

Curriculum Vitae

SUSAN SCHWINNING

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EDUCATION

Ph.D.	Ecology, Department of Ecology and Evolutionary Biology, University of Arizona, Tucson.	1994
M.S.	Plant Physiology, Department of Land, Air and Water Resources, University of California, Davis.	1986
Diplom	Biology, Department of Botany, University of Göttingen, Germany.	1984

POSITIONS

Adjunct Assistant Professor	School of Renewable Natural Resources, University of Arizona.	2001-present
Postdoctoral Fellow	Columbia University's Biosphere 2 Center, Oracle Arizona.	2002-2003
Postdoctoral Fellow	Department of Biology, University of Utah.	1997-2001
Research Scientist	BBSRC Institute of Grassland and Environmental Research, Okehampton, UK.	1994-1997
Teaching Assistant	Department of Ecology and Evolutionary Biology, University of Arizona.	1988-1994
Technician	Agronomy Department, University of Nebraska.	1987
Lab Assistant	Department of Land, Air and Water Resources, University of California, Davis.	1985-1986

HONORS AND AWARDS

John L. Harper Prize	For a paper published in <i>Journal of Ecology</i> , British Ecological Society (Schwinning and Parsons 1996a).	1996
Robert W. Hoshaw Memorial Award	Department of Ecology and Evolutionary Biology, University of Arizona.	1994

MEMBERSHIPS

Member	Ecological Society of America	1990-present
Member	British Ecological Society	1994-present
Member	American Geophysical Union	2001-present

GRANTS AND SCHOLARSHIPS

Workshop	"Precipitation pulse effects in arid and semi-arid	2002
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	ecosystems”, NSF (DEB 0222313), \$20,000.	
Research	“Improving the reliability of non-fertilized grass/clover pasture - a proposed mechanism and its test”. Biotechnology and Biological Sciences Research Council (BBSRC), UK, £ 172,000.	1996-1999
Research	UK/France research collaboration. Biotechnology and Biological Sciences Research Council, UK, £ 6,000.	1996-1997
Scholarship	Education Abroad Program, University of Göttingen, Germany, DM 20,000.	1984

PROFESSIONAL SERVICES

Convener	International workshop of precipitation pulse effects in arid and semi-arid ecosystems, Tucson, Arizona, 1-3 August, 2002 (60 participants).
Participant	PrecipNet Synthesis Group, National Center for Ecological Analysis and Synthesis, Santa Barbara, CA, March 2002-March 2003.
Reviewer	Grant proposals: NSF Programs in Population Biology, and Ecological and Evolutionary Physiology, NIGEC’s Western Regional Scientific Board (DOE).
Reviewer	Journal articles: <i>The American Naturalist</i> , <i>Annals of Forest Science</i> , <i>Australian Journal of Agricultural Research</i> , <i>Ecology and Ecological Monographs</i> , <i>Journal of Ecology</i> , <i>Journal of Experimental Botany</i> , <i>Oecologia</i> , <i>Oikos</i> , <i>Plant Ecology</i> , <i>Theoretical Population Biology</i> .

PUBLICATIONS

1. Weltzin, J.F., Loik, M. E., Schwinning, S., Williams, D. G., Fay, P., Haddad, B. et al. 2003. Assessing the response of terrestrial ecosystems to potential changes in precipitation, *Bioscience* 941-952.
2. Schwinning, S., Starr, B. I. and Ehleringer, J.R. 2003. Dominant cold desert plants of the Colorado Plateau do not partition rain by rainfall size, *Oecologia* 136: 252-260.
3. Schwinning, S., Davis, K., Richardson, L. and Ehleringer, J.R. 2002. Deuterium enriched irrigation suggests three forms of pulse use in perennial species of the Colorado Plateau, *Oecologia* 130:345-355.
4. Gebauer, R. L.E., Schwinning, S. and Ehleringer, J.R. 2002. Interspecific competition and resource pulse utilization in a cold desert community, *Ecology* 83: 2602 - 2616.
5. Schwinning, S. and Ehleringer J. R. 2001. Water-use trade-offs and optimal adaptations to pulse-driven arid ecosystems, *Journal of Ecology* 89: 464-480.
6. Parsons, A.J., Schwinning. S. and Carrère, 2001. Plant growth functions and possible spatial and temporal scaling errors in models of herbivory, *Grass and Forage Science* 56, 21-34.
7. 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, 347-365.
8. Schwinning, S. and Parsons, A.J. 1999. The stability of grazing systems revisited: spatial models and the role of heterogeneity, *Functional Ecology* 13: 737-747.
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 Weiner, J. 1998. Mechanisms determining the degree of size-asymmetry in competition among plants, *Oecologia* 113, 447-455.
 11. Schwinning, S. 1996. Decomposition analysis of competitive symmetry and size structure dynamics. *Annals of Botany* 77: 47-57.
 12. Schwinning, S. and Parsons, A.J. 1996a. Analysis of the coexistence mechanisms for grasses and legumes in grazing systems. *Journal of Ecology* 84, 799-813.
 13. Schwinning, S. and 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.
 14. Schwinning, S. and Parsons, A.J. 1996c. 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, p.153-163.
 15. 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, p. 55-64.
 16. Schwinning, S. 1994. *Effects of competitive symmetry on populations of annual plants*. PhD Thesis, University of Arizona.
 17. Schwinning, S. and Fox, G. A. 1994. Population dynamic consequences of competitive symmetry in annual plants. *Oikos* 72: 422-432.
 18. Schwinning, S. and M.L. Rosenzweig 1990. Periodic oscillations in an ideal-free predator-prey distribution. *Oikos* 59: 85-91.
 19. Schwinning, S. 1984. *Isolation of phaseic acid and test of its effect on stomata*. Diplom Thesis, University of Göttingen, Germany (in German).

MANUSCRIPTS IN REVIEW:

1. Schwinning, S., Starr, B. I. and Ehleringer, J. R. Summer and winter drought in a cold desert ecosystem (Colorado Plateau) I: Effects on soil water and plant water uptake, *Journal of Arid Environments*.
2. Schwinning, S., Starr, B. I. and Ehleringer, J. R. Summer and winter drought in a cold desert ecosystem (Colorado Plateau) II: Effects on plant carbon assimilation and growth, *Journal of Arid Environments*.
3. Schwinning, S. Walvoord, M.E., Pockman, W.T., Seyfried, M., and Newman, B. Ecohydrological Control of Deep-Drainage in Arid and Semiarid Basins. *Ecology*.
4. Schwinning, S., Starr, B.I., Wojcik, N.J., Miller, M.E., Ehleringer, J.E., and Sanford R.L. Jr. Effects of nitrogen deposition on an arid grassland in the Colorado Plateau cold desert, *Journal of Rangeland Management*.
5. Schwinning, S. and Sala, O.E. Responses to resource pulses in arid and semi-arid ecosystems. *Oecologia*.
6. Chesson, P.L., Gebauer, R.L.E, Schwinning, S. et al. Species interactions in pulsed

environments. *Oecologia*.

PRESENTATIONS (last 5 years)

Invited:

Resource pulse use in arid lands. University of Tennessee, Knoxville, November 14, 2003.

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.

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.

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.

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 Geophysical Union, San Francisco, 10-14, December, 2001.

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.

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.

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.

Contributed:

Schwinning, S and Ehleringer, J.R. 2000. Adaptations of desert plants to dynamic soil moisture conditions, an optimization result. 2000 Annual Meeting of the Ecological Society of America, Snowbird, Utah.

Schwinning, S and Ehleringer, J.R. 1999. Making the most of a desert summer: hydraulic tradeoffs predict the diversification of plants into functional types. 1999 Annual Meeting of the Ecological Society of America, Spokane, Washington.

Davis, K.S., Gebauer, R.L.E., Schwinning, S., Richardson, L.M. and Ehleringer, J.R. 1999. The effects of competition on water status, gas exchange and growth in two perennial desert shrubs. 1999 Annual Meeting of the Ecological Society of America, Spokane, Washington.

Schwinning, S., Gebauer, R.L.E., Ehleringer, J.R. 1998. The role of intra- and inter-annual rainfall variation in structuring desert plant communities. 1998 Annual Meeting of the Ecological Society of America, Baltimore, Maryland.

Gebauer, R.L.E., Schwinning, S. and Ehleringer, J.R. 1998. The responses of desert plant functional types to rainfall events at different times of the year - a mechanism for community

change? 1998 Annual Meeting of the Ecological Society of America, Baltimore, Maryland.