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CREDENTIALS

Master of Science in Quaternary Sciences, NAU, 1997
Teacher Certification Secondary English, CU, Boulder, 1993
BS Psychology, NAU, 1978

SCIENTIFIC EXPERIENCE

Co-Principal Investigator (2020- present)

- United States Forest Service, Ely Ranger District, Humboldt-Toiyabe National Forest. Funded ($960,241) project *Excavation and Stabilization of Unique Archaeological and Paleontological Resources, White Pine County, Nevada.* Duties include survey, excavation, processing, analysis, and curation of packrat middens and paleontological materials collected during stabilization and assessment of important limestone caves in the Northern Snake Range of Nevada.

Research Faculty and Curator (September, 2004- present)

- Records of Environment and Disturbance (RED Lab), University of Utah Department of Geography, and Utah Museum of Natural History. Activities include collaborating with students and colleagues on a variety of funded and unfunded paleoenvironmental research projects, performing analyses, instructing students, and mentoring students on Undergraduate Research Opportunity (UROP) proposals and projects. To date, I have had nine students succeed in obtaining UROP grants, and I have helped several others with their proposals and projects. I am currently working on *Pinus edulis* migration to the Crawford Mountains, Northeastern Utah, U.S.A., and finalizing data for publication.

Co-Principal Investigator (September, 2005- present)

- Range Creek Research Project, University of Utah. Co-investigator in a University of Utah Department of Geography project to reconstruct past environments in Range Creek Canyon, Utah, in support of on-going archaeological research. Duties include design and implementation of a multi-disciplinary approach to produce highly resolved paleoenvironmental records. Methods currently being employed include bog sediment core analysis (pollen, charcoal), packrat midden analysis (macrofossils, pollen), alluvial exposure studies, and soil isotopes studies. Duties include collection, processing, and analysis of packrat middens, supervision of undergraduate and graduate students involved in the research, and eventual dissemination of findings in journals, lay publications, and other public media.

Field Scientist and Co-Investigator (December, 2000- 2012)

- Ross Island and Victoria Land Coast, Antarctica. Co-investigator in a National Science Foundation funded project. Conduct field surveys of exposed coastlines to locate and excavate Pleistocene-Holocene Adélie penguin sub-fossils from abandoned and occupied colonies to

establish the biogeographic history of the species. Duties included team survival and safety assurance, first aid qualifications, as well as scientific expertise. The project includes extensive mapping by hand and using GPS equipment, excavations of open-air sites, recovery of paleontological materials, dry and wet screening of sediments, and picking of matrix. Co-author on final publications of findings.

Research Specialist (September, 2001- 2004)

- Colorado Plateau Field Center, Northern Arizona University. Contracted by principal investigator in a National Science Foundation funded Global Climate Change project. Duties included development of an extensive packrat midden database, development of a web resource for packrat midden data (Past, Recent, and 21st Century Vegetation Change in the Arid Southwest), analysis of macrobotanical specimens, data entry and GIS analysis, background research and data verification, and production of a paper published in a professional journal.

Science Management Officer (March 2002- June 2003)

- PARCS (Paleoenvironmental Arctic Sciences), Northern Arizona University. Science office manager in a National Science Foundation funded Arctic research program. Duties included serving as a liaison between scientific investigators and the NSF, coordinating activities and resources of investigators, organizing PARCS meetings and workshops, and communicating the results and achievements of the PARCS program through web-based or other publications. Scientific duties included development of a database on the Holocene Thermal Maximum in the Arctic, coordination of input from many authors during manuscript preparation, and publication of results in a professional journal.

Principal Investigator (May, 1997- 1999)

- Capitol Reef National Park, Utah. Contracted by Capitol Reef National Park. Lead investigator in a two-year paleoenvironmental study conducted in support of a park-wide archaeological survey in Capitol Reef National Park, under direction of the Park archaeologist, with archaeological survey conducted by Brigham Young University. Duties included field survey and collection of paleoecological materials, laboratory processing and analysis, and background research and report production.

ACADEMIC TEACHING EXPERIENCE

Career-Line Associate Professor (August, 2004- present)

- University of Utah, Department of Geography, Salt Lake City, Utah. Instructor of *Biogeography: Global Patterns of Life, Regional and Global Climates, Quaternary Environments, Geography of Skiing, Earth Environments, Global Environmental Change (HONORS 3215), Introduction to Natural Hazards, Modern Natural Disasters, Geography of Antarctica, Paleoenvironmental Field Methods, Pyrogeography,* and *Global Climate Change*. Duties include all planning, class preparation, lecture, and in-class assignments. Research and create all lesson plans, prepare all support material, design and write all examinations, advise and tutor students, and assign final grades for the courses.

Instructor of Geology (January, 1998- 2004)

- Northern Arizona University, Department of Geology, Flagstaff, Arizona. Instructor of *Introductory Geology, Physical Geology, Historical Geology*, and *Ancient Life*, with 60 to 90 students in each lecture section. Duties included all planning, class preparation, lecture, and in-class

assignments. Researched and created all lesson plans, prepared all support material, designed and wrote all examinations, tutored students, and assigned final grades for the courses.

Associate Faculty, Instructor of Geology and Geography (January, 1999- December, 1999)

- Coconino Community College, Flagstaff, Arizona. Instructor of *Historical Geology* and *Physical Geography*, with 20 to 30 students in two lecture and laboratory sections. Duties include selection of texts and lab manuals, all planning, class preparation, lecture, laboratory, and in-class assignments. Research and create all lesson plans, prepare all support material, design and write all examinations, tutor students, and assign final grades for the courses.

PUBLICATIONS

Hart, I., Brenner-Coltrain, J., Boomgarden, S., Brunelle, A., Coats, L., Metcalfe, D., and Lewis, M. (2021). Evidence for a winter-snowpack derived water source for the Fremont maize farmers of Range Creek Canyon, Utah. *The Holocene* 31, 446-456.

Rittenour, T. M., Coats, L. L., and Metcalfe, D. (2015). Investigation of late and post-Fremont alluvial stratigraphy of Range Creek, east-central Utah: Use of OSL when radiocarbon fails. *Quaternary International* 362, 63-76.

Emslie, S. D., Coats, L., and Oleksy, E. (2014). Packrat middens and Holocene palaeohistory of Colorado piñon (*Pinus edulis*) in western Colorado. *Journal of Biogeography* 42, 565-574.

Emslie, S. D. and Coats, L. (2013). Late Holocene climate change and the origin of the "Figurine Complex" in Grand Canyon, Arizona. *Journal of Ethnobiology* 33, 170-179.

Coats, L. L. (2011). The Distribution and Variety of High Elevation Sites in Range Creek Canyon, Utah. Society for American Archaeology 76th Annual Meeting, Sacramento, California, USA.

Coats, L., Cole, K. L., and Mead, J. I. (2008) 50,000 years of vegetation and climate history on the Colorado Plateau, Utah and Arizona, USA. *Quaternary Research* 70, 322-338.

Emslie, S., Coats, L., and Licht, K. (2007) A 45,000-year record of Adélie Penguins in the Ross Sea, Antarctica. *Geology* 35, 61-64.

Kaufman, D., Ager, T., Anderson, N., Anderson, P., Andrews, J., Bartlein, P., Brubaker, L., Coats, L., Cwynar, L., Duvall, M., Dyke, A., Edwards, M., Eisner, W., Gajewski, K., Geirsdóttir, A., Hu, F., Jennings, A., Kaplan, M., Kerwin, M., Lozhkin, A., MacDonald, G., Miller, G., Mock, C., Oswald, W., Otto-Bliesner, B., Porinchu, D., Rühland, K., Smol, J., Steig, E., and Wolfe, B. (2004). Holocene Thermal Maximum in the Western Arctic (0 - 180°W). *Quaternary Science Reviews* 23, 529-560.

Emslie, S., Berkman, P., Ainley, D., Coats, L., and Polito, M. (2003). Late Holocene initiation of ice-free ecosystems in the southern Ross Sea, Antarctica. *Marine Ecology Progress Series* 262, 19-25.

Mead, J. I., Coats, L. L., and Schubert, B. W. (2003). Late Pleistocene faunas from caves in the eastern Grand Canyon, Arizona. In *Ice Age Cave Faunas of North America* (B. Schubert, J. Mead, and R. Graham, eds.), Indiana University Press, Bloomington and Indianapolis, 299 pp.

Coats, L. (2003) Middle Wisconsinan vegetation on the Colorado Plateau, Utah and Arizona, USA: Evidence for Glacial-Age Monsoons? XMI INQUA Congress Programs with Abstracts, Reno, Nevada, USA.

Coats, L. Mead, J., and Anderson, S. (2003). Late Pleistocene life on the Colorado Plateau: faunal and floral evidence from the national parks, Arizona and Utah. XMI INQUA Congress Programs with Abstracts, Reno, Nevada, USA.

Coats, L. (1997). Middle to Late Wisconsinan Vegetation Change at Little Nankoweap, Grand Canyon National Park, Arizona. Unpublished MS Thesis, Northern Arizona University.

Emslie, S. D., Mead, J. I., and Coats, L. (1995). Split-Twig Figurines in Grand Canyon, Arizona: New Discoveries and Interpretations. *Kiva*, Vol. 61, No. 2.