

MICHAEL GREGG LOSO

Assistant Professor of Geology and Earth Sciences
Director, Master of Science in Environmental Science Program
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(907) 564-8263

EDUCATION

PhD Earth Sciences University of California, Santa Cruz

Graduation December 2004, Santa Cruz CA 95064

- Emphases in geomorphology and geocology

MS Botany, Field Naturalist Program University of Vermont

Graduation October 1996, Burlington VT 05405

- GRE percentiles 97/92/91%; GPA 3.93

BA Environmental Studies University of California, Santa Barbara

Graduation June 1990, Santa Barbara CA 93106

- Minor in Natural Resources Management; GPA 3.96

Honors Program San Diego State University

Sept. 1986 - May 1988, San Diego CA 92182

PUBLICATIONS

- in prep **Loso, M.G.**, Doak, D. F., and Anderson, R.S., Application of a new, process-based lichenometric technique to the dating of Little Ice Age glacier moraines. For submission to *Arctic, Antarctic, and Alpine Research*.
- in prep **Loso, M.G.**, Anderson, R.S., and Doak, D. F. Long-term effects of burrowing gophers on landscape evolution: an example from the Santa Cruz marine terraces. For submission to *Journal of Geophysical Research-Earth Surface*.
- 2009 Kaufman, D.S., Schneider, D.P., McKay, N.P., Ammann, C.M., Bradley, R.S., Briffa K.R., Miller, G.H., Otto-Bliesner, B.L., Overpeck, J.T., Vinther, B.M., Arctic Lakes 2k Project Members (Abbott, M., Axford, Y., Bird, B., Birks, H.J.B., Bjune, A.E., Briner, J., Cook, T., Chipman, M., Francus, P., Gajewski, K., Geirsdóttir, Á., Hu, F.S., Kutcho, B., Lamoureux, S., **Loso, M.G.**, MacDonald, G., Peros, M., Porinchu, D., Schiff, C., Seppä, H., Thomas, E.). Recent warming reverses long-term Arctic cooling. *Science* 325(5945): 1236-1239.
- 2009 **Loso, M.G.** Summer temperatures during the Medieval Warm Period and Little Ice Age inferred from varved proglacial lake sediments in southcentral Alaska. *Journal of Paleolimnology*. doi:10.1007/s10933-008-9264-9.
- 2007 **Loso, M.G.**, Anderson, R.S., Doak, D.F., and Anderson, S.P. A disappearing lake reveals the Little Ice Age history of climate and glacier response in the massive icefields of Wrangell-St. Elias National Park and Preserve. *Alaska Park Science*, 6(1): 30-35.
- 2006 **Loso, M.G.**, Anderson, R.S., Anderson, S.P., and Reimer, P.J. A 1500 year, high resolution reconstruction of Little Ice Age climate and glacial response from varved

- Iceberg Lake, southcentral Alaska. *Quaternary Research*, 66: 12-24, doi:10.1016/j.yqres.2005.11.007.
- 2005 **Loso, M.G.** and Doak, D. F. The biology behind lichenometric calibration curves. *Oecologia*, 146: 168-174, doi:10.1007/s00442-005-0265-3.
- 2005 Riihimaki, C.A., MacGregor, K.R., Anderson, R.S., Anderson, S.P., and **Loso, M.G.** Sediment evacuation and glacial erosion rates at a small alpine glacier. *JGR Earth Surface*, 110, doi:10.1029/2004jf000189.
- 2005 **Loso, M.G.** A McCarthy Creek Forest Resource Inventory. *National Park Service Resource Technical Report: NPS/AR/NRTR-2005-52.*
- 2005 **Loso, M.G.** (Banjo). *Moose!! Staying Safe Around Urban Moose*: Alaska Department of Fish & Game; soundtrack for educational video.
- 2004 **Loso, M.G.** Late Holocene climate and glacier response reconstructed using stratigraphy and lichenometry at Iceberg Lake, Alaska. *Ph.D. Dissertation.*
- 2004 **Loso, M.G.**, Anderson, R.S., and Anderson, S.P. Post-Little Ice Age record of coarse and fine clastic sedimentation in an Alaskan proglacial lake. *Geology*, 32: 1065-1068.
- 2004 Anderson, R.S., Anderson, S.P., MacGregor, K.R., Waddington, E.D., O'Neel, S., Riihimaki, C.A., and **Loso, M.G.** Strong feedbacks between hydrology and sliding of a small alpine glacier. *JGR Earth Surface*, 109, doi:10.1029/2004JF000120.
- 2003 Doak, D.F., and **Loso, M.G.** Effects of grizzly bear digging on alpine plant community structure. *Arctic, Antarctic, and Alpine Research*, 35(4): 421-428.
- 1999 **Loso, M.G.** Vegetation history of the Kennecott townsite, in *Kennecott National Historic Landmark Cultural Landscape Report*: US Department of Interior National Park Service, Washington DC.
- 1999 **Loso, M.G.** "Playing God on Denali." pp. 58-67 in *The Best of Rock and Ice Magazine—an Anthology*. Seattle, WA: The Mountaineers Books.
- 1999 **Loso, M.G.** Partnership Management Strategy, Kennicott National Historic Landmark. Report prepared for Friends of Kennicott and the National Park Service, Kennicott AK.
- 1999 South Carolina Educational Television. *Industry in the Wilderness*. Video & internet-based high school science curriculum (co-writer and talent). Columbia, SC.
- 1998 **Loso, M.G.** Productivity, population structure, and subsistence use of a white spruce forest in the Kennicott Valley, Alaska. *Mountain Research and Development*, 18: 285-308.
- 1998 **Loso, M.G.** An interpretive air tour of the Wrangell Mountains. Leaflet prepared for Wrangell Mountain Air charter flight service, McCarthy, AK.
- 1998 **Loso, M.G.** Playing God on Denali. *Rock and Ice* (May).
- 1998 **Loso, M.G.**, Schwartz, H.K., Wright, S.F. and Bierman, P.R. Composition, morphology, and genesis of a moraine-like feature in the Miller Brook Valley, Vermont. *Northeastern Geology and Environmental Sciences*, 20: 1-10.
- 1997 **Loso, M.G.** The Gray. *Appalachia* (June).

- 1996 **Loso, M.G.** The Fate of Our Forests. *Wrangell-St. Elias News* (September). Kennicott AK.
- 1995-96 **Loso, M.G.** (Editor). *The FNewsletter*.
- 1995 **Loso, M.G.**, Stevens, M., Rubin, J., Tetreault, M., and Plummer, M. Natural Resource & Ecological Assessment for the McConnell Pond Sustainable Forestry Project, VT. Report to The Conservation Fund, Arlington VA.
- 1995 **Loso, M.G.** and Plummer, M. Eagle Mountain, VT: Conservation Opportunities and Management Recommendations. Report to The Lake Champlain Land Trust, Burlington VT.
- 1994 **Loso, M.G.** Comparing Human & Natural Disturbances to Doug Fir Communities on Shadow Mountain." Report to Bridger-Teton National Forest, Jackson WY.
- 1994 **Loso, M.G.** Pulmonary edema, ascending too fast. In Williamson, J. (ed.) *Accidents in North American Mountaineering*, Golden CO: American Alpine Club, 20.
- 1990 **Loso, M.G.** The Habitat Needs of the California Condor. Undergraduate thesis, University of California, Santa Barbara.
- 1990 Chytilo, M. and **Loso, M.G.**, 1990: Comments of Casmalians Against Pollution on the RCRA Part B permit application. Report to the US Environmental Protection Agency, Region IX, Washington DC.

PRESENTATIONS

- 2009 **Loso, M.G.**, Anderson, R.S., and Doak, D.F. Can pocket gopher burrowing explain the long-term evolution of uplifted marine terrace scarps? *Eos Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract EP31B-0597.
- 2009 Sass, L., O'Neel, S., **Loso, M.G.**, MacGregor, J.A., Catania, G.A., and Larsen, C.F. Contributions of climate and dynamics to mass wastage and accumulation zone thinning of Eklutna Glacier, Alaska. *Eos Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract C32A-04.
- 2009 Larquier, A.M., **Loso, M.G.**, Sass, L., and Larsen, C. Glacial influences on water resources of the Eklutna Basin, Alaska. Poster presented at the American Water Resources Association meeting, Anchorage Alaska, May 4-6.
- 2008 Wolfe, D., **Loso, M.G.**, and Dial, R. Characterization and remote evaluation of previously known and new glacier-dammed lakes across Alaska, USA, from 1971 to 2000. Abstract submitted to the EGU General Assembly, Vienna Austria, April 15-20.
- 2007 **Loso, M.G.**, Anderson, R.S., Anderson, S.P., and Reimer, P.J. Sediments exposed by drainage of a collapsing glacier-dammed lake show that contemporary summer temperatures and glacier retreat exceed the Medieval Warm Period in southern Alaska. *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract PP44A-01.
- 2007 DeRuwe, A., Wallace, K., Berg, E., McDonnell, K., and **Loso, M.G.** Late Quaternary tephra fall stratigraphy from 25 sedge-*Sphagnum* peat cores recovered from the

- Kenai Peninsula, Alaska. *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract V13C-1489.
- 2007 **Loso, M.G.** Gone but not forgotten: The fate of crevassed human waste on the Kahiltna Glacier. Invited talk presented to the National Park Service, Denali National Park AK, September 28.
- 2007 **Loso, M.G.** In defense of winter. Invited speaker at the Sierra Club Earth Day Festival, Anchorage AK, April 22.
- 2007 Wolfe, D., **Loso, M.G.**, Dial, R., and Geck, J. Late Holocene climate and glacier response reconstructed using stratigraphy and lichenometry at Iceberg Lake, Alaska. 30 years of change in impounded water resources: comparing inventories and basins of glacier-dammed lakes of Alaska. Talk presented at American Water Resources Association Alaska Section, Fairbanks AK, April 5.
- 2006 **Loso, M.G.** Late Holocene climate and glacier response reconstructed using stratigraphy and lichenometry at Iceberg Lake, Alaska. Talk presented at US Geological Survey Brownbag Series, Anchorage AK, November 9.
- 2006 **Loso, M.G.** A 1500-year record of temperature and glacial response from varved Iceberg Lake. Talk presented at the Alaska Park Science Symposium, Denali National Park AK, September 12.
- 2006 **Loso, M.G.** Watching snow melt: An ode for the cold. Invited keynote speaker at the 6th Annual Alaska Natural History Symposium, Palmer AK, April 22.
- 2004 Anderson, R.S., Anderson, S.P., MacGregor, K.R., Waddington, E.D., O'Neel, S., Riihimaki, C.A., and **Loso, M.G.** Sliding and the growth and decay of cavities beneath an alpine glacier: results from Bench Glacier, Alaska. Talk and abstract presented at 34th Annual International Arctic Workshop, Boulder CO, March 11-13.
- 2004 **Loso, M.G.**, Anderson, R.S., and Anderson, S.P. Post Little Ice Age record of fine and coarse clastic sedimentation in an Alaskan proglacial lake. Talk and abstract presented at 34th Annual International Arctic Workshop, Boulder CO, March 11-13.
- 2004 **Loso, M.G.** Fire and ice (and beetles): a case study of climatic controls on stand structure in an upland white spruce forest, Kennicott Valley, AK. Talk presented at the Changing Alaskan Forest Ecosystems Conference, Homer AK, Feb. 24-26.
- 2003 **Loso, M.G.**, and Doak, D.F. Lichenometry's black box: demographic characteristics of *Rhizocarpon geographicum* and *Pseudophebe pubescens* derived from whole population size-frequency distributions. *Eos Trans. AGU*, 84(46), Fall Meet. Suppl., Abstract H51E-1134.
- 2003 **Loso, M.G.**, Anderson, R.S., and Anderson, S.P. High-resolution reconstructions of Little Ice Age climate, glacial response, and paraglacial sedimentation from glacier-dammed Iceberg Lake, southcentral Alaska. Poster and abstract presented at the GSA Annual Meeting, Seattle WA, Nov. 2-5.
- 2003 Riihimaki, C.A., MacGregor, K.R., Anderson, R.S., Anderson, S.P., **Loso, M.G.** Interpretation of fine and coarse sediment yield from Bench Glacier, Alaska. *Eos Trans. AGU*, 84(46), Fall Meet. Suppl., Abstract H52A-1165.

- 2002 Anderson, R.S., Perg, L.A., Adams, P.N., **Loso, M.G.**, Rosenbloom, N., and Menking, K.M. Evolution of a tectonically active coastline: Lessons from Santa Cruz, California. Talk presented at the Rocky Mt. Section Meeting, AAPG, Laramie WY.
- 2002 **Loso, M.G.**, Anderson, R.S., Anderson, S.P. High resolution neoglacial record of glacial sediment yield exposed in an outburst-drained proglacial lakebed. Poster and abstract presented at the American Quaternary Association Annual Meeting, Anchorage AK, Aug. 9-11.
- 2001 **Loso, M.G.**, Anderson, R.S., Anderson, S.P., Stock, G. and Helms, R. High resolution neoglacial record of glacial sediment yield exposed in an outburst-drained proglacial lakebed. *Eos Trans. AGU*, 82(47), Fall Meet. Suppl., Abstract IP51B-08.
- 1997 Wright, S.F., **Loso, M.G.**, and Schwartz, H.K. Ice-contact environment in the Miller Brook Valley, Northern Vermont. *GSA Northeastern Section Abstracts with programs*, 29: 90-91.
- 1996 **Loso, M.G.** What the miners left: Disturbance History & Stand Structure in the Kennicott Valley, AK. Abstract and talk presented at the Copper Basin Forests Conference, Anchorage AK, Sept. 10 1996.
- 1995 **Loso, M.G.** Chickering Fen: Pollen Analysis and Vegetational History. Abstract and talk presented at the Vermont Wetland Association Annual Meeting, Burlington VT, Feb. 10 1995.

HONORS, GRANTS, & AWARDS

- 2009-11 National Institutes for Water Resources Award for "The diminishing role of glacier runoff into Eklutna Lake: potential impacts on hydropower and water supply for the Municipality of Anchorage" (\$34K)
- 2010-12 National Science Foundation ARCSS Award for "Collaborative research: Nonlinearities in the Arctic climate system during the Holocene" (\$80K)
- 2010 Municipal Light and Power grant for "Undergraduate research at Bering Glacier, Alaska" (\$5K)
- 2009-13 North and West Alaska Cooperative Ecosystem Studies Unit Award for "Understanding glacial environments of Denali National Park through collaborative, student-led research" (\$177K)
- 2008-09 Municipal Light and Power contract (through the Municipality of Anchorage) for "Eklutna Glacier Research" (\$55K)
- 2008-09 Anchorage Water and Wastewater Utility contract (through the Municipality of Anchorage) for "Eklutna Stream Research" (\$6K plus in-kind)
- 2007-09 National Institutes for Water Resources Award for "Geomorphic constraints on the configuration, magnitude, and timing of Quaternary megafloods from glacier-dammed Lake Atna, Alaska" (\$37K)

MICHAEL GREGG LOSO

Page 6

- 2007 "Cleaner Commuter Award", Alaska Pacific University
- 2007 "Discover Denali" Research Fellowship Program Award for "Trajectory and fate of human waste on the Kahiltna Glacier" (\$5K)
- 2007 EPSCoR Small College Research Program Award for "Long-term monitoring of climate/mass-balance relationships on Eagle Glacier, southcentral Alaska" (\$5K)
- 2005 National Park Service NRAC Technical Report Grant (\$2K)
- 2001-04 National Science Foundation Graduate Research Fellowship (\$85K)
- 2003 University Collaborative Research Program Grant (Center for Accelerator Mass Spectrometry) – Lawrence Livermore National Laboratory for "High resolution reconstructions of Little Ice Age climate, glacial response, and paraglacial sedimentation verified by independent AMS 14C dating" (\$6K)
- 2003 Geological Society of America Research Grant for "High-resolution reconstruction of Little Ice Age climate, glacial response, and paraglacial sedimentation from Iceberg Lake, AK" (\$2K)
- 2002 Center for Study and Imaging of the Dynamic Earth (CSIDE) Research Grant – University of California Santa Cruz for "High-resolution reconstruction of Little Ice Age climate, glacial response, and paraglacial sedimentation from Iceberg Lake, AK" (\$2K)
- 2001 NSF Small Grant For Exploratory Research for "Iceberg Lake: A high resolution glacial record exposed in an outburst-drained proglacial lakebed" (\$35K)
- 2000 Chancellors Fellowship – University of California Santa Cruz (\$36K)
- 1998 National Park Service Cooperative Management Grant for "White spruce productivity and population structure in the Kennicott Valley, Alaska: landscape patterns and subsistence harvest" (\$2K)
- 1997 The Dirty Sock Award (Best Student Geomorphology Paper) – University of Vermont
- 1996 University of Vermont Graduate Student Summer Research Fellowship for "Effects of human and natural disturbance on spruce forest dynamics in the Kennicott Valley, southcentral Alaska" (\$2K)
- 1994-96 Mellon Fellowship – University of Vermont (\$44K)
- 1990 Summa Cum Laude (Graduation with Highest Honors) – University of California Santa Barbara
- 1990 Distinction in the Major (for an outstanding undergraduate thesis) – University of California Santa Barbara
- 1988-90 Dean's List (all terms) – University of California Santa Barbara
- 1986-88 Dean's List (all terms) – Honors Program, San Diego State University
- 1986 National Merit Finalist

PROFESSIONAL EXPERIENCE

Director, Master of Science in Environmental Science Program Alaska Pacific University

4101 University Drive, Anchorage AK 99508 (907) 564-8207

June 2008 – Present

- Manage recruiting, admissions, enrollment, and curriculum for the APU graduate program in Environmental Science.
- Advise 20-30 graduate students on program requirements and research design.

Assistant Professor Alaska Pacific University, Department of Environmental Science

4101 University Drive, Anchorage AK 99508 (907) 564-8207

August 2005 – Present

- Instruct accredited undergraduate and graduate level lecture and lab courses in earth and natural sciences, with focus on active learning and field experiences.
- Courses include: Soils and Geomorphology, Applied Geomorphology, Climate Change, Expedition Glaciology, Physical Geology, Historical Geology, Natural History of Alaska.

Senior Scientist and Principal Loso Land Services

1010 W 19th Avenue, Anchorage AK 99503 (907) 334-0970

May 2005 – Present

- Sole proprietor of geotechnical and natural resource consulting agency with projects in Alaskan National Parks.
- Maintain contacts with clients, invoicing, billing, project scheduling.

Senior Scientist HDR Incorporated

2525 C Street, Anchorage AK 99503 (907) 274-2000

March 2005 – August 2006

- Map southcentral Alaskan vegetation and wetland status using aerial photos, field data, and GIS.
- Develop and maintain professional relationships with NPS and other federal agency staff in management and solicitation of natural science consulting work.

Professional Ecologist Wrangell – St. Elias National Park

PO Box 439, Copper Center AK 99573 (907) 822-5234

May - Oct. 2004

- Design and conduct field study of forest dynamics and subsistence wood harvest for the upper McCarthy Creek valley in Wrangell-St. Elias Nat'l Park.
- Conduct 1-3 day trips into the park to measure, describe, and collect samples from boreal forest plant communities. Conduct invasive plant surveys.

Teaching Assistant University of California, Santa Cruz

Earth and Marine Sciences, Santa Cruz CA 95064 (831) 459-4089

December 2003 - May 2004

- Lead and instruct laboratory, lecture, and field camp components of Geomorphology, training undergraduates and graduates; write and grade exams and labs.

Executive Director The Wrangell Mountains Center

PO Box MXY McCarthy, Glennallen AK 99588 (907) 554-4464

June 1996 – September 2000

- Manage finances, registration, marketing, strategic planning, fund-raising, board relations, facilities, training, safety, & staff for a remote Alaskan education center.
- Develop and maintain cooperative relationships with the local community, local nonprofit organizations, university researchers, and the National Park Service.
- Plan, direct, write curriculum for, and instruct diverse field science courses.

Alaska Wildlands Studies Program Director San Francisco State University

Wildlands Studies, 3 Mosswood Ct, Cazadero CA 95421 (707) 632-5665

June 1996 – September 2000

- Instruct accredited undergraduate level courses in geology, botany, glaciology, and plant ecology for college students from around the country.
- Write curricula, plan lessons, assess student performance, and maintain responsibility for student safety during a 7-week backcountry-based field course in McCarthy, Alaska.
- Manage an herbarium collection of Kennicott Valley native plants.

Planning Consultant Friends of Kennicott

3018 Alder Circle, Anchorage AK 99508 (907) 258-7349

June 1998 - June 1999

- Develop a partnership between private non-profit organizations and the NPS for management of the Kennicott National Historic Landmark.

Consulting Botanist Wrangell - St. Elias National Park

PO Box 439, Copper Center AK 99573 (907) 822-5234

June - Oct. 1996; Sept. 1998 - June 1999

- Use aerial photos, existing maps, field visits, and historic photos to document the vegetation history and status of Kennicott for the NPS's Cultural Heritage Report.

Ecology Assistant The Nature Conservancy, Community Ecology Group

101 Conner Drive, Suite 302, Chapel Hill NC 27514 (919) 967-5493

Feb. - May 1997

- Assist with preparation, documentation, and review of a nationwide plant community classification using database and word processing software.

Forester North State Forestry

1820 Marks Avenue, Knightsdale NC 27418 (919) 266-7718

Feb. - May 1997

- Perform timber cruises, design revegetation and recovery plans, fell trees, and remove timber and slash from hurricane-impacted small woodlots.

Research Associate US Geological Survey Biological Resources Division

AK Science Center, 1011 E Tudor Rd, Anchorage AK 99503 (907)786-3579

Aug. - Oct. 1996

- Analyze and prepare findings of forest research in Wrangell - St. Elias National Park.
- Publish results in peer-reviewed journal "Mountain Research and Development."
- Present work as invited speaker at "Understanding Copper River Basin Forests" conference in Anchorage and participate in multi-agency planning workshop.

SCA Plant Ecologist Wrangell - St. Elias National Park

PO Box 439, Copper Center AK 99573 (907) 822-5234

June - Oct. 1996; Sept. 1998 - June 1999

- Conceive, design, fund, and conduct field study of forest dynamics and subsistence wood harvest for the Kennicott Valley in Wrangell-St. Elias Nat'l Park.
- Conduct 1-3 day trips into the park to measure, describe, and collect samples from boreal forest plant communities. Manage 2 field assistants.
- Assist park botanist with helicopter-supported alpine and wetland plant surveys.

Teaching Fellow University of Vermont, Botany Department

Marsh Life Science Building, Burlington VT 05405 (802) 656-2930

Jan. - June 1996

- Lead and instruct laboratory component of "Field Ecology and Natural History," training undergraduates in plant and animal ID, field research techniques, etc.

Consulting Botanist Various Clients

Marsh Life Science Building, Burlington VT 05405 (802) 656-2930

Oct. - Dec. 1994, May - Sept. 1995

- Perform vegetation inventory and management plans for two professional clients - The Lake Champlain Land Trust and the Conservation Fund.
- Design inventory and monitoring plans, lead 2-4 person crews in mapping, describing, and inventorying vegetation and rare plants.

Field Instructor The Teton Science School

Ditch Creek Road, Box 68, Kelly WY 83011 (307) 733-4765

Aug. 1993 - Aug. 1994

- Teach and design natural sciences curriculum for children and adults.

SCA Mountaineering Ranger Denali National Park

South District, Box 588, Talkeetna AK 99676 (907) 733-2231

Mar. - Sept. 1993, June 1994

- Assist with 3-40 day patrols on Mount McKinley and throughout the Alaska Range, including leadership on Search and Rescue missions, backcountry patrols, and bear surveys.
- Participate in training, routine missions, and rescues involving diverse rotary and fixed-wing aircraft.
- Co-lead snow and ice training for backcountry ranger staff.

Instructor and Guide The American Alpine Institute

1515 12th Street, Bellingham WA 98225 (306) 671-1505

May - September 1992

- Lead and instruct alpine climbing in the North Cascades and on Denali.

MEMBERSHIPS, SKILLS, & ACTIVITIES

President, Board of Directors The Wrangell Mountains Center, 2006 – present

Chair, Institutional Review Board Alaska Pacific University, 2009 – present

Technical Representative, North and West Alaska Cooperative Ecosystem Studies Unit

Alaska Pacific University, 2008 – present

Meeting Convener and Principal Organizer Wrangell-St. Elias Research Summit, McCarthy Alaska, July 6-7, 2009

Member

- American Geophysical Union
- Geological Society of America
- American Quaternary Association

Computer and Technical Proficiencies

- ArcGIS and Matlab proficient, with products in peer-reviewed manuscripts.
- Experience with differential, kinematic, & handheld GPS survey techniques.

- Competent in Adobe graphics software.
- Comfortable on major platforms: Windows, OSX, Unix.

Field Safety and Leadership Skills

- Wilderness First Responder, CPR C, and Aviation Safety certifications: current.
- 16 years certified at WFR level or higher, including 2 years Wilderness EMT.
- 20 years in outdoor education, including >100 weeks of wilderness leadership.
- 3 seasons on the Denali National Park mountain rescue team. 4 ascents of Denali.

Banjo

- The Pilot Cracker Playboys (2006 – present)
- The Flaming Texans (2006)
- Black Satchel (2005)
- The Tailor Maids (2004)
- Midget Ridge (2003)
- Jimmy Chickenpants (2002)
- Steel Cut Goat (2002)
- The Barn Burners (2001)
- Blue Gramma (2000)
- Old Hat (1999)
- White Spruce Wagoneers (1995 – 1998)
- Whiskey Crate Warriors (1994)
- Holy Shelter Swamp (1991-1993)