

Curriculum Vitae for **Dr. James R. Ehleringer**

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Education:

B.S.	San Diego State University	1972
M.S.	San Diego State University	1973
Ph.D.	Stanford University	1977

University of Utah Affiliations:

2000-present	Distinguished Professor, School of Biological Sciences, http://ecophys.utah.edu
1984-present	Director, Stable Isotope Ratio Facility for Environmental Research (SIRFER); http://sirfer.utah.edu
2009-2015	Director, Global Change and Sustainability Center http://environment.utah.edu
2013-2016	Member, UU Sustainability leadership team, http://sustainability.utah.edu
2008-2010	Research Director, Entrada Field Station, http://riomesa.utah.edu
1993-1996	Chair of Biology, Department of Biology, http://biology.utah.edu
1984-2000	Professor, Department of Biology
1980-1984	Associate Professor, Department of Biology
1977-1980	Assistant Professor, Department of Biology

Commercial Affiliations:

2004-present	Senior scientist or advisor	IsoForensics, Inc., Salt Lake City
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Certifications:

- Certified Approved Forensic Practitioner, Forensic Isotope Ratio Mass Spectrometry Network, 2013-2017 (<http://www.forensic-isotopes.org/fafp.html>)

Research Expertise:

- Plant physiological ecology and ecosystem ecology
- Stable isotope ecology
- Greenhouse gases in natural ecosystems and urban regions
- Stable isotope forensics
- Stable isotopes in plants, animals, hydrology, foods, beverages, and plant products

Ecosystem Field Experience:

Agricultural	Amaranth, castor bean, common bean, cotton, sunflower
Alpine tundra	Colorado
Arid and semi-arid	Argentina, Arizona, Australia, California, Chile, Mexico, Nevada, Utah
Forest	California, Canada, Maine, Massachusetts, Oregon, Utah, Washington
Tropics	Brazil, China, French Guiana, Puerto Rico
Urban	Salt Lake Valley, Utah

Forensic Stable Isotope Ratio Experience:

Anthropology	Bones, food, hair, teeth
Beverages	Beer, juices, milk, coffees, soft drinks, spirits, wines, bottled water, coconut water
Biology - animals	Feathers, tissues, teeth, hair, wool
Biology - microbes	Culture media, spores
Biology - plants	Leaves, tree rings, wood, cellulose, inflorescences
Controlled substances	Cocaine, heroin, marijuana, pseudoephedrine
Explosives	High energy, military, nitrates, peroxides
Foods	Beer, carbohydrates, coconut waters, coffees, honeys, meats, oils, proteins, spirits, wines
Gases	Carbon dioxide, methane, water vapor
Humans	Body water, bone, diet history, fingernails, hair, teeth, travel history
Law enforcement	Controlled substances, explosives, food, fraud, manufactured materials, unidentified decedents,
Manufactured items	Clothing, counterfeits, currencies, documents, inks, paper products
Waters	Drinking water, groundwater, surface water, plants, precipitation, rivers

Courses developed and taught at the University of Utah; current year teaching is in bold:

Biology 1620	Fundamentals of Biology II
Biology 3960	Fresher Seminar and Lab: Stable Isotopes – You Are What You Eat (http://www.ehleringer.net/fresher.html)
Biology 5460/5465	Plant Ecology in a Changing World, Lecture and Laboratory (http://www.plantecology.net)
Biology 5470/5475	Stable Isotope Biogeochemistry and Ecology, Lecture and Laboratory
Biology 6921	Isotopes Seminar
Biology 7463/7465	Stable Isotope Biogeochemistry and Ecology, Lecture and Laboratory (http://www.stableisotopes.net)
Sustainability 6000	Global Changes and Society (originally Biology 7961) (http://environment.utah.edu/students/gcs.html)
Honors 3700	Think Tank – Wasatch Water: Evaporating Opportunities (http://honors.utah.edu/students/engaged-learning/praxis-labs/ecosystem-services-and-the-american-dream/)

National and International Instructional Courses Developed:

1996-2019	IsoCamp, Stable Isotope Biogeochemistry and Ecology Lectures and Laboratory (Originator and coordinator), http://stableisotopes.net
Intermittent	Stable Isotopes in Forensics, Salt Lake City and Washington D.C.

Honors and Distinctions:

2017	Outstanding Education Program in Earth and Space Science, American Geophysical Union
2016	The Ehleringer Prize, annual named prize recognizing an outstanding graduate student ecological publication in <i>Oecologia</i> each year
2016	Rosenblatt Prize for Excellence, University of Utah
2016	Elected to the U.S. National Academy of Sciences
2016	Elected as Fellow of the Ecological Society of America
2008	Elected as Fellow of the American Geophysical Union
2000	Elected Distinguished Professor, University of Utah
1999	Governors Medal for Science and Technology, State of Utah

1999	Elected as Fellow of the American Association for Advancement of Science
1998	Students Choice Award for Teaching, University of Utah
1988	Distinguished Research Award, University of Utah
1984	Alexander von Humboldt Fellowship
1978	Murray Buell Award, Ecological Society of America
1974-1977	Carnegie Predoctoral Fellow, Carnegie Institution of Washington, Stanford
1974	Achievement Rewards for College Scientists (ARCS) Scholarship
1971	Outstanding Graduating Senior, Sciences, San Diego State University
1969-1971	Golden Scholarship, San Diego State University

Professional Service:

Editorial Boards:

Editorial Board	Oecologia	1982-present
Editor-in-chief	Oecologia	1989-2006
Editorial Board	Physiological Ecology Series, Academic Press	1988-2004
Editorial Board	Plant Cell Environment	1992-2012
Editorial Board	Trends in Plant Science	1998-2007
Editorial Board	Tree Physiology	1998-2014
Editorial Board	Functional Ecology	1986-2000
Section Head	Physiological Ecology, Faculty of 1000	2004-2010

Advisory Boards and Consortia:

1986-2011	Ecology Institute Board (Terrestrial Ecology), Oldendorf
1992-1994	Physiological Ecology Section, Ecological Society of America, Chair
1997-2003	Global Change and Terrestrial Ecosystems (GCTE), Focus 1 Office, Core Project of the International Geosphere Biosphere Program (IGBP), Chair
1997-2006	Biosphere-Atmosphere Stable Isotope Network (BASIN), Chair
1997-2010	Biosphere-Atmosphere Stable Isotope Network (BASIN), Steering Committee
1998-2003	Carbon Science Working Group, IGBP
1999-2003	Global Change and Terrestrial Ecosystems (GCTE), Vice Chair
2000-2009	Max-Planck-Institut für Biogeochemie, Advisory Board
2002-2008	NITECRIME, member
2004-2005	Research Infrastructure Committee, National Ecological Observatory Network
2007-2009	National Ecological Observatory Network (NEON), Board of Directors
2004-present	Founding member, Forensic Isotope Ratio Mass Spectrometry Network, FIRMS
2006-2018	Biological and Environmental Research Advisory Committee (BERAC), U.S. Department of Energy
2015-2018	Western Water Alliance, External Advisory Board
2015-2018	Mountain Accord (central Wasatch Mountains), Environmental Subcommittee
2018-present	Friends of Alta, board member

Scientific Review Boards:

1983-2005, various years	NSF, panel member
1983-1992, various years	USDA, panel member
1986-1987	Plant Response to Environmental Stress, USDA-CRGO, Program Manager
1990-2017, various years	DOE, panel member
1990-1992	National Research Council, Committee on Plant Sciences

1993-1994	U.S. Nuclear Waste Regulatory Board, panel member
2001-2004, various years	NASA, panel member
2016-present	Division of Environment and Life Sciences Advisory Panel, U.S. National Academy of Sciences

Workshops and Events (Organizer or Co-organizer):

1984	Workshop on Future Needs in Physiological Ecology, Asilomar
1986	Stable Isotopes in Ecology, Lake Arrowhead
1990	Ecological Society of America, 75th Annual Meeting, Snowbird
1990	Workshop on Scaling in Ecology, Snowbird
1992	Carbon and Water Relations Perspectives from Stable Isotopes, Riverside
1995	Ecological Society of America, 80th Annual Meeting, Snowbird
1997	Biosphere-Atmosphere Stable Isotope Network Workshop, Snowbird
1998	Biosphere-Atmosphere Stable Isotope Network Workshop, Barcelona
2000	GCTE International Science Conference, Barcelona
2000	Controls Over Soil Respiration and Decomposition Workshop (GCTE), Jena
2000	Ecological Society of America, 85th Annual Meeting, Snowbird
2000	CO ₂ Boundary Layer Budget Flux Methods Workshop, Gubbio
2001	Atmospheric CO ₂ and its Effects on Plants, Animals and Ecosystems, Snowbird
2002	Stable Isotopes in Biosphere-Atmosphere Interactions, Banff
2003	Stable Isotopic Signals of the Terrestrial Biosphere: Linking Ecosystem C fluxes to Isotopic Signals of Plant Components, Orvieto
2004	Partitioning of Fluxes Between the Biosphere and the Atmosphere Across Spatial Scales, Interlaken
2004	On the Formation of a National Stable Isotope Network in NEON, Park City
2005	Stable Isotopes in the National NEON Plan, Tucson
2005	Lead coordinator for purchase and development of the Entrada Ranch in southern Utah as a University facility for research, teaching, and outreach
2006	Chair of DOE-BERAC Subcommittee review of elevated CO ₂ ecosystem research within the Department of Energy
2006	Lead coordinator to develop site locations and RFI responses for NEON research in the Great Basin (Domain 15)
2006	Isotopes as Recorders of Ecological Change, Tomar
2009	Lead development of Global Change and Sustainability Center, University of Utah
2010	Co-lead development of EPSCoR Track-1: iUTAH, Urban Transitions and Aridregion Hydro-sustainability
2015	Co-lead, Workshop on the Development of an IFL Urban Observatory, BERAC, DOE

Publications (last ten years, 2009-2019):

396. West, J.B., J.M. Hurley, and J.R. Ehleringer. 2009. The isotopic signatures of marijuana cultivation. I. Carbon and nitrogen stable isotopes describe the growth regime. *Journal of Forensic Science* 54:1-6. doi:10.1111/j.1556-4029.2008.00909.x
397. Chesson, L.A., J.R. Ehleringer, and T.E. Cerling. 2009. American fast food isn't all corn-based. *Proceedings of the National Academy of Sciences USA* 106(6):E8, doi:10.1074/pnas.0811787106.
398. Bowen, G.J., J.R. Ehleringer, L.A. Chesson, A. Thompson, D. Podlesak, and T.E. Cerling. 2009. Dietary and physiological controls on the hydrogen and oxygen isotope ratios of hair from mid-20th century indigenous populations. *American Journal of Physical Anthropology*

- doi:10.1002/ajpa.21008.
399. Bowen, G.J., J.B. West, B.H. Vaughn, T.E. Dawson, J.R. Ehleringer, M. L. Fogel, K. Hobson, J. Hoogewerff, C. Kendall, C.-T. Lai, C.C. Miller, D. Noone, H. Schwarcz, and C.J. Still. 2009. Isoscapes to address large-scale Earth science challenges. *EOS* 90:109-110.
400. Cerling, T.E., G. Wittemyer, J.R. Ehleringer, C.H. Remien, and I. Douglas-Hamilton. 2009. History of animals using isotope records (HAIR): a 6-year dietary history of one family of African elephants. *Proceedings of the National Academy of Sciences USA* 106:8093-8100. doi: 10.1073/pnas0902192106.
401. Dennison, P.E., P.L. Nagler, K.R. Hultine, E.P. Glenn, and J.R. Ehleringer. 2009. Remote monitoring of tamarisk defoliation and evapotranspiration following saltcedar leaf beetle attack. *Remote Sensing of Environment* 113:1462-1472. doi:10.1016/j.rse.2008.05.022.
402. Chesson, L.A., D.W. Podlesak, T.E. Cerling, and J.R. Ehleringer. 2009. Evaluating uncertainty in the calculation of non-exchangeable hydrogen fractions within organic materials. *Rapid Communications in Mass Spectrometry* 23:1275-1280.
403. West, J.B., J.M. Hurley, F.O. Dudas, and J.R. Ehleringer. 2009. The isotopic signatures of marijuana cultivation. II. Strontium isotopes relate to geographical origin. *Journal of Forensic Science* 54:1261-1269.
404. Hultine, K.R., J. Belnap, C. van Ripper, J.R. Ehleringer, P.E. Dennison, M.E. Lee, P.L. Nagler, K.A. Snyder, S.M. Uselman, and J.B. West. 2009. Biocontrol of tamarisk in the western United States: an event underway with significant ecological and societal implications. *Frontiers in Ecology and the Environment* 8:467-474; doi:10.1890/090031.
405. Chesson, L.A., D.W. Podlesak, B.R. Erkkila, T.E. Cerling, and J.R. Ehleringer. 2009. Isotopic consequences of consumer food choice: hydrogen and oxygen stable isotope ratios in foods from fast food restaurants *versus* supermarkets. *Food Chemistry* 119:1250-1256; doi:10.1016/j.foodchem.2009.07.046.
406. Thompson, A.H., L.A. Chesson, D.W. Podlesak, G.J. Bowen, T.E. Cerling, and J.R. Ehleringer. 2010. Stable isotope analysis of modern human hair collected along an Asian geographic transect. *American Journal of Physical Anthropology* 141:440-451.
407. Ehleringer, J.R., A.H. Thompson, D. Podlesak, G.J. Bowen, L.A. Chesson, T.E. Cerling, T. Park, P. Dostie, and H. Schwarcz. 2010. A framework for the incorporation of isotopes and isoscapes in geospatial forensic investigations, p. 357-387. In J. West, G.J. Bowen, T.E. Dawson, and K. Tu (eds.), *Isoscapes: understanding movement, pattern, and process on Earth through isotope mapping*. Springer Verlag, New York.
408. West, J.W., H. Kreuzer, and J.R. Ehleringer. 2010. Approaches to plant hydrogen and oxygen isoscapes generation, p. 161-178. In J. West, G.J. Bowen, T.E. Dawson, and K. Tu (eds.), *Isoscapes: understanding movement, pattern, and process on Earth through isotope mapping*. Springer Verlag, New York.
409. Hurley, J.M., J.B. West, and J.R. Ehleringer. 2010. Tracing retail marijuana in the United States: geographic origin and cultivation patterns. *International Journal of Drug Policy* 21:222-228. doi:10.1016/j.drugpo.2009.08.001

410. Hurley, J.M., J.B. West, and J.R. Ehleringer. 2010. Stable isotope models to predict region-of-origin and cultivation conditions of marijuana. *Science and Justice* 50:86-93.
411. Chesson, L.A., L.O. Valenzuela, S.P. O'Grady, T.E. Cerling, and J.R. Ehleringer. 2010. Hydrogen and oxygen stable isotope ratios of milk in the United States. *Journal of Agricultural and Food Chemistry* 58:2358-2363. doi:10.1021/jf904151c.
412. Chesson, L.A., L.O. Valenzuela, S.P. O'Grady, T.E. Cerling, and J.R. Ehleringer. 2010. Links between purchase location and the stable isotope ratios of bottled water, soda, and beer in the United States. *Journal of Agricultural and Food Chemistry* 58:7311-7316;doi:10.1021/jf1003539.
413. Ehleringer, J.R., and D.R. Sandquist. 2010. Photosynthesis: physiological and ecological considerations, pages . In. L. Taiz and E. Zeiger (eds.), *Plant physiology*, 5th edition, Sinauer Associates, Sunderland, MA.
414. Hultine, K.R., S.E. Bush, and J.R. Ehleringer. 2010. Ecophysiology of riparian cottonwood and willow before, during and after two years of soil water removal. *Ecological Applications* 20:347-361.
415. O'Grady, S.P., A.R. Wende, C.H. Remien, L.O. Valenzuela, L.E. Enright, L.A. Chesson, E.D. Abel, T.E. Cerling, and J.R. Ehleringer. 2010. The stable isotope signature of body water as a biomarker of aberrant water homeostasis: diabetes mellitus, an index case. *PLoS ONE* 5(7):e11699. doi:10.1371/journal.pone.0011699.
416. Lai, C.-T., and J.R. Ehleringer. 2010. Deuterium excess reveals diurnal sources of water vapor in forest air. *Oecologia* doi 10.1007/s00442-010-1721-2.
417. Chesson, L.A., G.J. Bowen, and J.R. Ehleringer. 2010. Analysis of the hydrogen and oxygen stable isotope ratios of beverage waters without prior water extraction using isotope ratio infrared spectroscopy. *Rapid Communications in Mass Spectrometry* 25:3205-3213; doi:10.1002/rcm.4759.
418. Hultine, K.R., P.L. Nagler, K. Morino, S.E. Bush, K.G. Burtch, P.E. Dennison, E.P. Glenn, and J.R. Ehleringer. 2010. Sap flux-scaled transpiration by tamarisk (*Tamarix* spp.), before, during and after episodic defoliation by the saltcedar leaf beetle (*Diorhabda carinulata*). *Agricultural and Forest Meteorology* 150:1467-1475; doi:10.1016/j.agrformet.2010.07.009.
419. Ehleringer, J.R., and S.M. Matheson Jr. 2010. Stable isotopes and courts. *Utah Law Review* 2010 (2):385-442.
420. Bush, S.E., K.R. Hultine, J.S. Sperry, and J.R. Ehleringer. 2010. Calibration of thermal dissipation sap flow probes for ring- and diffuse-porous trees. *Tree Physiology* 30:1545-1554.
421. O'Grady, S.P., L.E. Enright, J.E. Barnette, T.E. Cerling, and J.R. Ehleringer. 2010. Accuracy and precision of a laser-spectroscopy approach to the analysis of $\delta^2\text{H}$ and $\delta^{18}\text{O}$ in human urine. *Isotopes in Environmental and Health Studies* 46:476-483.
422. Rodushkin, I., D.C. Baxter, E. Engström, J. Hoogewerff, P. Horn, W. Papesch, J. Watling, C. Latkoczy, G. van der Peijl, S. Berends-Montero, J. Ehleringer, and V. Zdanowicz. 2011. Elemental and isotopic characterization of cane and beet sugars. *Journal of Food Composition*

- and Analysis 24:70-78. doi:10.1016/j.jfca.2010.05.005.
423. Chesson, L.A., B.J. Tipple, B.R. Erkkila, T.E. Cerling, and J.R. Ehleringer. 2011. B-HIVE: Beeswax Hydrogen Isotopes as Validation of Environment. Part 1. Bulk honey and honeycomb stable isotope analysis. *Food Chemistry* 125:576-581; doi:10.1016/j.foodchem.2010.09.050.
424. Kennedy, C.D., G.J. Bowen, and J.R. Ehleringer. 2011. Temporal variations of oxygen isotope ratios ($\delta^{18}\text{O}$) in drinking water: Implications for specifying location of origin with human scalp hair. *Forensic Science International* doi:10.1016/j.forsciint.2010.11.021.
425. Martinelli, L.A., G.B. Nardoto, L.A. Chesson, F.D. Rinaldi, J.P.H.B. Ometto, T.E. Cerling, and J.R. Ehleringer. 2011. Worldwide stable carbon and nitrogen isotopes of Big Mac® patties: an example of a truly “glocal” food. *Food Chemistry* 127:1712-1718. doi:10.1016/j.foodchem.2011.02.046.
426. Barnette, J.E., M.J. Lott, J.D. Howa, D. W. Podlesak, and J.R. Ehleringer. 2011. $\delta^2\text{H}$ and $\delta^{18}\text{O}$ isotope values in hydrogen peroxide. *Rapid Communications in Mass Spectrometry* 25:1422-1428. doi:10.1022/rcm.5004
427. Dang, X., C.-T. Lai, D.Y. Hollinger, A.J. Schauer, J. Xiao, J.W. Munger, C. Owensby, and J.R. Ehleringer. 2011. Combining tower mixing ratio and community model data to estimate regional-scale net ecosystem carbon exchange by boundary layer inversion over four flux towers in the United States. *Journal of Geophysical Research - Biogeosciences* 116:G03036, doi:10.1029/2010JG001554.
428. Ehleringer, J.R., J.F. Casale, J.E. Barnette, X. Xu, M.J. Lott, and J.M. Hurley. 2011. ^{14}C analyses quantify time lag between coca leaf harvest and street-level seizure of cocaine. *Forensic Science International* doi:10.1016/j.forsciint.2011.05.003.
429. Strong, C., C. Stwertka, D.R. Bowling, B.B. Stevens, and J.R. Ehleringer. 2011. Urban carbon dioxide cycles within the Salt Lake Valley: a multiple box model validated by observations. *Journal of Geophysical Research - Atmospheres* 116:D15307, doi:10.1029/2011JD015693.
430. Valenzuela, L.O., Chesson, L.A., S. O’Grady, T.E. Cerling, and J.R. Ehleringer. 2011. Spatial distributions of carbon, nitrogen and sulfur isotope ratios in human hair across the central United States. *Rapid Communications in Mass Spectrometry* 25:861-868, doi:10.1002/rcm.4934.
431. Chesson, L.A., J.R. Ehleringer, and T.E. Cerling. 2011. Light-element isotopes (H, C, N, and O) as tracers of human diet: a case study on fast food meals, pages 707-723. Chapter 33. In M. Baskaran (ed.), *Handbook of Environmental Isotope Geochemistry. Advances in Isotope Geochemistry*. Springer Verlag, Berlin.
432. Chesson, L.A., L.O. Valenzuela, G.J. Bowen, T.E. Cerling, and J.R. Ehleringer. 2011. Consistent predictable patterns in the hydrogen and oxygen stable isotope ratios of animal proteins consumed by modern humans in the USA. *Rapid Communications in Mass Spectrometry* 25:3713-3722.
433. Ehleringer, J.R., J.F. Casale, J.E. Barnette, X. Xu, M.J. Lott, and J.M. Hurley. 2011. $\Delta^{14}\text{C}$ calibration curves for modern plant material from tropical regions of South America. *Radiocarbon* 53(4):585-594.

434. Podlesak, D.W., G.J. Bowen, S. O'Grady, T.E. Cerling, and J.R. Ehleringer. 2012. $\delta^2\text{H}$ and $\delta^{18}\text{O}$ of human body water: a GIS model to distinguish residents from non-residents in the contiguous USA. *Isotopes in Environmental and Health Studies* 48:259-279. doi:10.1080/10256016.2012.644283
435. Valenzuela, L.O., L.A. Chesson, G.J. Bowen, T.E. Cerling, and J.R. Ehleringer. 2012. Dietary heterogeneity among western industrialized countries reflected in the stable isotope ratios of human hair. *PLoS ONE* 7(3):e34234. doi:10.1371/journal.pone.0034234.
436. Tipple, B.J., L.A. Chesson, B.R. Erkkila, T.E. Cerling, and J.R. Ehleringer. 2012. B-HIVE: Beeswax hydrogen isotopes as validation of environment. Part II. Compound-specific hydrogen isotope analysis. *Food Chemistry* 134(1):494-501. doi:10.1016/j.foodchem.2012.02.106
437. O'Grady, S.P., L.O. Valenzuela, C.H. Remien, L.E. Enright, M.J. Jorgensen, J. Kaplan, J.D. Wagner, T.E. Cerling, and J.R. Ehleringer. 2012. Hydrogen and oxygen isotope ratios in body water and hair: modeling isotope dynamics in nonhuman primates. *American Journal of Primatology* 74(7):651-660. doi:10.1002/ajp.22019
438. McKain, K., S.C. Wofsy, T. Nehrjorn, J. Eluszkiewicz, J. R. Ehleringer, and B.B. Stephens. 2012. Assessment of ground-based atmospheric observations for verification of greenhouse gas emissions from urban areas. *Proceedings of the National Academy of Sciences USA* 109:8423-8428.
439. Chesson, L.A., B.J. Tipple, G.N. Mackey, S.A. Hynek, D. Fernandez, and J.R. Ehleringer. 2012. Strontium isotope ratios of tap water from the coterminous USA. *Ecosphere* 3(7): <http://dx.doi.org/10.1890/ES1812-00122.00121>.
440. Kreuzer, H.W., J.B. West, and J.R. Ehleringer. 2012. Forensic applications of light-element stable isotope ratios of *Ricinus communis* seeds and ricin preparations. *Journal of Forensic Sciences* 58:S43-S51. doi:10.1111/1556-0429.12000.
441. Webb-Robertson, B.J., H. Kreuzer, G. Hart, J. Ehleringer, J. West, G. Gill, and D. Duckworth. 2012. Bayesian integration of isotope ratio for geographic sourcing of castor beans. *Journal of Biomedicine and Biotechnology* Volume 2012, Article ID 450967, doi:10.1155/2012/450967.
442. Tipple, B.J., M.A. Berke, C.E. Doman, S. Khachatryan, and J.R. Ehleringer. 2013. Leaf *n*-alkanes record the plant-water environment at leaf flush. *Proceedings of the National Academy of Sciences USA* 110(7):2659-2664. doi:10.1073/pnas.1213875110.
443. Domingues, T.F., L.A. Martinelli, and J.R. Ehleringer. 2013. Seasonal patterns of leaf-level photosynthetic gas exchange in an eastern Amazonian rain forest. *Plant Ecology & Diversity* doi:10.1080/17550874.2012.748849.
444. Hultine, K.R., K.G. Burtch, and J.R. Ehleringer. 2013. Gender specific patterns of carbon uptake and water use in a dominant riparian tree species in a warming climate. *Global Change Biology* 19:3390-3405. doi:10.1111/gcb.12230.
445. Tipple, B.J., T. Chau, L.A. Chesson, D.P. Fernandez, and J.R. Ehleringer. 2013. Isolation of strontium pools and isotope ratios in modern hair. *Analytica Chimica Acta* 798:64-73.
446. Chesson, L.A., B. Tipple, B. Erkkila, and J.R. Ehleringer. 2013. Hydrogen and oxygen stable

- isotope analysis of pollen collected from honey. *Grana* 52:305-315. doi:10.1080/00173134.2013.841751.
447. Chesson, L.A., B.J. Tipple, J.D. Howa, G.J. Bowen, J.E. Barnette, T.E. Cerling, and J.R. Ehleringer. 2014. Stable isotopes in forensic applications. In H.D. Holland and K.K. Turekian (eds.), *Treatise of Geochemistry, Second Edition*, vol. 14, pages 285-317. Oxford, London.
448. Thompson, A.H., A.S. Wilson, and J.R. Ehleringer. 2014. Hair as a geochemical recorder: ancient to modern, pages 371-393. In H.D. Holland and K.K. Turekian (eds.), *Treatise of Geochemistry, Second Edition*, vol. 14. Oxford, London
449. Remien, C., F.R. Adler, L.A. Chesson, L.O. Valenzuela, J.R. Ehleringer, and T.E. Cerling. 2014. Deconvolution of isotope signals from bundles of multiple hairs. *Oecologia* 175:781-789. doi: 10.1007/s00442-014-2945-3
450. Howa, J.D., M.J. Lott, L.A. Chesson, and J.R. Ehleringer. 2014. Carbon and nitrogen isotope ratios of factory produced RDX and HMX. *Forensic Science International* 240:80-87. Doi:10.1016/j.forsciint.2014.04.013
451. Howa, J.D., M.J. Lott, L.A. Chesson, and J.R. Ehleringer. 2014. Isolation and stable nitrogen isotope analysis of ammonium ions in ammonium nitrate pills using sodium tetraphenylborate. *Rapid Communications in Mass Spectrometry* 28:1530-1534, <http://dx.doi.org/10.1002/rcm.6929>
452. Chesson, L.A., B.J. Tipple, J.E. Barnette, T.E. Cerling, and J.R. Ehleringer. 2014. The potential for application of ink stable isotope ratio analysis in questioned document examination. *Science & Justice*, doi:10.1016/j.scijus.2014.05.010
453. Ehleringer, J.R., and D.R. Sandquist. 2014. Photosynthesis: physiological and ecological considerations, pages 245-268. In L. Taiz, E. Zeiger, I.M. Moller, and A. Murphy (eds.), *Plant physiology and development*, 6th edition, Sinauer Associates, Sunderland, MA.
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Manuscripts in press:

1. Valenzuela, L.O., L.A. Chesson, G. Bowen, T.E. Cerling, and J.R. Ehleringer. 2020. Spatial distribution of stable isotopes values of human hair: tools for region of origin and travel history assignment. In R. Parra, S.C. Zapico, and D.H. Ubelaker (editor), *Forensic science and humanitarian action: Interacting with the dead and the living*.

Manuscripts in review:

2. Bitter, N.Q., D. Fernandez, A.W. Driscoll, J.D., Howa, and J.R. Ehleringer. Distinguishing the region-of-origin of roasted coffee beans with trace element ratios. *Journal of Food Science* (in review)
3. Ehleringer, J.R., S. Covarrubias, B.J. Tipple, L.O. Valenzuela, and T. E. Cerling. Stable isotopes in hair reveal dietary protein sources with links to socioeconomic status and health across the United States. *Proceedings of the National Academy of Sciences USA* (in review)
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Graduate and Postgraduate Training:

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William Schuster
Susan Schwinning
Francisco Squeo
Alexandra Thompson
Brett Tipple
Luciano Valenzuela
Julia Verville
Joy Ward
Jason West
David Williams

Patents:

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