

## RESUME

### Alexander G. Fernald

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## RESEARCH AND TEACHING INTERESTS

Research interests include: Effects of surface water/groundwater exchange on water availability, water quality, and floodplain ecosystem functions; and forest and rangeland vegetation management effects on infiltration, runoff, water yield, sediment yield, and nonpoint source pollution.

Teaching includes: Watershed Management; Watershed Methods and Measurements; Theory and Application of Surface Water-Groundwater Interaction Simulation Models; and Forestry and Society.

## EDUCATION

Ph.D.	1997	Colorado State University	MAJOR: Watershed Science
M.E.M.	1993	Duke University	MAJOR: Water and Air Resources
B.A.	1987	Stanford University	MAJOR: International Resource Conservation

## EXPERIENCE

Associate Professor of Watershed Management, Department of Animal and Range Sciences, New Mexico State University, 2007-present.

Fulbright Scholar, Universidad Nacional Patagonica, Argentina, 2008.

Assistant Professor of Watershed Management, Department of Animal and Range Sciences, New Mexico State University, 2001-2007.

Extension Natural Resource Specialist, College of Agriculture and Home Economics, New Mexico State University, 2001.

Fulbright Scholar, Universidad de Concepcion, Concepcion, Chile, 2000

National Research Council Postdoctoral Associate, U.S. EPA, Corvallis, OR, 1997-2000.

## HONORS

Fulbright Scholar, Universidad Nacional Patagonica, Argentina, 2008.

Team award, Rio Grande Basin Initiative, New Mexico State University, 2005.

Fulbright Scholar, Universidad de Concepcion, Chile, 2000.

Outstanding Graduate Student, Colorado State University, College of Natural Resources, 1996.

## PUBLICATIONS

**Fernald, A.G.**, S.Y. Cevik, C.G. Ochoa, V.C. Tidwell, J.P. King, and S.J. Guldán. River hydrograph retransmission functions of irrigated valley surface water-groundwater interactions. (In preparation for submission to the *Journal of Water Resources Planning and Management*).

Arumí, J.L., D. Rivera, E. Holzapfel, P. Boochs, M. Billib, and **A. Fernald**. Effect of irrigation canal network on surface water and groundwater connections in the lower valley of the Cachapoal River, Chile. *Journal of Chilean Agricultural Science*. (In press)

- Garduño, H., A.Cibils, D. VanLeeuwen, and **A. Fernald**. Response of understory vegetation and soil moisture to infrequent heavy defoliation of chemically thinned juniper woodland. *Journal of Arid Environments*. (In press).
- 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.
- Helmus, A.M., **A.G. Fernald**, D.M. VanLeeuwen, A.L. Ulery, T.T. Baker, and L.B. Abbot. 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.
- Ochoa, C.G., **A.G. Fernald**, S.J. Guldan, and M.K. Shukla. 2009. Water movement through a shallow vadose zone--A field irrigation experiment. *Vadose Zone Journal*. 8(2).
- 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*. DOI: 10.1002/rra
- 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.
- 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.
- 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.
- Cram, D.S., T.T. Baker, **A.G. Fernald**, A. Madrid, and B. Rummer. 2007. Reducing the impacts of mechanical thinning in a southwestern forest. *Journal of Soil and Water Conservation*, 62 (5): 121 A.
- 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.
- Ochoa, C. G, **Fernald, A. G.**, Guldan, S. J., Shukla, M. K. 2007. Deep Percolation and its effects on shallow groundwater level rise following flood. *Transactions of the American Society of Agricultural and Biological Engineers*. Vol. 49(6).
- 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.
- 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.
- 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.
- 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.
- Fernald, A.** and S. Guldan. 2004. River, Acequia and Shallow Groundwater Interactions. Water Task Force Report 2. New Mexico State University. 5 pp.
- Fernald, A.**, S. Guldan, T. Baker, and J.P. King. 2003. Irrigation Ditch Seepage Effects on Surface Water/Groundwater Interaction along the Rio Grande Corridor. In: Efficient Irrigation for Water Conservation. Water Task Force Report #1. New Mexico State University, Las Cruces. pp. 43-38.

- MacDonald, L.H., and **A.G. Fernald**. 2003. Managing Forests and Woodlands for Increasing Water Yield: In: Water Resources of the Lower Pecos Region, New Mexico: Science, Policy, and a Look to the Future. Johnson, P.S., L.A. Land, L.G. Price, and F. Titus, Eds. New Mexico Bureau of Geology and Mineral Resources, Socorro, NM. pp. 93-97.
- 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. pp. 24-25.
- 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.
- Allison, C. D., T. T. Baker, J. C. Boren, **A. G. Fernald**, and J. C. Boren. 2001. Monitoring Rangelands in New Mexico: Range, Riparian, Erosion, Water Quality, and Wildlife. Range Improvement Task Force Report 53, New Mexico State University, 60 pp.
- Stednick, J.D. and **A.G. Fernald**. 1999. Nitrogen dynamics in stream and soil waters. *Journal of Range Management* 52(6): 615-633.
- 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.