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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, Earth and Ecosystem Sciences, Desert Research Institute, Reno, Nevada 2006-present.
- ◆ Assistant Research Professor, Earth and Ecosystem Sciences, Desert Research Institute, Reno, Nevada 2000-2006.
- ◆ Senior Research Scientist, URS Greiner Woodward Clyde, Las Vegas, Nevada, 1999-2000 (part-time).
- ◆ Walker River Watershed Planner, Nevada Division of Water Planning, Carson City, Nevada 1998-2000.
- ◆ Staff Paleoecologist, Quaternary Sciences Center, Desert Research Institute, Reno, Nevada 1992-1998.

Research Interests:

My research 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. My most recent work indicates that the solute composition and concentration of water can be estimated using lake, spring, and wetland mollusks, thus creating a new methodology for assessing past geochemistry, hydrology, and climate. I also use the stable isotopic composition of oxygen ($\delta^{18}\text{O}$) in mollusk shell carbonate to help determine the relation among past geochemistry, hydrology, and climate. These two lines of evidence, used separately or together, can enhance our understanding of past hydrologic and climate variability, thus providing insight into future variability. Additionally, I analyze plant remains in packrat middens to reconstruct vegetation, landscape, and climate change over time. 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.

Memberships

American Association of University Women
American Geophysical Union
American Quaternary Association
Association for Women Geoscientists
Geological Society of America
Sigma Xi

Selected Publications and Professional Papers:

- Sharpe, S.E. and Forester, R.M. (in press, accepted manuscript) Continental-aquatic mollusk hydrochemical occurrence patterns: Implications for population dynamics and paleoenvironmental reconstruction. *Quaternary International*.
- 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. (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.
- 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).
- 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.

- 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).
- 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.wetlands.dri.edu>
- 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.wetlands.dri.edu>
- 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 (<http://hrcweb.nevada.edu/qa/Report/MOD-01-001.pdf>).
- 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. (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) 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) 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).
- 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.
- 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).
- Sharpe, S.E. (2000) Section 6, Climatology and Meteorology, Yucca Mountain Site Description, Civilian Radioactive Waste Management System Management and Operating Contractor. TDR-CRW-GS-000001 Rev 01 ICN 01. Yucca Mountain Project.
- Sharpe, S.E. (2000) Early Holocene Temperature and Precipitation Estimates Based on Vegetation Recovered from Packrat Middens, Dinosaur National Monument, Moffat County, Colorado. In "Program and Abstracts GSA Annual Meeting", 9-18 November, 2000. Reno, Nevada. (Speaker).
- Sharpe, S.E. (2000) The Importance of Collecting both Physical and Geochemical Data from Aquatic Habitats (abstract) In "Impacts of Climate Change on Landscapes of the Eastern Sierran Nevada and Western Great Basin", 29 September –1 October, 2000. Bishop, California (Invited Speaker).
- Forester, R.M.; Bradbury, J.P.; Carter, C.; Elvidge-Tuma, A.B.; Hemphill, M.L.; Lundstrom, S.C.; Mahan, S.A.; Marshall, B.D.; Neymark, L.A.; Paces, J.B.; **Sharpe, S.E.**; Whelan, J.F.; and Wigand, P.E. (1999). *The Climatic and Hydrologic History of Southern Nevada During the Late Quaternary*. Open-File Report 98-635. Denver, Colorado: U.S. Geological Survey.
- Sharpe, S.E. (1999) How Mollusks can be used to Interpret Modern and Past Hydrology In "Program 19th International Symposium, North American Lake Management Society Meeting", 1-4 December 1999. Reno, Nevada.
- Sharpe, S.E. (1999) How Geology, Solute Composition, and the Occurrence of Aquatic Mollusks Are Related (abstract) In "Program and Abstracts GSA Annual Meeting", 25-28 October, 1999. Denver, Colorado.

- Sharpe, S.E. (1999) The Relation between Solute Composition and Molluscan Occurrence In "Proceedings 7th International Conference on Salt Lakes", September 12-15, 1999. Death Valley, California.
- Johnson, W.G., Holz, B.A., **Sharpe**, S.E., (1999) Bison Bone Deposits in Eastern Nevada: A Multidisciplinary Approach. (abstract) In "Program and Abstracts Society of American Archaeology 64th Annual Meeting, 24-28 March, 1999, Chicago.
- Sharpe, S.E., Forester, R.M., Whelan, J.F., and Moscati, R.J. (1998) How Accurately Does Gastropod Shell $\delta^{18}\text{O}$ Record Hydrologic Balance? (abstract) In "Program and Abstracts GSA Annual Meeting", 26-29 October, 1998. Toronto, Canada.
- Sharpe, S.E. (1998) Using Lake, Spring, and Wetland Mollusks as Indicators of Modern and Paleo-Hydrochemistry. Ph.D. dissertation. University of Nevada, Reno, 148 p.
- Sharpe, S., Reinhardt, R., Lancaster, J., Buck, P., Hartwell, W., Wade, T., McCurdy, G. Wigand, P., Livingston, S., House, P. (1998) The Grand Staircase-Escalante National Monument: An Ideal Site to Monitor Climate Variability and Change. In "Grand Staircase-Escalante National Monument Science Symposium Proceedings 1997". USDOI BLM/UT/GI-98/006+1220.
- House, P.K., McDonald, E.V., **Sharpe**, S.E., and Wigand, P.E. (1997) Using Geological Evidence to Establish the Long-term Context of the January 1997 Truckee River Flood, Western Nevada. (abstract) In "Program and Abstracts American Geophysical Union Fall Meeting, December, 1997. San Francisco, CA.
- Sharpe, S.E., Forester, R.M., and Firby, J.R. (1997) Hydrochemistry and Mollusks: Establishing the Link. In "Program and Abstracts GSA Annual Meeting", 20-23 October, 1997. Salt Lake City, UT.
- Sharpe, S.E. (1997) How Aqueous Geochemistry Affects Lacustrine Mollusks. (abstract) In "Program and Abstracts Combined Annual Meeting American Malacological Union and Western Society of Malacologists", 21-27 June 1997.
- Firby, J.R., **Sharpe**, S.E., Whelan, J.F., Smith, G.R., and Spaulding, W.G. (1997) Paleobiotic and Isotopic Analysis of Mollusks, Fish, and Plants from Core OL-92: Indicators for an Open or Closed Lake System. In "An 800,000-Year Paleoclimatic Record from Core OL-92, Owens Lake, Southeast California". G.I. Smith and J.L. Bischoff, eds. Geological Society of America Special Paper 317, Boulder, CO, pp. 121-125.
- Sharpe, S.E. (1996) A Modern Lacustrine Mollusc and Hydrochemistry Linkage. (abstract) In "AmQua Program and Abstracts of the 14th Biennial Meeting", 20-22 May 1996.

- Sharpe, S.E., Whelan, J.F., Forester, R.M., and Burdett, J. (1995) Snails, Stable Isotopes, and Southwestern Desert Paleoclimates. (abstract) In "Proceedings: Climate Change in the Four Corners and Adjacent Regions: Implications for Environmental Restoration and Land-Use Planning". NTIS Conf-9409325. Grand Junction, CO.
- Sharpe, S.E., Whelan, J.F., and Forester, R.M. (1994) Southern Nevada Land Snails: A Proxy for Late Glacial Summertime Precipitation Patterns. In "Program and Abstracts GSA Annual Meeting", 24-27 October, 1994. Seattle, WA.
- Spence, J.R., **Sharpe**, S.E., Hogue, K., and Graham, T. (1994) Floristic Composition and Biogeography of Isolated Stands of Pseudotsuga menziesii on the Colorado Plateau. In "Program and Abstracts Climate Change in the Four Corners and Adjacent Regions: Implications for Environmental Restoration and Land-Use Planning". DOE, DRI, BLM and Mesa State College, Sponsors. 13-14 September 1994, Grand Junction, CO.
- Sharpe, S.E., Whelan, J.F., Forester, R.M., Rose, M.R., and Moscati, R.J. (1994) Paleoclimatic and Biogeographic Inferences from Stable Isotope and Community Analysis of Great Basin Land Snails. In "Program and Abstracts The Western Society of Malacologists", 27th Annual Meeting, 26-29 June 1994, Santa Barbara, CA.
- Sharpe, S.E., Whelan, J.F., Forester, R.M., Rose, M.R. (1994) Quaternary Paleoclimatology from Community and Stable Isotope Studies of Terrestrial Snails. In "AmQua Program and Abstracts of the 13th Biennial Meeting", 19-22 June 1994, Minneapolis, Mn.
- Wigand, P.E., Hemphill, M.L., **Sharpe**, S.E., and Patra, S.M. (1994) Late Quaternary Precipitation Increases in the Great Basin as Revealed by Paleoclimatic Proxy Data. In "AmQua Program and Abstracts of the 13th Biennial Meeting", 19-22 June 1994, Minneapolis, Mn.
- Sharpe, S.E., Whelan, J.F., Forester, R.M., and McConnaughey, T. (1994) Molluscs as Climate Indicators: Preliminary Stable Isotope and Community Analysis. In "The 5th Annual International High-Level Radioactive Waste Management Conference and Exposition", May 22-26 1994, Las Vegas, NV. p. 2538-2544.
- Sharpe, S.E. (1994) Pollen in the Archaeological Record: How Much Can it Tell Us? The Canyon Legacy **20**, 14-18.
- Sharpe, S.E. (1993) Late-Pleistocene and Holocene Vegetation Change in Arches National Park, Utah. In "Proceedings: First Biennial Conference on Research in Colorado Plateau Parks", 22-25 July 1991, Flagstaff, AZ.
- Sharpe, S.E. (1993) A Nearly Continuous Holocene Record of Molluscs from Cedar Breaks National Monument, Utah. In "Program and Abstracts The Western Society of

- Malacologists", 26th Annual Meeting, 27 June-1 July 1993, La Jolla, CA.
- Sharpe, S.E. (1993) Ecological Tolerances of Aquatic Molluscs in Ash Meadows, Nevada. Technical Report submitted to U.S. Fish and Wildlife Service, Desert National Wildlife Refuge Complex, Las Vegas, NV.
- Sharpe, S.E. (1992) Bison and Bighorn Remains Documented in Arches National Park. Colorado Plateau, Quarterly Newsletter for Research and Resource Management of Colorado Plateau National Parks. Vol. 2 (4) Fall 1992.
- Sharpe, S.E. (1992) Geology at a Snail's Pace. The Canyon Legacy **13**, 26-27.
- Mead, J.I., **Sharpe**, S.E., and Agenbroad, L.D. (1991) Holocene Bison from Arches National Park, Southeast Utah. Great Basin Naturalist 51(4), 336-342.
- Sharpe, S.E. (1991) Late-Pleistocene and Holocene Vegetation Change in Arches National Park. In "Program and Abstracts First Biennial Conference on Research in Colorado Plateau National Parks", 22-25 July 1991, Flagstaff, AZ.
- Sharpe, S.E. (1991) "Late Pleistocene and Holocene Vegetation Change in Arches National Park, UT and Dinosaur National Monument, CO." M.S. thesis, N. Arizona Univ., Flagstaff.