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**Education:**

- ◆ Ph.D. Department of Geological Sciences 1998. University of Nevada, Reno.
- ◆ M.S. Quaternary Studies 1991. Northern Arizona University, Flagstaff.
- ◆ B.A. Environmental Planning 1976. The Colorado College, Colorado Springs.

**Professional Experience:**

- ◆ Associate Research Professor Emerita, Earth and Ecosystem Sciences, Desert Research Institute, Reno, Nevada.
- ◆ Associate Research Professor, Earth and Ecosystem Sciences, Desert Research Institute, Reno, Nevada 2006-2010.
- ◆ Assistant Research Professor, Earth and Ecosystem Sciences, Desert Research Institute, Reno, Nevada 2000-2006.

**Research Interests:**

My research as a Quaternary paleoecologist focuses on the interaction between biotic systems and climate: how climate variation can affect individual species and communities and their various response to climate change. Through my work regarding the Yucca Mountain proposed nuclear waste repository, I had the opportunity to delve into the paleoecology and long-term climate of southern Nevada and the southwest to gain an appreciation of glacial and interglacial periods and landscape change brought about by those climate extremes. My favorite climate and landscape proxy materials are terrestrial and (freshwater) aquatic mollusks and vegetation remains from packrat (*Neotoma*) middens (nests). Mollusks and vegetation can enhance our understanding of past hydrologic and climate variability and landscape change over time, thus providing insight into future variability. I feel that it is essential to apply the results of paleoenvironmental studies to help solve problems facing urban and natural areas such as water quality and availability, natural versus human induced climate variation, loss of biodiversity, and the effects of global warming on natural biotic communities and agriculture.

**Publications and Reports:**

Sharpe, S.E. Bright, J.B. (2014) A high-elevation MIS 5 hydrologic record using mollusks and ostracodes from Snowmass Village, Colorado, USA. *Quaternary Research* 82 604–617.

Miller, I.M., Pigati, J.S., Anderson, R.S., Johnson, K.R., Mahan, S.A., Ager, T.A., Baker, R.G., Blaauwg, M., Bright, J., Brown, P.M., Bryant, B., Calamari, A.T., Carrara, P.E., Cherney, M.D., Demboski, J.R., Elias, S.A., Fisher, D.C., Gray, H.J., Haskett, D.R., Honke, J.S., Jackson, S.T., Jiménez-Moreno, G., Kline, D., Leonard, E.M., Lifton, N.A., Lucking, C., McDonald, H.G., Miller, D.M., Muhs, D.R., Nash, S.E., Newton, C., Paces, J.B., Petrie, L., Plummer, M.A., Porinchu, D.F., Rountrey, A.N., Scott, E., Sertich, J.J.W., Sharpe, S.E., Skipp, G.L., Strickland, L.E., Stucky, R.K., Thompson, R.S., and Wilson, J. (2014) Summary of the Snowmastodon Project Special Volume A high-elevation, multi-proxy biotic and

environmental record of MIS 6–4 from the Ziegler Reservoir fossil site, Snowmass Village, Colorado, USA. *Quaternary Research* 82: 618–634.

- Mensing, S.A., Sharpe, S.E., Tunno, I., Sada, D.W., Thomas, J.M., Starratt, S., and Smith, J. (2013) The Late Holocene Dry Period: multiproxy evidence for an extended drought between 2800 and 1850 cal yr BP across the central Great Basin, USA. *Quaternary Science Reviews* 78: 266-282.
- Sharpe, S., Bassett, S., Mensing, S., Sada, D., and Thomas, J. (2011) Effects of climate change on spring ecosystem hydroecology as a guide to developing alternative water policies. Final EPSCoR report, September 2011.
- Sharpe, S.E. (2010) Past elevations and ecosystems of Walker Lake provide a context for future management decisions, *In*: Restoration of a Desert Lake in an Agriculturally Dominated Watershed: The Walker Lake Basin, M. Collopy and J. Thomas eds. DRI and UNR, April 2010. <http://www.nevada.edu/walker/downloads/2010-Walker-Report-Past-Elevations.pdf>
- Sharpe, S.E. and Forester, R.M. (2008) Continental-aquatic mollusk hydrochemical occurrence patterns: Implications for population dynamics and paleoenvironmental reconstruction. *Quaternary International* 188: 105-116.
- Sharpe, S.E., Cablk, M.E., and Thomas, J.M. (2008) The Walker Basin, Nevada and California: Physical Environment, Hydrology, and Biology. Rev. 01. Desert Research Institute Technical Report #41231, April 2008, 63 p. [Download PDF: Walker River Report](#)
- Sharpe, S.E. (2007) Using modern through mid-Pleistocene climate proxy data to bound future variations in infiltration at Yucca Mountain, Nevada, in Levich, R.A., and Stuckless, J.S., eds., *The Geology and Climatology of Yucca Mountain and Vicinity, Southern Nevada and California*: Geological Society of America Memoir 199, p. 155-205, doi: 10.1130/2007.1199(05).
- Sharpe, S.E., Cablk, M.E., and Thomas, J.M. (2007) The Walker Basin, Nevada and California: Physical Environment, Hydrology, and Biology. Desert Research Institute Technical Report #41231, May 2007, 63 p.
- Johnson, W.G., Sharpe, S.E., Bullard, T.F. and Lupo, K. (2005) Characterizing a First Occurrence of Bison Deposits in Southeastern Nevada. *Western North American Naturalist* 65(1): 24-35.
- Sada, D.W. and Sharpe, S.E. (2004) (eds.) Conference Proceedings. Spring-fed Wetlands: Important Scientific and Cultural Resources of the Intermountain Region. <http://www.dri.edu/spring-fed-wetlands>
- Sharpe, S.E. (2004) Solute Composition: A Parameter Affecting the Distribution of Freshwater Gastropods In Conference Proceedings. Spring-fed Wetlands: Important Scientific and Cultural Resources of the Intermountain Region. [http://www.dri.edu/images/stories/conferences\\_and\\_workshops/spring-fed-wetlands/spring-fed-wetlands-sharpe.pdf](http://www.dri.edu/images/stories/conferences_and_workshops/spring-fed-wetlands/spring-fed-wetlands-sharpe.pdf)
- Sharpe, S.E. (2004) Chapter 6, Climate: Past Present and Future, Yucca Mountain Site Description Revision 02. Civilian Radioactive Waste Management System Management and

Operating Contractor. Yucca Mountain Project.

- Waugh, J., S. Link, E. McDonald, D. Rhode, and S. Sharpe. (2003) Characterization of the Environmental Envelope for the Design of Long-Term Covers: Closeout Report. GJO-2003-485-TAC, Environmental Sciences Laboratory, U.S. Department of Energy, Grand Junction, CO.
- Sharpe, S.E. (2003) Future Climate Analysis – 10,000 to 1,000,000 Years After Present. Office of Civilian Radioactive Waste Management. MOD-01-001 Rev. 01. Yucca Mountain Project.
- Sharpe, S.E. (2003) Lower Klamath Lake, Oregon CASIS 240 Site: Molluscan Analysis. Report submitted to Fish and Wildlife Service, Sherwood, Oregon, January 19, 2003.
- Sharpe, S.E. (2002) Red Mountain Site, Salt River Valley, Arizona: Molluscan Analysis. Report submitted to Archaeological Consulting Services, Ltd. Tempe, Arizona July 9, 2002.
- Young, M., Cooper, C., Sharpe, S. Miller, J., Shafer, D. (2002) Upward Advection: Dynamic Simulation of Vadose Zone Moisture Flux. National Nuclear Security Administration Nevada Operations Office. May 2002.
- Sharpe, S.E. (2002) Future Climate Analysis – 10,000 to 1,000,000 Years After Present. Office of Civilian Radioactive Waste Management. MOD-01-001 Rev 00. Yucca Mountain Project.
- Sharpe, S.E. (2002) Constructing Seasonal Climograph Overlap Envelopes From Holocene Packrat Midden Contents, Dinosaur National Monument, Colorado. Quaternary Research 57:306-313.
- U.S. D. I. Bureau of Land Management (2001) “Administrative Draft EIS for the Walker River Basin Project (Lyon, Mineral, and Douglas Counties, NV and Mono County, CA)” Sharpe served as Assistant Project Manager.
- Sharpe, S., McDonald, E., Bullard, T., and Rhode, D. (2001) Work Plan for Natural and Archaeological Analog Studies at the CERCLA Waste Disposal Cell, Monticello, Utah. Prepared for Environmental Sciences Laboratory USDOE.
- Sharpe, S.E. and Forester, R.M. (2001) Reconstructing Past And Forecasting Future Climate At Yucca Mountain, Nevada In "Back to the Future - Managing the Back End of the Nuclear Fuel Cycle to Create a More Secure Energy Future," Proceedings of the 9th International High-Level Radioactive Waste Management Conference (IHLRWM), April 29 - May 3, 2001, Las Vegas, Nevada. La Grange Park, Illinois: American Nuclear Society.

### **Abstracts and Presentations:**

- Sharpe, S.E. (2014) Richard M. Forester’s Solution to the Yucca Mountain, Nevada, Future Climate Conundrum. Geological Society of America Abstracts with Programs. V. 46 (6) p.639. <https://gsa.confex.com/gsa/2014AM/webprogram/Paper241827.html>
- Sharpe, S. (2011) Vegetation Change in Glacier National Park - The past, the future, the climate, and why packrats are important. Invited Speaker for staff and public. Glacier National Park, MT. May 9-10 2011 Included 1/2- day workshop.

- Sharpe, S. (2011) Packrats – Nature’s Best Scavengers. Invited Speaker for high-school students. Glacier National Park, MT. May 9-10 2011 Included 1-day workshop.
- Mensing, S., Sharpe, S. (2011) A 7,600-yr Multi-Proxy Reconstruction of Hydrologic and Vegetation History from a Low-Elevation Spring-fed Meadow, East Central Nevada. Abstract and Presentation, 25th annual Pacific Climate Workshop PACLIM, Pacific Grove, CA, March 6-9, 2011.  
[http://www.fs.fed.us/psw/cirmount/meetings/paclim/pdf2011/paclim\\_abstracts2011.pdf](http://www.fs.fed.us/psw/cirmount/meetings/paclim/pdf2011/paclim_abstracts2011.pdf)
- Sharpe, S.E. (2009) Paleoecology: Providing a context for terminus lake management. An example from Walker Lake, Nevada (abstract) In “ International Symposium on Terminus Lakes, Preserving Endangered Lakes through Research”, 26-29 October, 2009. Reno, Nevada. (Invited Speaker).
- Sharpe, S.E. (2009) Comparison of Orbital Parameters and Devils Hole, Nevada,  $\delta^{18}\text{O}$  Time Series during the Last Four Glacial Cycles Supports a Global Climate Forcing Mechanism. In “Proceedings Climatic Variability of the Eastern North Pacific and Western North America” April 19-22 2009, Pacific Grove, CA.
- Sharpe, S.E. Forester, R.M. (2008) The Accuracy of Paleoenvironmental Reconstructions Based on Spring and Wetland Gastropod  $\delta^{18}\text{O}$  Values: A Field Study. In "AGU Fall Meeting Abstracts with Programs, 15-19 December, 2008. San Francisco, CA.  
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- Sharpe, S. E. (2007) Using the Precession Methodology to Time Past Glacial and Interglacial Climates In "GSA Abstracts with Programs, Vol. 39", 28-31 October, 2007. Denver, CO. ISSN 0016-7592. (Poster).
- Sharpe, S.E. (2006) Climate change at a snail’s pace: Paleoescargot register past climate. In “Proceedings Climatic Variability of the Eastern North Pacific and Western North America” March 26-29, 2006, Pacific Grove, CA. (Invited speaker).
- Sharpe, S.E. (2005) Why do some waters in close proximity host different molluscan assemblages? In "Program and Abstracts GSA Annual Meeting", 16-19 October, 2005. Salt Lake City, UT. (Poster).
- Sharpe, S., McCurdy, G., Chambers, M., Kemp, H. (2004) Climate Summaries: Yucca Mountain DOE Meteorological Monitoring Sites. In "Program and Abstracts GSA Annual Meeting", 7-10 November, 2004. Denver, CO. (Invited speaker).
- Sharpe, S.E. (2004) What Was it Like When the Terminal Lakes Weren’t so Terminal? Or, the Last 20,000 Years in Brief. “State Management Issues at Terminal Water Bodies/Closed Basins”. Western States Water Council and Water Education Foundation, 22-24 September, 2004. Salt Lake City, UT. (Keynote speaker).
- Sharpe, S.E. (2004) How Accurately Does Freshwater Mollusk Shell  $\delta^{18}\text{O}$  Record Climate? In “Proceedings Climatic Variability of the Eastern North Pacific and Western North America” March 28-31, 2004, Pacific Grove, CA. (Poster).
- Sharpe, S.E. (2004) Yucca Mountain Climate: Past, Present, and Future. U.S. D.O.E. Office of Civilian Radioactive Waste Management. March 9-10 Las Vegas, NV. (Invited Presentation)

to the Nuclear Waste Technical Review Board Panel).

- Sharpe, S.E. (2003) Yucca Mountain Climate: Past Present and Future. In "Program and Abstracts GSA Annual Meeting", 2-5 November, 2003. Seattle, WA. (Invited speaker).
- Sharpe, S.E. (2003) The Solute Ecotone, A Key to Past Hydrology In "XVI INQUA Congress Programs with Abstracts", 23-30 July, 2003. Reno, NV. (Poster).
- Sharpe, S.E. (2003) Glacial And Interglacial Patterns The Devils Hole, Nevada, Record: Are We Currently In Marine Isotope Stage 3? In "Proceedings Climate Variability of the Eastern North Pacific and Western North America Conference," April 6-9, 2003, Pacific Grove, CA. (Poster).
- Sharpe, S.E. (2002) The Importance of the Solute Ecotone to Aquatic Ecosystem Stability In "AmQua Program and Abstracts of the 17th Biennial Meeting", 8-11 August 2002. (Poster).
- Sharpe, S.E. (2002) The Importance of Collecting Geochemical Data from Aquatic Habitats. In "Abstract Spring-Fed Wetlands Important Scientific and Cultural Resources of the Intermountain Region," May 7-9, 2002, Las Vegas, NV. (Speaker).
- Sharpe, S.E., Young, M.H., Cooper, C.A, Miller, J.J (2002) Estimating Climate and Unsaturated Zone Moisture Flux For the Past 24,000 Years at the Nevada Test Site. In "Proceedings Climate Variability of the Eastern North Pacific and Western North America Conference," March 3-6, 2002, Pacific Grove, CA. (Poster).
- Jayco, A.S., Forester, R.M., Sharpe, S., and Smith, G.I. (2001) Constraints on the lacustrine environment during the last pluvial highstand (Late Wisconsin, Tioga Age) in Panamint Valley, southeast California. In "Program and Abstracts American Geophysical Union Fall Meeting, December, 2001. San Francisco, CA. (Poster).
- Sharpe, S.E. (2001) Performance Assessment – Natural System Future Climate Analysis – 10,000 to 1,000,000 Years After Present. U.S. D.O.E. Office of Civilian Radioactive Waste Management. May 8-9, Arlington, VA. (Invited Presentation to the Nuclear Waste Technical Review Board Panel).