TEXAS STATE VITA

I. Academic/Professional Background

A. Name:

Susanne Schwinning, Professor of Biology

B. Educational Background

Ph.D. 1994 University of Arizona, Tucson, Ecology and Evolutionary Biology

M.S. 1986, University of California, Davis, Plant Physiology

Diplom 1984, University of Göttingen, Germany, Biology

C. University Experience

Professor, Texas State University, Sep 2016 – present

Associate Professor, Texas State University, Sep 2011 – present

Assistant Professor, Texas State University, Jan 2005 – Aug 2011

Academic Associate, University of Arizona, Jan 2001 - present

Postdoctoral Fellow, Columbia University's Biosphere 2 Center, Jan 2002 - Dec 2003

Postdoctoral Fellow, University of Utah, Apr 1997- Dec 2001

Teaching Assistant, University of Arizona, Jan 1988 - May 1994

Lab Technician, University of Nebraska, Jan 1987 - Dec 1987

Lab Assistant, University of California, Aug 1985 - Dec 1986

D. Relevant Professional Experience

Science Officer, BBSRC Institute of Grassland and Environmental Research, Okehampton, K
Jun 1994 - Mar 1997

II. TEACHING

A. Teaching Honors and Awards:

None

B. Courses Taught:

1. Lectures

Modern Biology II, BIO 1421, Texas State University

Plant Water Relations, BIO 7355, Texas State University

Introduction to Ecological Modeling, BIO7368/7469, Texas State University

General Ecology, BIO 4416, Texas State University

Ecology, EEB 302, University of Arizona

Rangeland Management, RM446, University of Arizona

2. Seminars and Research Courses

Population and Conservation Biology Seminar, BIO 7210, Texas State University

Half-Baked Ideas Seminar, BIO 7101, Texas State University

Ecohydrology Seminar, BIO 7102, Texas State University

Undergraduate Research, BIO 4299, Texas State University

Research & Research Experience, BIO 7303/714/7214/7314, Texas State University

Honors Thesis, HON 4390B

Thesis, BIO 4399, Texas State University

Dissertation, BIO 7399, Texas State University

C. Graduate Theses/Dissertations or Exit Committees:

1. Ph.D. students

Sabina Prajapati, “Plant-soil interactions in prairie restoration” (dissertation co-director with Jason Martina), expected completion Fall 2027

Eli Hartung, “Rockwater use by pants on the Edwards Plateau” (dissertation director), expected completion Fall 2027

Tilak Chaudhary, “Understanding the coupled effect of global change on grassland stability” (committee member), expected completion Fall 2027

Alyssa Haram, “Investigating alternative stable states in a model, in a mesocosm study, and by remote sensing”. (committee member)

Caroline Mierzejewski, “Dynamics and invertebrate biology of the hyporheic zone in a karst stream of Texas” (committee member)

Exit committees:

Nicole Davis, "Predicting future range expansion of whooping crane (*Grus Americana*) winter habitat using long-term census and remotely sensed data", Spring 2019 (committee member)

Benjamin Tobin, "Contributions of Karst Groundwater to Water Quality and Quantity in a Mountain River Basin under Varying Climatic Conditions: The Kaweah River, Sequoia and Kings Canyon National Parks, California". Texas State University-San Marcos, Spring 2013 (committee member)

Adrian Vogl, "Resilience analysis and management in the Cypress Creek Watershed, Wimberley, Texas". Texas State University-San Marcos, Spring, 2011 (committee member)

Ana Veronica Gonzalez, "Spatial pattern and rates of change in the vegetation of eastern Edwards Plateau's savannas of Central Texas". University of Texas at Austin, August 2010 (committee member)

Alessandra Fravolini, "Response of mesquite (*Prosopis velutina* Woot.) carbon-water relations to variations in soil texture and precipitation". The University of Texas, Tucson, May, 2006 (committee member)

2. Master's students

Annette Oketch, "Establishing designed prairie communities – do germination traits matter?", Sustainability Program, Expected completion: Spring 2027

Crosby Wahlberg, "Examining the recruitment niche of Cedar sedge (*Carex planostachy*) and Ashe juniper (*Juniperus ashii*) of central Texas", Expected completion: Fall 2029 (thesis director)

Exit committees:

Aarin Sengsirirak, "Effect of juniper or pine tree death on recruitment in a pinyon pine-juniper woodland in New Mexico". Expected completion: Spring 2026 (thesis director)

Emily Jenkins, "Red oak regeneration and relationships to mycorrhizal fungi". December 2025 (thesis director).

Elise Williams, "Between a rock and a hard place: an investigation of rock squirrel (*Otospermophilus variegatus*) behavioral response to anthropocene change" June 2025 (committee member)

Traci Foulkes, "Assessing the soil carbon storage potential of Texas grasslands after 20 years of restoration", Texas State University, June 2023 (committee member)

Corrie Reasner, "Sapling physiological response to overstory mortality in a semi-arid piñon-juniper woodland." Expected completion: Spring 2023 (committee member, University of New Mexico)

Logan Maxwell, "Restoration of abandoned oil and gas exploration sites on the Colorado Plateau", Texas State University, December 2021 (thesis director)

Sierra DaSilva, "Allelopathy in the invasive warm-season grass *Botriochloa ischaemum*: Investigation of its mechanism and effects on competitor species of the Edwards Plateau". Texas State University, December 2020 (thesis director).

Miguel Aguilar, non-thesis. May 2019 (committee member)

Sarah Eisenmenger, "The effect of staggered planting times on competitive interactions and yield of a bean-corn intercrop". Texas State University. July 2018 (supervisor)

Joshua Newton, "Making a case for intercropping research". Texas State University, December 2018 (committee member)

Amara Garza, "Geometric differences in the clutches of two *Asterocampa* species", Texas State University, May 2018 (committee member)

Nathan Custer, "Climate x ecotype interactions for three shrub species of the Mojave Desert: Which traits predict fitness variation across climate zones?" Texas State University-San Marcos, December 2017 (thesis director)

Sean Anzaldua, non-thesis. Summer 2017 (thesis director)

Beth Crouchet, "Covariates of tree mortality associated with the 2011 Texas Drought". Texas State University-San Marcos, Summer 2016 (thesis director)

Timothy Fotinos, non-thesis, Fall 2015 (committee member)

Philip Chancellor, non-thesis, Fall 2015 (thesis director)

Brett R. Gerard, "Effects of environmental parameters and precipitation dynamics on infiltration and recharge into the Trinity aquifer of central Texas: Fall 2012 (committee member)

Scott Havill, "Theoretical considerations regarding the control of invasive grasses by fire". Texas State University-San Marcos, Fall 2012 (thesis director)

Heather Meckel, "Susceptibility to encroachment by invasive plant species of monocultures and mixtures". (thesis director, defense passed, no thesis submitted)

Lisa Jones, "Restoration of an endemic shrub, blackbrush (*Coleogyne ramosissima*) in the Mojave Desert: The effects of seed treatments, predators, and soil depth on germination and survival". Texas State University-San Marcos, Spring 2012 (thesis director)

Kelly Goodsheller, "Differentiation of water use for three dominant species on the Edwards Plateau". Texas State University-San Marcos, anticipated completion: November 2010 (thesis director)

Heather Dammeyer,"Short-term responses of clear cutting on the water supplies, the water status and the growth of survivors: which species have the most to gain"? Texas State University-San Marcos, anticipated completion: November 2010 (thesis director)

Garrett Street, "Modeling forage mediated grouping in grazing ruminants". Texas State University-San Marcos, April 2010 (co-advisor)

Erin Rowley, "Optimizing the use of burning in the control of *Bothriochloa ischaemum* in the Texas Hill Country". Texas State University-San Marcos, December 2009 (thesis director)

Donelle Robinson, "Differential sperm expenditure between species in the sailfin molly, *Poecilia latipinna*". Texas State University-San Marcos, June 2006 (committee member)

D. Courses Prepared and Curriculum Development:

Online version of General Ecology Lab, BIO4416, Texas State University

Online version of Introduction to Ecological Modeling, BIO 7468, Texas State University

Plant Ecology, BIO 4454/5454

Modern Biology II, BIO 1421, Texas State University

Plant Water Relations, BIO 7355, Texas State University

Introduction to Ecological Modeling, BIO7368/7468, Texas State University

General Ecology, BIO 4416, Texas State University

Ecology, EEB 302, University of Arizona

Rangeland Management, RM446, University of Arizona

E. Funded External Teaching Grants and Contracts:

None

F. Submitted, but not Funded, External Teaching Grants and Contracts:

USDA-NIFA-REEU. 2021 – 2026. Animal, Soil, and Plant Immersive Research Experience (ASPIRE) for Underrepresented Undergraduates.. PI: Susanne Schwinning, co-PIs: Kenneth Mix, Merritt Drewery, Elizabeth Benavides (Agriculture Department) (declined, 2021)

NSF-REU (as PI): "COLLABORATIVE PROPOSAL: "Woody Encroachment into Desert Grasslands: Experimental Assessment of the Critical Establishment Phase" (declined, 2007)

NSF-DGE (as co-PI): "Solving Aquatic Resource Conflicts in Variable Rainfall Regions" (declined, 2006)

NSF-DGE (as co-PI): "Interdisciplinary Aquatic Resource Training in a Semi-Arid Region" (2006, declined)

NSF-REU (as PI): "COLLABORATIVE PROPOSAL:" Woody Encroachment into Desert Grasslands: Experimental Assessment of the Critical Establishment Phase" (declined, 2006)

G. Funded Internal Teaching Grants and Contracts:

None

H. Submitted, but not Funded, Internal Teaching Grants and Contracts:

None

I. Other:

Research Experience for Undergraduates:

Romey Swanson, Texas State University, Spring 2006 – Spring 2007

Anthony Rubino, Texas State University, Spring 2006 – Summer 2006

Lindsey Wirth, Texas State University, Spring 2006

Robert Landry, Texas State University, Spring 2006 – Summer 2007

Nathan Levens, Texas State University, Spring 2007 – Fall 2008

Kelly Goodsheller, Texas State University, Fall 2007 – Spring 2008

Chelsea Briggs, Texas State University, Spring 2009 – Summer 2009

Bobby Cast, Texas State University, Fall 2008

Kevin Hancock, Texas State University, Spring 2009 – Spring 2010

Brian Forrest, Texas State University, Fall 2009 – Spring 2010

Daniel Huston, Texas State University, Fall 2010 – Summer 2011

Rachel Snow, Texas State University, Fall 2010 – Fall 2011

Jeremy Allen, Texas State University, Fall 2011 – Spring 2012

John McIntyre, Texas State University, Fall 2011 – Spring 2012

Silas Ott, Texas State University, Spring 2012 – Summer 2012

Cristina Zolezzi, Texas State University, Spring 2014 – Fall 2014

Gisela Salgado, Texas State University, Spring 2014 – Summer 2014

Thomas Montgomery, Texas State University, Summer 2014 – Spring 2015

Alexander Toder, Texas State University, Summer 2014 – Fall 2015

Jeremiah Leach, Texas State University, Fall 2014 – Summer 2015

Jackson Johnson, Texas State University, Fall 2015 – Fall 2017

Matthew Harrison, Texas State University, Spring 2016 – Fall 2017

Charles Bintliff, Texas State University, Summer 2017

Bria Marty, Texas State University, Summer 2016 – Fall 2017

Alexa Brown, Texas State University, Spring 2017 – Summer 2017

Gabriela Alvarez, Texas State University, Fall 2017 – Spring 2018

Mi-Essha Burgess, Texas State University, Fall 2017 – Spring 2018

Whitney Wood, Texas State University, Fall 2017-Spring 2018

Derek Thomas, Texas State University, Spring 2018 – Spring 2018

Elisabeth Sanchez, Texas State University, Spring 2018

Kiley Wood, Texas State University, Summer 2018

Adriana Puzon, Texas State University, Fall 2021- Spring 2018

Caleb Moore, Texas State University, Spring 2023- Summer 2023

Evan Simons, Texas State University, Spring 2023 – Fall 2023

Daniel K Hayes, Texas State University, Summer 2023

Seth L Ross, Texas State University, Summer 2023

Kelly Alexandra Fleming, Texas State University, Fall 2023

Kinley Lowery, Texas State University, Spring 2024

Henry Dagget, Texas State University, Fall 2024 – Spring 2025

Yazmin Juarez, Texas State University, Fall 2024 – Spring 2025

Henry Coleman, Texas State University, Spring 2025- Fall 2025

Emmy Petersen, Texas State University, Fall 2025

Colton Armour, Texas State University, Spring 2025 - Fall 2025

Zachary Suchomel, Texas State University, Summer 2026 – present

Gabriel Carmona, Texas State University, Fall 2026 - present

Sam Regardia, Texas State University, Summer 2026 – present

Undergraduate Honors Theses:

Vera Wood Cruz, "My Watershed: an early elementary curriculum exploring local hydrology", August 2007.

Evan Simons, "Monitoring tree water sources across the escarpment at Aquarena Springs", May 2023.

III. SCHOLARLY/CREATIVE

A. Works in Print

1. Books (if not refereed, please indicate)

None

a. Scholarly Monographs:

None

b. Textbooks:

None

c. Edited Books:

None

d. Chapters in Books:

1. West, S. S., Schwinning, S., Denn, A.D. 2020. Beyond Experiments. In: The Nature of Science in Science Instruction. Rationales and Strategies. Beyond experiments: Considering the range of investigative and data-collection methods in science. W.F. McComas (Ed). Springer, *in press*

2. Archer, S.A., Andersen, E.M., Predick, K.I., Schwinning, S., Steidl, R.J., Woods, S.R. 2017. Woody Plant Encroachment: Causes and Consequences. In: Rangeland Systems. Processes, Management and Challenges, Briske, D.D. (ed). Springer, New York., pp. 25-84

3. Schwinning, S., G.A. Fox, Kelly, C.K. 2014. Temporal niches, ecosystem function, and climate change. In: Temporal dynamics and ecological process. C.K. Kelly, C.K., Bowler, M.G., Fox, G.A. (eds). Cambridge University Press, Cambridge, UK.

4. Kelly, C.K., Bowler, M.G., Fox, G.A., Solis-Magallanes, A., Ramos-Tapia, J.M., Lopera Blair, P., Schwinning, S., Williams, J.N., Joy, J. 2014. What temporal processes in trees tell us about competition, community structure and speciation. In: Temporal dynamics and ecological process. C.K. Kelly, C.K., Bowler, M.G., Fox, G.A. (eds). Cambridge University Press, Cambridge, UK

5. Fox, G. A., Kendall, B. E., Schwinning, S. 2012. Environmental heterogeneity impacts on plants at different scales. In: Sourcebook in Theoretical Ecology. Hastings, A., Gross, L. (eds). University of California Press, Berkeley, pp. 258-263.

6. Litvak, M.E., Schwinning, S., Heilman, J.L. 2010. Woody plant rooting depth and ecosystem function of savannas: a case study from the Edwards Plateau karst, Texas, USA. In: Ecosystem Function in Global Savannas: Measurement and Modeling at Landscape to Global Scales. Hill M.J., Hanan N.P. (*eds*). CRC/Taylor and Francis. pp. 117-134.

7. Schwinning, S., Hooten, M.M. 2009. Mojave desert root systems. In: The Mojave Desert: Ecosystem Processes and Sustainability. Webb, R.H., Fenstermaker, L.F., Heaton, J.S., Hughson, D.L.,McDonald, E.V., Miller, D.M. (*eds*), University of Nevada Press, Reno, pp. 278-311.

8. Ehleringer, J.R., Schwinning, S. and Gebauer, R.L.E. 1999. Water use in arid land ecosystems. In: Advances in Plant Physiological Ecology, Press M. C., Scholes, J.D. and Barker, M.G. (*eds*), Blackwell Science, Oxford, pp. 347-365.

9. Parsons, A.J., Carrère, P. and Schwinning S. 1999. Dynamics of heterogeneity in a grazed sward. In: Proceedings of the International Symposium on Grassland Ecophysiology and Grazing Ecology, deMoraes, A., Nabinger, C. de Faccio, P.C., Alves, S.J. & Campos Lustosa, S.B. (*eds*), Curitiba, Parana, Brazil: pp. 187-214.

10. Schwinning, S. and Parsons, A.J. 1996. Interactions between grasses and legumes: understanding variability in species composition. In: Legumes in Sustainable Farming Systems. Proceedings of the Sustainable Farming Systems/British Grassland Society Joint Conference, pp.153-163 (not refereed).

11. Chapman, D.F., Parsons, A.J. and Schwinning, S. 1996. Management of clover in grazed pastures: expectations, limitations and opportunities. In: White Clover: New Zealand's Competitive Edge. Symposium of the New Zealand Grassland Association, Lincoln, N.Z, pp. 55-64 (not refereed).

e. Creative Books:

None

2. Articles

a. Refereed Journal Articles (students in bold):

1. **Maxwell, L.M.**, Schwinning, S., DeFalco, L.A., Esque, T.C. 2026. Soil disturbance and water availability on abandoned well pads in Colorado Plateau sagebrush and blackbrush communities. Western North American Naturalist, in print.
2. Schwinning, S., Fay, P.A., Polley, H.W. 2025. Performance of Johnsongrass and switchgrass from seeds and rhizome fragments in a mature switchgrass stand. Plant Ecology 226: 437-447.
3. **DaSilva, S.L**., Lyons, K., Schwinning, S. 2022. KR bluestem (*Bothriochloa ischaemum* var. *songarica*) has no direct allelopathic effects on seedling growth in a native/non-native mixed community of warm season grasses in Texas, USA. Plant and Soil 480: 637-649, doi:10.1007/s11104-022-05612-0
4. Schwinning, S. Lortie, Esque, T.C., DeFalco, L.A. 2022. What common gardens can tell us about climate responses in plants. Journal of Ecology 110: 986-996
5. **Custer, N.A**., Schwinning, S., DeFalco, L. A., Esque T.C. 2021. Local climate adaptations in two ubiquitous Mojave Desert shrub species, *Ambrosia dumosa* and *Larrea tridentata*. Journal of Ecology 110: 1072-1089
6. Schwinning, S. 2020. A critical question for the critical zone: how do plants use rock water? Plant and Soil 454: 49-56.
7. Schwinning, S., Litvak, M.E., Pockman, W.T., Pangle, R.E., Fox, A.M., Huang, C.W., McIntire, C.D. 2020. A 3-dimensional model of *Pinus edulis* and *Juniperus monosperma* root distributions in New Mexico: implications for soil water dynamics. Plant and Soil 450: 337-355.
8. **Crouchet, S.E**., Jensen, J., Schwartz, B.F., Schwinning, S. 2019. Drought-related tree mortality: Distinguishing density-dependent and -independent drivers and why it matters. Frontiers in Forests and Global Change 2, article number 21.
9. **Ding, Y.L**., Nie, Y.P. , Schwinning, S., Chen, H.S., Yang, J., Zhang, W., Wang, K.L. 2018. A novel approach for estimating groundwater use by plants in rock-dominated habitats. Journal of Hydrology 565: 760-769.
10. Schwinning, S., **Meckel, H**., Reichmann, L.G., Polley, H.W., Fay, P.A. 2017. Accelerated development in Johnsongrass seedlings (*Sorghum halepense*) suppresses the growth of native grasses through size-asymmetric competition. PLOS ONE 12(5): e0176042.

11. **Dammeyer, H.C**., Schwinning, S., Schwartz, B., Moore, G. 2016. Effects of juniper removal and rainfall variation on tree transpiration in a semi-arid karst: Evidence of complex water storage dynamics. Hydrological Processes 30: 4568-4581.

12. **Reichmann, L.G**., Schwinning, S., Polley, H.W., Fay, P.A. 2016. Morphological and physiological traits conferring early growth advantage to the invasive grass *Sorghum halepense*. Journal of Plant Ecology 9: 672-681 (Editor's choice).

13. **Havill, S**., Schwinning, S., Lyons, K.G. 2015. Fire effects on invasive and native warm-season grass species in a North American grassland at a time of extreme drought. Journal of Vegetation Science, Science 18: 637-649.

14. **Tokumoto, I**., Heilman, J.L., Schwinning, S., McInnes, K.J., Litvak, M.E., Morgan, C.L.S., Kamps, R.H. 2014. Small-scale variability in water storage in rocky soils and effects on tree transpiration. Plant and Soil, DOI 10.1007/s11104-014-2224-4

15. **Jones, L.C**., Schwinning, S., Esque, T. 2014. Seedling ecology and restoration of blackbrush (*Coleogyne ramosissima*) in the Mojave Desert, U.S.A. Restoration Ecology, doi: 10.1111/rec.12128

16. **Woods, S.R**., Archer, S.R., Schwinning, S. 2014. Seedling responses to water pulse in shrubs with contrasting histories of grassland encroachment. PLoS ONE 9: e87278.

17. Schwartz, Benjamin F., Schwinning, Susanne, **Gerard, Brett, Kukowski, Kelly R., Stinson, Chastity L., Dammeyer, Heather C.** 2013. Using hydrogeochemical and ecohydrologic responses to understand epikarst processes in semi-arid systems, Edwards Plateau, Texas, USA. Acta Carsologica 42: 315–325.

18. Schwinning, S., Kelly, C.K. 2013. Plant competition in water-limited environments and implications for ecosystem function and adaptability to climate change. Functional Ecology 27: 886–897.

19. Schwinning, S. 2013. Do we need new rhizosphere models for rock-dominated landscapes? Plant and Soil 362: 25-31.

20. **Kukowski, K.,** Schwinning, S., Schwartz, B. 2013. Hydraulic responses to extreme drought conditions in three co-dominant tree species in shallow soil over bedrock, Oecologia 171:819-830.

21. Heilman, J., Litvak, M., McInnes, K., Kjelgaard, J., **Kamps, R**. Schwinning, S. 2012. Water-storage capacity controls energy partitioning and water use in karst ecosystems on the Edwards Plateau, Texas. Ecohydrology 7: 27–138.

22. **Street, G.M.,** Weckerly, F.W., Schwinning, S. 2012. Modeling forage mediated aggregation in a gregarious ruminant. Oikos 122: 929–937,

23. **Ruckman, E., Robinson, T.,** Lyons, K.G., Schwinning, S. 2012. Comparative seed heat tolerances among native and a non-indigenous, invasive species: implications for selective management of grassland using fire. Ecological Restoration 30: 136 – 142.
24. **Ruckman, E.,** Schwinning, S., Lyons, K. 2011. Rainfall - burn time interactions in the recovery of an invasive grass after prescribed burn. Restoration Ecology 20: 756 - 763.
25. **Woods, S.R.,** Archer, S.R., Schwinning, S. 2011. Early taproot development of a xeric shrub (*Larrea tridentata*) is optimized within a narrow range of soil moisture. Plant Ecology 212:507–517.
26. Schwinning, S. 2010. Ecohydrology Bearings – Invited Commentary: The ecohydrology of roots in rocks. Ecohydrology 3: 238-245.
27. Schwinning, S., Sandquist, D.R., Miller, D.M., Bedford, D.R., Phillips, S., Belnap, J. 2010. The influence of stream channels on shrub distributions in the Mojave Desert, CA, USA: patterns, mechanisms and effects of stream redistribution. Ecohydrology DOI: 10.1002/eco.116.
28. **Eggemeyer K.D.,** Schwinning, S. 2009. Biogeography of woody encroachment: why is mesquite excluded from shallow soils? Ecohydrology 2:81-87.
29. Heilman, J.L., McInnes, K.J., Kjelgaard, J.F., Owens, M.K., Schwinning, S. 2009. Energy balance and water use in a subtropical karst woodland on the Edwards Plateau, Texas. Journal of Hydrology 373: 426-435.
30. Schwinning, S. 2008. The water relations of two evergreen tree species in a karst savanna. Oecologia 158: 373-383.
31. Schwinning, S., Belnap, J., Bowling, D.R., Ehleringer, J.R. 2008. Sensitivity of the Colorado Plateau to change: climate, ecosystems and society. Ecology and Society 13: Art. 28.
32. Schwinning, S., Starr, B.I., Wojcik, N.J., Miller, M.E., Ehleringer, J.E., Sanford R.L. Jr. 2006. Effects of nitrogen deposition on an arid grassland in the Colorado Plateau cold desert, Rangeland Ecology and Management 58: 565-574.
33. Schwinning, S., Starr, B. I. Ehleringer, J. R. 2005a. Summer and winter drought in a cold desert ecosystem (Colorado Plateau) I: Effects on soil water and plant water uptake, Journal of Arid Environments 60: 547-566.
34. Schwinning, S., Starr, B. I. Ehleringer, J. R. 2005b. Summer and winter drought in a cold desert ecosystem (Colorado Plateau) II: Effects on plant carbon assimilation and growth, Journal of Arid Environments 61: 61-78.
35. Seyfried, M. S., Schwinning, S., Walvoord, M.A., Pockman, W.T., Newman, B.D., Jackson, R.B., Phillips, E.M. 2005. Ecohydrological Control of Deep-Drainage in Arid and Semiarid Basins. Ecology 86: 277-287.
36. Schwinning, S., Sala, O.E., Loik, M.E., Ehleringer J.R. 2004. Thresholds, memory and seasonality: understanding pulse dynamics in arid/semiarid ecosystems. Oecologia 141: 191-193.

37. Schwinning, S. , Sala, O.E. 2004. Responses to resource pulses in arid and semi-arid ecosystems. Oecologia 141: 211-220.
38. Huxman, T.E, Snyder, K., Tissue, D., Leffler, J., Ogle, K., Pockman, W.T., Sandquist, D.R., Potts, D.L., Schwinning, S. 2004. Precipitation pulses and carbon fluxes in semiarid and arid ecosystems, Oecologia 141: 254-268.
39. Chesson, P.L., Gebauer, R.L.E, Schwinning, S., Huntly, N., Wiegand, K., Ernest, M.S.K., Sher, A., Novoplansky, A., Weltzin, J.F. 2004. Resource pulses, species interactions, and diversity maintenance in arid and semi-arid environments. Oecologia 141: 236-253.
40. Huxman, T.E., Smith, M.D., Fay, P.A., Knapp, A.K., Shaw, M.R., Loik, M.E., Smith, S.D., Tissue, D.T., Zak, J.C., Weltzin, J.F., Pockman, W.T., Sala, O.E., Haddad, B.M., Harte, J., Koch, G.W., Schwinning, S., Small, E.E., Williams, D.G. 2004. Convergence across biomes to a common rain-use efficiency. Nature 429: 651 - 654.
41. Weltzin, J.F., Loik, M.E., Schwinning, S., Williams, D.G., Fay, P.A., Haddad, M., Harte, J., Huxman, T.E., Knapp, A.K., Lin, G., Pockman, W.T., Shaw, R., Small, E.E., Smith, M.D., Smith, S.D., Tissue, D.T., Zak, J.C. 2003. Assessing the response of terrestrial ecosystems to potential changes in precipitation, Bioscience 53: 941-952.
42. Schwinning, S., Starr, B. I., Ehleringer, J.R. 2003. Dominant cold desert plants of the Colorado Plateau do not partition rain by rainfall size, Oecologia 136: 252-260.
43. Schwinning, S., Davis, K., Richardson, L., Ehleringer, J.R. 2002. Deuterium enriched irrigation suggests three forms of pulse use in perennial species of the Colorado Plateau, Oecologia 130:345-355.
44. Gebauer, R. L.E., Schwinning, S., Ehleringer, J.R. 2002. Interspecific competition and resource pulse utilization in a cold desert community, Ecology 83: 2602 - 2616.
45. Schwinning, S., Ehleringer J. R. 2001. Water-use trade-offs and optimal adaptations to pulse-driven arid ecosystems, Journal of Ecology 89: 464-480.
46. Parsons, A.J., Schwinning. S., Carrère, P. 2001. Plant growth functions and possible spatial and temporal scaling errors in models of herbivory, Grass and Forage Science 56, 21-34.
47. Schwinning, S., Parsons, A.J. 1999. The stability of grazing systems revisited: spatial models and the role of heterogeneity, Functional Ecology 13: 737-747.
48. Schwinning, S., Weiner, J. 1998. Mechanisms determining the degree of size-asymmetry in competition among plants, Oecologia 113, 447-455.
49. Schwinning, S. 1996. Decomposition analysis of competitive symmetry and size structure dynamics. Annals of Botany 77: 47-57.
50. Schwinning, S., Parsons, A.J. 1996a. Analysis of the coexistence mechanisms for grasses and legumes in grazing systems. Journal of Ecology 84, 799-813.

51. Schwinning, S., Parsons, A.J. 1996b. A spatially explicit population model of stoloniferous N-fixing legumes in mixed pasture with grass. Journal of Ecology 84, 815-826.
52. Schwinning, S., Fox, G.A. 1994. Population dynamic consequences of competitive symmetry in annual plants. Oikos 72: 422-432.
53. Schwinning, S., Rosenzweig, M.L. 1990. Periodic oscillations in an ideal-free predator-prey distribution. Oikos 59: 85-91.

b. Non-refereed Articles:

None

3. Abstracts (students in bold):

1. Schwinning, S. **Crouchet, E.S.**, Jensen, J., Schwartz, B.F., Heilman, J. Ecohydrology of trees in karst. A case study from Texas. Annual meeting of the New Zealand Ecological Society, 1-5 December, 2019, Lincoln University, Christchurch, N.Z.
2. Schwinning, S., McInnis, K.J., Heilman, J. Does fractured rock as a source of water limit woodland productivity and drought resilience? American Geophysical Union's Annual Fall Meeting, 10-14 December, 2018, Washington, D.C. (Invited talk)
3. Schwinning, S., Litvak, M.E., Pockman, W.T., Pangle, R.E. Root distribution in a piñon-pine-juniper woodland in New Mexico. ESA Annual Meeting August 5-10, 2018, New Orleans, LA.
4. Schwinning, **S. Custer, N.A**., DeFalco, L.A. Understanding growth-survivorship tradeoffs in restoration. ESA Annual Meeting August 6-17, 2018, Portland, OR.
5. **Custer, N.A.** Effect of transplant size on early survivorship. ESA Annual Meeting August 6-17, 2018, Portland, OR.
6. Fox, A.M., Krofcheck, D.J., **Liebricht, A.** Maurer, G.E., Morillas, L., Pangle, R.E., Pockman, W.T., Schwinning, S., Litvak, ME. Detecting hydrological tipping points in semi-arid woodlands. ESA Annual Meeting. 7 – 12 August, 2016, Fort Lauderdale.
7. Schwinning, S., **Crouchet, S.E.**, Jensen, J., Schwartz, B.F. Patterns of tree mortality following the 2011 Texas drought: Species, size and community effects. ESA Annual Meeting. 7 – 12 August, 2016, Fort Lauderdale.
8. Schwartz, B.F., **Gerard, B. Schreiber, M.E.,** Schwinning, S. A deeper understanding of processes controlling hydrogeochemical fluxes through shallow karstic critical zones (the

epikarst). American Geophysical Union's 47th annual Fall Meeting, 9-13 December, 2013, San Francisco.

9. Schwinning, S., Jensen, J., Lomas, M.R., Schwartz, B.F., Woodward, F.I. The Prediction of Drought-Related Tree Mortality in Vegetation Models. American Geophysical Union's 47th annual Fall Meeting, 9-13 December, 2013, San Francisco.
10. Schwinning, S., **Kukowski, K.**, Schwartz, B. Which traits are correlated with high drought mortality in trees? A case study from the Edwards Plateau, Texas, USA. Annual Meeting of the British Ecological Society, 18 – 20 December, 2012, Birmingham, UK.
11. **Stinson, C. L.,** Schwartz, B. F.**, Gerard, B. R., Schwinning, S., Ramirez, P., Timmins, G**. Preliminary Results from a Multi-Tracer Epikarst Recharge Experiment: McCarty Cave, Texas, USA. Geological Society of America Annual Meeting, Charlotte, NC, November 3-7, 2012.
12. **Gerard, B. R.,** Schwartz, B. F., Schwinning, S.**, Ramirez, P., Stinson, C. L., Timmins, G.** Effects of Environmental Parameters and Precipitation Dynamics on Infiltration and Recharge into the Trinity Aquifer of Central Texas, USA. Geological Society of America Annual Meeting, Charlotte, NC, November 3-7, 2012.
13. **Stinson, C. L,** Schwartz, B. F., **Tobin, B. W., Gerard, B. R., Ramirez, P., Timmins, G., Hutchins, B.,** Schwinning, S. Trinity Aquifer Epikarst Study Using δ18O and δ2D Stable Isotope Analysis, Cave Without A Name, South-Central Texas. Geological Society of America, South-Central Section Annual Meeting, Alpine, TX, March 8-9, 2012.
14. **Tobin, B. W.,** Schwartz, B. F.**, Gerard, B. R., Ramirez, P., Timmins, G., Hutchins, B., Stinson, C. L.,** Schwinning, S. Autogenic vs. Allogenic Recharge: Searching for the Source of the Stream in Cave Without A Name, Boerne, TX. Geological Society of America, South-Central Section Annual Meeting, Alpine, TX, March 8-9, 2012.
15. **Gerard, B. R.,** Schwartz, B. F**., Ramirez, P., Stinson, C. L., Tobin, B. W., Timmins, G., Hutchins, B.,** Schwinning, S. The Influence of Barometric Pressure Fluctuations on Cave Drip Rates. Geological Society of America, South-Central Section Annual Meeting, Alpine, TX, March 8-9, 2012.
16. **Havill,** S., Schwinning, S., Bach, J.P., **Williams, P.,** Lyons, K. Can prescribed burns be used to control a C4 invasive grass in a C4 grassland? Texas Invasive Pland and pest Conference. Lady Bird Johnson Wildflower Center, Austin, Texas, November 8-20, 2011.
17. **Jones, L.,** Schwinning, S., Esque, T. 2011. Ecology and Restoration of Blackbrush (*Coleogyne ramosissima*) in the Mojave Desert. 4th World Conference on Ecological Restoration, Society for Ecological Restoration. Merida, Mexico, August 21-25, 2011.

18. **Jones, L.,** Schwinning, S., Esque, T. Ecology and Restoration of Blackbrush (*Coleogyne ramosissima*) in the Mojave Desert. 96th Ecological Society of America Annual Meeting. Austin, Texas, August 7-12, 2011.
19. Rebel, K. T., Moore, G. W., Schwinning, S**.** Modeling shallow-soil communities: opportunities and challenges. 96th Annual Meeting of the Ecological Society of America, Austin, Texas, August 7-12, 2011.
20. **Eggemeyer, K.D.,** Schwinning, S. Contrasting responses of seedling development to soil barriers in two woody encroachers. 96th Annual Meeting of the Ecological Society of America, Austin, Texas, August 7-12, 2011.
21. **Schwinning, S., Eggemeyer, K.** Soil depth changes everything: How limitations of ecosystem water storage govern the ecology of trees in grassland. 96th Annual Meeting of the Ecological Society of America, Austin, Texas, August 7-12, 2011.
22. **Jones, L., Schwinning, S., Esque, T.** Ecology and Restoration of Blackbrush (*Coleogyne ramosissima*) in the Mojave Desert. International Research Conference for Graduate Students, Texas State University, San Marcos, Texas, 2010.
23. Schwinning, S., **Goodsheller, K., Dammeyer, H.,** Schwartz, B. 2010. Fractured Epikarst Bedrock as Water Source for Woody Plants in Savanna. 2010 AGU Fall Meeting, San Francisco, California, December 13-17, 2010.
24. **Dammeyer, H. C., Goodsheller, K.,** Schwinning, S., Schwartz, B. Changes in tree water status due to clear-cutting in an oak/juniper woodland on the Edwards Plateau. 95th Annual Meeting of the Ecological Society of America, Pittsburgh, Pennsylvania, August 1-6, 2010.
25. **Goodsheller, K.,** Schwinning, S., Schwartz, B. Drought responses of trees on karst. 95th Annual Meeting of the Ecological Society of America, Pittsburgh, Pennsylvania, August 1-6, 2010.
26. Schwinning, S, Kelly, C. K. Species redundancy and coexistence: separating niche and service. 95th Annual Meeting of the Ecological Society of America, Pittsburgh, Pevnsylvania, August 1-6, 2010.
27. **Dammeyer, H. C., Goodsheller, K., Schwinning, S, Schwartz, B.** Changes in tree water status due to clear-cutting in an oak/juniper woodland on the Edwards Plateau. Texas Chapter of the Society for Ecological Restoration, New Braunfels, October 6-8, 2009.
28. **Goodsheller, K, Dammeyer, H.C., Schwinning, S., Schwartz, B.** Response to extreme drought by three Edwards Plateau tree species: live oak, Ashe juniper and cedar elm. Texas Chapter of the Society for Ecological Restoration, New Braunfels, October 6-8, 2009.
29. Schwinning, S. On the Dynamics of Rangeland Management: Fixed Versus Adaptive Stocking. 62nd Annual Meeting of the Society for Range Management, Albuquerque, New Mexico, February 2009.

30. Schwinning, S. The water relations of trees on karst. 2008 AGU Joint Assembly, Fort Lauderdale, Florida, May 27-30, 2008.
31. **Goodsheller, K, Stearns, T., Woods, S.R.,** Archer, S.R., Schwinning, S. Shrub seedlings, stress and the potential for woody plant encroachment into grasslands I: seedling development. Annual Conference of the Soil and Water Conservation Society, Tucson, Arizona, July 2008.
32. **Woods S.R.,** Archer S.R., Schwinning S. Precarious seedling establishment in Larrea tridentata: Soil moisture and a taproot elongation threshold. Research Insights in Semiarid Ecosystems (RISE) Symposium. University of Arizona, October 2008.
33. **Van Devender A., Woods S.R.,** Archer S.R., Schwinning S. Does high xylem conductance give *Prosopis velutina* an advantage? Research Insights in Semiarid Ecosystems (RISE) Symposium. University of Arizona, October 2008.
34. **Woods, S.R.,** Archer, S.R., Schwinning, S. Soil moisture, *Larrea tridentata* seedling establishment and a taproot elongation threshold, Soil and Water Conservation Society 2008 Annual Conference, Tucson, Arizona, July 2008.
35. **Woods, S.R.,** Archer, S.R., Schwinning, S. When trees take over: overcoming the demographic bottleneck and tipping the balance, Ecological Society of America Annual Meetings, Milwaukee, WI, August 2008.
36. Schwinning, S. 2008. The water relations of trees on karst. American Geophysics Union Joint Assembly, Fort Lauderdale, Florida, May 2008.
37. Schwinning, S., Heilman, J., Lai, C.-T., Litvak, M., **Thijs, A.** 2008. Are Savannas on Karst like any other? Isoscapes 2008, Santa Barbara, California, April 2008.
38. **Goodsheller, K., Stearns, T. Woods, S.R.,** Schwinning , S., Archer, S.R. Are woody encroachers more resilient to drought and defoliation than other woody plant species? Texas State Undergraduate Research Conference and Mitte Honors Thesis Forum, San Marcos, Texas, November 2007.
39. **Woods, S.R.,** Archer, S.R., Schwinning, S. Shrub Seedling Root Development, Establishment and Encroachment Potential" Research Insights in Semi-arid Ecosystems (RISE), University of Arizona, Tucson. October 2007.
40. Schwinning, S., **Vogl, A.L.** Managing a semi-arid rangeland grazing system for sustainability: can it be done? 92nd Annual Meeting of the Ecological Society of America, San Jose, California, August 2007.
41. **Eggemeyer, K. D.,** Schwinning, S. Why is mesquite excluded from the eastern Edwards Plateau of central Texas? 92nd Annual Meeting of the Ecological Society of America, San Jose, California, August 2007.

42. **Woods, S.R.,** Archer, S.R., Schwinning, S. Taproot elongation in woody plant seedlings: a factor in species encroachment potential. 92nd Annual Meeting of the Ecological Society of America, San Jose, California, August 2007.
43. **Lanning M., Woods S.R.,** Archer S.R., Schwinning S. Seedling use of soil moisture: an early factor in dryland encroachment potential. Research Insights in Semi-arid Ecosystems (RISE). University of Arizona, Tucson, Arizona, October 2006.
44. Schwinning, S., Belnap, J., Lange, O.L. A model of steady state carbon exchange for Collema tenax and implications for desert ecosystem ecology. 91st Annual Meeting of the Ecological Society of America, Memphis, Tennessee, August 2006.
45. Schwinning, S., Chesson, P. Do desert plants partition water by soil depth or time? 90th Annual Meeting of the Ecological Society of America, Montreal, Canada, August 2005.
46. Schwinning, S., Ehleringer, J.R. Species interactions in desert communities: dynamics of resource supply and utilization. 87th Annual Meeting of the Ecological Society of America, Tucson, Arizona, August 2002.
47. Schwinning, S., Ehleringer, J.R. Adaptations of desert plants to dynamic soil moisture conditions: An optimization result. 85th Annual Meeting of the Ecological Society of America, Snowbird, Utah, August 2000.
48. Schwinning, S., Ehleringer, J.R. Making the most of a desert summer: hydraulic trade-offs predict the diversification of plants into functional types. 84th Annual Meeting of the Ecological Society of America, Spokane, Washington, August 1999.
49. Schwinning, S., Gebauer, R.L.E., Ehleringer, J.R. The role of intra- and inter-annual rainfall variation in structuring desert plant communities. 83rd Annual Meeting of the Ecological Society of America, Baltimore, Maryland, August 1998.
50. Schwinning, S. , Parsons, A.J. Mutual constraints between branching rules and morphological unit size in clonal plants. 82nd Annual Meeting of the Ecological Society of America, Albuquerque, New Mexico, August 1997.
51. Fox, G.A., Schwinning, S. , Kendall, B. Exploitation, competition, and cycling in plant communities. 82nd Annual Meeting of the Ecological Society of America, Albuquerque, New Mexico, August 1997.
52. Kelly, C., Bol, R., Mytton, L., Schwinning, S. Variation of leaf N isotope composition in relation to clover density. 5th Research Conference of the British Grassland Society, Seal Hayne, University of Plymouth, September 1997.
53. Carrère, P. Schwinning, S., Parsons, A.J. A spatially explicit simulation of behaviour sward interactions. 5th Research Conference of the British Grassland Society, Seal Hayne, University of Plymouth, September 1997.

54. Schwinning, S., Fox, G.A. Exploitation and population oscillations between plant populations. Winter and Annual Meeting of the British Ecological Society, Sheffield, U.K., December 1995.

55. Schwinning, S., Thornley, J.H.M., Parsons, A.J. A mechanism for complex population dynamics in a grass-legume system. 80th Annual Meeting of the Ecological Society of America, Snowbird, Utah, August 1995.

56. Schwinning, S. Generalizations about the effects of competitive symmetry on annual plant populations. 79th Annual Meeting of the Ecological Society of America, Knoxville, Tennessee, August 1994.

57. Schwinning, S. When does one-sided competition fail to make plant size distributions more skewed? 78th Annual Meeting of the Ecological Society of America, Madison, Wisconsin, August 1993.

58. Fox, G. A., Schwinning, S. Asymmetric competition promotes coexistence in plants. 78th Annual Meeting of the Ecological Society of America, Madison, Wisconsin, August 1993.

59. Schwinning, S. Empirical distribution-modifying functions (DMF, sensu Westoby) are indicators of the symmetry of competition and predictors of size structure in even-aged annual plants. 77th Annual Meeting of the Ecological Society of America, Honolulu, Hawaii, August 1992.

4. Reports:

None

5. Book Reviews:

None

6. Other:

N/A

B. Works not in Print

1. Papers Presented at Professional Meetings:

1. Dryland Biodiversity and its conservation. Dryland Conference –GUIDE, Bhuj, Gujarat, India, December 18 – 20, 2006 (invited)

2. Interactions between grasses and legumes: understanding variability in species composition. Sustainable Farming/British Grassland Society Joint Conference: Legumes in Sustainable Farming Systems, Aberdeen, U.K. 1996 (invited)

2. Invited Talks, Lectures, Presentations:

1. Guest lecture: Savanna Ecohydrology. UT Rio Grande Valley, November 18, 2023.

2. Ecohydrology of trees in karst: Between a rock and a hard place. UT Rio Grande Valley, November 19, 2023.

3. DOD Legacy Program webinar: Characterizing Mojave Desert shrub ecotypes to establish seed transfer zones for military range restoration. 14 March 2021.
4. Water relations of trees in karst. Department of Biology, Baylor University, Waco, TX 76798, 1 March, 2019.
5. Water relations of trees in karst. Jackson School of Geosciences, The University of Texas at Austin, Austin, TX 78712, 15 February 2019
6. The pulse-reserve model in plant ecology. Department of Civil and Environmental Engineering, Massachusetts Institute of Technology. Cambridge, MA, 02139, 26 October, 2018
7. Drivers and modifiers of drought-related mortality. Institute of Subtropical Agriculture, Chinese Academy of Sciences. Changsha, Hunan 410125, China. 14 July 2016.
8. Why model? Institute of Subtropical Agriculture, Chinese Academy of Sciences. Changsha, Hunan 410125, China. 14 July 2016.
9. Research questions for vegetation dynamics in karst. Guangxi Institute of Botany, Guilin, China. 27 July, 2016
10. Four lectures on Karst Ecohydrology, Institute of Subtropical Agriculture, Chinese Academy of Sciences, Changsha, Hunan 410125, China. July 2014.
11. The Ecohydrology of Roots in Rock. Department of Biology, University of Aberdeen, UK, November 2012.
12. Soil depth changes everything: How limitations of ecosystem water storage govern the ecology of trees in grassland. Symposium on “Sustaining Rangelands in the Southern Great Plains: Adapting to and Mitigating for Climate Change” and the 96th Annual Meeting of the Ecological Society of America, Austin, Texas, August 7-12, 2011.
13. The ecohydrology of roots in rocks. Department of Ecosystem Science and Management, Texas A&M University, College Station, March 2011.
14. Between a rock and a hard place: the water relations of trees on karst. Department of Biology, Texas State University at San Antonio, September 2009.
15. On the Dynamics of Rangeland Management: Fixed Versus Adaptive Stocking. Symposium on Rangeland Ecohydrology at the 62nd Annual Meeting of the Society for Range Management, Albuquerque, New Mexico, February 2009.
16. Soil water partitioning as a basis for explaining plant community structure, Department of Range Ecology and Management, Trinity University, San Antonio, February 2007.
17. From plant physiology to population dynamics: an example from temperate grasslands. USDA-ARS Grasslands Soil and Water Research Laboratory, Temple, Texas, January 30, 2007.
18. Dryland Biodiversity and its conservation. Dryland Conference –GUIDE, Bhuj, Gujarat, India, December 18 – 20, 2006.

19. Resource pulse use in water-limited ecosystems and implications for climate change effects. Department of Biology, University of New Mexico, Albuquerque, New Mexico, November 2006.

20. Biological modeling in grasslands, Crop Science Society of America Meeting, Indianapolis, Indiana, November 12-16, 2006.

21. Resource pulse use in water-limited ecosystems and implications for climate change effects. Department of Biology, Southeastern Louisina University, Hammond, Louisinana, October 2006.

22. Soil water partitioning as a basis for explaining plant community structure, Department of Range Ecology and Management, Texas A&M University, College Station, Texas, September 2006.

23. Coexistence theory "unpacked" for the case of plants competing for water (Half-baked Ideas Seminar), Department of Biology, Texas State University, 2006.

24. Niche Theories for desert plants. Department of Mathematics, Texas State University, 2006.

25. The role of Mathematics in Biology: a personal perspective, Department of Mathematics, Texas State University, 2005.

26. Interactions between plant functional diversity and water use in water-limited ecosystems. Chapman Conference on Ecohydrology of Semiarid Landscapes: Interactions and Processes, Taos, New Mexico, 9-13 September, 2002.

27. Water supply and optimal water use strategies of desert plants. ESA Symposium on Species Interactions in Desert Communities: Dynamics of Resource Supply and Utilization, Tucson, Arizona, 6 August, 2002.

28. The effects of rainfall timing and event size on water partitioning among plant functional types. NCEAS working group on PrecipNet: Analysis and Synthesis of Precipitation and Ecosystem Change, Santa Barbara, California, 21-25 March, 2002.

29. The prediction of plant functional diversity in water-limited ecosystems. AGU Symposium on Coupled Hydrological and Terrestrial Ecosystem Processes II, Fall Meeting of the American Geophysics Union, San Francisco, 10-14, December, 2001.

30. Predicting vegetation responses to changes in rainfall patterns. USGS Workshop on Predicting hydrologic, geologic, and biologic responses to a drier and warmer climate in the desert Southwest, Tucson, 23-25 April, 2001.

31. Plant functional types identification for desert vegetation and implications for increased climatic variability. GCTE Workshop on Building a Global Key to Plant Functional Types, Isle sur la Sorgue, France, 15-17 October, 2000.

32. Functional diversity in resource pulse utilization in arid shrublands. GCTE/LTER Workshop on Removal Experiments on the Role of Biodiversity in Ecosystem Functioning, Snowbird, Utah, 4-5 August, 2000.

33. Interactions between grasses and legumes: understanding variability in species composition. Sustainable Farming/British Grassland Society Joint Conference: Legumes in Sustainable Farming Systems, Aberdeen, U.K. 1996.

34. Carbon-nitrogen interactions between grasses and legumes under grazing. 4th meeting of the management committee and working groups of COST 619 (Effects of atmospheric carbon dioxide increase on carbon fluxes in grassland ecosystems), Clermont-Ferrand, France (1995).

35. The population dynamics of grass-legume systems. Department of Pure and Applied Biology, Imperial College, London, 1995.

36. Modeling vegetation dynamics in pasture systems. Modeling workshop of the Scottish Agricultural College, Auchincruive, U.K., 1995.

37. The effects of competitive symmetry on populations of annual plants. Horticulture International (research institute), Wellesbourne, U.K. 1994.

3. Consultancies:

USGS, Recoverability and Vulnerability of Desert Ecosystems. 2004 – 2008.

4. Workshops:

Central Texas Ecologists Meeting, November 8, 2008, City of Austin Water Quality Protection Lands (WQPL), Austin (participant).

Central Texas Ecologists Meeting, December 1, 2007, USDA-ARS Grassland Soil and Water Lab, Temple (organizer).

Central Texas Ecologists Meeting, November 18, 2006, Lady Bird Johnson Wildflower Center, Austin (organizer).

Central Texas Ecologists Meeting, November 12, 2005, Freeman Ranch, San Marcos (organizer).

Precipitation pulse effects in arid and semi-arid ecosystems, International 2-day workshop Tucson, Arizona, 2002, 60 participants, with NSF support (organizer)

PrecipNet Synthesis Group, National Center for Ecological Analysis and Synthesis, Santa Barbara, CA, 2002, 2003 (participant).

Chapman Conference on Ecohydrology of Semiarid Landscapes: Interactions and Processes, Taos, New Mexico, 9-13 September, 2002 (participant).

5. Other:

Session Organizer, “Multiple Common Garden Experiments for Meeting Restoration Challenges: Difficulties and Potential Pitfalls”, Annual Meeting of the Ecological Society of America, Portland, Oregon, August 6 – 11, 2017.

Symposium Organizer, “Ecohydrology of Shallow Soil Communities and of Roots in Rocks”, 96th Annual Meeting of the Ecological Society of America, Austin, Texas, August 7-12, 2011.

Field trip organizer, “Ecology, Hydrology and management of live oak-juniper savannas on the Edwards Plateau”, 96th Annual Meeting of the Ecological Society of America, Austin, Texas, August 7, 2011.

C. Grants and Contracts

1. Funded External Grants and Contracts:

a. State

Texas Ecolab 2026, Quantification of rock water uptake by limestone endemics on the Edwards Plateau. $3,600.

Texas Ecolab 2025, Monitoring the exchange of water between soil, rock and plant after a simulated mid-summer rain event. $6,870.

Texas Ecolab 2024, Do grasslands on the Edwards Plateau use rock water to better tolerate intermittent drought? $7,600.

Native Prairie Association of Texas, 2022, Establishment of a prairie restoration demonstration site at the Dowell Ranch. $25,464.

Texas Ecolab, 2020, Landscape variation in the water supply of trees species in the Texas Hill Country. $6,817.

Texas Ecolab, 2018, Trees near springs: Do they take up spring water? $3,699.

Texas Ecolab, 2016, Linking drought-related tree mortality to plant-available water, $16,378.

Texas Ecolab, 2015. Linking drought-related tree mortality to plant-available water, $13,060.

Texas Ecolab, 2014. Correlates of drought-related tree mortality during the Texas drought of 2011, $11,019.

Norman Hackerman Advanced Research Program (as co-PI), Texas Higher Education Coordinating Board, 2007-2009. Epikarst Controls on Recharge, Water Quality and Ecosystem dynamics in Central Texas Hill Country, $150,000.

b. Federal

USDA-NIFA-NLGCA. Transdisciplinary Research, Educational and Extension Laboratory. PI: Kenneth Mix, co-PIs: Susanne Schwinning, Merritt Drewery, Elizabeth Benavides (Agriculture Department). $145,616.

USDA Cooperative Agreement 58-3098-8-001. 2018 – 2019. Constraints on the recruitment of an invasive C4 in a native C4 grassland to date: $33,030.

NSF-DEB 1557262. 2016 - 2018. Collaborative Research: Hydrological tipping points and desertification of semi-arid woodlands. Collaborative project with The University of New Mexico. TSU: $171,146

DOD Legacy. 2016/17. Characterizing Mojave Desert shrub ecotypes to establish seed transfer zones for military range restoration. 127,163

USGS Cooperative Agreement G09AC00312. 2016/17. Refining Shrub Restoration on the Colorado Plateau: *Artemisia tridentata* and *Coleogyne ramosissima*, $21,500.

USGS Cooperative Agreement G09AC00312. 2009 – 2015. Ecohydrological effects of shallow soils in the Mojave Desert, $88,537.

USDA Cooperative Agreement 58-6206-048. 2010 – 2012. Susceptibility to encroachment by invasive plant species of monocultures and mixtures, to date: 13,300.

NSF-DEB 0620836. 2006 – 2009. Collaborative Research: Woody encroachment into desert grassland: experimental assessment of the critical seedling establishment phase. Collaborative project with The University of Arizona. Total: $450,000, TSU: $95,875.

NSF-DEB 0222313. 2002. Workshop: Precipitation pulse effects in arid and semi-arid ecosystems, $20,000.

c. International

CAS (Chinese Academy of Sciences) President's International Fellowship Initiative 2016. (¥30,000).

BBSRC (Biotechnology and Biological Sciences Research Council, U.K.) 1997-2000. Improving the reliability of non-fertilized grass/clover pasture - a proposed mechanism and its test. £172,000.

BBSRC (Biotechnology and Biological Sciences Research Council, U.K.) 1996-1997. UK/France research collaboration, £6,000.

Education Abroad Program, University of Göttingen, Germany, 1984. DM 20,000.

2. Submitted, but not Funded, External Grants and Contracts:

DOE (ESS) pre-application, 2023 (co-PI) Consequences of large-scale reforestation in semi-arid drylands for coupling between belowground C & N accumulation, deep soil moisture, and root water uptake (pending)

DOE (FAIR), 2023 (co-PI) Improving predictions of grassland carbon, water, and nutrient cycling using an individual-based modeling approach

DOE pre-application, 2020 (co-PI) Quantifying the impact of disturbance on belowground carbon dynamics, and carbon storage in US drylands

DOE pre-application, 2020 (co-PI) Understanding the interactions between above and belowground processes that regulate structural and functional responses to climate-driven mortality (invited).

BLM National Landscape Conservation System, 2020 (PI)**.** 2020. Weighing the cost of restoration against outcomes in the sagebrush and blackbrush communities of the Colorado Plateau. PI: Schwinning. $25,000 (program closed)

NSF Critical Zone Collaborative Network, 2020 (co-PI): Collaborative Research: Network Cluster: How vegetation connects solid earth to its atmosphere: Investigating mechanisms of water and carbon cycling in the bedrock vadose zone. 2020 (PI: Daniella Rempe, UT Austin) (declined).

USDA-NIFA-NLGCA, 2020 (co-PI)**.** Preparing the Next Generation for Research, Education and Outreach in Integrated Agricultural Sciences – NexGenAg. $749,898. PI: Kenneth Mix, co-PIs: Susanne Schwinning, Merritt Drewery, Elizabeth Benavides (Agriculture Department) (declined)

DOD Legacy, 2015 (PI) Pre-proposal: Thinking ahead for military ranges by testing plant ecotype fitness across climate regions and soils (invited).

NSF-DEB, 2015 (PI) Preliminary Proposal: Recruitment niches and the evolution of drought tolerance in tropical dry forest trees (not invited).

NSF-DEB, 2015 (co-PI) Preliminary Proposal: Hydrological tipping points and desertification of semi-arid woodlands (invited).

NSF-DEB, 2014 (co-PI) Preliminary Proposal: Effects of Precipitation Seasonality on Nitrogen Conservation in Monoculture and Multispecies Perennial Grasslands (not invited).

NSF-EAR, 2013 (co-PI) WSC-Category 3: Water STAR (Sustainability, Transformability, Adaptability, Resilience) in Texas' Water Systems in the Face of Changing Climate, Land Use, and Human Demands (declined).

NASA-NSPIRES, 2013 (co-PI) Quantifying Agricultural, Ecological, Social, and Hydrological Impacts of and Responses to the Record-setting Drought: A Texas Example (pending).

DOE-BER, 2012 (PI) Improving the capacity of Dynamic Global Vegetation Models (DGVMs) to predict tree drought mortality (declined).

NSF-DEB, 2012 (co-PI) **COLLABORATIVE PROPOSAL:** The 2011 Texas Drought: An autopsy of a tree mortality event (declined).

DOE-BER, 2011 (PI) Improving predictions of drought mortality in a Dynamic Global Vegetation Model: Interactions of cavitation control and constraints on water storage in the root zone (declined).

NSF-DEB, 2011 (co-PI) COLLABORATIVE RESEARCH: How does drought kill trees? Untangling the web of suggested mechanisms for prediction of tree mortality in a drier, hotter climate (declined).

NSF-DEB, 2011(PI) COLLABORATIVE RESEARCH: Integrating phylogeny, function and evolution to understand the basis of species redundancy

NSF-DEB, 2011 (PI) DIMENSIONS: COLLABORATIVE RESEARCH: Integrating relatedness, functional traits and ecological substitutability in tropical dry forests across altitudinal gradients

NSF-DEB, 2010 (PI) COLLABORATIVE RESEARCH: Edaphic constraints on ecosystem carbon and water exchanges: Quantifying impacts of soil depth and rock. Total: $1,025,609, TSU: $363,757

NSF-DIMENSIONS, 2010 (PI) COLLABORATIVE RESEARCH: Integrating relatedness,functional traits and ecological substitutability in tropical dry forests across altitudinal and latitudinal gradients

NSF-DEB, 2009 (PI) COLLABORATIVE RESEARCH: Coexistence and temporal niche dynamics in three pairs of most-closely-related species of *Bursera*

NSF-DEB, 2008 (PI) COLLABORATIVE RESEARCH: Coexistence and temporal niche dynamics in three pairs of most-closely-related species of *Bursera*

NSF-CAREER, 2008 (PI): Ecohydrology of karst savannas

NSF-CAREER, 2007 (PI). Ecohydrology of Semi-Arid Karst

NSF-DGE, 2006 (co-PI). Solving Aquatic Resource Conflicts in Variable Rainfall Regions (declined).

NSF-IOB, 2006 (PI). CAREER: Ecohydrology of Semi-Arid Karst (declined).

NSF-DMS, 2006 (co-PI). Cluster Environment for Computational Topology and Quantitative Ecology

NSF-DEB, 2003 (PI). Woody Encroachment into Desert Grassland: Experimental Assessment of the Critical Establishment Phase

NSF-DEB, 2002, (PI). Recruitment of desert perennials: current patterns and future expectations

NSF-DEB, 2001, (PI). Workshop: Resource Pulse Effects on Organisms, Communities and Ecosystems in Arid and Semi-arid Regions

NSF: EAR, 2001, (co-PI). Hyporheic Zone Succession in Arid Region Streams

3. Funded Internal Grants and Contracts:

Research Enhancement Program, 2024. The use of rock water by plants. $7,967

MIRG program, 2013, (co-PI). Texas Trends: Towards developing an interdisciplinary, sustained research network in land change science at Texas State University. $25,000.

Research Enhancement Program, 2009. Comparing the invasibility of three Texas land use systems: native prairie, switchgrass and coastal Bermuda. $8,000.

Research Enhancement Program, 2006. Does the Edwards Plateau constrain the root development of trees? $7,135.

Research Enhancement Program, 2005. Seasonal variation in soil resource availability in a complex karst landscape. $6,940.

4. Submitted, but not Funded, Internal Grants and Contracts:

None

D. Fellowships, Awards, Honors:

John L. Harper Prize for a paper published in Journal of Ecology, British Ecological Society (Schwinning & Parsons 1996a), 1996.

R.W. Hoshaw Memorial Award of the Department of Ecology and Evolutionary Biology, University of Arizona, 1994.

IV. SERVICE

A. University:

Research Enhancement Program Committee (member) Fall 2021, Fall 2026

Campus Director of the Texas Invasive Species Institute (TISI), Fall 2011-present

Tenure & Promotion Review Group, McCoy College of Business Administration, Spring 2014.

Advisory Committee, The Freeman Ranch Center, Spring 2012

B. Departmental:

Greenhouse Committee, - present

Search Committee, Ecohydrologist, Fall 2024 – Spring 2025

Biology Colloquium Organizing Committee, Spring 2014 - 2024

Strategic Goals Review Committee, Fall 2015 – Spring 2016

Graduate Committee, Fall 2011 – Spring 2013

Search Committee, Endowed Professorship in Water Conversation, Spring 2014 – Fall 2014.

Search Committee, Wildlife Management and Conservation, Fall 2010 – Spring 2011

Search Committee, Wildlife Biology/Conservation Biology, Fall -2007- Spring 2008

Search Committee, Geohydrologist, Fall 2006 – Spring 2007

Search Committee, Stream Ecology, Fall 2005 to Spring 2006

Search Committee, Plant Biologist, Fall 2005 to Spring 2006

Standing Committee, Greenhouse, 2006 - present

Standing Committee, Computer/Network, Fall 2005 – Fall 2010

Standing Committee, Vehicle Use, 2005-present

C. Community:

None

D. Professional:

1. Editorial Board

Journal of Ecology. Impact Factor: 6.20 (5-year), Rank 14 of 136 in subject category Ecology, Rank 11 of 197 in subject category Plant Sciences. Published bimonthly by the British Ecological Society, Blackwell Publishing, Handling Editor 2005 - 2025.

Oecologia. Impact Factor: 3.76 (5-year), Rank 37 of 136 in subject category Ecology, published monthly by Springer Berlin Heidelberg, Handling Editor since 2010.

Plant and Soil. Impact Factor: 3.11 (5-year), Rank 45 of 197 in plant sciences, published by Springer Netherlands, Consulting Editor since 2004, Section Editor since 2014.

2. National Committees

Member, Hydrology Section's Ecohydrology Technical Committee of the American Geophysical Union (AGU) 2010 – 2013.

3. Peer Reviews

Journals American Naturalist; Annals of Botany; Annals of Forest Science; Australian Journal of Agricultural Research; Australian Journal of Botany; Bioscience; Canadian Journal of Forest Research; Ecography; Ecological Applications; Ecology and Ecological Monographs; Ecological Modelling; Ecohydrology; Ecology Letters; Ecosystems; Forest Ecology and Management; Functional Ecology; Global Change Biology; International Journal of Plant Sciences; Journal of Applied Ecology; Journal of Arid Environment; Journal of Ecology; Journal of Experimental Botany; Journal of Geophysical Research – Biogeosciences; Journal of Hydrology; Journal of Hydrometeorology; Nature; Nature Climate Change; New Phytologist; Oecologia; Oikos; Plant and Soil; Plant Ecology; Rangelands; Theoretical Population Biology; Water Resources Research; Weed Science.

Proposals. NSF Programs in Ecology, Population Biology, Ecological and Evolutionary Physiology, Geography and Regional Science; US Department of Energy's National Institute's for Climate Change Research; US Department of Agriculture's CSREES program; Netherland's Earth and Life Sciences; US-Israel Binational Science Foundation; Israel Science Foundation, Collaborative Research Network of the Inter-American Institute for Global Change Research; IAI, Czech Science Foundation.

Panels.

NSF DEB Proposal Panel, 2020

NSF DEB Preproposal Panel, 2016.

USDA-CSREES Panel, 2007

NSF Ecology Panel, 2005/2006

DOE NIGEC Western Regional Scientific Board, 2004

E. Organizations

1. Honorary:

None

2. Professional:

American Geophysical Union (AGU), since 2001

British Ecological Society (BES), since 1994

Ecological Society of America (ESA), since 1990

F. Service Honors and Awards:

None