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Erek H. Fuchs

Education 1989 – 1996 New Mexico State University Las Cruces, NM
Bachelor of Science – Range and Watershed Science Dec. 1994
Master of Science - Rangeland Hydrology Dec. 1996
MS Research Topic/Thesis: Sediment transport by storm water runoff in response to soil surface disturbance and climatic variability.
2013 – 2018 New Mexico State University Las Cruces, NM
Ph.D – Water Science and Management Dec. 2018 (expected)
Dissertation Topic: Quantifying groundwater resilience and aquifer management metrics through conjunctive use for irrigated agriculture in an arid environment.

Curriculum Vitae Professional Journal: **Fuchs, Erek H.**, M.K. Wood, T.L. Jones and Brent Racher. 2003. Impacts of tracked and other vehicles on hydrologic function and sediment from a desert soil. *Journal of Range Management*. 56(4):342-352.

Professional Journal: **Fuchs, Erek H.**, K.C. Carroll and J.P. King. 2018. Quantifying groundwater resilience through conjunctive use for irrigated agriculture in a constrained aquifer system. *Journal of Hydrology* (submitted, accepted).

Professional Journal: **Fuchs, Erek H.**, K.C. Carroll and J.P. King. 2018. Quantifying disconnection of surface water from groundwater for irrigated agriculture in a constrained aquifer system. *Journal of Hydrology* (in-progress).

Professional Symposium: **Fuchs, Erek H.** 2015. Recent year-end groundwater elevation and storage changes in the Mesilla shallow alluvium aquifer within the Elephant Butte Irrigation District. In: *U.S. Society for Irrigation and Drainage, Conference on Emerging Issues in Water Management Governance*. Albuquerque, NM, Nov. 17-20, 2015.

Professional Symposium: Johnson, M.S., Doug Rappuhn and **Erek H. Fuchs**. 2002. Water rights administration in the Southern Jornada Del Muerto Basin. In: *New Mexico Water Research*

Symposium. New Mexico Tech., Socorro, New Mexico, August 13, 2002.

Professional Symposium: **Fuchs, Erik H.** 1998. A grazing land water quality education program for producers. In: *American Water Resources Association, Specialty Conference on Rangeland Management and Water Resources*. Reno, Nevada, May 27-29, 1998.

Professionally Noted: **Fuchs, Erik H.** 1998. A comparative review of southwestern water policy: New Mexico, Colorado and Arizona. For: *New Mexico Farm and Livestock Bureau*. Las Cruces, NM, December 1998.

Expert Testimony

State of NM, County of Doña, Third Judicial District Court.
Moongate Water Company v. Doña Ana Mutual Domestic Water Consumers Association. D-307-CV-2013-04180.

- * Water rights dispute. Principle issues for which testimony was recorded included water rights ownership and potential hydrologic impacts, and consideration of mined groundwater basin criteria.

State of NM, County of Doña, Third Judicial District Court.
Doña Ana Mutual Domestic Water Consumers Association v. Forrest Westmoreland and Joyce Westmoreland. D-307-CV-2013-01595.

- * Water rights dispute. Principle issues for which testimony was recorded included water rights ownership, well metering, well meter data, and water rights administrative accounting considerations.

State of NM, County of Doña, Third Judicial District Court.
Thomas K. Moore and Pamela Moore v. La Union Holdings, Inc., et al. CV-2013-33.

- * Water rights dispute. Principle issues for which testimony was recorded included water rights ownership, well capacity/yield and groundwater availability considerations.

Experience

December 2011 – Present: **Principal, Fox Consulting**, Las Cruces, NM. NMCRS ID: 03-231868-00-5

- * Professional consulting services on a part-time basis with consent of primary employer on case by case basis. Including but not limited to water rights research, valuation, marketing and selling, water resources management, advisement, application filing, hydrology.

November 2011 – Present: Elephant Butte Irrigation District of New Mexico, Las Cruces. **Groundwater Resources Manager.**

- * Coordinate with the District Manager and department heads to efficiently and effectively gather, process, interpret and disseminate data and information regarding groundwater use and conditions in the Lower Rio Grande basin.
- * Develop draft policies at the direction of the District Manager and Board of Directors regarding District constituent groundwater use.
- * Develop new and/or use existing analytical methods to examine groundwater storage changes in the Lower Rio Grande basin.
- * Analyze and interpret groundwater monitoring data.
- * Make recommendations to further develop and/or expand the EBID's groundwater monitoring program.
- * Perform simulations with MODFLO and related groundwater models of the Mesilla and Rincon basins in the Lower Rio Grande basin.
- * Identify groundwater-related threats to the District's surface water supply and propose mitigating actions.
- * Provide informed input into strategic planning as well as legal and policy analysis.
- * Prepare proposals for external funding.

November 1999 – November 2011: New Mexico Office of the State Engineer, Water Resource Allocation Program, Water Rights Division, Las Cruces. **Lower Rio Grande Basin Supervisor.**

- * Principal contact for the NM Office of the State Engineer concerning water rights administration in the Lower Rio Grande, Hot Springs and Las Animas Creek Underground Water Basins.
- * Official representation of the NM Office of the State Engineer at various professional meetings and functions.
- * Evaluate, review and prepare recommendations on water rights applications; take final action on applications.
- * Serve as expert witness in hearings proceedings, advise agency attorneys as requested.
- * Respond to area legislators as questions are presented and conduct legislative bill analysis as needed or requested.
- * Deliver oral presentations to local interest groups as needed or requested.
- * Provide input and comment on water rights policy, rules and regulations development/revision for the NM Office of the State Engineer.

- * Conduct numeric modeling (MODFLO) and analysis of river effects and drawdown calculations, including analytical methods regarding proposed diversions.
- * Conduct field investigations, water rights file abstracting, data and information searches/retrieval.
- * Make determinations on the acceptability of water rights declarations and applications, review and process water rights change of ownership forms, prepare notices for publication and issue emergency authorizations as appropriate.
- * Advise public on water rights related matters via phone and/or daily office visits; assist public in completing application forms; attendance of meetings/conferences as needed.
- * Maintain thorough familiarity with NM water law (Ch. 72 & 73 NMSA 1978), NMOSE ground and surface water rules and regulations, basin-specific water rights administrative criteria, hydrographic survey and adjudication proceeding developments.
- * Coordinate to prepare reports and recommendations concerning illegal uses of water, act as first step in resolving areas of conflict.
- * Conduct hiring and training of office staff.
- * Carry out direct supervision and mentoring of staff.

April 1999 – November 1999: Soil Physics Research Laboratory of New Mexico State University. **Research Associate**

- * Field water balance monitoring; neutron-probe and tensiometer operation and soil moisture measurement.
- * Irrigation canal flow monitoring and measurement.
- * Consultation with area farmers.
- * Hiring and supervision of research aids.
- * Weekly reporting and presentation of research activities.

November 1998 – November 1999: Self-employed, part-time, contractual investigation of water resources and related issues.

Water Resources Consultant

- * Federal and state water resources policy analysis and technical comment.
- * Indian and tribal water resources investigations.
- * Watershed planning and conservation.
- * Water rights advisement.

August 1998 - November 1998: New Mexico Department of Agriculture, Division of Agricultural Programs and Resources.

Water Resources Specialist

- * Federal and state water resources policy analysis.
- * Written comment concerning federal and state water resource management plans and initiatives.
- * Consultation with private individuals, federal, state, and local government agency officials concerning water resource issues.
- * Official representation of the New Mexico Department of Agriculture at various professional meetings/functions.
- * Familiarity with the National Environmental Policy Act, Clean Water Act, Wild and Scenic Rivers Act, and Endangered Species Act.

January 1997 - August 1998: Rangeland Water Quality Education Program - *cooperative effort involving Kansas State University, Kansas Department of Health and Environment, and US Environmental Protection Agency (CWA § 319(h) grant).*

Extension Assistant

- * Field surveys of vegetation, surface water, and soil erosion characteristics influencing non-point source pollution trends.
- * Literature retrieval, review, and organization.
- * Computer-aided mapping and spatial analysis development.
- * GIS and GPS programmatic development and maintenance.
- * Reclamation strategy and management recommendation.
- * Presentation development and delivery.
- * Publication development and submission.

March 1995 - December 1996: Surface Water and Erosion Project - *cooperative effort involving New Mexico State University and the U.S. Army Corps of Engineers Construction Engineering Research Laboratory. **Graduate Student, Teaching and Research***

Assistant

- * Laboratory management and field sample processing of soil and vegetation collections.
- * Neutron-probe operation, measurement of soil surface properties.
- * Literature retrieval, review, and organization.
- * Computer-aided data management and statistical analysis.
- * Weather station (CR10X) programming and maintenance, weather data retrieval, management, and analysis.
- * Field and laboratory assistant instructor of watershed management (~30 students).
- * Technical writing.
- * Formal oral and visual presentation.

* Formal report completed for and approved by U.S. Army Corps of Engineers.

- Awards**
- Outstanding Citizenship, 1989.
 - Society for Range Management Scholarship, 1994.
 - New Mexico Office of the State Engineer, Employee of the Year, 2002.