

**Curriculum Vitae****ALEXANDER G. (SAM) FERNALD**

Director  
 New Mexico Water Resources Research  
 Institute  
 New Mexico State University  
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**ACADEMIC PREPARATION**

1997-2000 National Research Council Postdoctoral Fellow, US EPA, Corvallis, OR  
 1993-1997 Ph.D., Watershed Science, Colorado State University, Fort Collins, CO  
 1990-1993 M.E.M., Water Resources Management, Duke University, Durham, NC  
 1982-1987 B.A., International Relations, Stanford University, Stanford, CA

**PROFESSIONAL EXPERIENCES**

**2011-present** Professor of Watershed Management, Department of Animal and Range Sciences, New Mexico State University; Research (60%); Teaching (40%).  
 2007-2011 Associate Professor of Watershed Management, Department of Animal and Range Sciences, New Mexico State University.  
 2001-2007 Assistant Professor of Watershed Management, Department of Animal and Range Sciences, New Mexico State University.

**2012-present Program Chair, Water Science and Management Graduate Degree Program**

In charge of all academic, programmatic, budgetary, administrative, and instructional aspects of the program.

Guided program through initial degree approval process, established management team with members from five departments of three colleges, hired program coordinator, led program growth from 2012 inception with four students to 43 students currently, and addressed budget and other issues as a participant in ACES academic department heads meetings.

**2011-present Director, New Mexico Water Resources Research Institute**

Direct institute activities including: research support to faculty and students at NMSU and other NM research universities; information delivery through technical documents and annual conferences; student training, collaboration with researchers, agencies, and stakeholders.

Turned around the institute's state research and public service project funding that had fallen to \$219K by FY 11, increasing the funding to \$628K by FY 19 with help of many legislators, stakeholders, and NMSU employees. Identified need for and obtained funding for a dynamic statewide water budget working with statewide university and agency expertise on an entirely new system dynamics model tool for improved water management in New Mexico. Utilized statewide water budget for update of NM Drought Plan in coordination with NM Office of the State Engineer and for regional water planning workshops in collaboration with Interstate Stream Commission.

**2001 Extension Natural Resources Specialist, New Mexico State University**

Delivered extension programming focused on water and natural resources to farmers, ranchers, foresters, and community members throughout northern New Mexico.

**ADDITIONAL EMPLOYMENT**

2008 Fulbright Scholar, University of Patagonia, Argentina  
 2000 Fulbright Scholar, University of Concepción, Chile  
 2000-2001 Courtesy Assistant Professor, Oregon State University  
 1997-2000 National Research Council Postdoctoral Fellow, US EPA, Corvallis, OR  
 1996-1997 Graduate Teaching Assistant, Colorado State University  
 1993-1997 Graduate Research Assistant, Colorado State University  
 1990-1993 Graduate Research Assistant, Duke University  
 1993 Environmental Protection Specialist, Pan American Health Organization  
 1990-1991 Project Hydrologist, San Francisco Water Department  
 1989 Computer Program Installer, Dalziel Plumbing  
 1988 Horticulturalist, Sunset Gardens  
 1986-1987 Undergraduate Honors Researcher, Stanford University  
 1982-1986 Immunology Laboratory Assistant, Stanford University

**HONORS**

2015 Mobley Family Endowed Distinguished Research Award  
 2011-16 President's Millionaire Researcher Achievement Award (for obtaining >\$1M research funding per year)  
 2012 Honorable Mention by the Environmental and Water Resources Institute of the American Society of Civil Engineers and the Journal of Irrigation and Drainage Engineering at the World Environmental and Water Resources Congress  
 2008 Fulbright Scholar, Universidad Nacional Patagónica, Argentina  
 2006 Outstanding Integrated Program USDA NIFA  
 2005 Team Award, Rio Grande Basin Initiative project. NMSU CAHE  
 2000 Excellent in teaching for short course at Centro EULA, University of Concepción, Chile  
 2000 Fulbright Scholar, Universidad de Concepcion, Chile  
 1997 Outstanding Graduate Student, College of Natural Resources, Colorado State Univ.

**ACADEMIC ACTIVITIES****Courses taught**

Watershed Management (RGSC 318)  
 Watershed Methods and Measurements (RGSC 518)  
 Forestry and Society (RGSC/HORT 302G)  
 Range Science Graduate Seminar (RGSC 515)  
 Application of Surface Water-Groundwater Interaction Simulation Models taught in Chile and Argentina during Fulbright Scholarships in 2000 and 2008  
 Interdisciplinary Modeling, a class offered in collaboration with the University of Nevada-Reno and the University of Idaho in summers of 2010, 2012, and 2015 (RGSC 618)

**Teaching services**

- 2001- present Undergraduate advising (2-7 students at a given time)  
 2001- present Graduate student advising and committees (currently committee chair for 4 M.S., 3 PhD, 2 incoming PhD students; 1 post-doc; ~52 grad student committees total)  
 2001- present Range Science Graduate Committee  
 2001- 2013 Range Science Undergraduate Curriculum Committee

**PUBLICATIONS AND PRESENTATIONS**

Publications	52
Proceedings	7
Abstracts	57
Technical reports	5
Theses and dissertations	15
Manuscripts in preparation	6
Professional society papers	45
Technical presentations	41
Invited talks	34

**Publications**

- Kuffour, B.N.O., B. Stringam, M.K. Shukla, and **A.G. Fernald**. Water table and water quality variations with river flow along the Rio Grande within the Hatch-Rincon Valley. *Water Science Journal*. (In submission process).
  - **Fernald, A.G.**, F. Gokbulak, H.R. Garduño, and D.M. VanLeeuwen. Soil water availability effects of treating juniper with herbicide in central New Mexico, USA. *Rangeland Ecology and Management*. (In revision for resubmission).
  - Langarudi, S., Y. Bai, C. Maxwell, A. Hanson, **A. Fernald**. Does Socioeconomic Feedback Matter for Water Models? *Ecological Economics*. Forthcoming 2019.
1. Page, A., S. Langarudi, S. Forster-Cox, and **A. Fernald**. A Dynamic hydro-Socio-Technical Policy Analysis of Transboundary Desalination Development: The Case of Sunland Park-Santa Teresa-Jerónimo-Anapra. *Journal of Environmental Accounting and Management*. Forthcoming 2019.
  2. Hewitt, I., C., **A.G. Fernald**, and Z.A. Samani. 2018. Calculating Field-Scale Evapotranspiration with Closed-Chamber and Remote Sensing Methods. *Journal of The American Resources Association*. Vol. 54, 4.
  3. Lopez, S.C., A.F. Cibils, U. R. Smedly, S.J. Guldán, **A G. Fernald**, C.G. Ochoa, K.G. Boykin, and L. Cibils. 2018. Linkages Between *acequia* Farming and Rangeland Grazing in Traditional Agropastoral Communities of the Southwestern USA. *Sustainability*.
  4. Sabie, R.P., **A. Fernald**, and M.R. Gay. 2018. Estimating land cover for three acequia-irrigated valleys in New Mexico using historical aerial imagery between 1935 and 2014. *The Southwestern Geographer* 21: 36-56.
  5. Samson, E.A., K.G. Boykin, W.G. Kepner, M.C. Andersen, and **A. Fernald**. 2018. Evaluating Biodiversity Metric Response to Forecasted Land Use Change in the Northern Rio Grande Basin. *Environments* 5(91).

6. Ashcroft, N.K., **A.G. Fernald**, D.M. VanLeeuwen, and T.T. Baker. 2017. The effects of thinning trees and scattering slash on runoff and sediment yield within dense piñon- juniper woodlands in New Mexico, U.S.A. *Journal of Soil and Water Conservation*. 72(2):122–130; doi:10.2489/jswc.72.2.122
7. Gutierrez-Jurado, K.Y., **A.G. Fernald**, S.J. Guldan, and C.G. Ochoa. 2017. Surface water and groundwater interactions in traditionally-irrigated fields in northern New Mexico, U.S.A. *Water*. 9:102.
8. Turner, B., V. Tidwell, **A. Fernald**, J. Rivera, S. Rodriguez, S. Guldan, C. Ochoa, B. Hurd, K. Boykin, and A. Cibils. 2016. Modeling acequia irrigation systems using system dynamics: model development, evaluation, and sensitivity analyses to investigate effects of socio- economic and bio-physical feedbacks. *Sustainability*. 8(10).
9. Elaksher, A., **A. Fernald**, and F. Kapoko. 2016. Evaluating the use of GPS heights in water conservation applications. *Survey Review*. <http://dx.doi.org/10.1179/1752270615Y.0000000021>. Vol. 48:348.
10. Hang, C., Z. Liu, Z. Huo, Z. Qu, Y. Xia, and **A. Fernald**. 2016. Impacts of agricultural water saving practice on regional groundwater and water consumption in an arid region with shallow groundwater. *Environ Earth Sci*. 75:1204.
11. Flores, A., M. Shukla, D. Daniel, A. Ulery, B. Schutte, G. Picchioni, and **S. Fernald**. 2016. Evapotranspiration changes with irrigation using saline groundwater and RO concentrate. *Journal of Arid Environments*. 131:35-45.
12. Cram, D.C., T.T. Baker, **A.G. Fernald**, A.F. Cibils, and D.M. VanLeeuwen. 2015. Fuel and vegetation trends after wildfire in treated versus untreated forests. *Forest Science*. 61 (online):1-10.
13. **Fernald, A.**, S. Guldan, K. Boykin, A. Cibils, M. Gonzales, B.H. Hurd, S. Lopez, C. Ochoa, M. Ortiz, J. Rivera, S. Rodriguez, and C. Steele. 2015. Linked hydrologic and social systems that support resilience of traditional irrigation communities. *Hydrology and Earth System Sciences*. 19:293-307.
14. Ramirez, H.G., **A.G. Fernald**, and D.M. VanLeeuwen. 2015. Noncommercial thinning effects on runoff and sediment yield in a mixed conifer New Mexico forest. *Journal of Soil and Water Conservation*, 70:(1)12-22.
15. El-Sadek, A., M.K. Shukla, M. Bleiweiss, **A. Fernald**, and S.J. Guldan. 2013. Evaluating sensitivity analysis and auto-calibration of a semi-distributed hydrological model for two semiarid watersheds of New Mexico. *New Mexico Journal of Science*. 46:65-88. [www.nmas.org/pubs.html](http://www.nmas.org/pubs.html).
16. Guldan, S.J., **A. Fernald**, C. Ochoa, and V.C. Tidwell. 2013. Collaborative community hydrology research in northern New Mexico. *Journal of Contemporary Water Research and Education*. 152:49-54. Date Submitted: June 2013. Item applies to Promotion and Tenure criteria: Outreach.
17. Link, T.E., L. Saito, and **A. Fernald**. 2013. Introduction to Interdisciplinary Modeling, Research, and Education. *Journal of Contemporary Water Research and Education*, 152:1-3.
18. Lopez, S., A.F. Cibils, U.R. Smedly, S.J. Guldan, and **A. Fernald**. 2013. Linkages between livestock-raising and acequia irrigation farming in rural communities of northern New Mexico: A preliminary assessment. Oklahoma City, OK: 66<sup>th</sup> Annual Meeting of the Society for Range Management.
19. Ochoa, C., S.J. Guldan, A.F. Cibils, S.C. Lopez, K.G. Boykin, V.C. Tidwell, and **A. Fernald**. 2013. Hydrologic connectivity of head waters and floodplains in a semiarid watershed. *Journal of Contemporary Water Research and Education*. 152:69-78.
20. Ochoa, C., S.J. Guldan, A.F. Cibils, S. Lopez, K.G. Boykin, V. Tidwell, and **A. Fernald**. 2013. Hydrologic connectivity of head waters and floodplains in a semiarid watershed. *Journal of Contemporary Water Research and Education*, 152, 69-78.
21. Ochoa, C., **A. Fernald**, S.J. Guldan, V.C. Tidwell, and M.K Shukla. 2013. Shallow aquifer recharge from irrigation in a semi-arid agricultural valley in New Mexico. *Journal of Hydrologic Engineering*. 18: 1219-1230.

22. Rango, A., **A. Fernald**, C. Steele, B. Hurd, and C. Ochoa. 2013. Acequias and the effects of climate change. *Journal of Contemporary Water Research and Education*, 151, 81-94.
23. Saito, L., T.E. Link, **A. Fernald**, and L. Kohne. 2013. Lessons Learned From an Inter-Institutional Graduate Course on Interdisciplinary Modeling for Water-Related Issues and Changing Climate. *Journal of Contemporary Water Research and Education*. 152:4-13.
24. **Fernald, A.**, V. Tidwell, J. Rivera, S. Rodríguez, S. Guldán, C. Steele, C. Ochoa B. Hurd, M. Ortiz, K. Boykin, and A. Cibils. 2012. Modeling water, environment, livelihood, and culture in traditional irrigation communities and their linked watersheds. *Sustainability*. 4(11):2998-3022.
25. **Fernald, A.**, J. Gallegos, D. VanLeeuwen, and T.T. Baker. 2012. *Evaluation of litter hydrology in ponderosa pine and mixed conifer stands in northern New Mexico, USA*. New Mexico Academy of Science. 4:121-136.
26. El-Sadek, A., M. Bleiweiss, M. Shukla, S. Guldán and **A. Fernald**. 2011. Alternative climate data sources for distributed hydrological modelling on a daily time step. *Hydrological Processes*. 25(10):1542-1557.
27. Ochoa, C.G., **A.G. Fernald**, and S.J. Guldán. 2011. Caracterización del balance hídrico y la recarga por retorno de riego en un valle agrícola de una región semiárida de los Estados Unidos de América. *Estudios en la Zona no Saturada del Suelo*. Vol. 10. 337-340.
28. Ochoa, C.G., **A.G. Fernald**, and S.J. Guldán. 2011. Deep percolation from surface irrigation: Measurement and modeling using the RZWQM. *In: M.K. Shukla (Ed.), Soil Hydrology, Land Use and Agriculture: Measurement and Modeling*. CABI, Wallingford, UK.
29. **Fernald, A.G.**, S.J. Guldán, and C.G. Ochoa. 2010. Hydrological impacts of traditional community irrigation systems in New Mexico. *Rural Connections*. 4(2):33-36.
30. **Fernald, A.G.**, S.Y. Cevik, C.G. Ochoa, V.C. Tidwell, J.P. King, and S.J. Guldán. 2010. River hydrograph retransmission functions of irrigated valley surface water—groundwater interactions. *Journal of Irrigation Drainage and Engineering*. 136(12):823-835.
31. Ochoa, C.G., **A.G. Fernald**, S.J. Guldán, and M.K. Shukla. 2009. Water Movement through a Shallow Vadose Zone: A Field Irrigation Experiment. *Vadose Zone J.* 8:414-425.
32. Arumi, J.L., D. Rivera, E. Holzapfel, P. Boochs, M. Billib and **A. Fernald**. 2009. Effect of irrigation canal network on surface and groundwater connections in the lower valley of the Cachapoal River, Chile. *Journal of Chilean Agricultural Science*. 69(1):12-20.
33. Garduno, H., A.Cibils, D. VanLeeuwen, and **A. Fernald**. 2009. Response of understory vegetation and soil moisture to infrequent heavy defoliation of chemically thinned juniper woodland. *Journal of Arid Environments*. 74(2):291-297.
34. Helmus, A.M., **A.G. Fernald**, D.M. VanLeeuwen, L.B. Abbott, A.L. Ulery, and T.T. Baker. 2009. Surface water seepage effects on shallow ground-water quality along the Rio Grande in northern New Mexico. *Journal of the American Water Resources Association*. 45(2):407-418.
35. Mason, G.J., T.T. Baker, D.S. Cram, J.C. Boren, **A.G. Fernald**, and D.M. VanLeeuwen. 2009. Mechanical fuel treatment effects on vegetation in a south central New Mexico dry mixed conifer forest. *Forest Ecology and Management*. 257:868-875.
36. Ochoa, C., **A. Fernald**, and V. Tidwell. 2008. Rainfall, soil moisture, and runoff dynamics in New Mexico piñon-juniper woodland watersheds. *In: Restoration of Southwest Ponderosa Pine and Pinyon-Juniper Ecosystems*. U.S. Forest Service Rocky Mountain Research Station Technical Report. RMRS-P51. 67-74.
37. Ramirez, H, **A. Fernald**, A. Cibils, M. Morris, S. Cox, and M. Rubio. 2008. Variation in herbaceous vegetation and soil moisture under treated and untreated oneseed juniper trees. *In: Restoration of Southwest Ponderosa Pine and Pinyon-Juniper Ecosystems*. U.S. Forest Service Rocky Mountain Research Station Technical Report. RMRS-P51. 81-86.

38. Seedang, S., **A.G. Fernald**, R.M. Adams, and D.H. Landers. 2008. Economic analysis of water temperature reduction practices in a large river floodplain: an exploratory study of the Willamette River, Oregon. *River Research and Applications*. 24(7):941-959.
39. Cram, D.S., T.T. Baker, **A.G. Fernald**, A. Madrid, and B. Rummer. 2007. Mechanical thinning impacts on runoff, infiltration, and sediment yield following fuel reduction treatments in a southwestern dry mixed conifer forest. *Journal of Soil and Water Conservation*. 62(5):359-366.
40. **Fernald, A.G.**, T.T. Baker, and S.J. Guldan. 2007. Hydrologic, Riparian, and Agroecosystem Functions of Traditional Acequia Irrigation Systems. *Journal of Sustainable Agriculture*. 30(2):147-171.
41. Mason, G.J., T.T. Baker, D.S. Cram, J.C. Boren, **A.G. Fernald**, and D.M. VanLeeuwen. 2007. Mechanical fuel treatment effects on fuel loads and indices of crown fire potential in a south central New Mexico dry mixed conifer forest. *Forest Ecology and Management*. 251:195-204.
42. Ortiz, M.A., C. Brown, **A. Fernald**, T. Baker, B. Creel, and S. Guldan. 2007. Land use change impacts on *acequia* water resources in northern New Mexico. *Journal of Contemporary Water Research and Education*. 137:47-54.
43. Ochoa, C.G., **A.G. Fernald**, S.J. Guldan, and M.K. Shukla. 2007. Deep Percolation and its Effects on Shallow Groundwater Level Rise Following Flood Irrigation. *Transactions of the American Society of Agricultural and Biological Engineers*. 50(1):73-81.
44. **Fernald, A.G.**, D.H. Landers, and P.J. Wigington, Jr. 2006. Water Quality Changes in Hyporheic Flow Paths Between a Large Gravel Bed River and Off-Channel Alcoves in Oregon, USA. *River Research and Applications*. 22:1-14.
45. **Fernald, A.** and S. Guldan. 2006. Surface Water-Groundwater Interactions Between Irrigation Ditches, Alluvial Aquifers, and Streams. *Reviews in Fisheries Science*. 14(1-2):79-89.
46. Madrid, A., **A.G. Fernald**, T.T. Baker, and D.M. VanLeeuwen. 2006. Evaluation of silvicultural treatment effects on infiltration, runoff, sediment yield, and soil moisture in a mixed conifer New Mexico forest. *Journal of Soil and Water Conservation*. 61(3):159-168.
47. Smith, L. and **A. Fernald**. 2006. The Ineffectiveness of Using the National Environmental Policy Act of 1969 to Implement Environmental Enhancement in the Rio Grande Canalization Project. *Reviews in Fisheries Science*. 14(1-2):139-167.
48. MacDonald, L.H. and **A.G. Fernald**. 2003. Managing Forests and Woodlands for Increasing Water Yield: *In: Johnson, P.S., L.A. Land, L.G. Price, and F. Titus [eds.], Water Resources of the Lower Pecos Region, New Mexico: Science, Policy, and a Look to the Future. New Mexico Bureau of Geology and Mineral Resources, Socorro, NM. pp. 93-97.*
49. Landers D.H., **A.G. Fernald**, and C. Andrus. 2002. Off-channel Habitats. *In: Willamette River Basin Trajectories of Environmental and Ecological Change: A Planning Atlas. The Pacific Northwest Research Consortium, Oregon State University Press. Eugene, OR. pp. 24-25.*
50. **Fernald, A.G.**, P.J. Wigington, Jr., and D.H. Landers. 2001. Transient storage and hyporheic flow along the Willamette River, Oregon: model estimates and field measurements. *Water Resources Research*. 37(6):1681-1694.
51. Stednick, J.D. and **A.G. Fernald**. 1999. Nitrogen dynamics in stream and soil waters. *Journal of Range Management*. 52(6):615-633.
52. Frasier, G.W., M.J. Trlica, W.C. Leininger, R.A. Pearce, and **A. Fernald**. 1998. Runoff from simulated rainfall in 2 montane riparian communities. *Journal of Range Management*. 51(3):315-322.

## RESEARCH ACTIVITIES

### Research interests

Runoff and water quality processes

Forest management effects on water yield and watershed health

Ecohydrology of rangelands  
 Surface water-groundwater interactions  
 Regional water budgets  
 Integrated human and natural system dynamics

**Research support \$14.8 M 2001-2015**

- Produced water for water supply sustainability in NM, NMED, \$350K. 2015-2017. (PI)
- New Mexico RII Energize New Mexico, NSF EPSCoR Track 1, \$3.5M, 2013-2018. (Co-PI)
- Administrative Support for Chihuahuan Desert Network. NPS. \$526,175 2011-2017. (PI)
- Desalination Cooperative Agreement R10AC80283, Bureau of Reclamation. \$2.1M, 2008-2015. (Co-PI 2011-2015, PI beginning March 2015)
- Groundwater Exploration, Assessment and Monitoring for Humanitarian Assistance in Ethiopia. US DOI/USGS \$444,978, 2013-2015. (PI)
- Monitoring and Forecasting Climate, Water and Land Use for Food Production in Afghanistan, \$245,757, 2014-2016. (PI)
- Land use effects on runoff and water quality in upland watersheds and along stream corridors. USDA Hatch program. Hatch Act, \$130,370 (\$6,990-10,000/yr) 2002-2015. (PI)
- State Water Resources Research Institute Program, US DOI Geological Survey 2011-2015 \$430,927 (PI)
- Monitoring and Forecasting Climate, Water and Land Use for Food Production Afghanistan. \$1,821,840. 2008-2012. (PI)
- Monitoring and Forecasting Climate, Water and Land Use for Food Production and Business Development in Iraq. US DOI Geological Survey. \$892,319. 2010-2012 (PI)
- Sustaining the Environment in the New Mexico-Chihuahua Border Region. NM Environment Department. \$93,500. 2010-2012. (PI)
- Physical and Social Drivers of Water Sustainability in a Groundwater-Dependent Agricultural Region on the US-Mexico Border. Southwest Consortium for Environmental Research and Policy. \$54,471. 2010-2012 (PI)
- University of Texas at El Paso Planning Grant. Southwest Consortium for Environmental Research and Policy. \$115,528. 2010-2012 (PI)
- 319 Paso Del Norte/Watershed Council; Task 18 and Task 16. Texas A&M University. \$25,286. 2010-2011 (PI)
- Planning and Coordination of Renewable Energy Conference. US DOI Geological Survey. \$73,793. 2011-2012 (PI)
- Salinity Studies in the Rincon and Mesilla Valley Basins. US DOI Reclamation, El Paso. \$30,000. 2010-2013 (Co-PI)
- Acequia Water Systems Linking Culture and Nature: Integrated Analysis of Community Resilience to Climate and Land Use Changes. NSF CNH. \$1,400,892. 2010-2016 (PI)
- Natural and Human Dynamics of Acequia Systems Innovation Working Group. NSF EPSCoR. \$14,000. 2009 (PI)
- Climate Change Effects on New Mexico's Mountain Sources of Runoff. NSF EPSCoR. \$360,000. 2008-2012 (Co-PI)
- Instrumentation acquisition to analyze water, soils, and biomass for environmental research, monitoring, and assessment. NSF Major Research Instrumentation. \$267,032. 2002-2005. (PI)
- Sacramento Mountains Watershed Project. Interstate Stream Commission and State of New Mexico through NM Technical Institute. \$99,164. 2007-2011 (PI)

- Rangeland management effects on runoff and water quality in upland watersheds. USDA Rangeland Ecology. \$119,000 (\$15,500-19,000/yr.). 2001-2007 (PI)
- Rangeland watershed research: Effects of stand density on runoff and sediment production from piñon-juniper rangeland ecosystems. Range Improvement Task Force, \$97,500 (\$6-7.5K/yr.), 2001-2015. (PI)
- Ecohydrology of one seed juniper sapling suppression and recruitment. Joe Skeen Institute for Rangeland Restoration. \$50,000. 2006-2008. (PI)
- The Natural Resource Development Center Collaborative Forest Restoration Project for Upper Mora Watershed. USFS through La Jicarita Community Enterprise. \$95,000. 2001-2005 (PI)
- Time domain reflectometry monitoring of runoff, erosion, and sediment transport in Piñon-Juniper woodland watersheds. Sandia National Laboratories, Sandia University Research Program. \$70,000. 2002-2004 (PI)
- Evaluation of burning and thinning effects on runoff, sediment yield, and vegetative cover in a northern New Mexico forest. NM Water Resources Research Institute. \$4,498. 2003-2004 (PI)
- Mechanical Harvesting Impacts on Site Disturbance, Ground Cover and Runoff / Erosion on the Smokey Bear District of the Lincoln National Forest. USDA Forest Service Southern Research Station. \$26,000. 2004-2006. (Co-PI)
- Effects of defoliation on soil moisture dynamics and understory herbaceous vegetation under dead and living juniper trees. Joe Skeen Institute for Rangeland Restoration. \$40,000. 2004-2006 (PI)
- Effects of infrequent high intensity defoliation on herbaceous understory and soil moisture dynamics under dead and living one-seed juniper trees at Corona Ranch. Joe Skeen Institute for Rangeland Restoration. \$50,000. 2005-2006 (PI)
- Collaborative Forest Management for Mora Watershed Health. USFS Collaborative Forest Management Program through La Jicarita Enterprise Community. \$78,000. 2006-2009 (PI)
- Traditional irrigation system effects on surface water groundwater interactions in the Rio Grande Basin. USDA Efficient Irrigation for Water Conservation in the Rio Grande Basin. \$168,000. 2008-2011. (PI)
- Hydrologic measurements for improved acequia water management. US Bureau of Reclamation Conservation Field Services Program. \$24,881. 2005-2008 (PI)
- Irrigation ditch seepage effects on surface water/groundwater interaction along the Rio Grande river corridor. USDA Efficient Irrigation for Water Conservation in the Rio Grande Basin. \$139,033. 2001-2004 (PI)
- Hydrologic budget impacts of seepage losses from flood irrigation. USDA Efficient Irrigation for Water Conservation in the Rio Grande Basin. \$44,673. 2004-2005 (PI)
- Flow measurement for improved acequia water management. US Bureau of Reclamation Water Conservation Field Services Program. \$22,760. 2004-2006 (PI)
- Riparian hydrologic controls on the fate of seepage from ditches and flood irrigation. USDA Efficient Irrigation for Water Conservation in the Rio Grande Basin. \$79,264. 2004-2007 (PI)
- Effects of Ditch and Field Irrigation Seepage on Rio Grande Flow. USDA CSREES NRI Competitive Grants Program. \$441,000. 2005-2009 (PI)
- Wireless sensor network for community ditch flow monitoring and management. Water Task Force 2005 NM Legislature Initiative. \$26,995. 2005-2006 (PI)
- The Impacts of Land Use Change on Water Resources and Traditional Acequia Culture in North Central New Mexico. NMSU Research Cluster Mini-Grant Program. \$25,000. 2005-2006 (Co-PI)
- New Mexico-Texas-Mexico border water issues. NMSU Mexico Grants Program. 2002. \$1000. (PI)
- Inventory and classification of wildfire occurrence in treated vs untreated forest stands on SW national forests. USDA Rocky Mountain Experiment Station. \$225,000. 2001-2003 (Co-PI)



**SERVICE**

Departmental service - 10 committees and groups  
 College service - 8 committees and groups  
 Extension service - 67 presentations and meetings  
 Graduate School service - 2 committees and groups  
 University service - 21 committees, groups, and task forces  
 Community service - 5 groups  
 State service - 2 projects and groups  
 Service to national agencies - 5 review panels and groups  
 Professional society service - 3 groups  
 Industry, non-profit service - 3 groups  
 Peer reviews 2001-2015 - 30 manuscripts and 124 proposals

**COORDINATION**

2003- present Environmental Assessment and Research Lab coordinator

**PROFESSIONAL ACTIVITIES**

2011-present National Institutes of Water Resources (NIWR) Board member since 2013, President  
 2012- 2014 Agricultural water consortium of the land grant universities of the Colorado River Basin  
 2011- present NMSU Council of Associate Deans of Research (CADRe)  
 2011- present Lower Rio Grande Water Users Association  
 2011- present Consortium of Higher Investigations for Water and Wastewater  
 2011- present South-Central New Mexico Stormwater Management Coalition  
 2011- present Paso del Norte Water Task Force  
 2011- present South-Central Consortium for Watershed Excellence  
 2005- 2014 University Research Council

**PROFESSIONAL SOCIETIES**

American Geophysical Union  
 American Water Resources Association  
 American Society of Civil Engineers  
 Soil and Water Conservation Society  
 Society for Range Management  
 University Council on Water Resources

**INTERNATIONAL ACTIVITIES**

Helped establish NMSU-China Agric. Univ. Joint Water Sci. and Eng. Research Center  
 NMSU internationalization delegations to Costa Rica, Chile, and Ethiopia  
 Long term ongoing collaboration with researchers in Chile and Argentina  
 Graduate student advisor with New Mexico-Chihuahua Partnership for the Sierra Tarahumara  
 Host visiting professors from Mexico, Chile, Turkey, China  
 IQC-II member for US AID-funded response to developing country water resource issues

Workshop in Mexico to promote collaboration with Autonomous University of Chihuahua Investigated  
New Mexico-Texas-Mexico water issues in Rotary International Study Exchange

**OTHER MATERIAL**

State of New Mexico legislature - Have understanding of legislative process and excellent rapport with legislators

Other conferences and workshops - Attend two-ten additional workshops and meetings per month on water and related topics

Languages - Fluent in Spanish; Read Portuguese