

Biographical Sketch Gregory T. Pederson

Professional Research Contractor

USGS - Northern Rocky Mountain Science Center

Bio-Blurb

My research is focused primarily on climate variability and its role in driving biological and physical components of mountainous ecosystems of western North America. In addressing these issues I use instrumental and tree-ring based records of climate to assess the time intervals and spatial scales over which these processes operate. Of particular interest is the influence of interdecadal climate regimes, long-term temperature trends, and ocean-atmosphere teleconnections in driving glacier mass balance fluctuations and forest disturbance events. Several recently completed projects (and collaborations) provided estimates of fluctuations in glacier mass balance for the northern U.S. and Canadian Rockies over the past 300 years. Other studies have addressed the susceptibility of natural resources and ecosystem services within national parks and protected areas to climate variability. Mostly though, if I'm not working on this I'd rather be skiing or biking.

Professional Preparation

Michigan State University	Botany & Zoology	B.S.	2000
Montana State University	Environmental Science	M.S.	2004

Select Appointments

2004-present	Research Contractor, U.S. Geological Survey - Northern Rocky Mountain Science Center
2001-2004	Research Assistant, Big Sky Institute - Montana State University
Summer 2001	Research Assistant, Rocky Mountain Biological Laboratory, Gothic, Colorado
Winter 2001	Research Assistant, Arctic Ecology Laboratory, Michigan State University
1999-2001	Research Assistant, Kellogg Biological Laboratory, Michigan State University
2000	NSF - Research Experience for Undergraduates recipient - Rocky Mountain Biological Laboratory, Gothic, Colorado

Professional Affiliations

American Geophysical Union
Tree-Ring Society
Association of American Geographers

Journal & Book Publications

- Pederson, GT**, C Whitlock, E Watson, BH Luckman, and LJ Graumlich. In press. Climate change and ecosystem history. D Fagre and T Prato (Eds.) In: *Sustaining Rocky Mountain Landscapes: Science, Policy and Management of the Crown of the Continent Ecosystem*, RFF Press, Washington D.C. (Likely publication date: Summer 2006)
- Watson, E, **GT Pederson**, BH Luckman, and DB Fagre. In press. Glacier mass balance in the northern U.S. and Canadian Rockies: paleo-perspectives and 20th century change. B Orlove, BH Luckman, and E Wiegandt (Eds.) In: *Darkening Peaks*, University of California Press, Berkeley, C.A. (Likely publication date: Summer 2006)
- Pederson, GT**, ST Gray, DB Fagre, and LJ Graumlich. 2006. Long-duration drought variability and impacts on ecosystem services: A case study from Glacier National Park, Montana USA. *Earth Interactions*. Volume 10(4): pg 1-28. Article ID:10.1175/EI153.1
- Gray, ST, LJ Graumlich, JL Betancourt, and **GT Pederson**. 2004. A tree-ring based reconstruction of the Atlantic Multidecadal Oscillation since 1567 A.D. *Geophysical Research Letters*, 31, No. 12, L12205 10.1029/2004GL019932

- Pederson, GT**, DB Fagre, ST Gray, and LJ Graumlich. 2004. Decadal-scale climate drivers for glacial mass balance in Glacier National Park, Montana, USA. *Geophysical Research Letters* 31, L12203 10.1029/2004GL019770
- Pederson, GT**, 2004. Long-term perspectives on Northern Rockies climatic variability from tree rings in Glacier National Park, Montana. *M.S. Thesis*, Montana State University, Bozeman, MT, pp. 93
- Campbell, DR, NM Waser, and **GT Pederson**. 2002. Predicting patterns of mating and potential hybridization from pollinator behavior. *The American Naturalist*, 159(5): 438-450
- Pohl, K, MD Therrell, J Santiago Blay, N Ayotte, JJ Cabrera Hernandez, SD Castro, E Cornejo Oviedo, JA Elvir, M Gonzales Elizondo, D Opland, J Park, **GT Pederson**, S Bernal-Salazar, L Vasquez-Salem, J Villanueva Diaz, and DW Stahle. 2003. A cool-season precipitation reconstruction for Saltillo, Mexico 11th North American Dendroecological Fieldweek, Climatic Reconstruction Research Group, Saltillo, Mexico, August 2001. *Tree-Ring Research*, 59(1): 11-19

Published Abstracts

Oral Presentations:

- Watson E (presenter), BH Luckman, **GT Pederson**, and B Yu. 2005. Comparing tree-ring proxies of environmental variability in the Canadian Rockies. [abstract] In: *2005 Annual Meeting of the Canadian Association of Geographers*; May 31-June 4, London, Ontario.
- Pederson GT** (presenter), DB Fagre, ST Gray, and LJ Graumlich. 2005. Fire and Ice: Understanding the Legacy of the Little Ice Age for Contemporary Landscape Patterns and Processes in Glacier National Park, Montana, USA [abstract] In: *2005 Meeting of the Association of American Geographers*; April 5-9, Denver, CO.
- Watson E (presenter), BH Luckman, **GT Pederson**, and RJ Wilson. 2005. Environmental changes in the southern Canadian Rockies from multiple-tree ring proxies. [abstract] In: *MTNCLIM 2000*; Mar 1-4, Chico Hotsprings, MT.
- Betancourt J(presenter), G McCabe, M Palecki, ST Gray, LJ Graumlich, and **GT Pederson**. 2004. Historic and climatic context for multiseasonal, multiyear, and multibasin droughts. In: *Forest Health Monitoring Working Group*; February 10, Sedona, AZ.
- Graumlich LJ (presenter), **GT Pederson**, DF Fagre, ST Gray. 2004. Mountain systems, persistent drought and the vulnerability of ecosystem services: A case study from Glacier National Park, USA. [abstract] In: *American Geophysical Union Fall Meeting*; Dec 13-17, San Francisco, CA.
- Pederson GT** (presenter), DB Fagre, ST Gray, and LJ Graumlich. 2004. Glacial extent of the past and present: Linkages between local and regional decadal-scale climater drivers of glacial dynamics in Glacier National Park, Montana, USA. [abstract] In: *WENGEN Workshops on Global Change Research - Mountain Glaciers and Society: Perception, Science, Impacts and Policy program*; October 6-8, Wengen, Switzerland.
- Gray ST (presenter), LJ Graumlich, and **GT Pederson**. 2004. Linking low-frequecy climate variability, ecosystem structure and hydrologic processes in the Rocky Mountain West. [abstract] In: *Tree Rings and Climate; Sharpening the Focus*; April 6-9, Tucson, AZ.

Poster Presentations:

- Gray, S.T., **GT Pederson**, DB Fagre, LJ Graumlich, JL Betancourt. (2005) Disentangling the Climate/Growth Signal of Millennial Pinus Chronologies from the Northern Rocky Mountains, USA. *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract PP11A-1430.
- Pederson, GT**, ST Gray, C Woodhouse, T Kipfer. (2005) The Past Climate Variability and Impacts Clearinghouse: Linking New Users to Paleoenvironmental Resources. *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract PP11A-1432.
- Reardon, BA, DB Fagre, **GT Pederson**, CJ Caruso. (2005) Climate Influences on Large-Magnitude Natural Snow Avalanches in John F. Stevens Canyon, Montana. *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract GC33A-1248
- Pederson GT** (presenter), E Watson, BH Luckman, DB Fagre, ST Gray, and LJ Graumlich. 2005. Tree-ring based estimates of glacier mass balance in the Northern Rocky Mountains for the past 300 years. [abstract] In: *MTNCLIM 2005 program*; Mar 1-4, Chico Hotsprings, MT. Web:

Pederson GT (presenter), DB Fagre, ST Gray, and LJ Graumlich. 2004. Linking regional decadal-scale drivers of snowpack to local summer drought: A paleo-perspective on glacier mass balance in Glacier National Park, Montana. [abstract] In: *Tree Rings and Climate; Sharpening the Focus*; April 6-9, Tucson, AZ.

Pederson GT (presenter), DB Fagre, and LJ Graumlich. 2003. Do trees tell the same story as glaciers? Reconstructing drought in Glacier National Park, Montana since AD 1540. [abstract]. In: *American Geophysical Union Fall Meeting program*; Dec 8-12, San Francisco, CA.

Public Outreach

K-12 Science Education:

- Climate Change, Wildlife and Wildlands: An EPA funded Big Sky Institute workshop for grades 7-12 science teachers. August 2-6, 2004.
- Pederson GT. 2003. Plants and the winter environment: Acclimating to the cold. Winter Ecology Teachers Workshop. Montana Outdoor Science School (MOSS)
- Pederson GT. 2002. Plants and the winter environment: Acclimating to the cold. Winter Ecology Teachers Workshop. Montana Outdoor Science School (MOSS)

Popular Press:

- Boswell E. Climate causing changes in Glaciers glaciers. Bozeman Daily Chronicle, 2004 July 23.
- Hanners R. Researcher says Glacier no stranger to climate change. Hungry Horse News, 2004 Aug 18.
- Jamison M. Survey of Glacier's glaciers shows half as many as 1960s. Missoulian, 2003 Jan 25; www.missoulian.com/articles/2003/01/25/export1783.txt
- MSU Research Office. Research Roundup: El Niño's bigger brother. Bozeman Daily Chronicle, 2002 Jun 10; www.bozemanchronicle.com/articles/2002/06/10/news2988.txt

Invited Presentations:

- Pederson, GT, ST Gray, DB Fagre, and LJ Graumlich. 2006. Climate Change, Glaciers, Water and the West: Lessons from the Past and Relevance to Today's Ecosystem Services. February 22th 2006, Moonlight Basin Ski Resort., Big Sky, MT.
- Pederson, GT, ST Gray, DB Fagre, LJ Graumlich. 2006. Climate Change, Glaciers, Water and the West: Lessons from the Past and Relevance to Today's Ecosystem Services. January 24, 2006, Montana Natural Resource Professionals, Bozeman, MT.
- Pederson, GT. 2005. Fire and Ice: Climate Change and Melting Mountains. February 9th 2005, Moonlight Basin Ski Resort
- Pederson GT and K Kirk. 2004. Volcanic Heat to Glacial Ice: A quick tour through events that shaped the northern Rockies and the Big Sky region. March 18th 2004, Moonlight Basin Ski Resort.
- Pederson GT, Fagre DB, Gray ST, Graumlich LJ. 2004. On Thin Ice in Glacier National Park: Linking Climate History to Glacial Dynamics Using Tree-Rings. 2004; August 12; Lake McDonald Lodge, Glacier National Park.
- Reardon B, Pederson GT. 2003. Long-term change in Glacier National Park, Montana. Northwestern Wilderness Managers Workshop. Glacier National Park, MT.
- Pederson GT. 2003. Climate Change: Local and Global Perspectives. In: 2003 Gordon Research Conferences. Big Sky Institute Outdoor Science Adventures.