

**Dr. Ginger B. Paige**  
Associate Professor  
Department of Ecosystem Science and Management  
University of Wyoming

## **EDUCATION**

2000 Ph.D. Watershed Management, University of Arizona, Tucson, AZ

Minor: Agriculture and Biosystems Engineering

*Dissertation:* Measurement and modeling of the spatial variability of infiltration on rangelands.

1992 M.S. Soil Physics, University of Massachusetts, Amherst, MA

*Thesis:* Comparison of three methods for assessing soil hydraulic properties.

1984 B.A. Political Science, The Colorado College, Colorado Springs, CO

## **PROFESSIONAL EXPERIENCE**

2010- *present*: Associate Professor Water Resources, Department of Ecosystem Science and Management, University of Wyoming, Laramie, WY

Direct the Wyoming water resources extension program, provide training and extension services in the fields of water quality and quantity, and information services to researchers, State and Federal agencies and other interested parties. Conduct research on measurement and modeling of hydrologic and erosion processes on rangeland watersheds.

2004 - 2010: Assistant Professor Water Resources, Department of Renewable Resources, University of Wyoming, Laramie, WY.

Developed and directed the Wyoming water resources extension program. Conducted research on measurement and modeling of hydrologic and erosion processes on rangeland watersheds to address water resource and rangeland management issues important to the State of Wyoming and of overall relevance to advancing the field of watershed hydrology.

2002- 2004: Assistant Research Scientist, Department of Watershed Management, University of Arizona and USDA-ARS Southwest Watershed Research Center, Tucson, Arizona.

Conducted research to measure and model hydrologic and erosion processes on rangeland watersheds at a variety of scales. Co-PI on Joint Fire Science Program funded project: Quantification of runoff and erosion processes on semi-arid rangelands following wildfires.

2000- 2002: Research Associate, Department of Hydrology and Water Resources, University of Arizona and USDA-ARS Southwest Watershed Research Center, Tucson, Arizona.

Conducted collaborative research as part of SAHRA (Semiarid Hydrology and Riparian Areas) NSF Science and Technology Center, to measure and model effects of the spatial variability of infiltration capacity on runoff and erosion on semi-arid rangelands at a variety of scales.

1996-2000: Senior Research Specialist, Department of Watershed Management, University of Arizona and USDA-ARS Southwest Watershed Research Center, Tucson, Arizona.

Conducted research on measurement and modeling of hydrologic processes on rangeland watersheds at a variety of scales. Designed, built and tested computer controlled variable intensity rainfall simulator to measure hydrologic and erosion processes on rangeland watersheds.

1992-1996: Soil Scientist, GS-09, USDA-ARS Southwest Watershed Research Center, Tucson, Arizona.

Developed a prototype Decision Support System to evaluate trench cap designs for low-level radioactive waste.

1992 (Jan. - May): Teaching Assistant, Soil Physics, Department of Plant and Soil Sciences, University of Massachusetts, Amherst, Massachusetts.

1988-1992: Research Assistant, Department of Plant and Soil Sciences, University of Massachusetts, Amherst, Massachusetts.

Managed Soil Physics Laboratory and conducted laboratory procedures. Designed and implemented study to characterize soil hydraulic properties.

1987 (June -Oct.): Peace Corps Training Co-coordinator, Ouezzendougou, Mali, West Africa  
Co-coordinator for Appropriate Technology, Mali In-County Training. Developed curriculum for new program, wrote and implemented lesson plans, and evaluated trainees.

1986-1987: Peace Corps Agriculture Extension Agent, Dire, Mali, West Africa.

Designed and coordinated an irrigation project and introduced appropriate arid lands agriculture, soil and water management techniques.

1984-1986: Peace Corps Community Development Agent, Bougouni, Mali, West Africa.

Wrote project proposals and managed projects for the integration of appropriate technologies into schools and communities. Conducted training of trainer workshops and wrote proposal and managed project for the construction of reinforced wells for communities funded by U.S. AID.

## **SYNERGISTIC ACTIVITIES**

**2004-present** *Director of the Wyoming Water Resources Extension Program.* Provide training and extension services in the fields of water quality and quantity, and information services to researchers, State and Federal agencies and other interested parties in Wyoming and region.

**2004- present** *Development of Watershed Hydrology Decision Support Tools.* Work toward improved decision support tools for water resource, watershed and rangeland managers in Wyoming and Region.

**2006-present** *Director of the University of Wyoming Environmental Simulation Laboratory.* The UW Environmental Simulation Laboratory (ESL) is a large, mesocosm-scale experimental chamber designed to investigate biophysical and hydrologic processes underlying ecosystem dynamics and change.

**2005-present** *Wyoming Water Quality Coordinator.* USDA-CSREES, National Water Program

## **RESEARCH EXPERTISE**

Watershed and rangeland hydrology  
Measurement and modeling hydrologic processes  
Watershed and landuse management decision tools  
Effects of fire on rangeland hydrologic and erosion processes  
Characterization of soil hydraulic properties  
Soil moisture measurement  
Ecological site characterization and monitoring

**Professional Societies:** American Water Resources Association, American Geophysical Union, Society for Range Management

**PUBLICATIONS (\*Collaboration with graduate student)****Refereed Journals:**

Goodrich, D.C., D.P. Guertin, I.S. Burns, M.A. Nearing, J.J. Stone, H. Wei, P. Heilman, M. Hernandez, K. Spaeth, F. Pierson, G.B. Paige, S.N. Miller, W.G. Kepner, G. Ruyle, M.P. McClaran, M. Wertz, and L. Jolley. 2011. AGWA: The Automated Geospatial Watershed Assessment Tool to Inform Rangeland Management. *Rangelands*, Vol. 33, No. 4, pp. 41-47.

\*Williams, M.I, G.B. Paige, T. Thurow, A.L. Hild and K.G. Gerow. 2011. Songbird relationships to site characteristics in shrub-steppe ecological sites. *Rangeland Ecology and Management* 64: 109-118.

\*Sharma, M., G.B. Paige, and S.N. Miller. 2010. Development of DEMs from ground-based LiDAR: a method to remove non surface objects. *Remote Sensing* 2(11), 2629-2642; doi:[10.3390/rs2112629](https://doi.org/10.3390/rs2112629)

\*Patterson, M.M., G.B. Paige, and K.J. Reddy. 2010. Selenium in surface and irrigation water in the Kendrick Irrigation District, Wyoming. *Environmental Monitoring and Assessment* [Volume 171, Numbers 1-4](#), 267-280, DOI: 10.1007/s10661-009-1277-y.

Kelleners, T.J., G.B. Paige and S.T. Gray. 2009. Measurement of the dielectric properties of Wyoming soils using electromagnetic sensors. *Soil Science Society of America* 73:1626-1637.

Kelleners T.J., E. Ferre-Pikal, M.G. Schaap, and G.B. Paige. 2009. Calibration of hydra impedance probes using electric circuit theory. *Soil Science Society of America Journal* 73:453-465.

Moran, M.S., R.L. Scott, T.O. Keefer, W.E. Emmerich, M. Hernandez, G.S. Nearing, G.B. Paige, M.H. Cosh and P.E. O'Neill. 2009. Partitioning evapotranspiration in semiarid grassland and shrubland ecosystems using time series of soil surface temperature. *Agriculture and Forest Meteorology* 149:59-72.

Stone, J.J., G.B. Paige, and R.H. Hawkins. 2008. Rainfall intensity dependent infiltration rates on rangeland rainfall simulator plots. *Transactions of the ASABE* 51(1):45-53.

Paige, G.B. and T.O. Keefer. 2008. Field application performance of multiple soil moisture sensors. *Journal of American Water Resources Association* 44(1):122-135.

Keefer, T.O., M.S. Moran and G.B. Paige. 2008. Long-term meteorological and soil-dynamics database WGEW, Arizona, USA. *Water Resources Research* 44, W05S07, doi:10.1029/2006WR005702. 8 p.

Clay, D., C. Ren, C. Reese, R. Waskom, J. Bauder, N. Mesner, B. Seelig, G.B. Paige, K.J. Reddy, M. Neibauer, and R. Mahler. 2007. Linking public attitudes with perceptions of factors impacting water quality and attending learning activities. *Journal of Natural Resources and Life Sciences Education* (36):36-44.

Paige, G.B., J.J. Stone, J.R. Smith, and J.R. Kennedy. 2003. The Walnut Gulch Rainfall Simulator: A computer controlled variable intensity rainfall simulator. *Applied Engineering in Agriculture* 20(1):25-31.

Paige, G.B., J.J. Stone, D.P. Guertin, and L.J. Lane. 2002. A strip model approach to parameterize a coupled Green-Ampt kinematic wave model. *Journal of American Water Resources Association* 38(5):1363-1378.

Paige, G.B., J.J. Stone, and L.J. Lane. 1996. Calibration and testing of simulation models for evaluation of trench cap designs. *Journal of Environmental Quality* 26(1):136-144.

Paige, G.B., J.J. Stone, D.S. Yakowitz, and L.J. Lane. 1996. Evaluation of a prototype decision support system for selecting trench cap designs. *Journal of Environmental Quality* 26(1):127-135.

Paige, G.B. and D. Hillel. 1993. Comparison of three methods for assessing soil hydraulic properties. *Soil Science* 155:175-189.

#### **In Review:**

\*Perlinski, A., G.B. Paige, M. McClarran. Validation of State and Transition Models using Long-term Dataset. *Rangeland Ecology and Management*. (*in review*)

\*Williams, M.I., G.B. Paige, A.L. Hild, S.N. Miller. A Metric to Quantify Vegetation Structure of Shrub-steppe Wildlife Habitat *Rangeland Ecology and Management*. (*in revision*).

#### **In Preparation:**

Paige, G.B. Effective use of watershed plans and planning tools for water quality and watershed management. To be submitted to *Watershed Science Bulletin* by April 6, 2012.

#### **Books and Book Chapters:**

Paige, G.B. and L.C. Munn. 2010. Chapter 15: Water Quality Standards and Policies for Coalbed Natural Gas Produced Water In Wyoming (*Invited*). In: K.J. Reddy. (ed.) *Coalbed Natural Gas: Energy and Environment*, Nova Science Publishers, New York. ~pp200 *Invited*

Paige, G.B. 2000. Measurement and modeling of the spatial variability of infiltration on rangeland watersheds. Ph.D. Dissertation. University of Arizona. pp. 283.

#### **Refereed Proceedings:**

Hild, A.L., N.L. Shaw, G.B. Paige, and M.I. Williams. 2009. Integrated Reclamation: Moving toward ecological function. National Meeting of the American Society of Mining and Reclamation, Billings, MT In R.I. Barnhisel (Ed.) *Revitalizing the Environment: Proven Solutions and Innovative Approaches*, May 30 –June 5, 2009. Published by ASMR, Lexington, KY.

Paige, G.B. S.N. Miller, T.J. Kelleners and S.T. Gray. 2008. Hydrologic instrumentation and data collection in Wyoming. Proceedings of the Third Interagency Conference on Research in the Watersheds, September 8-11, 2008, Estes Park, CO.

Moran, M.S., T.O. Keefer, G.B. Paige, R.L. Scott, W.E. Emmerich, M.H. Cosh, P.E. O'Neill. 2006. Partitioning evapotranspiration using diurnal surface temperature variation. Second Interagency Conference on Research in the Watersheds, May 17-19, 2006, USDA SRS Coweeta Hydrologic Laboratory, Otto, NC.

Paige, G.B., J.J. Stone, and D.P. Guertin. 2005. Evaluation of post-wildfire runoff and erosion on semiarid ecological sites. *Biodiversity and Management of the Madrean Archipelago II: Connecting Mountain Islands and Desert Seas*, May 11-14, 2004, Tucson, AZ.

Paige, G.B. and J.J. Stone. 2003. Infiltration and runoff: Point and plot scale. In Renard, K.G., McElroy, S.A., Gburek, W.J., Canfield, H. E. and Scott, R. L., (Eds.) *First Interagency Conference on Research in the Watersheds*, October 27-30, 2003. U.S. Department of Agriculture, Agricultural Research Service. pp. 186-191.

Stone, J.J. and G.B. Paige. 2003. Variable rainfall intensity rainfall simulator experiments on semi-arid rangelands. Renard, K.G., McElroy, S.A., Gburek, W.J., Canfield, H.E. and Scott, R.L., eds. *First*

Interagency Conference on Research in the Watersheds, October 27-30, 2003. U.S. Department of Agriculture, Agricultural Research Service. pp. 83-88.

Bryant, R., D. Thoma, M.S. Moran, C.D. Holifield, D.C. Goodrich, T.O. Keefer, G.B. Paige, D. William, and S.M. Skirvin. 2003. Evaluation of hyperspectral, infrared temperature and radar measurements for monitoring surface soil moisture. Renard, K.G., McElroy, S.A., Gburek, W.J., Canfield, H.E. and Scott, R.L., eds. First Interagency Conference on Research in the Watersheds, October 27-30, 2003. USDA,, Agricultural Research Service. pp. 528-533.

Kennedy, J.R., T.O. Keefer, G.B. Paige, and F. Barnes. 2003. Evaluation of dielectric constant-based soil moisture sensors in a semi-arid rangeland. Renard, K.G., McElroy, S.A., Gburek, W.J., Canfield, H.E. and Scott, R.L., eds. First Interagency Conference on Research in the Watersheds, October 27-30, 2003. USDA, Agricultural Research Service. pp. 503-508.

Paige, G.B., J.J. Stone, L.J. Lane, and D.S. Yakowitz. 1998. Overview of a Decision Support System for the Evaluation of Landfill Cover Designs. El-Swaify, S. and Yakowitz, D.S. eds. Multiple Objective Decision Making in Land, Water, and Environmental Management. Proc. of 1st International Conference on Multiple Objective Decision Support Systems for Land, Water and Environmental Management: Concepts, Approaches, and Applications. Honolulu, HI. July, 1995. St. Lucie Press, FL. pp. 153-165.

#### **Proceedings:**

\*Baker, T.J., S.N. Miller, and G.B. Paige, 2009. The Spatial Environmental and Agricultural Decision Support System (SEADS). Proceedings of the SUMAWA Mau Forest Complex Conference, April 27-29, 2009, Njoro, Kenya. pp. 71-75.

\*Williams, M.I., T.L. Thurow, G.B. Paige, A.L. Hild and K. Gerow. 2009. Sagebrush-Obligate Passerine Response to Ecological Site Characteristics. Proceedings of the 15<sup>th</sup> Wildland Shrub Symposium, June 17-29, 2008, Boseman, MT. (In press)

\*Church, M.M., M.I. Williams, A.L. Hild, and G.B. Paige. 2009. Comparing Vegetation Monitoring Methods in Shrublands: How Valuable is Grant's Methods in Shrub Communities? Proceedings of the 15<sup>th</sup> Wildland Shrub Symposium, June 17-29, 2008, Boseman, MT. (In press)

\*Baldyga, T.J., S.N. Miller, W.A. Shivoga, F. Lelo, M.W. Jenkins, G.B. Paige, and S. Mooney. 2007. Development of a participatory spatial decision support system for East African rural planning. AfricaGIS 2007, September 17-21, 2007, Ouagadougou, Burkina Faso.

\*Baldyga, T.J., S.N. Miller, W.A. Shivoga, F. Lelo, M.W. Jenkins, G.B. Paige, and S. Mooney. 2007. Rural Planning in East Africa Using a Participatory Spatial Decision Support System. Proceedings of the Environmental Systems Research Institute Eastern Africa User Conference, September 13 - 14 2007, Kampala, Uganda.

Stone J.J., J. Wickre, G.B. Paige, D.P. Guertin, and G. Gottfried. 2007. Post wildfire runoff and erosion response on grassland and oak woodlands in southeastern Arizona. Biodiversity and Management of the Madrean Archipelago III. May 4, 2006, Tucson, AZ.

Paige, G.B., J.J. Stone, D. P. Guertin, R. McGee, and H. Blumenfeld. 2003. Runoff and erosion on a semi-arid grassland after a wildfire. Second International Wildfire Ecology and Fire Management Congress and Fifth Symposium on Fire and Forest Meteorology, November 16-20, 2003. Orlando, Florida. American Meteorological Society.

Paige, G.B., J.J. Stone, L.J. Lane, and D.P. Guertin. 2000. Infiltration and runoff response on a complex soil plot. Proceedings American Society of Civil Engineers Watershed Management 2000, June 21- 24, 2000, Fort Collins, CO.

Stone, J.J., G.B. Paige, and I. Sanchez Cohen. 1999. Planeacion de investigacion con simuladores de lluvia. Sanchez Cohen, I., J.J. Stone, and R. Jasso Ibarra eds. Uso de lluvia artificial para parametrizar modelos de procesos hidrológicos. SAGAR- INIFAP- CENID RASPA, Mexico, pp 7-14.

Paige, G.B. and J.J. Stone. 1996. Spatial and temporal variability of infiltration on rangelands. Proceedings USDA-ARS Workshop on Real World Infiltration. Pingree Park, CO. July 23-26, 1996, Colorado Water Resources Research Institute, Information Series No. 86, pp. 109-122.

Stone, J.J. and G.B. Paige. 1996. Rangeland rainfall simulator experiments. Proceedings USDA-ARS Workshop on Real World Infiltration. July 23-26, 1996, Pingree Park, CO. Colorado Water Resources Research Institute, Information Series No. 86, pp. 6-24.

Goodrich, D.C., R.E. Smith, D.D. Bosch, J.J. Stone, G.B. Paige, J.R. Simanton, W.E. Emmerich, T.O. Keefer, R.A. Shillito, C.L. Unkrich. 1996. Infiltration-scale interactions. Proceedings USDA-ARS Workshop on Real World Infiltration. July 23-26, 1996, Pingree Park, CO. Colorado Water Resources Research Institute, Information Series No. 86, pp. 122-129.

Paige, G.B., J.J. Stone, T.E. Hakonson, and L.J. Lane. 1995. A decision tool for selecting trench cap designs. Proceedings of the 17<sup>th</sup> Annual Department of Energy Low-Level Radioactive Waste Management Conference, December 12-14, 1995, Phoenix, AZ, Idaho National Engineering Laboratory, Idaho Falls, ID.

Lane, L.J., M.H. Nichols, and G.B. Paige. 1995. Modeling erosion on hillslopes: Concepts, theory, and data. Binning, P., H. Bridgman, and B. Williams eds. Proceedings of the International Congress on Modelling and Simulation (MODSIM '95) November 27-30, 1995, University of Newcastle, Newcastle, Australia. Uniprint, Perth Australia.

Paige, G.B., T.E. Hakonson, D.S. Yakowitz, L.J. Lane, and J.J. Stone. 1994. A prototype decision support system for the evaluation of shallow land waste disposal trench cap designs. Proceedings ER '93 Environmental Remediation Conference, October 22-25, 1993, Augusta, GA, pp. 1111-1117.

Paige, G.B. and P.L.M. Veneman. 1993. Percolation tests and hydraulic conductivity. Soil Survey Horizons 34(1):1-3.

#### **Manuals and Reports:**

Mesner, N., A. Walker, G.B. Paige. 2011. Best Management Practices Monitoring Guidance Document for Stream Systems. University of Wyoming, B-1213. 52 p.

Mesner, N., A. Walker, G.B. Paige. 2008. Best Management Practices Monitoring Guidance Document for Stream Systems (version 1.0). USDA-CSREES Northern Plains and Mountains Region. 21 p.

Paige, G.B. S.T. Gray and T.J. Kelleners. 2008. Soil Moisture Project Update. Wyoming Department of Agriculture. 9 p.

Paige, G.B. and T.O. Keefer. 2005. Soil moisture measurement at Walnut Gulch Experimental Watershed in support of: NASA-JPL Microwave Observatory of Subcanopy and Subsurface (MOSS) Project. Final Report, February 2005. 9 p.

Paige, G.B. 2002. Walnut Gulch Rainfall Simulator: User Manual and Operating Instructions (version 1). USDA-ARS, Southwest Watershed Research Center. 15 p.

Stone, J.J., Paige, G., Hakonson, T.E., Lane, L.J. 1994. Design document for landfill capping prototype decision support system. Los Alamos National Laboratory, LA-UR-94-570, 41 p.

**Articles:**

Paige, G.B. 2008. Wyoming's Water Information Network. Wyoming Section Society for Rangeland Management, Newsletter. July, 2008.

Paige, G.B. 2006. Water Quality and Erosion Following Wildfires. After the Fire, Casper Star Tribune, October 2006.

**Fact Sheets:**

Waskom, R., J. Bauder, T. Bauder, D. Clay, N. Mesner, G.B. Paige, K.J. Reddy, T. Scherer, and M. Neibauer. 2006. The National Integrated Water Quality Program, Highlighted Research, Education and Extension Projects in the Northern Plains and Mountains Region.

Reddy, K.J., T. Roth, G.B. Paige, R. Waskom, J. Bauder, T. Bauder, D. Clay, N. Mesner and T. Scherer. 2006. Arsenic in Drinking Water: A regional assessment of Ground Water Wells.

**PRESENTATIONS (\*Collaboration with graduate student)**

**Invited:**

Paige, G.B. N. Mesner. 2011. Effective Water Quality BMP Monitoring Tools. 2011 National Tribal Water Quality Conference, Santa Fe, NM November 2011.

Paige, G.B., Mesner, N. 2011. Guidance Document for Monitoring Water Quality Associated with BMPs for Stream Systems. WACD BMP Training, Saratoga, WY. August, 2011

Paige, G.B. N. Mesner. 2011. Effective Water Quality BMP Monitoring Tools. 2010 Utah Water Quality Coordinators Workshop, Park City, UT. August 19, 2010.

Paige, G.B. 2010. Soil and Water Monitoring for landowners in Energy development areas, Goshen and Platte County Conservation Districts, Chugwater, WY October 11, 2010.

Paige, G.B., N. Mesner. 2010 Effective Water Quality BMP Monitoring Tools, Watershed Coordinator – Water Quality Monitoring Joint Meeting, Helena, MT. May 2010.

Paige, G.B. 2010. Challenging Assumptions: Emerging Research in Rangeland Watershed Hydrology, USDA-ARS NWWRC, Boise, ID April 14, 2010.

Paige, G.B. 2010. Impacts of CBM Development on Soil, Vegetation & Water Resources. Annual Meeting Society for Rangeland Management. Denver, CO. February 8, 2010.

\*Perlinski, A.T., G.B. Paige Base Line Inventory and Monitoring for Oil and Gas Development, for Powder River Resource Council at Landowner Workshop: Protecting Your Land & Living with Oil and Gas. Douglas, WY. July 28, 2010.

\*Swallow, A. and G.B. Paige, 2009. Hydrologic Impacts of Vegetation Treatments in Bates Creek

Watershed, Wyoming. Wyoming Water Development Commission Annual Meeting, Casper, WY. August 21, 2009.

\*Baker, T.J., S.N. Miller, and G.B Paige, 2009. The Spatial Environmental and Agricultural Decision Support System (SEADS). SUMAWA Mau Forest Complex Conference, Njoro, Kenya, April 27-29, 2009.

Paige, G.B., Mesner, N and A. Walker. 2009. Guidance Document for Monitoring Water Quality Associated with BMPs for Stream Systems. WACD BMP Training, Buffalo, WY. July 24, 2009

Paige, G.B. 2009. Measurement and Modeling of Surface Water Processes on Rangeland Watersheds. Colorado State University Water Resources Program. Fort Collins, CO. April 2, 2009.

Paige, G.B. 2009. CBM Water Product Water: Water and Reclamation Issues. Restoration and Reclamation Seminar, Laramie, WY. March 6, 2009.

Paige, G.B. 2008. Water Resource Programs. US Forest Service Coordination Meeting, Laramie WY. November 17, 2008.

Paige, G.B. 2008. Water Quality Issues: Coal Bed Methane Development. Water Quality Division, Chapter 1, Section 20, Rules and Regulations Hearing, Cheyenne, WY. October 24, 2008.

Paige, G.B. 2008. Wyoming Water Issues: Watershed Management and Coalbed Methane Water. French Embassy Visit, School of Energy Resources and Ruckelshaus Institute, Laramie, WY. August 19, 2008.

Paige, G.B. 2008. Water Quality and Coal Bed Methane Development. Wyoming Water Law Conference. CLE International, Cheyenne, WY. April 25, 2008.

Paige, G.B. 2008. CBM Product Water: Downstream Water Quality Issues. North Platte River Basin Water Policy Conference, Scottsbluff, NE. March 11, 2008.

Paige, G.B. 2008. Ecological Sites: Using site descriptions for habitat management. Ecological Site Workshop, Pinedale, WY February 29, 2008.

Paige, G.B. 2007. Water Resources Extension and Research Program. Profitable and Sustainable Agriculture Systems, Wyoming Cooperative Extension Service. Laramie, WY. December 13, 2007.

Paige, G.B. 2007. Ecological site descriptions and state and transition models. Ecological Sites as Management Tools, Society for Range Management workshop Park City, UT. October 23, 2007.

Paige, G.B. 2007. Coal bed methane production, drought, climate. Western Region Joint Summer Meetings, Jackson, WY. July 16, 2007.

Paige, G.B. and G. Gade. 2007. Post wildfire: Watershed water quality issues, runoff and erosion. American Public Works Association, Spring Conference. Casper, WY. April 5, 2007.

Paige, G.B. 2007. Watershed health: Decision making & watershed assessment tools. Wyoming Association of Conservation Districts Workshop on Watershed Health. Cody WY. March 9, 2007.

Paige, G.B. 2007. Watershed health: Its not just the water. Wyoming Association of Conservation Districts Workshop on Watershed Health. Cody WY. March 9, 2007.

Paige, G.B. 2007. Watershed planning: Why watersheds? Wyoming Association of Conservation Districts Workshop on Watershed Health. Cody WY. March 9, 2007.

Paige, G.B. 2006. Drought in Wyoming: Risk & planning. Wyoming Women in Agriculture, Annual meeting. Casper WY. November 17, 2006.

Paige, G.B. 2006. Water issues in Wyoming: Survey of public attitudes. Ruckelshaus Institute Water Planning Group Meeting. Cheyenne, WY. May 11, 2006.

Paige, G.B. 2006. Post wildfire effects on rangeland soils and vegetation. Land Reclamation Seminar, Dept. of Renewable Resources, University of Wyoming, Laramie. April 14, 2006.

\*Roth, T.R., K.J. Reddy, and G.B. Paige. 2006. Regional assessment of arsenic in domestic wells of small communities in region 8 states. National Association of State Universities and Land-Grant Colleges (NASULGC) Eighth Annual Food and Agricultural Science and Education Exhibition and Capitol Hill Reception. Washington, DC. February 28, 2006.

Paige, G.B., J.J. Stone, D. P. Guertin, G.J. Gottfried, and J. Wickre. 2005. Runoff and erosion on a semi-arid grassland after a wildfire. 2005 Joint Fire Science Program Principal Investigator Workshop, San Diego, CA. November 1-3, 2005.

Paige, G.B. 2005. Using ground based lidar for rangeland hydrology. WY Geographic Information Systems Center Seminar Series. University of Wyoming, Laramie. October 27, 2005.

Paige, G.B. and T. L. Thurow. 2005. Rangeland water research: A complex agenda for a changing society. 58<sup>th</sup> Annual Meeting Society for Range Management, Fort Worth, TX Feb 5-11, 2005.

Paige, G.B. 2004. Measurement of runoff and erosion on semiarid rangelands. Department of Renewable Resources, Research Across Disciplines Seminar Series, University of Wyoming, Laramie. October 29, 2004.

**Guest Lectures:**

Paige, G.B. Decision tools: Why talk about decision tools in rangeland management planning? Rangeland Management Planning, Dept. of Ecosystem Science and Management, UW, March 2012.

Paige, G.B. Shrubland Hydrology. Shrub Ecology, Dept. of Ecosystem Science and Management, UW, February 2012.

Paige, G.B. Infiltration. Watershed Hydrology, Dept. of Renewable Resources, UW, September 2011.

Paige, G.B. Decision tools: Why talk about decision tools in rangeland management planning? Rangeland Management Planning, Dept. of Renewable Resources, UW, April 2011.

Paige, G.B. Ground Based LiDAR: Rangeland Hydrology & Vegetation Structure. Advanced Remote Sensing, March 4, 2010.

Paige, G.B. Decision tools: Why talk about decision tools in rangeland management planning? Rangeland Management Planning, Dept. of Renewable Resources, UW, April 2010.

Paige, G.B. Role of soils in watershed hydrology. Soil Morphology, Dept. of Renewable Resources, February 19, 2010.

Paige, G.B. Introduction to Watershed Hydrology and Management, Earth Systems Science 1000, Dept. of Renewable Resources, October 12, 2009.

Paige, G.B. Decision tools: Why talk about decision tools in rangeland management planning? Rangeland Management Planning, Dept. of Renewable Resources, UW, April 23, 2009.

Paige, G.B. Landscape Night: Surface water issues. ENR 4900/5900, Haub School and Ruckelshaus Institute, March 11, 2009

Paige, G.B. Introduction to Watershed Hydrology and Management, Earth Systems Science 1000, Dept. of Renewable Resources, November 10, 2008.

Paige, G.B. 2008. Decision Support Tools: Applications in Natural Resource Management, ENR 4900/5900, Haub School and Ruckelshaus Institute, March 12, 2008.

Paige, G.B. 2007. Infiltration. Watershed Hydrology, Dept. of Renewable Resources, UW, September 25, 2007.

Paige, G.B. 2007. Decision tools: Why talk about decision tools in rangeland management planning? Rangeland Management Planning, Dept. of Renewable Resources, UW, April 12, 2007.

Paige, G.B. 2007. Facilitator: Multi-objective DSS. Guest Speaker Spatial Decision Support System (DSS) Seminar, Wyoming Geographic Information Systems Center, UW, April 9, 2007.

Paige, G.B. 2006. Post wildfire runoff and Erosion Processes. Erosion and Sedimentation, Civil Engineering. October 21, 2006

### **Presentations:**

Paige, G.B. S.N. Miller, A.T. Perlinski, and J. C. Vithanage. 2011. Instrumentation of Crow Creek Watershed for short and long-term hydrologic studies in the northern intermountain west. 4<sup>th</sup> Interagency Conference for Research in Watersheds. August 2011, Fairbanks, AK. *oral paper*

Paige, G.B., N. Mesner, L. Blain. 2010. Tools and Approaches for Effective Water Quality Monitoring of BMPs for Stream Systems. 2010 National Water Quality Monitoring Conference, April 23-26, 2010. *poster presentation*.

\*Perlinski, A.T., G.B. Paige, and M.P. McClaran, S.N. Miller. 2010. Exploring the Role of State-and-Transition Models in Decision Support. Abstract and Oral presentation to Society for Range Management 63<sup>rd</sup> Annual Meeting, Denver, CO. February 2010. *oral paper*

\*Perlinski, A.T., G.B. Paige, M.P. McClaran, S.N. Miller. 2010. Challenging State-and-Transition models in one particular corner of the world. Oral Presentation, University of Wyoming, Department of Renewable Resources, March 4, 2010.

Paige, G.B., S.N. Miller, A.T. Perlinski, J. Vithanage, D.P. Guertin, D. Goodrich, M. Nearing, P. Heilman, J. Stone, and G. Ruyle, 2009. Rangeland Automated Geospatial Watershed Assessment Tool. USDA-CSREES National Water Conference, St. Louis, MS. Feb. 8, 2009. *oral paper*

\*Perlinski, A.T., J. Vithanage, G.B. Paige, and S.N. Miller, 2009. Utilization of the Automated Geospatial Watershed Assessment Tool to Estimate Runoff and Sediment Yield from a Small Watershed in Southeastern Wyoming. Oral presentation to the 1st Forest and Plains Research Symposium: Building collaboration between researchers and forest and grassland scientists and managers through increased sharing of research findings. March 10, 2009, Laramie, WY. *oral paper*

\*Vithanage, J.C., A.T. Perlinski, S.N. Miller, and G.B. Paige. 2009. Land cover characterization of remotely sensed data using Fourier algorithms for hydrologic modeling of ungaged basins. 1<sup>st</sup> Forest and Plains Research Symposium: Building collaboration between researchers and forest and grassland scientists and managers through increased sharing of research findings. March 10, 2009, Laramie, WY. *poster paper*

\*Perlinski, A.T., G.B. Paige, S.N. Miller, J. Stone, J. Vithanage. 2010. Using Ecological Sites to Parameterize a Hydrologic Simulation Model in a Geospatial Rangeland Watershed Assessment Tool. American Water Resources Association Spring Specialty Conference. Orlando, FL. March 30, 2009. *oral paper*

\*Swallow, A., G.B. Paige, and K. Dwire. 2009. Hydrologic Impacts of Vegetation Treatments in Bates Creek Watershed, Wyoming. AGU Chapman Conference: Examining Ecohydrological Feedbacks of Landscape Change Along Elevation Gradients in Semiarid Regions. October 4–8, 2009, Boise and Sun Valley, ID. *poster paper*

\*Vithanage, J., S.N. Miller, A. Perlinski, and G.B. Paige, 2009. Land Cover Characterization of Remotely Sensed Data using Fourier Algorithms for Hydrologic Modeling. GIS in the Rockies Conference. Sept. 25-28, 2009, Loveland, CO. *oral paper*

Hild, A.L., N.L. Shaw, G.B. Paige, and M.I. Williams. 2009. Integrated Reclamation: Moving Toward Ecological Function. 2009 National Meeting of the American Society of Mining and Reclamation, Revitalizing the Environment: Proven Solutions and Innovative Approaches. May 30–June 5, 2009, Billings, MT. *oral paper*

Paige, G.B., N. Mesner and A. Walker, 2009. Guidance Document for Monitoring Water Quality Associated with BMPs for stream systems. 2009 National Monitoring Conference. May 22, 2009. San Antonio, TX. *oral paper*

\*Vithanage, J.C., A. Perlinski, S.N. Miller, and G.B. Paige, 2009. Land cover characterization of remotely sensed data using Fourier algorithms for hydrologic modeling of ungaged basins. First Forest and Plains Research Symposium: Building collaboration between researchers and forest and grassland scientists and managers through increased sharing of research findings. Laramie, WY, March 10, 2009. *poster paper*

\*Perlinski, A.T., J. Vithanage, G.B. Paige, and S.N. Miller, 2009. Utilization of the Automated Geospatial Watershed Assessment Tool to Estimate Runoff and Sediment Yield from a Small Watershed in Southeastern Wyoming. First Forest and Plains Research Symposium: Building collaboration between researchers and forest and grassland scientists and managers through increased sharing of research findings. March 10, 2009, Laramie, WY. *oral paper*

Paige, G.B., S.N. Miller, A. Perlinski, J. Vithanage, D.P. Guertin, D. Goodrich, M. Nearing, P. Heilman, J. Stone, and G. Ruyle, 2009. Rangeland Automated Geospatial Watershed Assessment Tool. 2009 USDA-CSREES National Water Conference. Feb. 8, 2009, St. Louis, MS. *poster paper*

Paige G.B. and L.C. Munn. 2008. Impacts of coalbed methane development on water quantity and quality in the Powder River Basin Third Interagency Conference on Research in the Watersheds. September 8-11, 2008, Estes Park, CO. *oral paper*

Paige, G.B. S.N. Miller, T.J. Kelleners and S.T. Gray 2008. Hydrologic instrumentation and data collection in Wyoming. Third Interagency Conference on Research in the Watersheds. September 8-11, 2008, Estes Park, CO. *poster paper*

\*Williams, M.I., T.L. Thurow, G.B. Paige, and A.L. Hild. 2008. Shrubland passerine bird density patterns in relation to ecological sites. 15<sup>th</sup> Wildland Shrub Symposium. June, 17-29, 2008, Bozeman, MT. *oral paper*

\*Church, M.M., M.I. Williams, A.L. Hild, and G.B. Paige. 2008 Comparing Vegetation Monitoring Methods in Shrublands: How Valuable is Grant's Methods in Shrub Communities? 15<sup>th</sup> Wildland Shrub Symposium. June 17-29, 2008, Bozeman, MT. *oral paper*

Paige, G.B., N. Mesner and A. Walker, 2008. Designing monitoring programs to evaluate BMP effectiveness. 2008 National Monitoring Conference. May 21, 2008, Atlantic City, NJ. *oral paper*

Paige, G.B., S.N. Miller, and M. Sharma. 2008. Effects of DEM Resolution and Storm Characteristics on Hydrologic Modeling. AWRA GIS and Water Resources V. March 17, 2008, San Mateo, CA. *oral paper*

\*Mulligan C., G.B. Paige, and K.J. Reddy. 2008. Monitoring the quality of CBNG produced water and determining the beneficial uses across the Powder River Basin, WY. 2008 USDA National Water Conference. February 6, 2008, Sparks, NV. *oral paper*

Mesner, N., A. Walker, and G.B. Paige. 2008. Designing monitoring programs to evaluate BMP effectiveness. 2008 USDA National Water Conference. February 6, 2008, Sparks, NV. *oral paper*

\*Williams, M.I., G.B. Paige, A.L. Hild, and T.L. Thurow. 2008. Use of ecological site indicators to describe upland passerine habitat. Society for Range Management 61<sup>st</sup> Annual Meeting. Jan 27- Feb 2, 2008, Louisville, KY. *oral paper*

\*Church, M.M., M.I. Williams, A.L. Hild, and G.B. Paige. 2008. Impacts of removal and seeding treatments on vegetative structure in greasewood (*Sarcobatus vermiculatus*) and smooth brome (*Bromus inermis*) dominated bottomlands. Society for Range Management 61<sup>st</sup> Annual Meeting. Jan 27- Feb 2, 2008, Louisville, KY. *poster paper*

\*Williams, M.I., G.B. Paige, A.L. Hild, and T.L. Thurow. 2007. Linking ecological site indicators to upland bird density and diversity. WY Society for Range Management Annual meeting. Nov. 26-28, 2007, Lander WY. *oral paper*

\*Baldyga, T.J., S.N. Miller, W.A. Shivoga, F. Lelo, M.W. Jenkins, G.B. Paige, and S. Mooney, 2007. Development of a participatory spatial decision support system for East African rural planning. AfricaGIS 2007 September 17-21, 2007, Ouagadougou, Burkina Faso. *oral paper*

\*Williams, M.I., G.B. Paige, A.L. Hild and T.L. Thurow. 2007. Linking ecological site indicators to upland passerine bird habitat. UW Graduate Student Symposium. April 3-4, Laramie, WY. *oral paper*

- \*Williams, M.I., G.B. Paige, A.L. Hild, T.L. Thurow and R. Laubhan. 2007. Linking ecological site monitoring techniques to upland breeding bird habitat. Society for Range Management Annual meeting. Feb 12-16, Reno, NV. *poster paper*
- \*McGee, R., G.B. Paige, J.J. Stone, and G. Ruyle. 2007. Evaluation of three rangeland monitoring methods as indicators of runoff and erosion on ecological sites. Society for Range Management Annual meeting. Feb 12-16, Reno, NV. *poster paper*
- \*Sharma, M., G.B. Paige and D.C. Goodrich. 2006. Watershed characterization and modeling at different scales using LIDAR data collected at two different spatial resolutions. AWRA Spring Specialty Conference on GIS and Water Resources IV. May 8-10, 2006, Houston, TX. *oral paper*
- Stone J.J., J. Wickre, G.B. Paige, D.P. Guertin, and G. Gottfried. 2006. Post wildfire runoff and erosion response on grassland and oak woodlands in southeastern Arizona. Biodiversity and Management of the Madrean Archipelago III. May 4, 2006, Tucson, AZ. *oral paper*
- \*Williams, M.I., G.B. Paige, A.L. Hild and T.L. Thurow. 2006. Spatial database and decision tool to evaluate habitat monitoring and management at Browns Park National Wildlife Refuge. UW Graduate Student Symposium. April 3-4, Laramie, WY. *poster paper*
- \*Sharma, M. and G. B Paige. 2006. High resolution bare earth DEM from ground based lidar data for watershed characterization and modeling. UW Graduate Student Symposium. April 3-4, Laramie, WY. *poster paper*
- Paige G.B., D. Clay, C. Reese, C. Ren, M. Neibauer, J. Bauder, N. Mesner, R. Waskom, B. Seelig, K. Reddy, R. Mahler. 2006. Priority Water Issues in the Northern Plains and Mountains Region. USDA – CSREES National Water Quality Meeting. February 5-9, San Antonio, TX. *poster paper*
- \*Wickre, J., J.J. Stone, G.B. Paige, D.P. Guertin, G.J. Gottfried. 2005. Parameterizing the WEPP model for post fire conditions using a rainfall simulator. 4th USGS Wildland Fire Science Workshop. December 5-7, Tucson, AZ. *poster paper*
- Reddy, K.J., G.B. Paige, and Q. D. Skinner. 2005. Best management options for coalbed methane produced water in semi-arid environments. USDA CSREES 2005 Annual Water Quality Meeting. Feb. 5-10, La Jolla, CA. *poster paper*
- Paige, G.B. J. J. Stone, and D. P. Guertin. 2004. Evaluation of post-wildfire runoff and erosion on semiarid ecological sites. Biodiversity and Management of the Madrean Archipelago II: Connecting Mountain Islands and Desert Seas. May 11-14, Tucson, AZ. *poster paper*
- Paige, G.B., J.J. Stone, D. P. Guertin, R. McGee, and H. Blumenfeld. 2003. Runoff and erosion on a semi-arid grassland after a wildfire. Second International Wildfire Ecology and Fire Management Congress and Fifth Symposium on Fire and Forest Meteorology. November 16-20, Orlando, FL. *oral paper*
- Paige, G.B. and J.J. Stone. 2003. Infiltration and runoff: Point and plot scale. First Interagency Conference on Research in the Watersheds. October 27-30, Benson, AZ. *oral paper*
- Stone, J.J. and G.B. Paige. 2003. Variable rainfall intensity rainfall simulator experiments on semi-arid rangelands. First Interagency Conference on Research in the Watersheds. October 27-30, Benson, AZ. *oral paper*

Paige, G.B., J.J. Stone, and D.P. Guertin. 2001. Spatial variability of infiltration on semi-arid rangelands.” NRCS-ARS-CSREES Partnering Workshop. November 26-30, Tucson, AZ. *oral paper*

Paige, G.B., Stone, J.J., and Guertin, D.P. 2001. Rainfall simulator experiments to parameterize a distributed hydrologic model. American Water Resources Association. Annual Water Resources Conference. November 12-15, Albuquerque, NM. *oral paper*

Paige, G.B., J.J. Stone, L.J. Lane, and D.P. Guertin. 2000. Infiltration and runoff response on a complex soil plot. ASCE Watershed Management 2000. June 21- 24, 2000, Fort Collins, CO. *oral paper*

Paige, G.B. and J.J. Stone. 1996. Spatial and temporal variability of infiltration on rangelands. USDA-ARS Workshop on Real World Infiltration. July 23-26, 1996, Pingree Park, CO. *oral paper*

Paige, G.B., J.J. Stone, T.E. Hakonson, and L.J. Lane. 1995. A decision tool for selecting trench cap designs. 17<sup>th</sup> Annual Department of Energy Low- Level Radioactive Waste Management Conference. December 12-14, 1995, Phoenix, AZ. *oral paper*

Paige, G.B., T.E. Hakonson, D.S. Yakowitz, L.J. Lane, and J.J. Stone. 1993. A prototype decision support system for the evaluation of shallow land waste disposal trench cap designs. ER '93 Environmental Remediation Conference. October 23-25, Augusta, GA. *poster paper*

Paige, G. B. and D. Hillel. 1991. Comparison of methods for assessing soil hydraulic properties. American Society of Agronomy Annual Meetings. October 17-20, Denver, CO. *poster paper*

Baker, R.S. and G.B. Paige. 1990. Site suitability assessment for on site sewage disposal. Soil Science Society of Southern New England Conference. November 14, 1990, Sturbridge, MA. *oral paper*

### **Workshops/Trainings:**

#### **Reclamation 101:** Workshops hosted by Wyoming Reclamation Restoration Center

Rawlins, WY	October 22, 2009	27 attendees
Laramie WY	November 23, 2010	25 attendees
Cheyenne, WY	February 11, 2010	12 attendees
Gillette, WY	October 28, 2010	35 attendees
Worland, WY	February 11, 2011	46 attendees

*Presentations on Surface Water and Erosion.*

#### **Field Sampling Methods and Equipment; Data Analysis and Interpretation.** Wyoming Water Quality Monitoring Training Module III. June 1 - 3, 2011. Buffalo, WY.

Training Leader and Facilitator:

*3 oral presentations*

*2 day field demonstrations*

12 Attendees

#### **Field Sampling Methods and Equipment; Data Analysis and Interpretation.** Wyoming Water Quality Monitoring Training Module III. August 3-5, 2010. Douglas, WY.

Training Leader and Facilitator:

*3 oral presentations*

*2 day field demonstrations*

8 Attendees

**Design and Implementation of a Water Quality Monitoring Program.** Wyoming Water Quality Monitoring Training. Module II. April 21-23, 2010. Lander, WY.

Training Leader and Facilitator:

*4 oral presentations*

*Course Final Exam*

Course wrap-up and evaluation

**Watershed 101 & Water Quality 101.** Wyoming Water Quality Monitoring Training Module I. October 5-8, 2009. Laramie, WY.

Training Leader and Facilitator:

*8 oral presentations*

4 Attendees

**Field Sampling Methods and Equipment; Data Analysis and Interpretation.** Wyoming Water Quality Monitoring Training Module III. June 1 - 3, 2009. Casper, WY.

Training Leader and Facilitator:

*3 oral presentations*

*2 day field demonstrations*

6 Attendees

**Watershed 101 & Water Quality 101.** Wyoming Water Quality Monitoring Training Module I. October 10-14, 2008. Laramie, WY.

Training Leader and Facilitator:

*8 oral presentations*

6 Attendees

**Workshop for Landowners in Areas of CBM Development.** March 29, 2008. Rawlins, WY

*Organized and Facilitated Workshop*

6 Attendees

**Workshop for Landowners in Areas of CBM Development.** March 7, 2008 Sheridan, WY

*Organized and Facilitated Workshop*

*1 oral presentation*

65 Attendees

**Ecological Sites for wildlife management.** University of Wyoming Dept. of Renewable Resources and Jonah Interagency Office. February 29, 2008, Pinedale, WY.

*CO-organizer*

*1 invited presentation*

28 Attendees

**Ecological Site Descriptions as a Management Tool: Understanding and Improving Applications for Wildlife Habitat Management in Sagebrush Ecosystems.** Society for Range Management, Western Governors' Association, Western Association of Fish and Wildlife Agencies, The Wildlife Society, October 23 - 25, 2007, Park City UT.

*1 oral presentation*

*invited "ecological site expert" facilitator.*

250 Attendees.

**Field Sampling Methods and Equipment; Data Analysis and Interpretation.** Wyoming Water Quality Monitoring Training Module III. June 19-21, 2007. Casper, WY.

Training Leader and Facilitator:  
*2 oral presentations*  
*2 day field demonstrations*  
Course wrap-up and evaluation  
14 Attendees

**Design and Implementation of a Water Quality Monitoring Program.** Wyoming Water Quality Monitoring Training. Module II. March 27-29, 2007. Lander, WY.

Training Leader and Facilitator:  
*4 oral presentations*  
*Course Final Exam*  
Course wrap-up and evaluation  
14 Attendees

**Predicting Post Wildfire Hydrology and Erosion on Semi-Arid Grasslands and Oak Woodlands.** USDA-ARS and US Forest Service, Joint Fire Science Program Workshop. August 18-20, 2006. Sierra Vista, AZ.

Training Facilitator  
*4 oral presentations*  
*1 field demonstration*  
Course wrap-up and evaluation  
25 Attendees

**Field Sampling Methods and Equipment; Data Analysis and Interpretation.** Wyoming Water Quality Monitoring Training. Module III: Casper, WY June 12-15, 2006.

Training Leader and Facilitator:  
*2 oral presentations*  
*2 day field demonstrations*  
Course wrap-up and evaluation  
15 Attendees

**Design and Implementation of a Water Quality Monitoring Program.** Wyoming Water Quality Monitoring Training. Module II: Lander, WY March 5-9, 2006.

Training Leader and Facilitator:  
*4 oral presentations*  
*Course Final Exam*  
Course wrap-up and evaluation  
15 Attendees

**Soil Erosion Network: Soil erosion under climate change.** USDA-ARS, SWRC /ISCO Workshop. Tombstone, AZ. November, 2003

*Field Demonstration:* variable intensity rainfall simulator for quantifying hydrologic and erosion processes on ecological sites in semi-arid rangeland watersheds.  
20 Attendees

**First Interagency Conference on Research in the Watersheds.** Benson, AZ. October 29, 2003.

*Field Demonstration:* variable intensity rainfall simulator for quantifying hydrologic and erosion processes on ecological sites in semi-arid rangeland watersheds.  
60 Attendees

**Linking Physical and Ecological Processes on Southwest Watersheds.** University of Arizona Cooperative Extension In-Service. Tombstone, AZ. October, 2001.

*Field Demonstration:* variable intensity rainfall simulator for quantifying hydrologic and erosion processes on ecological sites in semi-arid rangeland watersheds.  
35 Attendees

## **GRANTS:**

### **In Progress and Completed:**

**USDA NIFA 2011.** Addressing Agricultural Water Security in the Colorado River Basin: Planning for Water Research, Extension, and Education PIs Waskom, R.M., D. Parker, G.B. Paige, A. Fernald, M. Laituri, S. Megdal, D. Reich, P. Taylor, (10/2011- 9/2013) \$149,423

**UW Agriculture Experiment Station 2011.** Landowner Survey for a Payments for Ecosystem Services Program in the Green River Basin. PIs Hansen, K, G.B. Paige, E. Duke, T. Wilson, (2012-2013) \$51,602

**USDA NRCS (CIG). 2011.** Development of a Market for Ecosystem Services in the Green River Basin of Southeastern Wyoming. PIs Hansen K, Coupal R., Paige, G.B. Wilson T. (2011-2013) \$139,660.

**US National Science Foundation. 2011.** Collaborative Research: CI-Water, Cyberinfrastructure to Advance High-Performance Water Resource Modeling. PD (Wyoming) F. Ogden. (2011-2014) \$2,400,000.

**Wyoming Association of Conservation Districts 2010.** Wyoming Water Quality Monitoring and Certification Program P.I. G.B. Paige (2001- 2012) \$45,438.

**USDA CSREES 2008.** Coordinated Regional Water Resources Programming for the Northern Plains and Mountain Region to Address Water Resource Issues. PD: R.M. Waskom (CSU), Wyoming PI: G.B. Paige (2008-2012) \$1,210,000.

**UW Agriculture Experiment Station 2009.** Effect of drought on rangeland productivity in Wyoming. PIs. T.J. Kelleners, G.B. Paige, S.T. Gray. (2.7 years) \$60,000.

**Tom Thorne Conservation Fund 2009.** Quantifying Sagebrush Structure on Ecological Sites in the Upper Green River Basin. PIs. G.B. Paige, M. Holloran, and A.L. Hild. (6/2009-12/2012) \$80,372.

**Wyoming Department of AG 2008.** Wyoming Soil Moisture Monitoring Network. PIs S.T. Gray and G.B. Paige (7/2008-6/2010) \$25,000.

**Wyoming Game and Fish 2008.** Structural and Spatial Characteristics of Sage-Grouse Nesting and Early Brood-Rearing Habitat Suitability of Wyoming Basin Ecological Sites. PIs. G.B. Paige, M. Holloran, and A.L. Hild. (9/2008-6/2010) \$99,822.

**Wyoming Department of AG 2008.** Greybull River Streambed Processes & E. coli Distribution PIs G.B. Paige and S. Jones. (9/2008-5/2011) \$80,430.

**Wyoming Association of Conservation Districts 2008.** Wyoming Water Quality Monitoring and Certification Program P.I. G.B. Paige (7/2008- 12/2009) \$65,068.

**USDA CSREES 2008.** Economic and environmental sustainability of conventional, reduced-input, and organic approaches on western crop-range-livestock farms PIs. Norton, J.B., Franc, G.D., Hess, B.W., Hewlett, J.P., Kelleners, T.J., Krall, J.M., Latchininsky, A.V., Mount, D.E., Paige, G.B., Paisley, S., Kniss, A.R., Peck, D.E., Rashford, B., Smith, R.D., Stahl, P.D., Ward, N.L., Wilson, D.W., Press, M.D., Arnould, E.J. (1/2009-12/2012) \$500,000.

**USDA CSREES 2007.** Development of a Rangeland Decision Support Tool to Improve Rangeland Watershed Management Decisions. PIs. D.P. Guertin, G.B. Paige, G. Ruyle, S.N. Miller, D.C. Goodrich, J.J. Stone, M.A. Nearing, P. Heilman. (2007-2010) \$384,554 (\$282,184 – Wyoming)

**F.E. Warren Air Force Base 2007.** Colorado butterfly plant and Prebles jumping mouse riparian habitat at F. E. Warren AFB, Cheyenne, WY. PIs A.L. Hild, T. Collier and G.B. Paige. (2007-2009) \$64,796.

**US Fish & Wildlife Service 2007.** Monitoring of grass and shrub communities in bottomlands at Browns Park National Wildlife Refuge, Co. PIs. G.B. Paige and A.L. Hild. (2007-2009) \$99,226.

**UW Faculty Grant-in-Aid 2007.** Soil moisture Sally Creek Watershed. PIs. T. Kelleners, G.B. Paige, S.N. Miller. (2007) \$7,400.

**UW AES-Special RFP for Equipment 2006.** Modernization of the Environmental Simulation Laboratory. PIs. G.B. Paige, D. Williams, P. Stahl, A.L. Hild and T. Collier. Submitted jointly to UW Research Office Equipment Grants. \$117,000.

**UW College of Agriculture 2006.** Instrumentation of Experimental Watershed. PIs. S.N. Miller and G.B. Paige \$11,308

**US Fish & Wildlife Service and USGS 2005.** Spatial database and decision tool to develop and evaluate habitat monitoring and management practices at Browns Park National Wildlife Refuge. PIs: A. Hild and G.B. Paige (2005-2008) \$208,521.

**USDA CSREES Water Quality Regional Project 2005.** Regional Assessment of Arsenic in Domestic Wells of Small Communities in Region 8 States. PIs: K.J. Reddy and G.B. Paige \$15,000.

**Nasa Space Grant Consortium 2005.** Remotely Sensed LIDAR Data to Characterize Semiarid Watersheds at Different Scales. PI: G.B. Paige \$10,640.

**USDA CSREES 2004.** Coordinated Agriculture Water Quality Programming for the Northern Plains and Mountains Region. PD: R.M. Waskom (CSU) Wyoming PIs: Q.D. Skinner, K.J. Reddy, G.B. Paige (2004-2008) \$2,561,862 (\$254,105-Wyoming).

**Wyoming Association of Conservation Districts 2004.** Water Quality Monitoring Certification Program. PIs: G.B. Paige, Q.D. Skinner and K.J. Reddy. (2004-2007) \$129,200.

**Joint Fire Science Program 2003.** Quantification of Runoff and Erosion on Semi-arid Grasslands following a Wildfire. PIs: G.B. Paige, J.J. Stone, D.P. Guertin, G.J. Gottfried. (2003-2006) \$127,000.

**Sustainability of Semi-arid Hydrology and Riparian Areas (NSF funded Science and Technology Center) 2000.** Spatial Variability of Infiltration and Runoff Processes on Semiarid Watersheds. PIs. G.B. Paige, J.J. Stone, D.C. Goodrich and A.W. Warrick (2 year post doctorate position) \$100,000.

**Pending:**

**NSF EPSCoR:** Water in a Changing West: The Wyoming Center for Environmental Hydrology and Geophysics PDs Sylvester, A, Holbrook, S., and Miller S.N. (PDs). 11/2012-11/2017 \$20,000,000.

**NSF MRI:** Development of an automated variable intensity rainfall simulator for an Environmental Simulation Laboratory. PIs G.B. Paige and A.L. Hild. 10/2012-9/2015 \$219,847.

**HONORS AND AWARDS**

Certificate of Appreciation, USDA-ARS SWRC, 2003

Outstanding Graduate Student, Dept. of Watershed Management, Univ. of Arizona, 2000

School of Renewable Natural Resources, University of Arizona, Superior Performance Award 1996, 1997, 1998, 1999, 2000

USDA-ARS, Outstanding Performance Award, 1996

USDA-ARS, Superior Performance Award, 1994 and 1995

Lotta Crabtree Fellowship for Agricultural Research 1991-1992

**TEACHING**

Western Water Resources CE 4900/ENR 5890-08/LAW 6915-09, Co-teacher, Spring 2012.

Environmental Assessment ENR 4900/5900, Spring 2008. Mentored a team of 4 students, participated in class discussions and gave a guest lecture on Decision Support Tools for Watershed Assessment.

**GRADUATE STUDENTS**

**Current:**

**Perlinski, Tony** PhD, Rangeland Ecology and Watershed Management, Co-chair, Dr. S.N. Miller

**Vithanage, Jagath**, PhD, Rangeland Ecology and Watershed Management, Co-chair, Dr. S.N. Miller

**Blain, Liberty** MS, Rangeland Ecology and Watershed Management, Chair

**Wuenschel, Amarina**, MS, Rangeland Ecology and Watershed Management, Co-Chair, Dr. Ann Hild

**Zahbini, Khodabashi**, PhD, Rangeland Ecology and Watershed Management, Co-Chair, Dr. Ann Hild

**Irwin, Wendy**, Rangeland Ecology and Watershed Management, Chair

**Engada, Teganu**, PhD, Rangeland Ecology and Watershed Management, Co-chair, Dr. Thijs Kelleners

**Beaugh, Corey** MS, Rangeland Ecology and Watershed Management, Chair

**Tilaye, Abhishek** MS, Rangeland Ecology and Watershed Management, committee member

**Chitty, Carrie** MS, Rangeland Ecology and Watershed Management, committee member

**Completed:**

**Williams, Mary I.** PhD, Rangeland Ecology and Watershed Management. Recipient of Graduate School Women and Minority Fellowship. Co-Chair, Dr. A.L. Hild. Currently Research Scientist, USFS Rocky Mountain Research Station, Moscow, ID

**Swallow, Aaron** MS, Rangeland Ecology and Watershed Management, Recipient of the Water Resources Assistantship, Chair. Currently Range Conservationist, USFS Medicine Bow-Route District

**Anderson, Kelsha** MS, Rangeland Ecology and Watershed Management, Co-chair Dr. S.N. Miller, Currently Hydrologist, USFS Dixie National Forest

**Schaffer, Gretchen**, MS, Rangeland Ecology and Watershed Management, committee member, Currently Graduate Student College of Education, University of Wyoming.

**Paterson, Michelle** PhD, Rangeland Ecology and Watershed Management, Defended May, 2009. *Irrigation and climate effects on selenium in the Kendrick Irrigation District, WY, and a bioremediation strategy.* Co-chair, Dr. K.J. Reddy, Currently Hydrologist, Welldog Corporation

**Church, Matthew** MS, Rangeland Ecology and Watershed Management, Defended July, 2009. *Vegetation management in a greasewood-dominated floodplain of the Green River, Colorado.* Co-chair, Dr. A.L. Hild. Currently with BLM Montana.

**Banks, David** MS, Zoology and Physiology, Defended December, 2008. *Population abundance and habitat selection of bluehead suckers and flannelmouth suckers in an isolated headwater tributary.* Graduate faculty representative.

**Soltis, Jeff** MS, Rangeland Ecology and Watershed Management, 2008. *Public involvement in natural resource decision making.* Committee member.

**Baldyga, Tracy** PhD, Rangeland Ecology and Watershed Management, 2008. *Spatially explicit multiple objective decision support for rural watersheds.* committee member. Currently Ass't Professor, Richard Stockton College of New Jersey

**Sharma, Maneesh** MS, Rangeland Ecology and Watershed Management, 2007. *Assessing effect of resolution and rainfall at plot and watershed scales in hydrologic modeling.* Chair. Currently NatCarb Coordinator, West Virginia University, WV GIS Technical Center

**Zobell, Aaron** MS, Rangeland Ecology and Watershed Management, 2006. *Water quality of the Bitter Creek and Killpecker Creek watersheds.* Co-chair, Dr. Q.D. Skinner. Currently with USFS, Utah.

**Shrestha, Sudhir** MS. Rangeland Ecology and Watershed Management, 2007. *Plan B.* Committee member.

**Wickre, Jennifer** MS, Watershed Management, University of Arizona, 2006. *Parameterizing the WEPP model for post-fire conditions in semi-arid environments using rainfall simulator.* Committee member.

**McGee, Rachel** MS, Watershed Management, University of Arizona, 2006. *Evaluation of three rangeland monitoring methods as indicators of runoff and erosion.* Committee member. Currently Range Conservationist, USFS Douglas and Thunderbasin Ranger District

**Blumenfeld, Hana** MS, Watershed Management, University of Arizona, 2002. *Quantifying rangeland health indicators using runoff and sediment from rainfall simulator experiments*. Committee member. Currently with USFS, Oregon.

## **SERVICE**

### **State, Regional and National:**

NSF Jornada Basin LTER V Site Review 2009  
Wyoming Water Quality Coordinator (USDA-CSREES, National Water Quality Program) 2005–present  
WERA 1011 Rangeland and Watershed Stewardship 2008 - present  
Wyoming TMDL Committee 2005 – present  
NRCS state technical advisory committee 2005 – present  
Wyoming Water Quality Standards Revision Workgroup (Chapter 1- Section 20) 2005 – 2006  
Society for Range Management, Wyoming Section, Southeast Representative (elected) 2008-2010  
USDA-CSREES and NRCS, CEAP Project, Invited reviewer, 2006, 2007, 2009, 2011, 2012  
Joint Fire Science Program, Invited reviewer, 2005  
WCC Western Water Resources Committee Co-chair 2012-present.

### **Peer Reviews:**

Journal of American Water Resources Association (2-3/year)  
Hydrologic Processes (2-3/year)  
Water Resources Research  
International Journal Wildfire Management  
Soil Science  
Rangeland Ecology & Management  
Water International  
USFS internal peer review for Catena

### **University of Wyoming:**

SMTC Affiliate Faculty 2012-present  
Faculty Development Committee 2006 – present (chair 2009-2010)  
Ruckelshaus Institute for Environment and Natural Resources  
Water Committee 2006 - present  
Climate Change Committee (C<sup>3</sup>) 2007- 2009  
Eco-informatics Advisory Committee 2008 – 2009  
EPSCoR Foster Advisory Committee 2008 - 2010  
Reclamation Issue Team 2008 – present  
EPSCoR EOD search committee 2012