Centers/Institutes
2010-2014 MSU Research Council
MSU P&T evaluations for departments
2013 MSU VPR Rapid Action Task Force
2011-2012 MSU EPSCoR Track 2 project, Science Leader and co-PI
2006-2011 MSU Director of Interdisciplinary Research Initiatives
2006-2011 MSU ADVANCE Leadership Grant Steering Committee
2010 MSU Provost Advisory Search Committee
2007-2009 MSU Committee on Tenure and Promotion Policies
2008 MSU Department of Ecology Search Committee
2001-2002 UO Deans Advisory Group
1990-2004 UO General Sciences Advisory Committee
2000-2004 UO Carroll Visiting Professorship Committee
1993-1999 UO Environmental Studies Advisory Committee
1998-99, 1994-97 UO University Senate
1997 UO Faculty Search Committee for Vice President for Academic Affairs
1991-1992 UO Strategic Plan Action Team on Infrastructure & Technical Support
1991-1992 UO Out-of-State Travel Committee (CAS)

RESEARCH CONTRIBUTIONS

Two passions motivate me as a paleoecologist. The first is a lifelong curiosity to understand how, why and when ecosystems change. This interest has led to ~225 scientific publications, continuous grant funding since 1983, and the successful training of 35 graduate students and seven post-docs over my career. Information on the past is critical for assessing the health of present-day forests as well as for understanding the nature of environmental change in the future.

My scientific discoveries on past ecosystem dynamics have informed global change science, resource management decisions, and conservation efforts. To gain knowledge of these interactions over long time frames, my team analyzes the fossils (pollen, charcoal, and other plant remains) and other geological components (geochemical, lithological) preserved in the sediments of lakes and wetlands. Modern lakes can be thousands of years old, and their sediments contain a rich, and often untapped, reservoir of ecological information about a broader range of environmental conditions than we can observe today. Much of my research has drawn on these lake-sediment records to reconstruct the evolution of temperate forests in the western U.S. and comparable ecosystems in New Zealand, southern South America, Europe, and Australia. Our studies show that temperate forests are highly vulnerable to changes in climate, wildfire, and other biotic interactions occurring over different temporal and spatial scales. For example, our studies in both the northern and southern hemispheres have traced vegetation dynamics in response to large-scale Earth processes, such as mountain building and glaciation on long time scales, as well as the influence of climate and people on shorter time spans. My students and I have described the connections between climate, disturbance, and vegetation change (most recently in Nanavati et al. 2021; Iglesias et al. 2015, 2018; Krause et al., 2015; Iglesias and Whitlock, 2015) and the vulnerability of temperate forest to human-set fires (most recently, Nanavati et al. 2022; Whitlock et al. 2015; McWethy et al. 2014). My research in Yellowstone National Park during the fires of 1988 has led to new methods for reconstructing long-term fire history; these techniques are now used around the world. Over the last 25 years, I have helped build a global paleofire science community, including creating an international database that makes fire-history information available to all.

My second passion is to integrate learning and discovery. My lab has always supported a lively group of post-docs, graduate students, and post-docs, and we regularly host visiting scientists from around the world. I pride myself on the fact that 24 of my 37 graduate students have been women and that my students have gone on to successful careers in academia, government, conservation organizations, and the private sector. Education for me also means reaching outside of the university to inform broad audiences about environmental change. In this regard, I am co-founding director of the Montana Institute on Ecosystems, a statewide institute that draws on the extraordinary landscapes of Montana and beyond to understand complex ecosystems including the interconnectedness of people and nature. In 2017, I lead a partnership of scientists, government agencies, local communities, and non-profit organizations to develop the first Montana climate assessment, and this has been followed by special reports on climate change and human health, and climate change in the Yellowstone region. These efforts are part of a long-term endeavor to provide Montana citizens with timely information that addresses real-world

environmental challenges. Stakeholder-driven science requires public engagement, and I spend considerable time giving public lectures, fielding questions, engaging teachers and students, participating in resource management and conservation workshops, and providing commentary to the media. This broader engagement allows me to share my research with others as well as stimulate it.

Research discoveries that I have led or been actively involved in:

1. Insights on the evolution of modern forest ecosystems and their sensitivity to climate change and human influences
2. New methods for reconstructing past fire activity, which are now used around the world
3. Improved understanding of the vegetation and fire history of western North America, Ireland, southern South America, New Zealand and Australia based on pollen and high-resolution charcoal records
4. Information on ecological responses during past periods when the world was colder and warmer than at present to gain understanding of climate extremes
5. Evidence that climate is the primary driver of fire activity in most western U.S. forests and needs to be part of resource management planning
6. Unexpected similarities in the climate history of southern South America and northwestern North America indicating strong interhemispheric atmosphere-ocean connections
7. Documentation of past fires in New Zealand commencing with the arrival of the first people including innovative approaches to study how humans were able to transform vegetation in a matter of decades through deliberate burning
8. Reconstruction of dramatic changes in vegetation that occurred in the Rocky Mountains as a result of late Cenozoic mountain building and global cooling
9. Examination of the vegetation and fire patterns in the western U.S. during the previous “interglacial” warm period as an analogue for future conditions
10. Identification of the complex responses of plants to projected future climate change in mountainous regions based on an understanding of paleoecological data and modeling