

Curriculum Vitae: David G. Williams (updated December 1, 2019)

Department of Botany
University of Wyoming
Laramie, WY 82071

Tel: 307-766-2384
Fax: 307-766-2851
Email: dgw@uwyo.edu

Education

BA 1985	Botany, The University of Texas at Austin
MS 1988	Range Science, Texas A&M University, College Station
PhD 1992	Botany, Washington State University, Pullman

Areas of specialization

Plant physiological ecology, global change biology, carbon and water cycles in arid and semi-arid environments, application of stable isotope techniques to ecology

Academic positions held

2009-present	Professor, Departments of Botany and Ecosystem Science and Management, and Program in Ecology, University of Wyoming
2013-2019	Head, Department of Botany, University of Wyoming
2004-2009	Associate Professor, Program in Ecology, University of Wyoming
2002-2009	Associate Professor, Departments of Renewable Resources and Botany, University of Wyoming
2001-2002	Associate Professor, School of Renewable Natural Resources, University of Arizona
1995-2001	Assistant Professor, School of Renewable Natural Resources, University of Arizona
1993-1995	Postdoctoral Research Scientist, Department of Biology, University of Utah

Honorary visiting appointments

2020	Visiting Professor, Swiss Federal Institute of Technology (ETH) Zurich, Switzerland
2019	Honorary Visiting Scholar, College of Science and Engineering, Flinders University, Australia
2019	Visiting Professor, School of Biological Sciences, University of Western Australia, Australia
2010-2011	Visiting Professor, Hawkesbury Institute for the Environment, University of Western Sydney, Australia
2002-2003	Senior Fulbright Research Fellow, Centre d'Etudes Spatiales de la Biosphere, Toulouse, France

Teaching (selected regular courses since 2003)

University of Wyoming, Rangeland Plant Ecophysiology, REWM 3500 (2003-2014)
University of Wyoming, Stable Isotope Ecology, RNEW 5500 (2005-present)
University of Wyoming, Biogeochemistry, BOT 4780/5780 (2017, 2019)
University of Utah, Stable Isotope Biogeochemistry and Ecology, BIOL 5475 (2001-2018)

Selected professional leadership and synergistic activities

- Editor for special issue on CAM biology in the *Journal of Experimental Botany* (2018-2019), Expected publication in December 2019
- Editorial Board for *Ecology* and *Ecological Monographs*, Ecological Society of America (2009-present)
- NSF National Ecological Observatory Network (NEON), Northern Rockies Science Advisory Committee (2009-2012)

- NSF National Ecological Observatory Network (NEON), Terrestrial Biogeochemistry Working Group (2012-2016)
- Faculty Steering Committee, Inter-university Training for Continental-scale Ecology (ITCE), NSF Macrosystems Biology project, University of Utah (2011-2017)
- Technical Consultant for United Nations-IAEA on assessing the impact of irrigation management technologies on water-use efficiency and crop water productivity using isotopic and nuclear techniques (2008-2012)
- Executive committee member for NSF RCN Biogeosphere-Atmosphere Stable Isotope Network (2006-2010)
- NSF-MRI Major Research Instrumentation Program Panel Member, 2010, 2016, 2017
- NSF-DEB Organism Environment Interaction Program Panel Member, 2009
- UW Science Initiative Leadership Team (2016-present)
- UW EPSCoR Track 1 Science Team (2012-present)

Professional society memberships

Ecological Society of America
 American Geophysical Union
 Botanical Society of America

Research grants and contracts

USDA NRI. *Water use along a semi-arid riparian continuum*. PI. 1996-1999. \$97,242

University of Arizona Faculty Small Grant Program. *Effect of grass invasion on soil carbon and nitrogen dynamics*. PI. 1996-1997. \$5,000

University of Arizona Agricultural Experiment Station/Hatch. *Alien grass invasion and ecosystem feedbacks in southern Arizona*. PI. 1996-1999. \$38,640

NASA. *Water resources management to sustain growth and riparian biodiversity: In-situ and remote measurements of riparian corridor evapotranspiration*. Co-PI with D. Goodrich (PI), D. Cooper, J. Dwyer, L. Hipps, T. Maddock, III, S. Moran., D. Myers, E. Njoku, J. Schieldge and D. Stannard. 1996-1998. \$154,372

University of Arizona Teaching Center. *An interactive computer instructional environment for interrelated courses*. Co-PI with G. McPherson (PI), and M. McClaran. \$5,400. 1997-1998

USDA NRI. *Elevated CO₂ and limited water supply effects on carbon processes and sequestration in C₄ grass*. Co-PI with S. Leavitt (PI), M. Ottman, A. Matthias, T. Thompson and R. Roth. 1997-2000. \$505,700

University of Arizona Research Development Funds Competitive Grant. *Isotopic indicators of CO₂ and H₂O fluxes in semi-arid ecosystems*. PI. 1998-2000. \$20,000

Visiting scholar fund for the Institute for the Study of Planet Earth University of Arizona. Co-PI with S. Leavitt (PI). 1998. \$1,312

Cochise County Arizona. *Ephemeral channel deep recharge and evapotranspiration from near-channel vegetation*. Co-PI with D. Goodrich (PI). 1998-2000. \$70,163

USGS Water Resources Research Center Competitive Grant. *Isotope bihydrology of an ephemeral drainage*. PI with K. Hultine and D. Goodrich. 1999-2000. \$13,724

USGS Groundwater Project. *Surface water/groundwater dependence of riparian trees: A synthetic dendrohydrology and ecophysiology study*. Co-PI with R. Webb (PI) and D. Meko. 1999-2002. \$150,000

NSF DBI. *An isotope ratio mass spectrometer for the biological sciences at the University of Arizona*. PI with D. Dettman, S. Leavitt, T. Markow and C. Martinez del Rio. 2000-2001. \$189,000

USDA NRI. *Climate change, grass invasions, and woody plant dynamics in semi-arid savannas*. Co-PI with J. Weltzin (PI). 2000-2003. \$300,000

University of Arizona Agricultural Experiment Station/Hatch. *Interactions between mesquite and Lehmann lovegrass: geomorphic controls on plant and soil water balance*. PI. 2000-2003. \$18,000

University of Arizona Faculty Small Grant Program. *Integrated measurement and modeling of hydro-ecological resources in Morocco*. PI. 2001-2002. \$4,885

BLM Upper San Pedro Partnership. *San Pedro Riparian National Conservation Area water needs study*. Co-PI with D. Goodrich (PI), R. Scott, N. Grimm, M. Conklin and J. Stromberg. 2001-2005. \$823,894

NSF Science and Technology Center SAHRA subcontract. *Relationship between hydrologic condition and plant transpiration and carbon exchange*. PI with D. Goodrich, R. Scott and G. Lin. 2001-2003. \$109,190

Franco-American Fulbright Scholar Program. *Integrated measurement and modeling of hydro-ecological resources in semi-arid regions*. PI. 2002-2003. \$22,000

University of Wyoming College of Agriculture Global Perspectives Grant. *Collaborative isotopic studies in steppe ecosystems of Inner Mongolia and Wyoming*. PI with S. Williams. 2004. \$1,500

Wyoming NASA Space Grant Consortium. *Net carbon exchange and evapotranspiration in sagebrush steppe: response to extreme summer rainfall events*. PI. 2004. \$8,000

University of Wyoming International Program Travel Grant. *Collaborative isotopic studies in steppe ecosystems of Inner Mongolia and Wyoming*. PI. 2004. \$1,035

NSF DBI (0400752). *Isotope ratio mass spectrometers for biological and environmental research and training at the University of Wyoming*. PI with M. Ben-David, R. Hall, C. Martinez del Rio and E. Pendall. 2004-2005. \$409,042 total, \$270,042 external

NSF DEB (0414680). *Sensitivity of ecosystem processes to precipitation across a grassland to shrubland vegetation transition in the southwestern US*. PI. 2004-2007. \$224,000

NSF DEB (0417228). *Vulnerability of semi-arid grasslands to encroachment by woody plants: the role of grass invasions, seasonal precipitation, and soil type*. PI. 2004-2007. \$109,496

Biosphere-Atmosphere Stable Isotope Network (BASIN). *Travel Grant to attend conference in Interlaken, Switzerland*. 2005. \$500

USDA ARS subcontract cooperative agreement. *How will grassland ecosystems respond to rising CO₂ and climate change?* PI with E. Pendall. 2004-2009. \$450,000

University of Wyoming Faculty Grant-in-Aid. *Volcanic degassing in Yellowstone National Park: An untapped research opportunity for studying effects of elevated CO₂ on coniferous forest*. Co-PI with S. Sharma (PI). 2006-2007. \$7,500

University of Wyoming Agricultural Experiment Special RFP for Equipment. *Modernization of the Environmental Simulation Laboratory*. Co-PI with G.B. Paige (PI), P. Stahl, A.L. Hild, and T. Collier. 2006-2007. \$117,410

Wyoming Water Research Program Competitive Grant Program. *Tracing glacial ice and snowmelt water with isotopes*. PI. 2007-2009. \$121,933

DOE NICCR. *Direct and indirect effects of warming, elevated CO₂ and non-native plant invasion on carbon and water cycling in semiarid grassland*. PI with E. Pendall. 2007-2010. \$276,937

NSF IOS (0717395). *Collaborative project: An isotopic record of response to climate change in spines of saguaro cactus*. PI. 2007-2010. \$236,000

UN IAEA Coordinated Research Project. *Partitioning evaporation and transpiration in flood-irrigated fields from the isotopic composition of water vapor: the importance of isotopic non-steady state transpiration*. PI. 2007-2012. \$75,000

NSF DBI (0923382). *Acquisition of instrumentation for compound-specific isotope analysis at the University of Wyoming*. PI. 2009-2011. \$667,608 (\$467,608 from NSF; \$200,000 match from UW)

UW College of Agriculture Global Perspectives Grant Program. *The isotopic ecology of columnar cacti in Southern Sonora Mexico – a collaboration between the University of Wyoming and the Instituto Tecnológico de Sonora*. PI. 2009. \$2,000

Wyoming Water Research Program Competitive Grant Program. *Impact of bark beetle outbreaks on forest water yield in southern Wyoming*. Co-PI with B. Ewers (PI), E. Pendall and H. Barnard. 2010-2013. \$165,480

University of Western Sydney, International Research Initiative Scheme (IRIS). *Isotopic insights into tree response to climate change*. Co-PI with D. Ellsworth (PI) and D. Tissue. 2010-2011. AUD \$19,200

National Geographic Society. *Age and wisdom of the mountain cactus*. Co-PI with N.B. English (PI), D.L. Dettman and M.J. Mendoza. 2010-2011. \$19,126

Wyoming NASA Space Grant Consortium. Land-cover change in rangelands: impacts of an invasive species (*Linaria dalmatica*) on carbon dynamics and evapotranspiration. PI. 2010-2011. \$20,000

DOE-BER. *Data-model synthesis of grassland carbon metabolism: Quantifying direct, indirect and interactive effects of warming and elevated CO₂*. Co-PI with E. Pendall (PI) K. Ogle, J. Morgan, J. Heisler-White, F. Dijkstra, and W. Parton. 2011-2014. \$1,044,169

NSF EPSCoR. *Water in a Changing West: The Wyoming Center for Environmental Hydrology and Geophysics*. Senior Investigator. 2012-2017. \$20,000,000.

University of Wyoming. Faculty Grant-in-Aid. *Are Spatial Patterns and Sources of Atmospheric Nitrogen Deposition in the Wind River Range Recorded in the Isotopic Composition of Lichens?* D. Williams (PI) and S. Albeke (Co-PI). 2013-2014. \$7,420.

University of Wyoming. College of Agriculture and Natural Resources Global Perspectives Grants Program. *Plant productivity in a high CO₂ world*. D. Williams (PI). 2013-2014. \$3,966.

University of Wyoming. International Office Travel Grant. *Plant productivity in a high CO₂ world*. D. Williams (PI). 2013-2014. \$2,000.

University of Western Sydney. Hawkesbury Institute for the Environment. Visiting Scholar Program. *Plant productivity in a high CO₂ world*. D. Williams (PI). 2013-2014. \$4,414.

University of Wyoming. College of Agriculture and Natural Resources. Agricultural Experiment Station. M. Zhu (PI) and D. Williams, L. Munn, J. Norton, Y. Hu, and T. Lehmann (Co-PIs). *Temporal and spatial variations of soil phosphorus speciation in a cold semi-arid climate*. 2014-2017. \$75,000.

Greater Yellowstone Coordinating Committee. D. Williams (PI). *Tracing pollution sources and pollution hotspots with nitrogen isotopes*. 2016-2021. \$25,000.

NSF EPSCoR. *Telling the story of Earth's changing cryosphere: From molecules to alpine lakes to adventure film festivals*. D. Williams (PI) with B. Shuman and J. Zelikova. 2015-2016. \$50,000.

Ministry of Economy and Competitiveness, Spain. *Fire-induced tree mortality: underlying processes and leaf-to-region consequences for the recovery and management of Mediterranean forests*. V. Resco (PI) with D. Williams, D. Tissue, M. Boer, R. Bradstock, R. Sierra, J. Alday, A. Aunos, D. Molina, and J. Peman (co-PIs). 2016-2018. \$77,841.

UW-NPS Research Center. *Spatial Variation in amount and sources of nitrogen deposition in Grand Teton National Park*. D. Williams (PI). 2016-2018. \$5,000.

NSF EPSCoR. *Linking microbial life to ecosystem services across Wyoming's dynamic landscape*. Senior Investigator. 2017-2022. \$20,000,000.

University of Wyoming, College of Arts & Sciences Dean's Travel Award. 2018. \$2,375.

University of Wyoming, College of Arts & Sciences Research Seed Grant. 2019-2020. \$19,758.