Scott N. Miller, PhD
Professor of Watershed Hydrology
Department Head of Ecosystem Science & Management
University of Wyoming
Long Curriculum Vitae

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Personal Information

3307 Alta Vista Dr.
Tele: 307-399-5506
Laramie, WY 82072
snmiller@uwyo.edu
www.uwyo.edu/esm
www.uwyo.edu/sawls
www.uwyo.edu/ware and www.uwyo.edu/wrese

University of Wyoming
Box 3354; Ecosystem Science & Management
1000 E. University Ave.
Office: Room 314, Agriculture C
Laramie, WY 82071
Tele: 307-766-4274
FAX: 307-766-6403

Education

University of Arizona Tucson, AZ	PhD, Watershed Management (major) Remote Sensing and Spatial Analysis (minor), 2002. Dissertation title: Scale effects of geometric complexity, misclassification error and land cover change in distributed hydrologic modeling. Major Advisor: Dr. D. Phillip Guertin; Minor Advisor: Dr. Stuart Marsh
University of Arizona Tucson, AZ	Master of Science, Watershed Management, 1995. Thesis: An analysis of channel morphology at Walnut Gulch: linking field research with GIS applications. Major Advisor: Dr. D. Phillip Guertin
Brown University, Providence, RI.	Bachelor of Science, Geosciences, 1991. Independent study: Two-dimensional modeling of pollutant migration in groundwater. Thesis Advisor: Dr. Donald Forsyth

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Recent Employment

2015-Present — Department Head, Department of Ecosystem Science & Management, University of Wyoming.

2018-2019 — Interim Department Head, Department of Plant Sciences, University of Wyoming

As department head I am responsible for academic planning, research leadership, departmental administration, personnel decisions, tenure and promotion, and budgetary oversight for the departments. I work regularly with other academic programs and upper administration across campus and interact with state and federal agencies concerning the research and academic mission of the department. I still maintain a teaching role and teach both undergraduate and graduate courses. Budgetary responsibility: total department budgets for ESM and PS for 2018-2019: approx. $4,500,000

Notable items in current employment

- *Secured approximately $750,000 in private donations through foundation work*
- *Hired two new faculty in rangeland ecology and rangeland herbivory and one in agronomy/weed science*
- *Oversee 8 academic programs (BS, MS, PhD) with over 120 students in ESM*
- *Oversaw 5 academic programs (BS, MS, PhD) with over 70 students in PS*
- *Supervise 19 Faculty, 3 staff in ESM*
- *Supervised 12 Faculty, 5 staff in PS*

6/14–Present — Professor; Spatial Processes Hydrologist. Department of Ecosystem Science & Management, University of Wyoming. I perform research concerning the fate and transport of water, sediment, and chemistry in disturbed landscapes; integrated modeling with hydrology, ecology & geophysics; spatially distributed hydrologic modeling; GIS-based spatial hydrologic modeling; nested watershed observations in mountain hydrology; hydroinformatics. I teach at both the graduate and undergraduate levels and lead and serve on graduate student committees throughout UW and advise undergraduate students. Perform service to University, State and federal stakeholders.

2009-Present Chair, Water Resources in Environmental Science and Engineering interdisciplinary PhD program. This is an interdisciplinary, multi-college PhD program in Hydrology intended to further establish University of Wyoming as a center for water-related studies in the West. There is abundant expertise in hydrology on campus but it is not centered in any single department; thus this initiative draws together classes and research expertise to improve the study and teaching of hydrology. www.uwyo.edu/wrese. Annual budgetary responsibility of approximately $86,000.

2010-Present Chair, MS Program in Water Resources. I have been nominated and selected to serve as the chair of the Master's degree program in Water Resources at University of Wyoming. This is a dual degree program for MS students pursuing research in water-related disciplines and provides access to research, education and special funding opportunities. www.uwyo.edu/ware. Annual budgetary responsibility of $6,000.

2012-2018 Co-Director (PI), NSF-EPSCoR Wyoming Center for Environmental Hydrology & Geophysics. Responsible for science leadership for the 5-year $20M WyCEHG project in which we are building a center of excellence in mountain hydrology and understanding the fate and transport of water in complex systems using multiple disciplines and modeling. Provide science direction, make funding decisions, and maintain close contact with NSF a well as direct the Surface and Subsurface Hydrology Lab (SSHL). WyCEHG has over 40 active scientists, including over 20 students, 4 post-docs, technicians, and faculty directly funded by the project. www.uwyo.edu/wycehg.

2007-2008 Department Representative for Renewable Resources. From Fall 2007 – Fall 2009, our department operated without a Head, and responsibilities were divided among faculty members in the department. In this role I bore communication responsibilities to facilitate department business, represent the department at College, University and State meetings, interacted with UW administration, and assumed leadership for a variety of department functions, including acquiring resources and additional student and faculty appointments.

6/08-6/14 Associate Professor, Spatial Processes Hydrologist, Department of Ecosystem Science and Management, University of Wyoming. Research areas: Fate and transport of water, sediment, and chemistry in disturbed landscapes; re-interpreting anastomosis in the Rocky Mountains; channel morphology and hydraulic / hydrologic response; spatially distributed hydrologic modeling; GIS-based spatial hydrologic modeling; spatial and temporal watershed and channel classification.

8/02-5/08 Assistant Professor, Spatial Processes Ecologist, Department of Renewable Resources, Rangeland Ecology and Watershed Management Program, University of Wyoming. Responsibilities included classroom instruction at the graduate and undergraduate level, scientific research, publication of research, and service. Research topics included multi-scale hydrologic modeling with GIS, integrated stakeholder involvement and hydrologic research for sustainable watershed management, and the use of high resolution radar and LiDAR data for topographic and hydrologic research.

7/99-8/02 Senior Research Specialist for the University of Arizona and USDA-ARS Southwest Watershed Research Center. Research topics included large-scale hydrologic modeling with GIS, fluvial geomorphology and erosion processes, and using high-resolution radar imagery for natural resource applications. Duties also included composing research grants, developing independent research, publishing scientific manuscripts, and GIS database maintenance and improvement.

9/95-6/99 Research Specialist for the University of Arizona and USDA-ARS Southwest Watershed Research Center. GIS specialist focusing on the integration of GIS and watershed hydrology for research and management. Provided GIS support to other scientists and collaborated on a variety of hydrologic and geomorphic research projects.

Teaching Experience

Current	Responsible for development and instruction for undergraduate and graduate courses in support of the curriculum of the College and University. Courses are listed in greater detail below.
8/97 – 9/02	Co-developer and instructor for WSM 569: Spatial Analysis for Hydrology and Watershed Management, a graduate-level course at the University of Arizona. Topics include: linking GIS to lumped and distributed hydrologic models; resource characterization and decision support; interpolation techniques; sources of error; land classification and assessment; fuzzy theory; interpolation; emerging research. Overall rating of instructor's effectiveness: 4.9/5; University comparison group score: 4.3.
9/02	Primary instructor for a two-day training workshop for US-EPA, USGS, and USDA employees at USGS headquarters, Reston, VA. This workshop introduced research scientists to AGWA, an automated hydrologic modeling tool developed at the USDA-ARS SWRC. Developed training materials and example exercises for participants.
May, 2001	Coordinated and was the primary instructor of a two-day training workshop for the US-EPA Landscape Ecology Branch in Las Vegas, NV. This workshop served to introduce EPA scientists and collaborators with the Automated Geospatial Watershed Assessment (AGWA) Tool and illustrate its use in landscape ecology and assessment. Developed training manuals and exercises for participants.
8/96-6/97	Teacher, high-school geology class at St. Gregory College Preparatory School, Tucson, AZ. Taught Juniors and Seniors introductory geology at the collegiate level with semi-weekly lab assignments and field trips.
9/95 – 12/95	Established and taught a series of training workshops on the use of GIS in watershed hydrology and hydrologic research at the USDA-ARS Southwest Watershed Research Center, Tucson, AZ. This was an informal working group in which I delivered a lecture series and created several tutorials and take-home assignments for participants.

Classes Taught at University of Wyoming (In Chronological Order)

RNEW / ENR 2100 (Spring 2021). Forest Management. This is a sophomore-level source on the basic principles of forest management. We focus on improving students' understanding of the spectrum of fundamental aspects relevant to forest science and management. Topics include forest ecology, laws affecting forest management, methods of harvesting wood from forests, fire and insect management, the effects of disturbances on stream flow and nutrient cycling, and the challenges of developing management plans for forests. 3 credits

REWM 4530 (Spring 2016 - 2021). Natural Resources Seminar. In this seminar students identify critical and current topics in in natural resource management and read primary and popular press articles on the chosen subjects. Students are responsible for identifying literature, presenting materials, and leading discussions on these topics. This class is part of the University W2 requirement and increases student research and critical thinking skills. 1 Credit.

REWM 3100: (Fall 2017-2020). Principles of Water Quality. In this class we explore and gain an understanding of the basic principles of aquatic chemistry and water quality as they relate to watershed management practices including livestock production, agronomic production, mineral and natural gas extraction and other land uses. We will investigate the regulatory framework that governs water quality in the Unites States and how science and policy are used to manage water resources. This class explores how the quality of water resources are affected by changes in chemistry, biology, or physical properties in the water. 3 credits

REWM 4530 / ENR 3900 (Fall 2003 - 2019). Water Resources Seminar. This course is a survey of topical issues in water resources. We investigate a range of subjects, most of which are "hot topics" either in the scientific or political arena. Water resources are critical to economic stability, human health, and the environment. Conflict can arise in the management of these resources, especially if they are or become scarce and competing interests are present. Through a review of the scientific literature and popular press we will navigate through several of these national and international issues. 1 Credit.

REWM 4900 (Spring 2018-2020). Rangeland Management and Planning. This is Rangeland Ecology and Watershed Management's "capstone" planning course. It requires students to integrate the wide range of ecological comprehension gathered throughout the curriculum and apply that knowledge to natural resources planning. Students develop skills that integrate scientific knowledge, natural resource values and public land policy. 3 credits

REWM 4830 (Fall, 2019-2020). Ecological Applications for Wildland Management. This senior-level course is a writing-intensive course (satisfies UW W3 core requirement) in which students explore ecology and ecological processes to derive sound natural resource management strategies. The emphasis in this class is on reading and applying primary literature and to build critical thinking and reasoning skills that integrate knowledge gained throughout their REWM curriculum. 3 credits

RNEW 5200 (Spring 2004-2018). Spatial Analysis of Watersheds and Ecosystems. Geographic information systems (GIS) are important tools for hydrologists, ecologists, and environmental managers. This course covers topics related to the application of GIS in both research and management settings. The focus of the course is on watershed- and ecological applications at a range of scales. Topics include land classification and suitability analysis, interpolation techniques, terrain analysis, habitat modeling, model integration, and visualization. A particular emphasis is placed on sources of potential error and their ramifications in a research context. The class is taught as a 3 unit course, with 2 hours of lecture and a weekly 2 hour lab. 3 credits.

REWM 4285 / 5285 (Fall 2006 - 2016). Wildland Hydrology. This course is focused on essential and unique characteristics of the hydrologic cycle occurring on rangelands and forests. Processes controlling all aspects of the hydrologic cycle are covered, concentrating on the quantification and modeling of these processes. Also covered are aspects of watershed and land management that affect these processes. Field data collection is conducted throughout the semester on an experimental watershed in the Snowy Range, located 30 miles west of Laramie. 3 credits.

REWM 4700 (Spring 2013 - 2016). Wildland Watershed Management. Watershed Management focuses on the methods and outcome associated with extensive land management in wildland setting and how these actions affect ecological and hydrological systems. Students gain an understanding of the principles, theory and practices of watershed management and become trained in the connections among watershed-scale management decisions and environmental outcomes, specifically related to water resources, ecological condition and human needs.

RNEW 5990 (Spring 2010, 2014). Spatial Hydrology. The scope of this class is aimed at the practical use of established and emergent spatially explicit techniques for hydrologic investigations. We will investigate how these tools are best applied and understand their strengths and limitations through highly linked lectures and labs. Critical processes that drive the water cycle will be examined, including evapotranspiration, runoff, soil moisture, snowpack/glacial processes, and rainfall. Spatially explicit hydrologic modeling techniques, including the use of GIS-based tools and remote sensing technologies will be examined in theory and application. 3 Credits.

RNEW 4990 / 5990 / GEOL 4210 / 5210 (Summer 2013-2015). Field Course in Ecohydrogeophysics. This field course serves as an introduction to key tools for use in environmental hydrology and geophysics. A team-taught course, students are trained in field research in hydrology, near surface geophysics, and plant physiology. I helped establish this course and was responsible for the hydrology section where students were trained in observation hydrology, use of flow measurement devices (ADCP, velocity meters), water quality sampling, equipment installation, and data analysis. 2 credits.

ENR 5890 (Spring, 2012). Western Water Resources. This multidisciplinary course provided a comprehensive view of the many important attributes of western rivers and aquifers and their water. Faculty from different disciplines addressed a range of key concepts in watershed science including surface and ground water hydrology, water quality, aquatic ecology and biology, economics, and law. 3 credits.

RNEW 5985 (Fall 2009 - 2011). Research Across Disciplines. This seminar course is a designed to introduce students to a broad range of both disciplinary and interdisciplinary research conducted by and in association with faculty in the Department of Renewable Resources. The majority of speakers are faculty and post-docs associated with the department, with occasional speakers from outside the department who have shared or overlapping interests. Speakers present results from their own research and make readings available to students in advance of the class. 1 or 2 Credits.

RNEW 5990 (3) (Spring 2010). Watershed Dynamics Though Time. Inter-department seminar focused on the scales of response to change exhibited by watersheds through time. This course is designed to bring in faculty and students from across campus interested in the ways in which rivers and watersheds change as a function of landscape scale, climate, orogeny, management, and other natural influences. 1 Credit.

RNEW 5985 (Spring 2006). River System Response to Change. A 2-credit seminar investigating how rivers respond to change at a variety of temporal and spatial scales. Topics range from millennial-scale adjustments to tectonic activities (basin subsidence) to hydraulics of channels for river restoration and watershed response to land cover and management change. Team-taught with faculty members from Geology & Geophysics, Geography, and Civil Engineering. 2 Credits.

REWM 5640 (Spring 2006). Spatial Process. A 3-credit course primarily taught by Dr. Li Zou, a post-doc working in my lab. I assisted Dr. Zou with the course development and consulted in teaching methods and pedagogy. This course is designed to work students through the process of GIS programming with a mix of theoretical and applied sessions. By the end of the class, students should able to implement their own spatial concepts and research model in a functional GIS framework. 3 Credits.

ENR 1100 (Fall 2003-2005). Environment and Natural Resource Problems and Policies. This course is a survey of environmental problems and policies at the local/regional, national, and global levels. Because virtually all environmental and natural resource challenges inherently possess scientific, ethical, economic, legal, political, and other elements, this course seeks to train students to critically evaluate ENR problems and dissect apart their many interdisciplinary components. Identification of the most pressing ENR problems facing society is only the first step. At each scale of study, we will also examine, evaluate, and propose policy responses to remediate the problem. 3 Credits.

RNEW 5985 (Spring 2004). Time Scales of Fluvial Processes: A seminar that examines the behavior and variability of fluvial processes over time scales ranging from 10^{-7} to 10^{7} yrs. A central theme of the seminar will be to explore how our understanding of rivers (including their hydrologic, hydraulic, sedimentologic and morphologic characteristics) depends upon the time scale of analysis. Team-taught with faculty members from Geology & Geophysics, Geography, and Civil Engineering. 1 credit.

List of Publications ** denotes publication co-authorship with a student or Post-Doc*

Refereed Journals

In Review

1. * Miller, S.D., and **S.N. Miller**. Observed changes in climate and hydrology in headwaters of the western U.S. from 1981-2017. Submitted to Journal of Hydrometeorology.

2. * E.L. Kipnis, M.A. Murphy, A. Klatt, **S.N. Miller**, D.G. Williams. Terrain and land cover affect seasonal snowpack accumulation in Rocky Mountain headwater catchments affected by bark-beetle induced tree mortality. Submitted to Ecohydrology. Revisions Requested

In Press

1. * Claes, N., G.B. Paige, B.L. Gordon, A.D. Parsekian, and **S.N. Miller,** 2021. Hydrologic modeling of reach scale fluxes from flood irrigated fields. Journal of Hydrology 598. DOI: doi.org/10.1016/j.jhydrol.2021.126254.

2. * S.A. Miller, J.J. Mercer, S.W. Lyon, D.G. Williams, and **S.N. Miller**, 2021. Stable isotopes of water and specific conductance reveal complimentary information in snowmelt-dominated seasonally arid watersheds. Journal of Hydrology 596. DOI: doi.org/10.1016/j.jhydrol.2021.126075.

3. * S.A. Miller, S.W. Lyon, and **S.N. Miller**, 2020**.** Quantifying contributions of snowmelt water to streamflow using graphical and geochemical hydrograph separation. Hydrological Processes 34(26) 5606-5623. DOI: doi.org/10.1002/hyp.13981

4. * Gordon, B.L. S.N. Miller, G. B. Paige, N. Claes, and A.D. Parsekian, 2020. Field scale quantification of return flow. Agricultural Water Management 232. DOI: 10.1016/j.agwat.2020.106062

5. * He, S., N. Ohara, and S.N. Miller, 2019. Understanding sub-grid variability of snow depth at 1 km scale using Lidar measurements. Hydrological Processes. 2019;33:1525–1537. DOI: 10.1002/hyp.13415

6. * Callahan, R.P., K.L Ferrier, J. Dixon, A. Dosseto, W.J. Hahm, B.S. Jessup**, S.N. Miller**, C.T. Hunsaker, D.W. Johnson, L.S. Sklar, and C.S. Riebe, 2019. Arrested development: Erosional equilibrium in the southern Sierra Nevada, California, maintained by feedbacks between channel incision and hillslope sediment production. GSA Bulletin 131 (7-8): 1179-1202. DOI: https://doi.org/10.1130/B35006.1

7. * Voutchkova, D.D., S.N. Miller, and K.G. Gerow, 2019. Parameter sensitivity of automated hydrograph separation for snowmelt-dominated watersheds & new filtering procedure for determining end of snowmelt period. Hydrological Processes. 2019;33:876–888. DOI: 10.1002/hyp.13369

8. * Carey, A.M., G.B. Paige, B.J. Carr, W.S. Holbrook, and **S.N. Miller**, 2018**.** Characterizing Hydrological Processes at the Ecological Site Scale: A Hydrogeophysical Approach. Hydrological Processes 33:759–774, DOI:10.1002/hyp.13361.

9. * Perlinski, A.T., G.B. Paige, **S.N. Miller** and A.L. Hild. 2017. Hydrologic response of four ecological sites to natural rainfall events within a semi-arid watershed. Rangeland Ecology & Management 70(6):675-682. 2017 DOI: 10.1016/j.rama.2017.06.006 2017.

10. * Zabihi, K. G.B. Paige, A.L. Hild, **S.N. Miller**, A. Wuenschel, M.J. Holloran, 2017. A Fuzzy Logic Approach to Analyze Suitability of Nesting Habitat for Greater Sage-Grouse in western Wyoming. Journal of Spatial Science doi: 10.1080/14498596.2017.1292965

11. * Chitrakar, S., **S.N. Miller,** E.M. Kempema, and P. Caffrey, 2017. Impact of channel slope on cutthroat flume performance. Transactions of the ASABE Vol. 61(1): 117-120. doi.org/10.13031/trans.12468

12. J. Liu, T. Liu, A. Bao P. De Maeyer, X. Feng, **S.N. Miller**, Xi.Chen, 2016. Assessment of different modelling studies on the spatial hydrological processes in an arid alpine catchment. Water Resources. Management (2016) 30:1757–1770. DOI 10.1007/s11269-016-1249-2

13. * Vithanage, J., **S.N. Miller**, K. Driese, 2016. Land cover characterization for a watershed in Kenya using MODIS data and Fourier algorithms. Journal of Applied Remote Sensing 10(4), 045015. doi:10.1117/1.JRS.10.045015

14. * Holbrook, W.S., **S.N. Miller**, and M. Provart. Estimating snow water equivalent over long mountain transects using snowmobile-mounted GPR. Accepted for publication in Geophysics Nov. 2015.

15. * Kirol, C.P., J.L. Beck, S.V. Huzurbazar, M.J. Holloran, and **S.N. Miller**, 2014. Identifying greater sage-grouse source and sink habitats for conservation planning in an energy development landscape. Ecological Applications. http://dx.doi.org/10.1890/13-1152.1

16. * Geiger, S.T., J.M. Daniels, **S.N. Miller,** and J.W. Nicholas, 2014. Influence of rock glaciers on stream hydrology in the La Sal Mountains, Utah. Arctic, Antarctic, and Alpine Research 46(3): 645-658. DOI: 10.1657/1938-4246-46.3.645.

17. * C.B. Buchanan, J.L. Beck, T.E. Bills, and **S.N. Miller**, 2014. Seasonal resource selection and distributional response by elk to development of a natural gas field. Rangeland Ecology and Management 67:369-379. DOI: 10.2111/REM-D-13-00136.1

18. * Hayes, M., **S.N. Miller**, and M. Murphy, 2014. High-resolution landcover classification using random forests. Remote Sensing Letters 5(2): 112-121. DOI: 10.1080/2150704X.2014.882526

19. * Baker, T.J., and **S.N. Miller,** 2013. Using the Soil and Water Assessment Tool (SWAT) to assess land use impact on water resources in an East African watershed. Journal of Hydrology. 486: 100-111. http://dx.doi.org/10.1016/j.jhydrol.2013.01.041.

20. * Konrad, S.K., l. Zou and **S.N. Miller**, 2012. A geographical information system-based web model of arbovirus transmission risk in the continental United States of America. Geospatial Health 7(1), 2012, pp. 157-159.

21. * Konrad SK, and **S.N. Miller,** 2012. Application of a degree-day model of West Nile virus transmission risk to the East Coast of the United States. Geospatial Health 7, 15-20.

22. * Konrad SK, and **S.N. Miller,** 2012. A temperature-limited assessment of the risk of Rift Valley fever transmission and establishment in the continental United States. Geospatial Health 6, 161-170.

23. 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. Weltz, and L. Jolley, 2011. AGWA: The Automated Geospatial Watershed Assessment Tool to Inform Rangeland Management. Rangelands, 33(4):41-47. 2011.

24. * Jessup, B.S., Hahm, W.J., **Miller, S.N**., Kirchner, J.W., and Riebe, C.S. (2011) Landscape response to tipping points in granite weathering: The case of stepped topography in the Southern Sierra Critical Zone Observatory: Applied Geochemistry, v. 26, no. Supplement 1, p. S48-S50. doi:10.1016/j.apgeochem.2011.03.0

25. * Konrad, S.K., **S.N. Miller**, and W.K. Reeves, 2010. A spatially explicit degree-day model of Rift Valley fever transmission risk in the continental United States. Geojournal: Online First: DOI 10.1007/s10708-010-9338-x

26. * Baker, T.J., **S.N. Miller**, S.D. Prager, and D. Legg, 2010. Disaggregating human population for improved land use management. Journal of Land Use Science, 1747-4248, Volume 5, Issue 4, 2010, Pages 237 – 257

27. * Sharma, M., G. Paige, and **S.N. Miller**, 2010. DEM development from ground based LiDAR data: a method to remove non surface objects. Remote Sens. 2010, 2(11), 2629-2642; doi:10.3390/rs2112629

28. * Schrag, A.M., S.K. Konrad, **S.N. Miller**, B.L. Walker, S.C. Forrest, 2010. Climate-change impacts on sagebrush habitat and West Nile virus transmission risk and conservation implications for greater sage-grouse. GeoJournal DOI 10.1007/s10708-010-9369-3.

29. * Griscom, H.R., **S.N. Miller**, T. Gyedu-Ababio, and R. Sivanpillai, 2010. Mapping Land Cover Change for Hydrological Modelling of the Luvuvhu Catchment, South Africa. Geojournal 75:163–173.

30. Sivanpillai, R., and **S.N. Miller,** 2010. Improvements in mapping water bodies using ASTER satellite data. Ecological Informatics 5: 73-78.

31. * Baigas, P.E., R. A. Olson, R. M. Nielson, S. N. Miller, and F. G. Lindzey, 2010. Modeling seasonal distribution and spatial range capacity approximations of moose in southeastern Wyoming. Alces 46: 89-112

32. * Konrad, S., **S.N. Miller**, W. Reeves, and N. Tietze, 2009. Spatially Explicit West Nile Virus Risk Modeling in Santa Clara County, CA. Vector-Borne and Zoonotic Diseases 9(3): 267-274. DOI 10.1089/vbz.20080084

33. * Okoth, O.E., M. Muchiri, W.A. Shivoga, **S.N. Miller,** J. Rasowo, and C.C. Ngugi, 2009. Spatial and seasonal variations in phytoplankton community structure in alkaline–saline Lake Nakuru, Kenya. Lakes & Reservoirs: Research and Management 2009 14: 57–69.

34. Sivanpillai, R., and **S.N. Miller**, 2008. Benefits of pan-sharpened Landsat imagery for mapping small water bodies in the Powder River Basin, Wyoming, USA. Lakes & Reservoirs: Research and Management 2008 13: 69–76. DOI: 10.1111/j.1440-1770.2007.00356.x

35. Heilman, P., M.H. Nichols, D.C. Goodrich, **S.N. Miller**, and D.P. Guertin, 2008. GIS Database, Walnut Gulch Experimental Watershed, Arizona, USA. Water Resources Research. DOI:10.1029/2006WR005777

36. * Kibichii, S., W.A. Shivoga, M. Muchiri, E. Enanga, and **S.N. Miller**, 2008. Seasonality in water quality and its influence on the abundance and distribution of phytoplankton and chironomid larvae in Lake Nakuru, Kenya. Verh. Internat. Verein. Limnol. 30(2): 6 pp.

37. * Shivoga, W.A., E.M. Enanga, C. Maina-Gichaba, and **S.N. Miller,** 2008**.** Sediment Loading into Lake Nakuru wetland, Kenya. Egerton Journal (Regional East African peer-review publication).

38. **Miller, S.N.**, D.P. Guertin, and D.C. Goodrich, 2007. Hydrologic modeling uncertainty resulting from land cover misclassification. Journal of the American Water Resources Association 43(4):1065-1075. DOI: 10.1111/j.1752-1688.2007.00088.x

39. **Miller, S.N.**, D.J. Semmens, D.C. Goodrich, M. Hernandez, R.C. Miller, W.G. Kepner, and D.P. Guertin, 2007. The Automated Geospatial Watershed Assessment tool. Environmental Modelling & Software 22(3):365-377.

40. * Baldyga, T.J., **S.N. Miller**, K.L. Driese, and C. Maina Gichaba, 2007. Assessing land cover change in Kenya's Mau Forest region using remotely sensed data. African Journal of Ecology. DOI: 10.1111/j.1365-2028.2007.00806.x.

41. * Zou, L., **S.N. Miller**, and E.T. Schmidtmann, 2007. A GIS tool to estimate West Nile Virus risk based on a degree-day model. Environmental Monitoring and Assessment 129: 413-420. DOI 10.1007/s10661-006-9373-8.

42. M. Tischler, M. Garcia, C. Peters-Lidard, M.S. Moran, **S. Miller**, D. Thoma, S. Kumar, and J. Geiger, 2007. A GIS framework for surface-layer soil moisture estimation combining satellite radar measurements and land surface modeling with soil physical property estimation. Environmental Modelling & Software 22(6): 891-898. DOI:10.1016/j.envsoft.2006.05.022.

43. * Shivoga, W.A., M. Muchiri, S. Kibichii, J. Odanga, **S.N. Miller,** T.J. Baldyga, E.M. Enanga, and M.C. Gichaba, 2007. Influences of land use/cover on water quality in the upper and middle reaches of River Njoro, Kenya. Lakes & Reservoirs: Research and Management 12: 97–105. DOI: 10.1111/j.1440-1770.2007.00325.x

44. * Kibichii, S., W.A. Shivoga, M. Muchiri, and **S.N. Miller**, 2007. Macroinvertebrate assemblages along a land use gradient in the upper River Njoro watershed of Lake Nakuru Drainage Basin, Kenya. Lakes & Reservoirs: Research and Management 12: 107–117. DOI: 10.1111/j.1440-1770.2007.00323.x

45. Rhoton, F.E., W.E. Emmerich, D.C. Goodrich, S.N. Miller, and D.S. McChesney, 2007. An aggregation/erodibility index for soils in a semiarid watershed, southeastern Arizona. Soil Science Society of America Journal 71 (3): 984-992.

46. Britch, S.C., K.J. Linthicum, and the Rift Valley Fever Working Group[a], 2007. Developing a Research Agenda and a Comprehensive National Prevention and Response Plan for Rift Valley Fever in the United States. Emerging Infectious Diseases 13(8). DOI: 10.3201/EID1308.070551.
    a. ***S.N. Miller*** *is a member of the Rift Valley Fever Working Group*

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Abstracts, Presentations, and Poster Sessions *~ denotes invited speaker*

1. * Claes, N., G.B. Paige, A. Parsekian, B. Gordon, **S.N. Miller**, J. Cook. 2017. Identifying flow barriers and subsurface flow paths affecting return flow. Symposium on the Application of Geophysics to Engineering and Environmental Problems, Denver, CO, March 19 - 23, 2017.

2. * Rosado, S.P, G.B. Paige, W.J. Gribb, **S.N. Miller**. 2017. Irrigation Conveyance Efficiency and Water Balance of the Little Wind Unit on the Wind River Indian Reservation, Wyoming. AWRA Annual Meeting, Portland, OR, November 9, 2017.

3. * Gulvin, C., and **S.N. Miller**, 2017. Understanding watershed processes through combined stream measurements in southeastern Wyoming. AGU Fall Meeting, New Orleans, 11-15 Dec, 2017.

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5. * Voutchkova, D.D., and **S.N Miller**, 2017. 50 years of change at 14 headwater snowmelt-dominated watersheds in Wyoming. AGU Fall Meeting, New Orleans, 11-15 Dec., 2017.

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26. * Hyde, K., **S.N. Miller**, R. Anderson-Sprecher, B. Ewers, and H. Speckman, 2014. “Excess Water” Following Deforestation by Beetle Kill? Oral presentation and abstract at AGU Fall Meeting, San Francisco, CA, Dec. 15-19, 2014.

27. * Holbrook, W.S., M. Provart, **S.N.** Miller, and M. Dogan, 2014. Estimating snow-water equivalent (SWE) over long mountain transects with snowmobile-mounted GPR. Poster presentation and abstract at AGU Fall Meeting, San Francisco, CA, Dec. 15-19, 2014.

28. * Carey, A., G. Paige, **S.N. Miller**, B. Carr and W.S. Holbrook, 2014. A method for partitioning surface and subsurface flow using rainfall simulation and two-dimensional surface electrical resistivity imaging. Oral presentation and abstract at AGU Fall Meeting, San Francisco, CA, Dec. 15-19, 2014.

29. * Vithanage, J, **S.N. Miller,** G. Paige, and T. Kelleners, 2014. Dynamically downscaled climate outputs for estimating hydrological responses for a Wyoming watershed. Poster presentation and abstract at AGU Fall Meeting, San Francisco, CA, Dec. 15-19, 2014.

30. * Thayer, D., A. Klatt, **S.N. Miller**, N. Ohara, 2014. Temperature Response of a Small Mountain Stream to Thunderstorm Cloud-Cover: Application of DTS Fiber-Optic Temperature Sensing. Poster presentation and abstract at AGU Fall Meeting, San Francisco, CA, Dec. 15-19, 2014.

31. * Klatt, A., **S.N. Miller**, G.B. Paige, T. Kelleners, N. Ohara, and S. Holbrook, 2013. Integrated sensor and observation network for quantifying the fate and transport of water in a complex mountain terrain. Oral presentation and abstract at AGU Fall Meeting, San Francisco, CA, Dec. 9-13, 2013.

32. * Vithanage J., **S.N. Miller**, M.E. Berendsen, P.A. Caffrey, J. Bellis, and R. Schuler, 2013. Effects of energy development on hydrologic response: a multi-scale modeling approach. Poster presentation and abstract at AGU Fall Meeting, San Francisco, CA, Dec. 9-13, 2013.

33. * S. Chitrakar, **S.N. Miller**, P.A. Caffrey, J.R. Stern, 2013. Understanding the processes of salt transport and movement in the streams within oil and gas development areas. Poster presentation and abstract at AGU Fall Meeting, San Francisco, CA, Dec. 9-13, 2013

34. * M. Provart, S. Holbrook, B. Carr, **S.N. Miller**, E. Traver, R. Hall, 2013. Using resistivity and seismic refraction to image surface-ground water interaction in the Snowy Range, Wyoming. Poster presentation and abstract at AGU Fall Meeting, San Francisco, CA, Dec. 9-13, 2013.

35. * Liu, T., **S.N.** Miller, and S. Chitrakar, 2013. Spatial input variables applications for hydrological simulation of south Wyoming watershed: case study of Muddy Creek via MIKE SHE. Poster presentation and abstract at AGU Fall Meeting, San Francisco, CA, Dec. 9-13, 2013.

36. * Flinchum, B., S. Holbrook, B. Carr, and **S.N.** Miller, 2013. Surface-groundwater interactions mediated by fractures: Seismic refraction and electrical resistivity results from the Laramie Range, Wyoming. Poster presentation and abstract at AGU Fall Meeting, San Francisco, CA, Dec. 9-13, 2013.

37. * Kipnis, E.L., W.D. Chapple, E. Traver, J.M. Frank, B.E Ewers, **S.N Miller**, D.G. Williams, 2013. Spatial variability of snow water isotopes in montane southeastern Wyoming. Poster presentation and abstract at AGU Fall Meeting, San Francisco, CA, Dec. 9-13, 2013.

38. * Hayes, J.L., W.S. Holbrook, B. Carr, **S. Miller**, D. Williams, B. Ewers, E. Heydari. A cross-disciplinary approach to field camp: integrating geophysics, hydrology, and ecology in mountain systems. Oral presentation and abstract at 2013 GSA Annual Meeting in Denver: 125th Anniversary of GSA, Denver, CO., Oct. 27-30 2013.

39. * Hyde, K., B.E. Ewers, **S.N. Miller**, K.L. Riley, and C. Tague, 2013. Post-fire erosion: re-visioning science, context, and consequences. Oral presentation and abstract at 2013 GSA Annual Meeting in Denver: 125th Anniversary of GSA, Denver, CO., Oct. 27-30 2013.

40. **~ Miller, S.N.**, and S. Holbrook, 2013. Emerging Science at University of Wyoming: The Wyoming Center for Environmental Hydrology & Geophysics. Invited oral presentation to October Lyceum, Centennial, WY, Oct. 29, 2013.

41. **~ Miller, S.N.**, and S. Holbrook, 2013. WyCEHG: Linking surface hydrology and groundwater through near-surface geophysics. Invited speaker to CUAHSI Cyberseminar series, April 12, 2013.

42. Ogden, F.L, W. Lai, C. Douglas, **S.N. Miller**, Y. Zhang, R.C. Steinke, 2012. CI-WATER HPC Model: Cyberinfrastructure to Advance High Performance Water Resources Modeling in the Intermountain Western U.S. Poster presentation to 2012 AGU Fall Meeting, San Francisco, CA, Dec 3-7, 2012.

43. * Hayes, M.H. and **S.N. Miller,** 2012. Creation of local high resolution landcover maps using national agriculture imagery program data and random forests. Abstract and poster presentation to 2012 Meeting of The Wildlife Society – Wyoming Chapter, Laramie, WY, Nov. 13-15, 2012.

44. * Hayes, M.H., **S.N. Miller,** and P. Caffrey, 2012. Alterations to riparian vegetation associated with beaver ponds: Pole Mountain Recreation Area, SE Wyoming. Abstract and oral presentation to 2012 Meeting of The Wildlife Society – Wyoming Chapter, Laramie, WY, Nov. 13-15, 2012.

45. ~ **Miller, S.N**., and W. Steven Holbrook, 2012. Water in a Changing West: Wyoming Center for Environmental Hydrology and Geophysics [WyCEHG]. Oral presentation to Managing Water for Extremes: 2012 Wyoming Water Association Annual Meeting and Educational Seminar. Lander, WY, Oct. 23, 2012.

46. ~ Holbrook, W.S, and **S.N. Miller**, 2012. Water in a Changing West: Wyoming Center for Environmental Hydrology and Geophysics. Oral presentation to Ecosystem Science and Management Research Across Disciplines Seminar, Laramie, WY, Oct. 12, 2012.

47. Ogden, F.L., C. Douglas, **S.N. Miller**, 2012. Petascale Hydrologic Modeling: Needs & Challenges. Abstract and oral presentation to CUAHSI 3rd Biennial Colloquium on Hydrologic Science and Engineering, Boulder, CO, July 16-18, 2012

48. *** Miller, S.N.**, A. Klatt, and G. Paige, 2012. Water in a Changing West. Oral presentation to 2012 WWA Stakeholder Meeting, Boulder, CO, Oct. 2, 2012.

49. **~ Miller, S.N.**, 2012. Changing climate, changing water. Invited speaker to Kathmandu University World Environment Day Speaker Series, Kathmandu, Nepal, June 3, 2012.

50. **Miller, S.N.**, 2012. Impacts of Land Cover Change on Hydrology in a Mountainous Environment. Oral presentation to Conference on Mountain Resource Management in a Changing Environment, Kathmandu, Nepal, May 29-31, 2012.

51. **~ Miller, S.N.**, 2013. Seeps, Salts & Slumps: Downstream Impacts of Well Failures in a Fragile Landscape. Invited speaker at CSU Water Center, Fort Collins, CO., April 12, 2013.

52. Ogden, F.L., C.C. Douglas, **S.N. Miller**, 2012. Petascale Hydrologic Modeling: Needs & Challenges. Abstract and oral presentation to AGU Hydrology Days, Logan, UT, March 21-23, 2012.

53. ~ Ogden, F.L., C. Douglas, and **S.N. Miller**, 2012. Petascale Hydrologic Modeling - Needs and Challenges. Oral presentation to 2012 Spring Runoff Conference: Multidisciplinary water science: linking social, physical, computational and ecological approaches to sustainable water resources. Utah State University, Logan, UT, April 3-4, 2012.

54. **Miller, S.N.**, P. A. Caffrey, and M. Berendsen, 2012. Spatially explicit predictive hydrologic modeling in advance of oil and gas development. Oral presentation and abstract to AWRA's 2012 Spring Specialty Conference Geographic Information Systems (GIS) and Water Resources VII, New Orleans, LA, March 26-28, 2012.

55. * Hayes, M., **S.N. Miller**, and P. Caffrey, 2012. Relationships between beaver ponds and woody vegetation dynamics on the Pole Mountain unit of the Medicine Bow National Forest. Oral presentation and abstract to AWRA's 2012 Spring Specialty Conference Geographic Information Systems (GIS) and Water Resources VII, New Orleans, LA, March 26-28, 2012.

56. * Chitrakar, S., **S.N. Miller**, P.A. Caffrey, and J.R. Stern, 2012. Modeling salt mobilization and movement in areas affected by oil and gas development. Oral presentation and abstract to AWRA's 2012 Spring Specialty Conference Geographic Information Systems (GIS) and Water Resources VII, New Orleans, LA, March 26-28, 2012.

57. Guertin, D.P., D.C. Goodrich, S. Burns, L. Levick, M. Hernandez, W. Kepner, **S.N. Miller**, D.J. Semmens, and C. Unkrich, 2012. Automated geospatial watershed assessment tool (AGWA): A GIS-based hydrologic modeling tool for watershed assessment and analysis. Oral presentation and abstract to AWRA's 2012 Spring Specialty Conference Geographic Information Systems (GIS) and Water Resources VII, New Orleans, LA, March 26-28, 2012.

58. Caffrey, P., **S.N.** Miller, and M. Berendsen, 2012. Hydrologic Modeling Toolkit for Mitigating the Impacts of Energy Build Out in Semiarid Wyoming. Oral presentation and abstract to AWRA's 2012 Spring Specialty Conference Geographic Information Systems (GIS) and Water Resources VII, New Orleans, LA, March 26-28, 2012.

59. Guertin, D.P., D.C. Goodrich, I.S. Burns, L. Levick, M. Hernandez, W. Kepner, S.N. Miller, D.J. Semmens, C. Unkrich, 2012. Automated Geospatial Watershed Assessment Tool (AGWA): A GIS-based hydrologic modeling tool for watershed assessment and analysis. Poster presentation at AWRA's 2012 Spring Specialty Conference Geographic Information Systems (GIS) and Water Resources VII, New Orleans, LA, March 26-28, 2012.

60. **~ Miller, S.N.**, 2011. Sustainable development and linked impacts in ecology and human health. Invited guest lecturer in AGRI 1010: Critter and Communities, Oct. 25, 2011.

61. ~ Konrad, S.K., and **S.N. Miller**, 2011. The Hot Zone: Predicting where and when Rift Valley Fever virus will reach the US. Invited presentation to the WyGISc Geospatial Forum, October 7th, 2011, Laramie, WY.

62. ***** G.B. Paige, **S.N. Miller,** A. Perlinski, and J. Vithanage, 2011. Instrumentation of Crow Creek Watershed for short and long-term hydrologic studies in the northern intermountain west. Abstract and oral presentation to the 4th Interagency Conference on Research in the watersheds: Observing, Studying and managing for Change, Sept. 26-30, 2011, Fairbanks, AK

63. *** Miller, S.N.,** K. Anderson, S. Chitrakar, S.K. Konrad, P. Caffrey and G.B. Paige, 2011. Monitoring and modeling hydrologic and water quality responses to disturbance resulting from natural gas development in Muddy Creek, WY. Abstract and oral presentation to the 4th Interagency Conference on Research in the watersheds: Observing, Studying and managing for Change, Sept. 26-30, 2011, Fairbanks, AK

64. * A.N. Swallow, G. B. Paige, **S.N. Miller,** and W.S. Irwin, 2011. Quantifying Hydrologic Impacts of Vegetation Treatments in the Bates Creek Watersheds. Abstract and oral presentation to the 4th Interagency Conference on Research in the watersheds: Observing, Studying and managing for Change, Sept. 26-30, 2011, Fairbanks, AK

65. * Jessup, B.S., W.J. Hahm, **S.N. Miller**, J.W. Kirchner, C. S. Riebe. 2011. Landscape Response to Tipping Points in Granite Weathering: Exploring the Stepped Topography of the Southern Sierra Critical Zone Observatory. Oral presentation to the 9th International Symposium on Geochemistry of the Earth's Surface (GES-9), June 3-7, 2011, Boulder, CO.

66. **~ Miller, S.N.**, 2011. Future Water Resources in the Colorado River. Invited guest lecture in ENR 4890: Western Water Issues, Feb 22, 2011.

67. * Jessup, B.S., **S.N. Miller,** J.W. Kirchner, and C.S. Riebe, 2010. Erosion, Weathering and Stepped Topography in the Sierra Nevada, California; Quantifying the Dynamics of Hybrid (Soil-Bedrock) Landscapes. Abstract and poster presentation at American Geophysical Union 2010 Fall Meeting, San Francisco, CA, 13–17 December 2010

68. *** Miller, S.N.,** T.J. Baker, and C.M. Gichaba, 2010. Investigating the Role of Land Cover Change on the Hydrology of the River Njoro Watershed. Abstract and Oral Presentation: AWRA 2010 Annual Water Resources Conference. Philadelphia, PA, November 1-4, 2010.

69. * Vithanage, J., R. Geerken, P.S. Thankabail, **S.N. Miller**, C.M. Birader, A. Platinov, M. Herath, 2010. Mapping Irrigated Areas for Environmental Modeling with Discrete Fourier Transformation of MODIS Time Series Data. Abstract and Poster Presentation: AWRA 2010 Annual Water Resources Conference. Philadelphia, PA, November 1-4, 2010.

70. * Paige, G.B., A. Perlinski, **S.N. Miller**, J. Vithanage, 2010. Methods to Parameterize a Hydrologic Simulation Model in a Geospatial Rangeland Watershed Assessment Tool using Ecological Sites. Abstract and Oral Presentation: AWRA 2010 Annual Water Resources Conference. Philadelphia, PA, November 1-4, 2010.

71. * Beaugh, C., G.B. Paige, **S.N. Miller**, C. Legleiter, S. Jones, 2010. E. coli Distribution & Streambed Processes of the Greybull River. Abstract and Oral Presentation: AWRA 2010 Annual Water Resources Conference. Philadelphia, PA, November 1-4, 2010.

72. **Miller, S.N.** and M.H. Benson, 2010. Assessment of Coalbed Natural Gas Active Well Migration in Wyoming's Powder River Basin: Implications for Adaptive Management. Abstract and oral presentation at the 2010 Energy Resources Produced Water Conference, Laramie, WY May 25-26, 2010. Webcast avaible at http://wyocast.uwyo.edu/WyoCast/Play/03bd43caffc24b098ac438d4508f64ed

73. Sivanpillai, R., and **S.N. Miller**, 2010. Mapping Small Water Bodies in the Powder River Basin using Satellite Images. Abstract and oral presentation at the 2010 Energy Resources Produced Water Conference, Laramie, WY May 25-26, 2010. Webcast available at http://wyocast.uwyo.edu/WyoCast/Play/b4502c0a03954cc394bdee8c8c211bce

74. * Perlinski, A., G.B. Paige, J.J. Stone, **S.N. Miller**, J. Vithanage, 2010. Using ecological sites to parameterize a hydrologic simulation model in geospatial rangeland watershed assessment tool. Abstract and oral presentation at the 2010 AWRA Spring Specialty Conference: GIS in Water Resources. Orlando, FL March 29-31, 2010.

75. * Bigelow, P., W.A. Hubert, **S.N. Miller**, and R.E. Gresswell, 2010. A conceptual model for predicting areas with high potential for lake trout spawning habitat in Yellowstone Lake. Abstract and oral presentation at the Montana Chapter Of The American Fisheries Society 2010 Meeting, Bozeman, MT Feb 8-12, 2010.

76. Guertin, D.P. G.B. Paige, D. Goodrich, M. Nearing, **S.N. Miller**, P. Heilman, J. Stone, G. Ruyle, I. Burns, M. Hernandez, M. McClaran. 2010. Automated Geospatial Watershed Assessment Tool for Rangelands. Abstract and Oral Presentation to Society for Range Management Annual Meeting, Denver Co, Feb. 7-11.

77. Konrad, S., and **S.N. Miller,** 2010. Turning up the Heat: Mosquitoes, Viruses, Cows & People. Research Across Disciplines Seminar, Laramie, WY, Sept. 22, 2010.

78. **~ Miller, S.N.**, 2010. Integrated Problems: Land Cover Change, Human Health and Ecological Effects in Kenya. Invited guest lecturer in AGRI 1010: Critter and Communities, Nov. 2, 2010.

79. **~ Miller, S.N.,** P. Caffrey, and M. Berendsen, 2010. GIS and Modeling Tools for Evaluating Impacts of CBM Development in Wyoming. 2-day Training Session to BLM field staff at Rawlins F.O., April 20-22, 2010.

80. * 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. Oral presentation at GIS in the Rockies conference, Loveland, CO, Sept. 25-28, 2009.

81. * Bigelow, P.E., **S.N. Miller**, and W.A. Hubert, 2009. Predicting areas of lake trout spawning habitat within Yellowstone Lake, Wyoming. Oral presentation at GIS in the Rockies conference, Loveland, CO, Sept. 25-28, 2009.

82. ~ (Keynote address) **Miller, S.N.**, 2009. Together We Will Restore the Mau Complex Forest: Conference Opening. Oral presentation at the SUMAWA Mau Forest Complex Conference, Njoro, Kenya, April 27-29, 2009

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

84. * Chitty, C., and **S.N. Miller**, 2009. Community Level 3-Dimensional Mapping and Gender-Based Analysis in the Njoro Watershed. Oral presentation at the SUMAWA Mau Forest Complex Conference, Njoro, Kenya, April 27-29, 2009.

85. * Huckett, S., D. Layne Coppock, and **S. N. Miller**, 2009. Evaluating Constraints to Adoption: Small Small-hold Farm Soil and Water Conservation Practice in River Njoro, Kenya. Oral presentation at the SUMAWA Mau Forest Complex Conference, Njoro, Kenya, April 27-29, 2009

86. * 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. Poster 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. Laramie, WY, March 10, 2009.

87. * 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. Laramie, WY, March 10, 2009.

88. ~ **Miller, S.N.**, Hydrologic modeling in GIS. Invited speaker to BOT 5710 (Digital Image Processing for Natural Resource Management). Laramie, WY, March 9, 2009.

89. **~ Miller, S.N.**, 2009. LiDAR in Hydrology: Improving Accuracy or Just Cost? Invited speaker to the Colorado State University Water Center Interdisciplinary Water Resources Seminar. Fort Collins, CO, March 5, 2009.

90. ~ **Miller, S.N.**, 2009. Rapid assessment of stream channel morphology using LiDAR . Invited speaker to BOT 4211 (Advanced Remote Sensing of the Environment). Laramie, WY Feb. 26, 2009.

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

92. G.B. Paige, **S.N. Miller**, T.J. Kelleners, and S.T. Gray. 2008. Hydrologic Instrumentation and Data Collection in Wyoming. Abstract and Poster Presentation at the Third Interagency Conference on Research in the Watersheds. Planning for an Uncertain Future: Monitoring, Integration, and Adaptation. Estes Park, Colorado September 8 - 11, 2008.

93. *** Miller, S.N**., T.B. Wyckoff, and E. Bishop, 2008. Spatial and temporal analyses of coalbed natural gas and co-produced water in the Powder River Basin, Wyoming. Oral presentation and abstract Published in Proceedings of the AWRA 2008 Spring Specialty Conference: GIS in Water Resources, San Mateo, CA, March 17-19, 2008.

94. **Miller, S.N.**, and R. Sivanpillai, 2008. Identification of coalbed natural gas discharge reservoirs with ASTER data and GIS in Powder River Basin, Wyoming. Abstract and Poster Presentation Published in Proceedings of the AWRA 2008 Spring Specialty Conference: GIS in Water Resources, San Mateo, CA, March 17-19, 2008.

95. * Paige, G.B., **S.N. Miller**, and M. Sharma, 2008. Using high resolution ground based LiDAR to assess effects of digital elevation model resolution and storm size on hydrologic modeling. Abstract and Oral Presentation Published in Proceedings of the AWRA 2008 Spring Specialty Conference: GIS in Water Resources, San Mateo, CA, March 17-19, 2008.

96. * Baldyga, T.J, **S.N. Miller**, W.A. Shivoga, L.W. Chiuri, G. Paige, 2008. Development and use of a multiple objective spatial decision support system in east African rural watershed management. Oral presentation of the AWRA 2008 Spring Specialty Conference: GIS in Water Resources, San Mateo, CA, March 17-19, 2008. CD-ROM publication; 6 pp

97. ~* Carrie J. Chitty, **S.N. Miller**, and Wanjiku Chiuri, 2008. Gender based community resource and development mapping on a watershed scale utilizing a 3-dimensonal model and geographic information science. Abstract and oral presentation at the 2008 Annual Meeting of the AAG, Boston, MA, April 15-19, 2008.

98. ~ **Miller, S.N.**, 2008. Hydrologic modeling with GIS for watershed assessment. Invited speaker to: Watershed 101. Wyoming Water Quality Monitoring Training, Module I. October 10-14, 2008. Laramie, WY.

99. Konrad, S.K., **S.N. Miller**, W.K. Reeves, and N.S. Tietze. 2008. Spatially Explicit West Nile Virus Risk Modeling in Santa Clara County, CA. Oral presentation to 39th Annual meeting of the Society for Vector Ecology (SOVE). Fort Collins, CO. Sept. 28-Oct. 2, 2008.

100. ~* Baldyga, T.J, G. Bundotich, **S.N. Miller**, and J.L. Beck, 2008. Waterbuck (Kobus ellipsiprymnus defassa) as an Ecosystem Change Indicator in Lake Nakuru National Park, Kenya. Poster Presentation to 14th Annual Front Range Student Ecology Symposium: "Ecology: A Matter of Scales". Colorado State University, Fort Collins, Colorado, USA

101. *~ C. Chitty, and **S.N. Miller**. 2008. Experiences in GIS-Based Community Mapping. WyGISC Seminar Series, Univ. of Wyoming, WyGISC Geospatial Forum, February 29th, 2008.

102. ~ **S.N. Miller**, 2008. Economic and ecological development in Kenya. Invited lecturer to ECON 4700: Economic Development, Feb. 28, 2008. ~ **S.N. Miller**, 2008. Uncertainty and error in hydrologic modeling with GIS. Invited lecturer to GEOG 4210: Advanced GIS, May 1, 2008.

103. Guertin, D.P., D.C. Goodrich, W.G. Kepner, D.J. Semmens, M. Hernandez, S. Burns, A. Cate, L. Levick, and **S.N. Miller**. 2007 Automated Geospatial Watershed Assessment (AGWA): A GIS-Based Hydrologic Modeling Tool for Watershed Assessment and Analysis. Abstract and Oral Presentation at American Water Resources Association 2007 National Conference, Albuquerque, New Mexico, November 12-15, 2007.

104. ~ **Miller, S.N.**, 2007. Geospatial sciences / technology: A boon or a bane for watershed hydrology? Invited oral presentation to Wyoming GIS Center Geospatial Forum, Oct 5., 2007, Laramie, WY.

105. ~ **Miller, S.N.**, and S. Konrad,. 2007. Degree-day modeling relative to infections in livestock. Invited oral presentation to Interagency Rift Valley Fever Working Group Summer Meeting, Fort Collins, CO, July 31 - August 1, 2007.

106. * Martin, C., **S.N. Miller**, and L. Chiuri, 2007. Split Sex Community Based Mapping Using a 3-Dimensional Model of the River Njoro Watershed. Poster presentation at Society for Conservation GIS, 1st Conservation-GIS Conference, Nairobi, Kenya, July 18-20, 2007.

107. ~**Miller, S.N.**, 2007. Hydrologic Measurements - Snowy Range. Invited presentation to USFS hydrology group, Medicine Bow - Routt National Forest. Saratoga, WY, March 28, 2007.

108. ~ **Miller, S.N.**, 2007. Rapid assessment of stream channel morphology using LiDAR. Invited speaker to University of Wyoming Department of Geology and Geophysics Distinguished Lecturer Series, Spring 2007. Laramie, WY. March 19, 2007.

109. ~ **Miller, S.N.**, 2007. Scientific ethics of GIS and spatial analysis. Invited speaker to Wyoming GIS Center Geospatial Forum, Laramie, WY. March 2, 2007.

110. ~ **Miller, S.N.**, 2007. Multidisciplinary research in Kenya: geospatial modeling, economics, and human health. Invited speaker to AGEC 3860: Economics of World Food and Agriculture, Univ. of Wyoming, Laramie, WY. March 1, 2007.

111. **Miller, S.N.**, and P. Caffrey. The BLM / APD Modeling Toolkit. Presentation to BLM Rawlins Field Office, Rawlins, WY. Feb. 6, 2007.

112. ~ **Miller, S.N.**, 2006. Land Cover Change, Human Health and Ecological Effects: Integrated Research in Kenya and South Africa. Invited speaker to University of Wyoming Geography Department Speaker Series for "Geography Awareness Week" Nov. 14, 2006

113. ~ **Miller, S.N.**, 2006. Uncertainty and environmental modeling in GIS. Invited Speaker to Wyoming GIS Center Geospatial Forum, Laramie, WY. November 10, 2006.

114. ~ **Miller, S.N.**, 2006. Managing Uncertainty in GIS-Based Environmental Modeling. Invited speaker to University of Wyoming Statistics Departmental Seminar Series. Nov. 3, 2006.

115. ~* **Miller, S.N.**, and H.R. Griscom, 2006. Watershed and River Management in Africa: Njoro Watershed, Kenya and the Luvuvhu River, South Africa. Invited speaker to Geography 4080: Management of Major River Basins, Univ. of Wyoming, Laramie, WY, March 28, 2006.

116. * **Miller, S.N.**, T.J. Baldyga, C. Maina Gichaba, 2006. Hydrological modeling in the Njoro watershed, Kenya: assessing the impacts of land cover change on watershed hydrology. Abstract and oral presentation at AWRA Conference on Geographic Information Systems (GIS) and Water Resources IV, Houston, Texas, May 8-10, 2006.

117. ~ **Miller, S.N.**, and P. Caffrey, 2006. APD/NEPA Predictive Modeling Toolkit. Abstract and Invited Speaker at 2006 National Soil, Water, and Air Conference of the US Bureau of land Management, National Training Center, Phoenix, AZ, Feb. 27 - March 3, 2006.

118. ~ **Miller, S.N.**, and P. Caffrey, 2006. Software Demonstration of the APD/NEPA Predictive Modeling Toolkit. Invited Speaker at 2006 National Soil, Water, and Air Conference of the US Bureau of land Management, National Training Center, Phoenix, AZ, Feb. 27 - March 3, 2006.

119. * **Miller, S.N.**, Zou, L., D. Semmens, A. Vekatasamy and D.P. Guertin, 2006. GIS-based statistical modeling of channel morphology using LIDAR cross-section profiles and watershed characteristics. Abstract and oral presentation at AWRA Conference on Geographic Information Systems (GIS) and Water Resources IV, Houston, Texas, May 8-10, 2006.

120. * **Miller, S.N.**, S.R. Shrestha, D.J. Semmens, and A. Tilaye, 2006. Channel Morphology Extraction and Validation using Ground-Based LiDAR. Abstract and oral presentation at AWRA Conference on Geographic Information Systems (GIS) and Water Resources IV, Houston, Texas, May 8-10, 2006.

121. ~ **Miller, S.N.**, 2006. LiDAR Applications. Invited speaker to GEOG 4140: Remote Sensing and Natural Resources Management , Laramie, WY, April 25, 2006.

122. * Caffrey, P., **S.N. Miller**, M. Berendsen, R. Schuler, and K. Anderson, 2006. GIS and Modeling Tools for Evaluating Impacts of CBNG Development in Wyoming. Poster Presentation to GIS Days, November 20-24, 2006, Laramie, WY.

123. Burns, S., S. Scott, D. Goodrich, M. Hernandez, L. Levick, A. Cate, W. Kepner, D. Semmens, **S. Miller** and P. Guertin, 2006. Automated Geospatial Watershed Assessment (AGWA): A GIS-based hydrologic modeling tool for watershed Management and Landscape Assessment. Poster presentation at: 3rd Research Insights in Semiarid Ecosystems (RISE) Symposium, October 7, 2006, Tucson, AZ.

124. * Kibichii, S., W.A. Shivoga, M. Muchiri, T.J. Baldyga, and **S.N. Miller**, 2006. Impact of landuse on the physicochemical characteristics and the structure of benthic macroinvertebrates of the upper River Njoro, Kenya. Poster presentation to Environ06: 16th Irish Environmental Researchers Colloquium, Dublin, University College Dublin, January 2-8, 2006.

125. * Baldyga, T.J. and **S.N. Miller**., 2006. Estimating the effects of land cover misclassification derived from remotely sensed imagery on distributed hydrologic models. University of Wyoming Graduate Student Symposium, 3 - 4 April, 2006.

126. * S.R. Shrestha, **S.N. Miller**, and D. Gabriels, 2006. Soil Erosion Assessment in Middle Mountains of Nepal using GIS based Model. Oral presentation at AWRA Conference on Geographic Information Systems (GIS) and Water Resources IV, Houston, Texas, May 8-10, 2006.

127. * H.R. Griscom, **S.N. Miller**, and T. Gyedu-Ababio, 2006. Drying of the Luvuvhu River, South Africa: examining the roles of land cover change and water extraction with GIS-based hydrologic

modeling and remote sensing. Abstract and poster presentation at AWRA Conference on Geographic Information Systems (GIS) and Water Resources IV, Houston, Texas, May 8-10, 2006.

128. D. J. Semmens, **S.N. Miller**, and D.C. Goodrich, 2006. Towards an Automated Tool for Channel Network Characterization, Modeling, and Assessment. Abstract and oral presentation to Third Federal Interagency Hydrologic Modeling Conference, Reno, NV, April 2-6, 2006.

129. * H. Griscom, **S.N. Miller**, and T. Gyedu-Ababio, 2006. Kruger National Park, South Africa: Using GIS-based Hydrologic Modeling & Remote Sensing to Assess Human Impacts on the Luvuvhu River. Abstract and oral presentation to University of Wyoming Graduate Student Symposium, Laramie, WY, April 3, 2006.

130. * Baldyga, T.J., **S.N. Miller**, K.L. Driese, R. Sivanpillai, and C. Maina Gichaba, 2005. Enhanced land cover classification in a tropical Kenya landscape. Oral Presentation at Pecora 16: "Global Priorities in land Remote Sensing". October 23-27, 2005, Sioux Falls, SD.

131. * Kibichii, S., W.A. Shivoga, M. Muchiri, and **S.N. Miller**, 2005. Physico-chemical Characteristics of Streams Draining into Lake Nakuru in relation to their Watershed Landuse. Oral Presentation at the 11th International Conference on the Conservation and Management of Lakes, 31 October to 4 November 2005, Nairobi, Kenya.

132. * Maina-Gichaba, C. W. A. Shivoga, E. M. Enanga, S. Kibichii and **S. N. Miller**, 2005. Sediment Loading on Inland Lakes/Wetlands: A Case Study of Lake Nakuru, Kenya. Oral Presentation at the 11th International Conference on the Conservation and Management of Lakes, 31 October to 4 November 2005, Nairobi, Kenya.

133. * Milkah, F.N., W. A. Shivoga, Mucai Muchiri and **S. N. Miller**, 2005. Effects of Land Use Changes on Birds Composition along River Njoro: A Watershed of Lake Nakuru. Oral Presentation at the 11th International Conference on the Conservation and Management of Lakes, 31 October to 4 November 2005, Nairobi, Kenya.

134. Okelo, M.O., J.O. Onyando, W.A. Shivoga and **S. N. Miller**, 2005. Analysis of Surface Runoff and Soil Loss under different Land Use Types in River Njoro Watershed Using a mini Rainfall Simulator. Oral Presentation at the 11th International Conference on the Conservation and Management of Lakes, 31 October to 4 November 2005, Nairobi, Kenya.

135. * Shivoga, W.A., M. Muchiri, S. Kibichi, J.Odanga, **S.N. Miller**, T.J. Baldyga, C. Maina Gichaba, 2005. Impacts of upland land use on downstream water quality in River Njoro Watershed, Kenya. Oral Presentation at the 11th International Conference on the Conservation and Management of Lakes, 31 October to 4 November 2005, Nairobi, Kenya.

136. **Miller, S.N.**, and M. Tischler, 2005. Army Remote Moisture System: A GIS Enabled Land-Surface Model for Estimating Soil Moisture. Abstract and oral presentation at 2005 ASA-CSSA-SSSA International Annual Meetings Salt Lake City, UT - November 6 - 10, 2005.

137. **Miller, S.N.**, W.A. Shivoga, F.K. Lelo, C. Maina-Gichaba, S. Ouma, M. Muchiri, and M.W. Jenkins, 2005. The Sustainable management of watersheds project. Oral presentation at Global Livestock CRSP Retreat, Dublin, Ireland, June 24, 2005.

138. * Baldyga, T.J., **S.N. Miller**, K.L. Driese, and C. Maina-Gichaba, 2005. Using Landsat Imagery to Analyze Land Cover Change in the Njoro Watershed, Kenya. Poster presentation to XX International Grasslands Congress, University College Dublin, Ireland June 26 - July 1, 2005.

139. * Shivoga, W. A., M. Muchiri, S. Kibichi, J. Odanga, **S.N. Miller**, and T.J. Baldyga, 2005. The impact of land use on water quality in River Njoro watershed, Kenya. Poster presentation to XX International Grasslands Congress, University College Dublin, Ireland June 26 - July 1, 2005.

140. Onyando, J.E., M.O. Okelo C.M. Gichaba, W.A. Shivoga, and **S.N. Miller**, 2005. Micro-field assessment of soil erosion and surface runoff using mini rainfall simulator in upper River Njoro

watershed. Poster presentation to XX International Grasslands Congress, University College Dublin, Ireland June 26 - July 1, 2005.

141. Chiuri, L.W., F.K. Lelo, M.W. Jenkins, and **S.N. Miller**, 2005. Development of a Toolkit for Participatory Management of Rural Watersheds in Kenya. Poster presentation to XX International Grasslands Congress, University College Dublin, Ireland June 26 - July 1, 2005.

142. ~ **Miller, S.N.**, 2005. Watershed Management. Invited speaker to ENR 2000, October 25, 2005.

143. * E.J. Wald, **S.N. Miller**, and R.A. Olson, 2005. Predicting Winter Moose Habitat in Southeastern Wyoming-A Preliminary Model. Poster presentation at The 41st Annual North American Moose Conference And Workshop, Whitefish, MT, May 22-26, 2005.

144. * **Miller, S.N.**, H.R. Griscom, T. Gyedu-Ababio, N.M. Korfanta, and W.A. Shivoga, 2005. A Multidisciplinary Research and Outreach Framework For The Sustainable Management Of Watersheds. Abstract and oral presentation at The 3rd KNP Science Networking Meeting. Skukuza, Mpumalanga, South Africa, April 4-8, 2005.

145. * Korfanta, N.M., **S.N. Miller**, and H. Bergman, 2005. Beyond the fence: linking on- and off-park land uses with biodiversity conservation in Kruger National Park. Abstract and oral presentation at The 3rd KNP Science Networking Meeting. Skukuza, Mpumalanga, South Africa, April 4-8, 2005.

146. * Griscom, H.R., T. Gyedu-Ababio, and **S.N. Miller**, 2005. Designing land use and hydrologic assessments for the Upper Luvuvhu and Shingwedzi Rivers: A step towards Integrated Catchment Management. Abstract and oral presentation at The 3rd KNP Science Networking Meeting. Skukuza, Mpumalanga, South Africa, April 4-8, 2005.

147. ~ **Miller, S.N.**, 2005. Controlled chaos: merging concepts, models, and people for multidisciplinary watershed research in Kenya. Invited speaker at Department of Renewable Resources Seminar Series RAD - Research Across Disciplines. Laramie, WY Feb. 18, 2005.

148. ~ Bagby, L., **S.N. Miller**, H. Bergman, and H. Harlow, 2005. South Africa's Kruger National Park: Travelogue and UW Research Plan. Invited speaker to School of Environment and Natural Resources Student-Faculty Forum. Laramie, WY, Feb. 10, 2005.

149. * Thel, L., S. Mooney, D. Ouma and **S.N. Miller**, 2005. Applying integrated modeling of economics and natural resources to a Kenyan watershed. Poster presentation to UW Graduate School Symposium, May 2005.

150. ~ **Miller, S.N.**, 2004. Sustainable Management of a Rapidly Changing Kenya Watershed. Invited speaker to Annual Board Meeting of the International Programs Office, University of Wyoming. Laramie, WY, Nov. 5, 2004.

151. **Miller, S.N.**, W.A. Shivoga, F.K. Lelo, C. Maina-Gichaba, S. Ouma, M. Muchiri, and M.W. Jenkins, 2004. Sustainable Management of Watersheds - A Spatially Explicit Multidisciplinary Project. Abstract and oral presentation at GIS in the Rockies 2004 Conference: "Worlds of Opportunity". Denver, CO October 6-8, 2004.

152. * Dwivedi, M., M. Rayda, and **S.N. Miller**, 2004. Internet Map Server for Invasive Weeds in Wyoming. Abstract and oral presentation at GIS in the Rockies 2004 Conference: "Worlds of Opportunity". Denver, CO October 6-8, 2004.

153. * Baldyga, T.J., **S.N. Miller**, L. Thel, W.A. Shivoga, and C. Maina-Gichaba, 2004. Improving livelihoods through with Remote Sensing and GIS. Abstract and oral presentation at GIS in the Rockies 2004 Conference: "Worlds of Opportunity". Denver, CO October 6-8, 2004.

154. * Thel, L., T.J. Baldyga, A.J. Cockrell, **S.N. Miller**, F.K. Lelo, C. Maina-Gichaba, S. Ouma, W.A. Shivoga, M. Muchiri, and M.W. Jenkins, 2004. Integration and management of hydrologic,

ecologic, socio-economic and stakeholder data for watershed management in Kenya. Abstract and oral presentation at GIS in the Rockies 2004 Conference: "Worlds of Opportunity". Denver, CO October 6-8, 2004.

155. ~ **Miller, S.N.**, 2004. Application of remote sensing, GIS and modeling in integrated hydrologic / geomorphic research. Invited speaker to Egerton University Geography Department. Njoro, Kenya, July 13, 2004.

156. ~* **Miller, S.N.**, L. Thel, 2004. Integrating and managing data for a multidisciplinary research project. Invited speaker to Department of Environmental Science, Egerton University. Njoro, Kenya, July 9, 2004.

157. * Baldyga, T.J., **S.N. Miller**, W.A. Shivoga, C. Maina-Gichaba, 2004. Land cover change detection in the River Njoro watershed: a landscape in transition. Poster presented at 57th Annual Meeting of Society for Range Management, Salt Lake City, UT, January 24-30, 2004.

158. * Baldyga, T.J., **S.N. Miller**, W.A. Shivoga, and C. Maina-Gichaba, 2004. Assessing the impact of land cover change in Kenya using remote sensing and hydrologic modeling. Oral presentation at the 2004 American Society for Photogrammetry & Remote Sensing Annual Conference, Denver, CO, May 23-28, 2004.

159. **Miller, S.N.**, 2004. Landscape ecology applications. Presentation to Casper Community College students as part of the annual "Introduction to Range Management" class. April, 2004, Casper, WY.

160. * Shrestha, S.R., and **S.N. Miller**, 2004. High Resolution Terrain Mapping for Geomorphic and Hydrologic Study. Poster presentation to UW Graduate School Symposium, May 2004.

161. Levick, L.R., R.L. Scott, **S.N. Miller**, D.J. Semmens, D.P. Guertin, and D.C. Goodrich, 2003. Application of a land cover modification tool and the Automated Geospatial Watershed Assessment tool (AGWA) at Fort Huachuca, AZ. Oral presentation to Society for Conservation GIS (SCGIS) Annual Conference, July 3-5, 2003, Pacific Grove, CA.

162. Miller, R.C., D.P. Guertin, P. Heilman, and **S.N. Miller**, 2003. A spatial decision support system for rangeland watershed management. Poster presentation to the 56th Annual Meeting of the Society for Range Management: Rangelands: Diversity Through Time. Feb. 2-6, 2003, Casper, WY.

163. Goodrich, D.C, A. Farid, **S.N. Miller**, D. Semmens, D. Williams, S. Moran, and C.L. Unkrich, 2003 (invited) Airborne Laser Swath Mapping (ALSM) for Enhanced Riparian Water Use Estimates, Basin Sediment Budgets, and Terrain Characterization. Eos Trans. AGU, 84(46), Fall Meet. Supplement, Abstract G12A-04.

164. ~ **Miller, S.N.**, 2003. Habitat analysis in a changing world: the value of landscape metrics. Invited speaker to the Department of Geography's Annual Geography Days. Nov. 18, 2003, University of Wyoming, Laramie, WY.

165. ~ **Miller, S.N.**, 2003. Distributed hydrologic modeling at multiple scales. Invited speaker to the Wyoming Geographic Information Science Center Seminar Series. Oct. 17, 2003, University of Wyoming, Laramie, WY.

166. ~ **Miller, S.N.**, 2003. Sustainable management of a rapidly changing Kenya watershed. Invited speaker to School of Environment and Natural Resources Student-Faculty Forum, Oct. 1, 2003, University of Wyoming, Laramie, WY.

167. **Miller, S.N.**, 2003. Landscape ecology applications. Presentation to Casper Community College students as part of the annual "Introduction to Range Management" class. April 17, 2003, Casper, WY.

168. Huckett, S., D.L. Coppock, W.A. Shivoga, F.K. Lelo, and **S.N. Miller**, 2003. Comparing processes of stakeholder participation in community-based watershed programs: the Little Bear River, Utah, USA, and River Njoro, Rift Valley Province, Kenya. Poster presentation at VII International Rangeland Congress. July 26th-Aug. 1, 2003, Durbin, South Africa.

169. Shivoga, W., F. Lelo, C. maina-Gichaba, F. Lusenaka, M.W. Jenkins, and **S.N. Miller**, 2002. Integrated stakeholder participation and watershed assessment in the River Njoro watershed, Kenya. Poster presentation at GL-CRSP meeting, September 2002, Washington, DC.

170. ~ **Miller, S.N.**, 2002. Overview of landscape science tools and use for environmental assessment/decision making. Invited Speaker to Working Group Meeting of NATC/CCMS Pilot Study on Environmental Decision-Making for Sustainable Development in Central Asia: "Use of Landscape Sciences as Tools for Environmental decision making". September 22, 2002, Almaty, Kazakhstan.

171. ~ **Miller, S.N.**, 2002. Demonstration of landscape science software packages: ATtILA and AGWA. Invited Speaker to Working Group Meeting of NATC/CCMS Pilot Study on Environmental Decision-Making for Sustainable Development in Central Asia: "Use of Landscape Sciences as Tools for Environmental decision making". September 22, 2002, Almaty, Kazakhstan.

172. **Miller, S.N.**, 2002. Successfully managing multiple uses of water: practical aspects and case studies. Oral presentation to NATO Advanced Research Workshop: Risk Assessment as a Tool for water Resources Decision making in Central Asia. September 23-25, 2002, Almaty, Kazakhstan.

173. **Miller, S.N.**, 2002. Landscape models. Oral presentation to NATO/CCMS Pilot Study Workshop on the Use of landscape Sciences for Environmental Assessment. April 3-5, 2002, Las Vegas, NV.

174. **Miller, S.N.**, 2002. Demonstration: Automated Geospatial Watershed Assessment - A GIS-based hydrologic modeling too. Oral and software presentation to NATO/CCMS Pilot Study Workshop on the Use of landscape Sciences for Environmental Assessment. April 3-5, 2002, Las Vegas, NV.

175. **Miller, S.N.**, Semmens, D.J., Goodrich, D.C., and M. Hernandez, 2002. Automated Geospatial Watershed Assessment (AGWA) tool. Presentation & Software Demonstration at Changes & Choices: Collaborative Land Use Planning in the Southwest. November 20-21, 2002, Tucson, AZ

176. **Miller, S.N.**, R.C. Miller, D.J. Semmens, M. Hernandez, W.P. Miller, D.C. Goodrich, W.G. Kepner, D. Ebert, 2002. AGWA - Automated hydrologic modeling for landscape assessment. Poster Session for Second Federal Interagency Hydrologic Modeling Conference, July 28 - August 1, 2002, Las Vegas, Nevada.

177. **Miller, S.N.**, D.J. Semmens, M. Hernandez, D.C. Goodrich, W.G. Kepner, and W.P. Miller, 2002. Demonstration of the Automated Geospatial Watershed Assessment tool and its application in watershed analysis: Oral and Software Presentation to Southwest Landscape Change Workshop, February 20-21, 2002, Las Cruces, NM.

178. **Miller, S.N.**, D.C. Goodrich, R.C. Miller, D.J. Semmens, M. Hernandez, W.G. Kepner, D. Ebert, and W.P. Miller, 2001. Automated Geospatial Watershed Assessment (AGWA): A GIS-based hydrologic modeling tool. Poster Presentation at Water Resources for the 21st Century: A National Hydrology and Hydraulics Engineering Workshop, Nov. 26-30, 2001, Tucson, AZ.

179. Osterkamp, W.R., and **S.N. Miller**, 2001. Seasons of drought and flood: what does the future hold? Oral presentation at Hot Topics, Cool Solutions 2001; "The Sustainable Desert: Building Livable Futures, A Conference on Greenbuilding and Livable Communities", September 10-12, 2001, Tucson, AZ.

180. Guertin, D.P., **S.N. Miller**, and D.C. Goodrich, 2001. Impact of urbanization of runoff and erosion. Oral presentation at Hot Topics, Cool Solutions 2001; "The Sustainable Desert: Building Livable Futures, A Conference on Greenbuilding and Livable Communities", September 10-12, 2001, Tucson, AZ.

181. Guertin, D.P., and **S.N. Miller**, 2001. Application of the fuzzy logic approach for watershed assessment. American Water Resources Association and Universities Council on Water Resources; Annual Summer Specialty Conference: "Decision Support Systems for Water Resources Management", June 27 - 30, 2001, Snowbird, UT.

182. **Miller, S.N.**, R.C. Miller, M. Hernandez, D. Semmens, D. C. Goodrich, and P. Miller, 2001. Two-Day Training Seminar and Workshop for the Automated Geospatial Watershed Assessment (AGWA) tool. May 30-31, 2001, Las Vegas, Nevada.

183. **Miller, S.N.**, D.C. Goodrich, R.C. Miller, M. Hernandez, and D. Semmens, 2001. Modeling plant assemblages. USGS Workshop: "Predicting hydrologic, geologic, and biologic responses to a drier and warmer climate in the desert Southwest", April 23-25, 2001, Tucson, AZ., Eos 82 (41): 475

184. ~ **Miller, S.N.**, and R.C. Miller, 2001. Land Cover Impacts on Hydrology. Invited Lecture for University of Arizona's WSM 462/562: Watershed Management, February 22, 2001, Tucson, AZ.

185. ~ **Miller, S.N.**, R.C. Miller, and D. Semmens, 2001. Modeling the Hydrologic Effects of Land Cover Change Using Remote Sensing and GIS: A Demonstration of AGWA - the Automated Geospatial Watershed Assessment tool. Invited Speaker for the Agricultural and Biosystems Engineering Department's Annual Seminar Series, February 19, 2001, Tucson, AZ.

186. **Miller, S.N.**, R.C. Miller, and D. Semmens, 2001. AGWA - the Automated Geospatial Watershed Assessment Tool. USDA - ARS SWRC Seminar Series January 31, 2001, Tucson, AZ.

187. ~ **Miller, S.N.**, 2001. The use of High Technology in Hydrology and Watershed Management. Invited Speaker, St. Gregory College Preparatory School Annual Humanities Day January 10, 2001, Tucson, AZ.

188. **Miller, S.N.**, M. Hernandez, R.C. Miller, D.C. Goodrich, W.G. Kepner, D.L. Heggem, M.L. Mehaffey, F. Kim Devonald, P. Miller, 2001. Land Cover Change and Large Scale Hydrologic Modeling of the San Pedro River and Catskill/Delaware Basins. Integrated Decision Making for Watershed Management: Processes and Tool Symposium. January 7-9, 2001, Chevy Chase, MD.

189. ~ **Miller, S.N.**, Goodrich, D.C., Miller, R.C., Hernandez, M., 2000. Land Cover Change and Hydrologic Response. Invited Speaker to the Joint USDA Agricultural Research Service - Natural Resources Conservation Service Technology Retreat Nov. 1, 2000, Tucson, AZ.

190. ~ **Miller, S.N.**, 2000. Susceptibility of Alluvial Stream Channels to Degradation: A Case for Conservation Planning. Invited Presenter to Upper San Pedro Partnership Committee. October 11, 2000, Tombstone, AZ.

191. ~ **Miller, S.N.**, 2000. Modeling the Impacts of Land Cover Change on Hydrology and Erosion. Invited Speaker to the School of Renewable Natural Resources Advisory Council's Annual Meeting. October 6, 2000, Tucson, AZ.

192. ~ **Miller, S.N.**, Miller, R.C., Hernandez, M., Goodrich, D.C., 2000. Land Cover Change and Large Scale Hydrologic Modeling of the San Pedro River and Catskill/Delaware Basins Invited Speaker, US-EPA Landscape Sciences Branch Retreat, Mt. Charleston, NV, September 25-28, 2000.

193. ~ **Miller, S.N.**, 2000. Improved landscape assessment through spatial analysis. Invited Lecturer for University of Arizona's WSM 462/562: Watershed Management.

194. ~ **Miller, S.N.**, 2000. Integrating GIS, remote sensing, and hydrologic models for landscape indicator assessment. Invited Lecturer for University of Arizona's WSM 696: Application of Remote Sensing and GIS Technologies in Environmental Quality Analysis.

195. **Miller, S.N.**, J.J. Stone, J.G. Martinez, and D.P. Guertin, 1999. Influence of geographical information system watershed characterization for hydrologic modeling. AGIC '99: Arizona Geographic Information Conference: Sharing Knowledge and Data in the 21st Century, August 8-10, 1999, Tucson, AZ.

196. Masterson, J., **S.N. Miller**, and D. Yakowitz, 1996. Software enhancements to the USDA multi-objective decision support tool. Presentation at the Malama 'Aina 1995: Multiple Objective Decision Making for Land, Water, and Environmental Management, Honolulu, HI, July 23-28, 1995.

197. Goodrich, D.C., L.J. Lane, D.A. Woolhiser, R. Shillito, and **S.N. Miller**, 1996. Linearity of basin response as a function of scale in a semi-arid watershed. Abstract and poster presentation, Conference and Workshop on Basin Response, Vienna Austria, June 17-20, 1996.

198. Potter, T., D.P. Guertin, and **S.N. Miller**, 1996. Hydrologic modeling of an urban watershed using GIS and remote sensing. American Water Resources Association's 32nd Annual Conference and Symposium: "GIS and Water Resources", Sept. 22-26, 1996, Ft. Lauderdale, FL.

Dissertation

- **Miller, S.N.**, 2002. Scale effects of geometric complexity, misclassification error and land cover change in distributed hydrologic modeling. Ph.D. Dissertation, University of Arizona. Available from UMI Dissertation Services. 170 pp.

Thesis

- **Miller, S.N.**, 1995. An analysis of channel morphology at Walnut Gulch: linking GIS and field research at Walnut Gulch. Master's Thesis, University of Arizona. Available from UMI Dissertation Services. 169 pp.

External Research Support

Currently Funded Projects

1. Upper Green River Demand Management Demonstration Project. PI's: **S.N. Miller** and G.B Paige (University of Wyoming), A. Strike (Strike Consulting). Proposal accepted by Trout Unlimited for $18,500 for 2020; $1,815,026 for 2021-2024.

2. Improved Irrigation Management Through Monitoring and Collaborative Management. PI: **S.N. Miller.** Private Donor Support Through University of Wyoming Foundation for $250,000 for 2018-2023.

3. Green River Basin Salt Sourcing and Mobilization. PI's: Caffrey, P, S. Chitrakar, and **S.N. Miller**. Multi-part proposal accepted by the USDI Bureau of Land Management; sum total of numerous small projects approximately $1,145,000 for 2017-2022.

Previously Funded Projects

1. Water in a Changing West: The Wyoming Center for Environmental Hydrology and Geophysics. PI's: Sylvester, A.S., W.S. Holbrook, and **S.N. Miller**. Proposal accepted by NSF for $20,000,000 (100% at Wyoming) with $4,000,000 matching state commitment for 2012-2017

2. Collaborative Research: CI-WATER, Cyberinfrastructure to Advance High Performance Water Resource Modeling. PI: Multiple PIs at BYU, Univ. of Utah, Utah State. PI (Wyoming): Ogden, F.L. Co-PI: C, Douglas, K. Hansen, **S.N. Miller**, Y. Zhang. Proposal funded by NSF for $5,000,000 ($2,465,005 at Wyoming) for 2011-2014.

3. Quantifying Return Flow in the Upper Wind River Basin. PI's: Paige, G.B., and **S.N. Miller**. Proposal accepted by Univ. Of Wyoming Office of Water Programs for $123,713 (100% at Wyoming) for 2014-2018

4. Multi-agency Collaborative Effort to Model Salt Loading in Energy Development Areas. PI: **Miller, S.N..** Co-PI: Paul Caffrey. Proposal accepted and funded by three agencies: USDI Bureau of Reclamation Colorado River Basin Salinity Control Program ($82,000); USDI Bureau of Land Management ($8,000); and the Univ. of Wyoming School of Energy Resources Matching Grant Fund ($42,000) and Graduate Students Support ($48,000). Total budget = $180,000 for 2009-2014.

5. Spatial geochemical modeling of water and salt transport in a CBM development field. PI's: **Miller, S.N.**, and S. Chitrakar. Proposal funded by Wyoming Restoration and Reclamation Center for $70,000 for 2013-2015.

6. Climate Assessment in Wyoming. PI: **Miller, S.N.** Proposal funded by the University of Colorado – Boulder / Western Water Assessment for $49,887 (100% at Wyoming) for 2011-2014.

7. Imaging of Shallow Subsurface Flow in Sapprolitic Soils using Electrical Resistivity Tomography. PI: Ogden, F.L. Co-PI: **S.N. Miller**. Proposal accepted by U.S. Army Research Office, CFDA No. 12.431. Award amount: $69,698 (100% at Wyoming) for 2011-2012.

8. Relationships between beaver ponds and woody vegetation dynamics on the Pole Unit of the Medicine Bow National Forest. PI: **Miller, S.N.**. Co-PI: P. Caffrey and C. Barrineau. Proposal accepted by Wyoming Game and Fish Department. Award amount: $171,951 (all at UW).

9. PLACE [Place Learning And Civic Engagement]. PI: Welsh, K. Co-PIs (many, including **S.N. Miller)**, 2010. Proposal accepted by the Wyoming Department of Education. Award amount $208,793.

10. Evaluation and Expansion of a Geographic Information System (GIS) Degree Day Model to Predict Rift Valley Fever Virus Risk in North America. PI: **Miller, S.N.** Co-PI: S. Konrad. Proposal accepted by USDA-ARS. Award amount $150,781 (all at UW).

11. Development of a Rangeland Decision Support Tool to Improve Rangeland Watershed Management. PI: Guertin, D.P. Co-PIs: G.B. Paige, **S.N. Miller**, D.C. Goodrich, P. Heilman, M. Naerhing, J.J. Stone, G. Ruyle. Proposal accepted by the U.S. Department of Agriculture (USDA) Cooperative State Research, Education, and Extension Service (CSREES) Rangeland Research program. Award amount: $384,554 ($165,862 at Univ. of Wyoming) for 2008-2010.

12. Development of a New Graduate Class: Spatial Hydrology. PI; **Miller, S.N.**. Proposal accepted by Wyoming NASA Space Grant. Award amount: $5,000

13. Water distribution system and floodplain configuration of an anastomosed river basin in a semi-arid watershed: Little Laramie River basin, Wyoming. PI: **Miller, S.N**. Co-PIs: P.L. Heller and N. Humphrey. Proposal accepted by Univ. of Wyoming Agricultural Experiment Station. Award amount: $60,000 for 2006-2009.

14. Sustainable Management of Watersheds: Biophysical, Livestock and Human Interactions in the River Njoro Watershed. PI: **Miller, S.N.** Co-PIs: W.A. Shivoga, F. Lelo, C.M. Gichaba, L. Chiuri, M. Njeri, D. Liti, and M. Jenkins. Proposal accepted by USAID Global Livestock CRSP. Award amount: $450,000 ($163,308 at Univ. of Wyoming) for 2006-2008.

15. Enhanced watershed management and sustainability through gender analyses and interventions, Njoro River watershed, Kenya. PI: **Miller, S.N**. Proposal accepted by USAID Bureau for Economic Growth, Agriculture, and Trade. Award amount: $255,000 ($70,798 at Univ. of Wyoming) for 2006-2009.

16. APD NEPA Analysis Toolkit Phase III. PI: **Miller, S.N**. and P. Caffrey. Proposal accepted by USDI-BLM, Wyoming State Office. Award amount: $62,000 for 2006-2007.

17. APD NEPA Analysis Toolkit Phase IV. PI: **Miller, S.N.** and P. Caffrey. Proposal accepted by USDI-BLM, Wyoming State Office. Award amount: $75,000 for 2006-2007.

18. Spatial CBNG Science and Management: Lessons Learned and Ways Forward. PI: **Miller, S.N**. Co-PI: F. Ogden. Proposal accepted by University of Wyoming Institute of Environment and Natural Resources for the US Department of Energy. Award Amount: $175,000 for 2006-2008.

19. Enhanced risk assessment of West Nile Virus resulting from coalbed natural gas product waters. PI: **Miller, S.N**. Co-PIs: L. Zou, E. Schmidtmann, R. Sivanpillai. Proposal accepted by University of Wyoming Institute of Environment and Natural Resources for the US Department of Energy. Award Amount: $100,200 for 2006-2008.

20. Rift Valley Fever Risk Assessment. PI: **Miller, S.N**.. Proposal accepted by the USDA-ARS Arthropod-Borne Animal Disease Research Lab. Award Amount: $88,000 for 2006-2007.

21. Operational Soil Moisture Estimation at Local and Regional Scales. PI: Moran, M.S; Co-PI's: Goodrich, D.C., C. Peters-Lidard, **S.N. Miller**. Proposal Accepted by the US-Army Topographic Engineering Center, January, 2003. Award amount: $1,079,100 ($233,400 for U. Wyoming subcontract) for March 2003 – March 2008. Contract to Wyoming is run as a specific agreement with the USDA-ARS SWRC.

22. Internet Map Server for Invasive Weeds in Wyoming. PI: **Miller, S.N.** Non-competitive proposal accepted by the Wyoming Cooperative Agricultural Pest Survey. $43,000 for 2003-2007.

23. Multidisciplinary Research for Sustainable Management of Rural Watersheds: the River Njoro, Kenya. PI: **Miller, S.N.** Co-PIs: W.A. Shivoga, F. Lelo, C.M. Gichaba, L. Chiuri, M. Njeri, D. Liti, and M. Jenkins. Proposal accepted by the USAID Global Livestock Collaborative Research Support Program. Award amount: $1,056,793 for October 2003 - September 2007. Averages approximately $265,000 annually for 2003-2006.

24. Instrumentation of a local watershed for enhancement of REWM4285: Wildland Hydrology. PI: **Miller, S.N.** Proposal accepted by Univ. of WY College of Agriculture Augmentation Program. Award amount: $11,308 for 2006.

25. Advancing the tri-lateral research program: Kruger-Yellowstone-Fraser. PI: **Miller, S.N.** Proposal accepted by University of Wyoming Agricultural Experiment Station Global Perspectives Program. Award amount: $2,000 for 2006.

26. Spatial Analysis of Watershed in a Rapidly Developing Changing Landscape: Inside and Outside the Fence at Kruger National Park, South Africa. PI: **Miller, S.N.**. Proposal accepted by Wyoming NASA Space Grant Consortium. Award amount: $10,300 for 2005-2006

27. Estimating the effects of land cover misclassification derived from remotely sensed imagery on distributed hydrologic models. PI: **Miller, S.N.**. Co-PI: T.J. Baldyga. Proposal accepted by Wyoming NASA Space Grant Consortium. Award amount: $20,500 for 2005-2006.

28. Land Cover and Hydrologic Assessments of the Upper Luvuvhu and Shingwedzi Watersheds, South Africa: Steps Towards Integrated Catchment Management. PI: **S.N. Miller**. Co-PI: H. Griscom. Proposal accepted by Wyoming NASA Space Grant Consortium. Award amount: $15,000 for 2005-2006.

29. Field Validation of an Improved Method For Landscape Assessment Using Remote Sensing And GIS. PI: **Miller, S.N.** Co-PI, T.J. Baldyga. Proposal Accepted by Jim Ellis Mentorship Program for Graduate Students, Global Livestock Collaborative Research Support Program. Award Amount: *$3,000* for Summer, 2004.

30. Using GIS methods to assess bio-geographic and climatic effects on the vector capacity of Culex tarsalis for West Nile virus transmission in Powder River Basin. PI: **Miller, S.N.** Proposal accepted by USDA-ARS Arthropod-Borne Animal Disease Research Lab (ABADRL). Award amount: $100,000 for 2004-2006.

31. APD NEPA Analysis Toolkit Phases I and II. PI: **Miller, S.N.** and P. Caffrey. Proposal accepted by BLM, Wyoming State Office. Award amount: $61,000 for 2004-2006.

32. Integrating Hydrologic, Geomorphic, and Ecological Assessment at the Watershed Scale. PI: **Miller, S.N.** Proposal accepted by the US-EPA Landscape Ecology Branch, July 2004. Award amount: $36,417 for 2004-2005. Contract to Wyoming is funded as supplemental funding through the USDA-ARS specific agreement generated for "Operational soil moisture estimation…".

33. Watershed hydrology in Kenya. PI: **Miller, S.N.** Proposal accepted by Univ. of Wyoming International Programs Office. Award amount: *$1,500* for travel to Kenya in 2003.

34. CCMS Travel Grant. PI: **Miller, S.N.** Proposal accepted by NATO-CCMS. Award amount *1800 EUR* for travel in 2003.

35. Problem Model Assessment And Initial Capacity Building For The Rehabilitation Of The River Njoro Watershed, Kenya. PI: **Miller, S.N.** Co-PIs: W.A. Shivoga, F. Lelo, C.M. Gichaba, and M. Jenkins. Global Livestock Collaborative Research Support Program Grant. Award amount: *$207,000* for September 2002 – September 2003.

36. Spatial Analysis for Watershed Resources in Kenya. PI: **Miller, S.N.** Global Perspectives Program, University of Wyoming. Award amount: *$2,000* for January 2002 – September 2003.

37. NATO Travel Grant for Advanced Research Workshop, Almaty, Kazakhstan. PI: **Miller, S.N.** Award amount: *$2,800* for September 2002.

38. Landscape Indicator Interface with Hydrologic and Ecological Models Phase II. D.C. Goodrich and W.G. Kepner, Principal Investigators with M. Hernandez, **S.N., Miller**, D.J. Semmens (USDA-ARS, SWRC, Tucson, AZ), K.B. Jones, and C. Edmonds (EPA-NERL, Las Vegas, NV) 2001-2004. Award amount: ~*$120,000* annually.

39. Interferometric Synthetic Aperture Radar Mapping of Upper San Pedro River Basin and Walnut Gulch Experimental Watershed. NASA-ESE Scientific Data Buy. D.C. Goodrich and **S.N. Miller**. 1999.

40. Interferometric Synthetic Aperture Radar Mapping of Upper San Pedro River Basin and Walnut Gulch Experimental Watershed. NASA-ESE Scientific Data Buy. D.C. Goodrich and **S.N. Miller**. 1998.

Graduate Student Advising

Committee Chair / Thesis Director: 19 completed, 4 in progress

Completed

1. Sam Miller, PhD Student, WRESE PhD Program in Hydrologic Sciences. Dissertation: From Snow to Flow: Understanding Runoff Generation Mechanisms in Mountainous Watersheds. **Completion Date: March, 2020.**

2. Carrie Gulvin, MS Student, Department of Ecosystem Science and Management, University of Wyoming / WARE program. Thesis topic: Rangeland Watershed Hydrology in Southeastern Wyoming. **Completion Date: May, 2019.**

3. Jagath Vithanage, PhD student, WRESE PhD Program in Hydrologic Sciences. Spatially explicit hydrologic modeling: impacts of land cover and climate change in semi-arid systems. **Completion Date: August, 2018**

4. Anthony Perlinski (Co-chair). PhD student, Department of Ecosystem Science and Management, Dissertation topic: Ecological site descriptions and their use in improved hydrological modeling. **Completion Date: May, 2018**

5. Suman Chitrakar, PhD student, WRESE PhD Program in Hydrologic Sciences. Dissertation topic: monitoring and modeling water quality in a semi-arid landscape. **Completion Date: December, 2017.**

6. Alan Klatt, MS student, Department of Ecosystem Science and Management / WARE, University of Wyoming. Thesis topic: Fate and transport of water in mountainous environments. **Completion date: May, 2016**

7. Beatrice Gordon, MS student, Ecosystem Science and Management / WARE, University of Wyoming. MS topic: policy and science: management of water resources in Wyoming. **Completion date: May, 2016**

8. Justin Stern, MS student, Department of Ecosystem Science and Management / WARE, University of Wyoming. Thesis topic: Controls on erosion in a semi-arid rangeland undergoing natural gas development. **Completion Date: December, 2014.**

9. Abhishek Tilaye, MS student, Department of Ecosystem Science and Management, University of Wyoming. Thesis topic: Automated channel morphology tool with GIS. **Completion Date: December, 2013.**

10. Matthew Hayes, MS student. Department of Ecosystem Science and Management / WARE, University of Wyoming. Thesis topic: Alterations to riparian vegetation resulting from beaver pond life histories. **Completion Date: December, 2012**.

11. Chris Kirol (Co-chair). MS student. Department of Ecosystem Science and Management, University of Wyoming. Thesis topic: Quantifying habitat importance for greater sage-grouse (*Centrocercus urophasianus*) population persistence in an energy development landscape. **Completion Date: December, 2012**.

12. Kelsha Anderson, MS student, Department of Renewable Resources, University of Wyoming. Thesis topic: Salinity Loading and Coal Bed Natural Gas Disturbance in Muddy Creek, WY. **Completion Date: August, 2010**

13. Tracy J. Baker. PhD student, Department of Renewable Resources, University of Wyoming. Dissertation Title: Spatially Explicit Multiple Objective Decision Support for Rural Watersheds. **Completion Date: December 2008.**

14. Laura Jungst. MS student, Department of Renewable Resources, University of Wyoming. Thesis topic: Soil quality and stream channel characteristics of montane and subalpine riparian meadows, Sierra Nevada, California. **Completion Date: December 2008.**

15. Philip Baigas. MS student, Department of Renewable Resources, University of Wyoming. Thesis Title: Moose habitat selection, winter diet, and seasonal distribution mapping of moose in Southeastern Wyoming. **Completion Date: December 2008.**

16. Hannah R. Griscom, MS student, Department of Renewable Resources / WARE, University of Wyoming. Thesis topic: Land cover and hydrologic assessments of the upper Luvuvhu and Shingwedzi watersheds, South Africa: steps towards integrated catchment management. **Completion date: May, 2007.**

17. Sudhir Raj Shrestha, MS student, Department of Renewable Resources, University of Wyoming. Dissertation topic: Remote mapping of soil characteristics using heuristic rules and fuzzy logic. **Completion date: May. 2007.**

18. Tracy J. Baldyga. MS student, Department of Renewable Resources / WARE, University of Wyoming. Thesis Title: assessing land cover change impacts using remote sensing and hydrologic modeling. **Completion date: August, 2005**.

19. Mona Dwivedi. MS student, Department of Electrical Engineering, University of Wyoming. Thesis title: internet map server for invasive weeds in Wyoming. Completion date: **June 2004.**

In Progress

20. Erin Bast, PhD student, WRESE PhD Program in Hydrologic Sciences. Dissertation topic: Integration of geophysical data into a coupled surface/subsurface model.

21. Joseph Cook, PhD Student, WRESE PhD Program in Hydrologic Sciences. Dissertation topic: Understanding return flows through surface and subsurface observation and modeling.

22. Abigail Gettinger, MS Student in Rangeland Ecology & Watershed Management. Thesis topic: Remote Sensing of Rangeland Water Resources. Co-Chair with Ramesh Sivanpillai

Committee Appointment: 66 completed, 4 in Progress

Completed

1. Daniel Beverly, PhD student, WRESE PhD Program in Hydrologic Sciences, University of Wyoming. Dissertation topic: Phenotypic and topographical controls of ecohydrological processes from leaf to ecosystem. **Completion Date: Dec., 2020**

2. Brady Kohler, PhD student, WRESE PhD Program in Hydrologic Sciences, University of Wyoming. Dissertation topic: A Geophysical Perspective of the Hyporheic Zone and Its Role in Nitrate Uptake. **Completion Date: May, 2020.**

3. Brandon Overstreeet, PhD student WRESE PhD Program in Hydrologic Sciences. Dissertation topic: Mapping and modeling sediment transport in Wyoming rivers. **Completion Date: May, 2020**

4. Jason Alexander, PhD student, Geology & Geophysics, University of Wyoming. Dissertation topic: Scales, controls, and habitats of fluvial macroform sandbars. **Completion Date: May, 2020.**

5. Matthew Lehmitz, MS student, Botany Department, University of Wyoming. Thesis topic: Use of unmanned aerial vehicle systems (UAVs) for high detail, short range imaging of epiphytic tropical species. **Completion Date: May, 2020**

6. Laila Willis, MS Student in Agricultural and Applied Economics. Thesis Topic: Farm-Level Economic Assessment of Alternative Groundwater Management Strategies Over the Ogallala Aquifer in Southeastern Wyoming. **Completion Date: August, 2019**

7. Anne Reed, MS student, Rangeland Ecology & Watershed Management. Thesis title: Analyses of Mitigation Strategies of Human-Elephant Conflicts in the Coimbatore Forest Division, India, Department of Ecosystem Science and Management, University of Wyoming. **Completion Date: August, 2019**

8. Evan Kipnis, MS student, , Rangeland Ecology & Watershed Management Department of Ecosystem Science and Management, University of Wyoming. Thesis topic: Terrain And Land Cover Affect Seasonal Snowpack Accumulation In Rocky Mountain Headwater Catchments Affected By Bark-Beetle Induced Tree Mortality. **Completion Date: May, 2019**

9. Niels Claes, PhD student, WRESE PhD Program in Hydrologic Sciences, University of Wyoming. Dissertation topic: A hydrologic assessment of return flow through integration of geophysics across different scales. **Completion Date: December, 2018**

10. Andrew Fullhart, PhD student, WRESE PhD Program in Hydrologic Sciences. Dissertation topic: coupled surface and subsurface modeling of water in the Snowy Range, Wyoming. **Completion Date: May, 2018**

11. Siwei He, PhD student, WRESE PhD Program in Hydrologic Sciences. Dissertation topic: Toward Physically-Based Modeling of Snow Sub-grid Variability. **Completion Date: May, 2018**

12. Kevin Kelley, MFA student, Creative Writing Program. MS Thesis Book Title: Scum of the Earth. **Completion Date: May, 2018.**

13. Brady Flinchum, PhD student, Geology & Geophysics, University of Wyoming. Dissertation topic: use of geophysics to investigate sub-surface flow pathways. **Completion Date: December, 2017**

14. Samantha Rosado, MS student Rangeland Ecology & Watershed Management / Water Resources. The Disappearing Act: Quantifying and Locating Irrigation Water Loss on the Wind River Indian Reservation. **Completion date: December, 2017.**

15. Mario Mata, MS Student, Geology & Geophysics. Thesis topic: Geophysical Investigation of Bedrock Weathering Under Late-lying Snowpack in the Snowy Range, Southeastern WY. **Completion Date: June, 2017.**

16. Nicholas Taylor, MS Student, Geology & Geophysics. Thesis topic: Utilities Ambient Seismic Imaging to Constrain Near-Surface Weathering and its Influence on Overlying Vegetation. **Completion date: Dec., 2016**

17. Austin Carey, MS student, Rangeland Ecology & Watershed Management / WARE. Thesis topic: Integrated geophysics and rainfall simulation to understand near surface flow. **Completion date: August, 2016**

18. Khodabakhsh Zabihi Afratakhti, PhD student, Ecosystem Science and Management, University of Wyoming. Dissertation topic: Assessing structure of Wyoming sage-steppe communities with high resolution LiDAR. **Completion date: May, 2016**

19. Tegenu Engda, PhD student, WRESE PhD Program in Hydrologic Sciences, University of Wyoming. Dissertation topic: Soil moisture monitoring and modeling in Wyoming. **Completion date: May, 2016**

20. Timm Gergeni, MS student, Plant Sciences Department, University of Wyoming. Increasing irrigation efficiency in high tunnel and greenhouse crop production. **Completion date: May, 2016**

21. Joseph Graly, PhD student, Department of Geology & Geophysics. Dissertation topic: Fate of water under the Greenland ice sheet. **Completion date: Dec, 2015**

22. Juan Carlos Bricenos, MS student, Department of Ecosystem Science and Management / WARE, University of Wyoming. Thesis topic: Fate and transport of water in Panama. **Completion date: May, 2015**

23. Justin Clapp, MS student, Ecology and Effects of Fire-Mediated Habitat Alterations for Bighorn Sheep Translocated to the Seminoe Mountains, Wyoming. **Completion date: May, 2015**

24. Clay Buchanan, PhD student, Ecosystem Science and Management / PIE, University of Wyoming. Dissertation topic: Elk Response to Disturbance from Development of a Coal Bed Natural Gas Field in Northeastern Wyoming. **Completion date: May, 2015.**

25. Erin Bast, MS student, Ecosystem Science and Management, University of Wyoming. Thesis topic: Effects of Beaver on Soil Carbon and Nitrogen Storage and Carbon Spiraling in the Pole Mountain Unit of Medicine Bow National Forest. **Completion date: May, 2015**

26. Jeremiah Okeyo, PhD student, Soil Science, University of Wyoming. Dissertation topic: The effect of conservation agriculture practices on soil quality and crop productivity under contrasting smallholder farming systems in western Kenya and eastern Uganda. **Completion Date: December, 2014**

27. Eric Wald, PhD student, Ecosystem Science and Management, University of Wyoming. Dissertation topic: Moose Expansion into Western Alaska. **Completion Date: December, 2014**

28. Victoria Zero, MS student, Ecosystem Science and Management, University of Wyoming. Thesis topic: Amphibian occupancy in southeastern Wyoming: Combing standard and molecular monitoring methods for aquatic taxa. **Completion Date: December, 2014**

29. Daniel Gibson-Reinemer, PhD student, Program in Ecology. Thesis topic: Forecasting impacts of climate change on water temperatures: implications for fish habitat stability and change. **Completion Date: December, 2014**

30. Justin Clapp, MS student, Ecosystem Science and Management, University of Wyoming. Thesis topic: Habitat ecology and effects of habitat alteration for bighorn sheep translocated to the Seminoe Mountains, Wyoming. **Completion Date: December, 2014**

31. Eben Johnson, MS student. Zoology and Physiology, University of Wyoming. Thesis topic: Assessment of endocrine disrupting compounds in Wyoming surface waters: little evidence of presence or effects on Wyoming fishes. **Completion Date: December, 2014**

32. Tae J Song, PhD student, Department of Civil and Architectural Engineering, University of Wyoming / WRESE PhD Program in Hydrology. Dissertation topic: Assessment of Hydrological Climate Change Impacts on the Upper Green River Basin, WY. **Completion Date: December, 2013**

33. James Stafford, MA student, Department of Geography, University of Wyoming. Thesis topic: relationships between snowpack and peak streamflows in Wyoming headwaters. **Completion Date: August, 2013**

34. Austin Andrus, MS student, Department of Geology & Geophysics, University of Wyoming. Thesis topic: Controls on Anastomosis of the Little Laramie River. **Completion Date: December, 2012**

35. Corey Beaugh, MS student, Department of Ecosystem Science and Management / WARE, University of Wyoming. Thesis topic: *E. coli* Distribution and Streambed Processes of the Greybull River. **Completion Date: December, 2012**

36. Timothy Matthews, MS student, Department of Geology & Geophysics, University of Wyoming. Thesis topic: Understanding Sources and Timescales of Melt in Continental Rear Arcs using High-Precision Measurements of Uranium and Thorium in Lavas from Reventador Volcano, Ecuador.. **Completion Date: December, 2012**

37. Erica Bishop, MA student, Department of Geography / WARE, University of Wyoming. Thesis topic: The Influence of Large Wood on Sediment Transport and Storage in Two Headwater Mountain Streams, Fraser Experimental Forest, Colorado. **Completion Date: May, 2012**

38. Liberty Blain, MS student, Department of Ecosystem Science and Management / WARE, University of Wyoming. Thesis topic: Assessing the Effectiveness of Best Management Practices for Nonpoint Sources of E. coli Bacteria. **Completion Date: May, 2012**

39. Trey Crouch, MS student, Department of Civil and Architectural Engineering, University of Wyoming. Thesis topic: Quantifying Hydrological Ecosystem Services of Various Land Covers and within the Panamá Canal Watershed. **Completion Date: May, 2012**

40. Claire Landowski, MS student, Department of Geology & Geophysics, University of Wyoming. Thesis topic: Geochemistry and Subglacial Hydrology of the West Greenland Ice Sheet. **Completion Date: May, 2012**

41. Josh Fredrickson, MA student, Department of Geography / WARE, University of Wyoming. Thesis topic: Hydroclimatic Variability in Wyoming Headwaters **Completion Date: May, 2012**

42. Chad LeBeau, MS student, Department of Ecosystem Science and Management, University of Wyoming. Thesis topic: Evaluation of greater Sage-Grouse reproductive habitat and response to wind energy development in south-central Wyoming. **Completion Date: September, 2012**

43. Reinaldo Garcia, PhD student, Department of Civil and Architectural Engineering, University of Wyoming. Dissertation topic: River hydraulics and bridge scour: modeling flow fields and uncertainty. **Completion Date: May, 2012**

44. Nibret Abebe, MS student, Department of Civil and Architectural Engineering, University of Wyoming. Thesis topic: Soil moisture modeling and links to hydrologic modeling. **Completion Date: May, 2012**

45. Mary Williams, PhD student, Department of Renewable Resources, University of Wyoming. Thesis topic: Spatial analysis of landscape disturbance and relationships to hydrologic and landscape characteristics. **Completion Date: May, 2010**

46. Stephen Huckett, PhD candidate, Department of Environment and Society, Utah State University. Dissertation topic: Comparison of participatory practices in the Little Bear watershed, Utah and the Njoro River watershed, Kenya. **Completion Date: May, 2010**

47. Hall Sawyer, PhD student, Botany Department, University of Wyoming. Thesis topic: Mule Deer habitat use, migration, and population performance in developing gas fields of western Wyoming. **Completion Date: May, 2010**

48. Mark Williams, PhD student, Botany Department, University of Wyoming. Thesis topic: Reconstruction of historical vegetation assemblages in the Rocky Mountain region. **Completion Date: May, 2010**

49. Wei Sun, PhD student, Department of Renewable Resources, University of Wyoming. Dissertation topic: Velvet mesquite (Prosopis velutina) encroachment and ecosystem CO2 exchange in semiarid grassland: insights from stable isotope measurements. **Completion Date: December 2009**

50. Genevive Mathers, MS student, Geology and Geophysics Department, University of Wyoming. Thesis topic: The relative roles of tectonics and climate in the deposition of five widespread conglomerates in the central and southern Rocky Mountains at the Cretaceous/Paleogene boundary: An application of detrital zircon geochronology to basin analysis. **Completion Date: December 2009**

51. Adam Liebman, MA student, International Studies Department, University of Wyoming. Thesis topic: Opposing hydropower development on the Nu River: A disconnect between urban activists and local residents. **Completion Date: December 2009**

52. Patricia Bigelow, PhD student, Zoology and Physiology, University of Wyoming. Dissertation topic: Identification and control of Lake Trout spawning habitat in Yellowstone Lake using field research and GIS. **Completion Date: May 2009**

53. Steve Hunter. MS student, Department of Civil and Architectural Engineering, University of Wyoming. Thesis topic: Desert river geomorphology the use high resolution digital elevation models to accurately measure river channel morphology. **Completion Date: May 2009**

54. Kerri Puckett, MS student, Department of Civil and Architectural Engineering, University of Wyoming. Thesis topic: Uncertainty quantification in predicting deep aquifer recharge rates, with applicability in the Powder River Basin, Wyoming. **Completion Date: May 2008.**

55. Stuart Geiger, MA student, Geography Department, University of Wyoming. Thesis topic: Influence of rock glaciers on stream hydrology, La Sal Mountains, Utah, USA. **Completion Date: May 2008.**

56. F. Anthony Barnett, MS student, Department of Civil and Architectural Engineering, University of Wyoming. Thesis topic: Upper Green River Basin streamflow reconstructions and drought variability. **Completion Date: December, 2007**

57. Maneesh Sharma, MS student, Department of Renewable Resources, University of Wyoming. MS Thesis: Assessing effect of resolution and rainfall at plot and watershed scales in hydrologic modeling. **Completion Date: May, 2007**

58. Tyrel West, MS Student, Civil and Architectural Engineering. Thesis title: Relationships among watershed characteristics and dominant discharge in Wyoming rivers and streams. **Completion Date: May, 2007**

59. Jonathan Adelman, MS student, Botany Department, University of Wyoming. MS thesis: Quantifying spatial variability of transpiration in a subalpine forest. **Completion Date: May, 2007**

60. Laura Hudson, PhD student, Botany Department, University of Wyoming. Dissertation topic: Dendroclimatic reconstruction and stable isotopic analysis using limber pine (Pinus flexilis) to assess drought. **Completion Date: May, 2007**

61. Meagan Bayless, PhD student, Botany Department, University of Wyoming. Dissertation topic: Microclimate and boundary layer modeling – interactions among plant soil and atmosphere. **Completion Date: May, 2007**

62. Nick Dornak, MS student, Department of Renewable Resources, University of Wyoming. Thesis topic: Evaluation of Best Management Practices for Protecting Groundwater Quality. **Completion date: August, 2006**

63. Travis Roth, MS student, Department of Renewable Resources, University of Wyoming. Thesis topic: Water quality monitoring and modeling. Expected completion date: **Completion date: May 2006.**

64. Prashant Patil, MS student, Department of Electrical and Computer Engineering. **Completion date: May, 2005.**

65. Elizabeth Hajek, MS student, Department of Geology and Geophysics, University of Wyoming. Thesis title: Analysis Of Fluvial Stacking Patterns In The Lower Castlegate Sandstone (Campanian, Helper, Utah) Using LiDAR Imaging. **Completion Date: Dec, 2005**

66. Alex McKiernan. MS student, Department of Geology and Geophysics, University of Wyoming. Thesis title: Evaluation of Smectite Dehydration as the Sole Pore Water Freshening Mechanism in the Nankai Trough, Offshore Southwest Japan: Implications for Lateral Fluid Flow in Subduction Zones. **Completion date: Dec, 2005.**

67. Curtis Bradley, MS student, Department of Renewable Natural Resources, University of Arizona. Thesis title: effects of soil data resolution on modeling results using a physically based rainfall-runoff model. **Completion date: May, 2003.**

In Progress

1. Jianying Jiao, PhD student, Geology & Geophysics, University of Wyoming. Dissertation topic: High resolution computational modeling of groundwater resources

2. Jennifer McHarge, MS student, Geology and Geophysics Department, University of Wyoming. Thesis topic: Stream channel morphology and evolution in ancient basins.

3. John Stanek, MS student, Zoology and Physiology Department, University of Wyoming. Thesis topic: Habitat requirements for mountain birds in Colorado.

4. Heather Rogers, PhD student, Geology & Geophysics, University of Wyoming. Thesis topic: erosion rates and controls in the Sierra Nevada Mountains.

Service

Manuscript Referee

1. Hydrological Processes
2. Journal of Hydrology
3. Water Resources Research
4. Journal of the American Water Resources Association
5. Water Management
6. Journal of Environmental Modeling and Software
7. Photogrammetry and Remote Sensing
8. Journal of Land Degradation and Development
9. North American Journal of Fisheries Management
10. Lakes and Reservoirs: Research and Management
11. Journal of Environmental Management
12. Journal of Advanced Science and Technology
13. International Journal of Health Geographics
14. Science of the Total Environment
15. Forest Biometry, Modelling and Information Sciences
16. USDA ARS internal review
17. WHO Guidelines for Drinking Water Quality

University and State Committees

1. Council on Diversity, Equity, and Inclusion Subcommittee on BLM and Systemic Racism, Office of Diversity, Equity, and Inclusion, University of Wyoming (2020-)
2. Council on Diversity, Equity, and Inclusion Subcommittee on Employee and Student Recruitment and Retention, Office of Diversity, Equity, and Inclusion, University of Wyoming (2020-)
3. Search Committee for Associate Dean of Research and Director of the Agricultural Experiment Station, College of Agriculture & Natural Resources, University of Wyoming (2020-)
4. Chair, PhD Program in Water Resources Science and Engineering (2009-)
5. Chair, MS Program in Water Resources (2010 -)
6. Search Committee Chair, Office Associate, Department of Ecosystem Science and Management, 2019
7. Search Committee Chair, Accountant, Department of Plant Sciences, 2019
8. Search Committee Chair, Accountant, Department of Ecosystem Science and Management, 2018
9. Ecosystem Science & Management Graduate Student Committee (2011-2015)
    a. * assumed chair of this committee Fall, 2013
10. Search Committee Chair: Ecosystem Science and Management. Ass't Professor in Wildland Watershed Hydrology (2013)
11. Search committee member: Ecosystem Science & Management: Department Ass' Professor in Watershed Management (2014)
12. Faculty Advisory Board, Haub School of Environment and Natural Resources (2007-2014)
13. Search committee member: Ecosystem Science & Management: Department Accountant (2013)
14. Search Committee Member: EPSCoR–Wyoming: Education Outreach & Diversity Coordinator (2013)
15. Ecosystem Science & Management Assessment Committee (2011-2012)
16. Search Committee Member: Geology & Geophysics Asst. Professor in hydrogeophysics (2011-2012)
17. Search Committee Chair: Ecosystem Science & Management Post-Doc Research Scientist (2012)
18. Search Committee Chair: Ecosystem Science and Management Lab Technician III to run the Surface and Subsurface Hydrology Lab (2012)
19. Search Committee Member: Geology & Geophysics. Academic Professional Research Scientist / Faculty Manager of FINSE (2011-2012)
20. Search Committee Member: Civil & Architectural Engineering. Asst Professor, Hydrology (2012)
21. Search Committee Member: Civil & Architectural Engineering. Assoc Professor, Hydrology (2012)
22. Search Committee Member: Civil & Architectural Engineering. Post-Doc Research Scientist (2012)
23. Search Committee Member: Civil & Architectural Engineering. Research Scientist (2012)
24. Search Committee Member: WyCEHG Research Grant - Post Doctoral Research Scientists (2012)
25. Search committee member. Atmospheric Sciences. Professor in Climate Change and Downscaling (2011-2012)
26. Search Committee Member: EPSCoR-Wyoming: Project Administrator (2011)

27. Ecosystem Science & Management Graduate Student Assessment ad hoc Committee (2011)
28. Chair, Name Change Committee for Department of Renewable Resources (2010-2011)
29. Member representing Ag Experiment Station, Stakeholder Input Working Group (2010)
30. Panelist, Task Force to Review Graduate Research Education at UW (2010)
31. Panelist, Task Force to Review Policies for Promotion from Associate to Full Professor (2010)
32. Department Communicator / Liaison, Department of Renewable Resources (2008-2009)
33. Advisory Board, Ellbogen Center for Teaching and Learning (2006-2009)
34. Search Committee Member: Department of Renewable Resources. Department Head (2008)
35. Search Committee Member. Haub School and Ruckelshaus Institute for Environment and Natural Resources. Spicer Distinguished Chair in Environmental Mediation, (2008-2009)
36. Review committee of the COACHE (The Collaborative on Academic Careers in Higher Education) survey of pre-tenure faculty satisfaction at University of Wyoming, Office of Academic Affairs (2008)
37. Fulbright Review Committee, Office of International Programs, Univ. of Wyoming (2007-2008)
38. Search Committee Member: Department of Civil and Architectural Engineering. Asst professor in Hydraulic Engineering (2007)
39. University of Wyoming Faculty Development Committee (2003-2006)
40. Search Committee Member. Haub School and Ruckelshaus Institute for Environment and Natural Resources. Cline Distinguished Chair of Engineering, Environment and Natural Resources (2005)
41. Search Committee Member: Department of Geology and Geophysics. Ass't professor in geohydrology (2005-2006)
42. Search Committee Member: Agric. Experiment Station. Assoc Dean/Director (2005)
43. Action 8 committee on realignment of College of Agriculture Departments (2005)
44. Search Committee Member: Botany Department. Asst. Prof. Ecosystem modeler (2005)
45. Search Committee Member: Wyoming GIS Center. Ecoinformatics research associate (2005)
46. Search Committee Member: Department of Renewable Resources. Asst professor in Water Resources (2004)
47. Search Committee Member: Department of Civil and Architectural Engineering. Asst professor in Hydraulic Engineering (2004)
48. State of Wyoming GIS soils committee (2003-2004)
49. Search Committee Member: Department of Geography. Ass't professor in GIS (2003)

Awards and Memberships

1. Awarded the Outstanding Researcher, Univ. of Wyoming College of Agriculture and Natural Resources, Feb., 2015.
2. Nominated for the Lawrence Meeboer Teaching Award, Fall 2008
3. Awarded the USDA-ARS Technology Transfer Award for GIS-based hydrologic modeling, 2008
4. Kasumigaura Prize, The 12th World Lake Conference for the paper "Use of benthic macroinvertebrates as indicators of water quality in River Njoro, Kenya by Makoba et al."
5. North American Colleges and Teachers of Agriculture (NACTA) Teaching Award of Merit, 2007

6. UW College of Arts & Sciences Student Council “Thumbs Up Award” in recognition of outstanding positive contributions to the Univ. of Wyoming, 2007
7. Member, University of Wyoming Graduate Faculty
8. Member, American Water Resources Association
9. Member, American Geophysical Union
10. Member, The Geological Society of America
11. Member, American Society of Photogrammetry and Remote Sensing
12. USDA - ARS SWRC award for meritorious service, August, 2001
13. Certificate of Appreciation, USDA - ARS SWRC, August, 2001
14. USDA Secretary’s Group Honor Award for Maintaining and Enhancing the Nation’s Natural Resources and Environment as member of the Semi-Arid Land-Surface Atmosphere Team, 2001.
15. USDA - ARS SWRC award for meritorious service, February 2000
16. USDA - ARS SWRC award for meritorious service, October 1999
17. Outstanding Graduate Student Award for 1995, University of Arizona, School of Renewable Natural Resources, Watershed Management Program.