

AARON M. LIEN

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<http://udallcenter.arizona.edu/lauralhlab/aaronlien.html>**EDUCATION**

- Ph.D. 2017 **The University of Arizona**, Arid Lands Resource Sciences Graduate Interdisciplinary Program
Incentives for Ecosystem Services on Rangelands: Institutional Design and Stakeholder Attitudes. Laura López-Hoffman (co-chair), George Ruyle (co-chair), Thomas E. Sheridan, Edella Schlager, and Michael Crimmins.
- M.S. 2008 **The University of Arizona**, Environmental Planning, School of Geography and Regional Development.
- B.A. 2003 **Willamette University**, Politics with Honors and Environmental Science.

ACADEMIC AND PROFESSIONAL APPOINTMENTS

- 2013 – Present Senior Researcher, Udall Center for Studies in Public Policy, The University of Arizona.
- 2011 – 2013 Research Analyst, Water Resources Research Center, The University of Arizona
- 2008 – 2011 Project Director, Pinchot Institute for Conservation
- 2007 – 2008 Conservation Stewardship Consultant, Rincon Institute
- 2004 – 2006 Program Coordinator, National Council for Science and the Environment

PUBLICATIONS

PEER-REVIEWED PUBLICATIONS

- 2015 **Lien, AM**, J Neeley, G Ruyle, and L López-Hoffman. 2015. The effects of Federal policies on rangeland ecosystem services in the southwestern United States. *Rangelands*. DOI: <http://dx.doi.org/10.1016/j.rala.2015.05.002>
- 2015 Svancara, C, **AM Lien**, L López-Hoffman, W Vanasco, G Ruyle and S Bonar. 2015. Jaguar critical habitat designation causes concern for southwestern ranchers. *Rangelands*. DOI: <http://dx.doi.org/10.1016/j.rala.2015.05.003>
- 2015 **Lien, AM**, W Vanasco, L López-Hoffman, and G Ruyle. 2015. Payments for Ecosystem Services for Southern Arizona Ranchers. *Publication AZ1658*. The University of Arizona, College of Agriculture and Life Sciences, Cooperative Extension. <http://uacals.org/34g>
- 2014 **Lien, AM**, K Mott Lacroix, K Banister, and S Megdal. 2014. Using Watershed Assessments to Inform Planning for Rural Watersheds. *Publication AZ1637*. The University of Arizona, College of Agriculture and Life Sciences, Cooperative Extension. <http://uacals.org/2co>

PEER-REVIEWED PUBLICATIONS IN PROGRESS

- In Revision **Lien, AM**, C Svancara, W Vanasco, G Ruyle, and L López-Hoffman. The land ethic of ranchers: a core value despite divergent views of government. Accepted with minor revisions to *Rangeland Ecology and Management*.
- In Prep **Lien, AM**, C Svancara, W Vanasco, G Ruyle, and L López-Hoffman. Opportunities and barriers for endangered species conservation using payments for rangeland ecosystem services. Target publication: *Environmental Management*.
- In Prep **Lien, AM**, A Lona, and E Schlager. Using institutional grammar to improve understanding of the form and function of payment for ecosystem services programs. Target publication: *Ecosystem Services*.

PROFESSIONAL PUBLICATIONS (not peer reviewed)

- 2013 Bannister, K, D Chan, J Driscoll, C Fullerton, **AM Lien**, and K Mott Lacroix. 2013. *Atlas of the Upper Gila Watershed*. University of Arizona: Water Resources Research Center. (wrrc.arizona.edu)
- 2011 **Lien, AM**, C Rupprecht, and JB Nadeau. 2011. *Conserve to Enhance Program Design Guide*. University of Arizona: Water Resources Research Center. (wrrc.arizona.edu).
- 2011 Kittler, BA, **AM Lien**, E Brannon, D Le Master. 2011. *Valuing Place in Region Six: Connecting People in Places*. Consultant report to the USDA Forest Service, Region Six. Pinchot Institute for Conservation: Washington, DC.
- 2010 **Lien, AM**, W Price, N Gillespie, A Heft, M Smith. 2010. *Eastern Brook Trout Habitat Guidance*. Pinchot Institute for Conservation: Washington, DC. (www.thebaybank.org).
- 2010 **Lien, AM** and WJ Manner. 2010. *The Marcellus Shale: Resources for Stakeholders in the Upper Delaware Watershed Region*. Pinchot Institute for Conservation: Washington, DC. (www.pinchot.org/gp/Marcellus_Shale)
- 2008 **Lien, AM**. 2008. *Legal Implications of Rainwater Harvesting for Existing Surface Water Right Holders: Does Arizona Have a Problem?* Proceedings of the Arizona Hydrological Society and the Third International Professional Geology Conference. American Institute of Professional Geologists.
- 2008 Megdal, SB and **AM Lien**. 2008. *Tucson Regional Water Planning Perspectives Study*. University of Arizona: Water Resources Research Center. (wrrc.arizona.edu).
- 2007 Megdal, SB, ZA Smith, and **AM Lien**. 2007. *Evolution and Evaluation of the Active Management Area Management Plans*. University of Arizona: Water Resources Research Center. (wrrc.arizona.edu).

HONORS AND AWARDS

- 2015 First Place, Arid Lands Resource Sciences 3 Minute Research Presentation Challenge, **\$500**
- 2015 The University of Arizona Graduate Fellowship, Fall and Spring Semesters, **\$1000**.
- 2014 Rachel Carson Fellowship, Institute of the Environment, The University of Arizona, 2014-2015, **\$5,000**.
- 2014 The University of Arizona Graduate Fellowship, Fall and Spring Semester **\$1050**.

- 2014 The University of Arizona Graduate Interdisciplinary Tuition Scholarship, Spring Semester, **\$5,254**.
- 2013 The University of Arizona Graduate Fellowship, Fall Semester, **\$250**.
- 2008 Central Arizona Project Award for Water Research, First Place, **\$1,000**.
- 2007 Arizona Planning Association Graduate Scholarship, **\$750**.
- 2007 Urban Land Institute Arizona Sustainable Development Scholarship, **\$1,000**.

FUNDING

FEDERAL GRANTS AND CONTRACTS

- 2015 USDA-NIFA. Bioenergy, Natural Resources and Environment (BNRE) program, Agroecosystem Management priority area. Does adaptive management enhance ecosystem services and provide socio-economic benefits on Southwestern rangelands? **\$439,000**. PI: L López-Hoffman; Co-PIs: G Ruyle, M Miller & T Teegerstrom. Senior Personnel: **AM Lien**, A Kerna & S Noelle.
- 2015 National Science Foundation: Coupled-Natural Human Systems. A telecoupling model to account for spatial subsidies of ecosystem services provided by transboundary migratory species in North America. **\$850,000**. PI: L López-Hoffman; Co-PIs: J Loomis, & R Wiederholt. Senior Personnel: C Chester, **AM Lien**, B Mattsson, & JL Neeley. Collaborating USGS Scientists: W Thogmartin, K Bagstad, D Semmens & J Diffendorfer. Collaborating US Fish & Wildlife Service Scientist: J Dubovsky.
- 2013 U.S. Fish & Wildlife. Incentives for large landscape conservation: ranching and jaguars. **\$330,086**. PI: S Bonar. Co-PIs: L López-Hoffman & G Ruyle. Senior Personnel: **AM Lien**.
- 2012 Desert Landscape Conservation Cooperative. Supporting Watershed Management Planning for People and the Environment in the Desert Landscape Conservation Cooperative Region: A Demonstration in the Upper Gila River Watershed. Water Resources Research Center, University of Arizona. **\$150,000**. PI: S Megdal. Senior Personnel: **AM Lien**, K Mott Lacroix.
- 2010 Natural Resources Conservation Service. Cooperative Conservation Partnership Initiative Agreement: Bay Bank Nutrient Management. Pinchot Institute for Conservation. **\$450,000**. Project Manager: **AM Lien**.

STATE GRANTS

- 2012 Water, Environment, and Energy Solutions, The University of Arizona. Cost Share Grant: Supporting Watershed Management Planning for People and the Environment in the Desert Landscape Conservation Cooperative Region: A Demonstration in the Upper Gila River Watershed. Water Resources Research Center, University of Arizona. **\$7,000**. PI: S Megdal. Senior Personnel: **AM Lien**, K Mott Lacroix.

PRIVATE FOUNDATION GRANTS

- 2012 Walton Family Foundation. Implementation of Innovative Approaches to Securing Water for the Environment. Water Resources Research Center, University of Arizona. **\$138,000** (Renewed in 2013 and 2014).

- 2010 United States Endowment for Forestry and Communities. Protecting Drinking Water Sources in the Upper Delaware River Basin. Pinchot Institute for Conservation. **\$1,900,000.**
- 2010 William Penn Foundation. Regional Dialogue on Hydraulic Fracturing in the Delaware River Watershed. Pinchot Institute for Conservation. **\$55,000.**
- 2010 Heinz Endowments. Regional Dialogue on Hydraulic Fracturing in the Delaware River Watershed. Pinchot Institute for Conservation. **\$50,000.**
- 2010 Nestle Waters North America. Regional Dialogue on Hydraulic Fracturing in the Delaware River Watershed. Pinchot Institute for Conservation. **\$5,000.**
- 2009 William Penn Foundation. Common Waters Partnership Development. Pinchot Institute for Conservation. **\$80,000.**

ACADEMIC CONFERENCES AND SCHOLARY PRESENTATIONS

CONFERENCES AND WORKSHOPS ORGANIZED

- 2015 Sustaining Ranching, Supporting Conservation: An Interactive Workshop for Ranchers in Southern Arizona. February 3, February 10, and March 12, 2015.
- 2013 Investment Strategies to Restore Arizona Forests and Watersheds. October 3-4, 2013. Phoenix, AZ. Member of conference organizing committee.

INVITED SEMINARS AND PRESENTATIONS

- 2017 **Lien, AM**, G Ruyle, N Robbins-Sherman, K Libby, L López-Hoffman. Impacts of Adaptive Management on Southwestern Rangelands. *Arizona Section of the Society of Range Management Winter Meeting*. January 5, 2017. Tucson, AZ.
- 2014 **Lien, AM**. Ecosystem Services and Endangered Species. University of Arizona College of Science Science Café. October, 9, 2014. Tucson, AZ.
- 2014 **Lien, AM**. Ecosystem Goods and Services: The Link Between Healthy Lands and Healthy Communities. *White Mountains Grassland and Forest Ecosystem Restoration Conference and Field Tour*. August 14-15, 2014. Show Low, AZ.
- 2013 **Lien, AM**. Market-based Restoration: Mitigation Banking and Biodiversity Credits. *Investment Strategies to Restore Arizona Forests and Watersheds*. October 3-4, 2013. Phoenix, AZ.
- 2013 **Lien, AM**. Emerging Innovations in Forest and Watershed Conservation. *Investment Strategies to Restore Arizona Forests and Watersheds*. October 3-4, 2013. Phoenix, AZ.
- 2013 **Lien, AM**. Collaborative Approaches to Watershed Management. *Arizona Association of Natural Resources Conservation Districts Annual Meeting*. August 27, 2013. Sierra Vista, AZ.
- 2013 **Lien, AM**. Collaborative Approaches to Payment for Ecosystem Services. Arizona Cooperative Extension and Arizona Land and Water Trust *Ranching into the Future Workshop*. January 22, 2013. Patagonia, AZ.
- 2012 **Lien, AM**, JB Nadeau, C Rupprecht, and SB Megdal. Linking Water Users with the Environment: Conserve to Enhance and Common Waters Fund. *Carpe Diem West Healthy Headwaters Workgroup*. April 26, 2012. Phoenix, AZ.

- 2012 **Lien, AM.** Ecosystem Markets and Water: Bay Bank, Common Waters Fund, and Conserve to Enhance. *Colorado Conservation Exchange*. March 5, 2012. Fort Collins, CO.
- 2012 **Lien, AM.** Emerging Water Supply Issues: Climate Change, Water Scarcity, and Demand Imbalance. *National Association of Environmental Management Corporate Sustainability Conference*. March 7-8, 2012. Atlanta, GA.
- 2012 **Lien, AM,** JB Nadeau, C Rupprecht, and SB Megdal. Conserve to Enhance: Linking Water Conservation to the Environment. Webinar. *Environmental Protection Agency WaterSense Program*. February 23, 2012. Washington, DC.
- 2011 **Lien, AM,** JB Nadeau, C Rupprecht, and SB Megdal. Water Efficiency: Environment or Growth? Panel. *WaterSmart Innovations Conference*. October 4-7, 2011. Las Vegas, NV.
- 2010 **Lien, AM.** The Common Waters Partnership and Fund. *Water Resources Association of the Delaware River Basin Annual Conference*. October 26, 2010. Lake Wallenpaupak, PA.
- 2010 **Lien, AM,** E Sprague, and W Price. Bay Bank: The Chesapeake's Ecosystem Marketplace. *Maryland Association of Soil Conservation Districts Annual Conference*. July 27-28, 2010. Solomons Island, MD.
- 2009 **Lien, AM,** E Sprague, and W Price. Bay Bank: The Chesapeake's Ecosystem Marketplace. *Maryland Land Trust Alliance Annual Conference*. May 19, 2009. National Wildlife Visitor Center, Laurel, MD.

CONTRIBUTED CONFERENCE PRESENTATIONS

- 2017 **Lien, AM,** G Ruyle, N Robbins-Sherman, K Libby, L López-Hoffman. Bringing Dark Data into the Light: Mining US Forest Service Records for Trends in Management and Ecological Change. *Society of Range Management Annual Meeting*. January 30-February 2, 2017. St. George, UT.
- 2017 **Lien, AM,** G Ruyle, N Robbins-Sherman, K Libby, L López-Hoffman. Measuring Ecosystem Services Provided by Adaptive Management on Southwestern Rangelands. *Society of Range Management Annual Meeting*. January 30-February 2, 2017. St. George, UT.
- 2016 **Lien, AM,** G Ruyle, and L López-Hoffman. A multi-method analysis of rancher attitudes toward endangered species conservation in the southwestern United States. *Society of Range Management Annual Meeting*. January 31-February 4, 2016. Corpus Christi, TX.
- 2016 **Lien, AM,** G Ruyle, and L López-Hoffman. The land ethic as a core value of the southern Arizona ranching community: a Q-methodology study. *Society of Range Management Annual Meeting*. January 31-February 4, 2016. Corpus Christi, TX.
- 2015 **Lien, AM &** L López-Hoffman. Ecosystem Services in the Context of the Anthropocene. *Ecological Society of America Annual Conference*. August 10-13, 2015. Baltimore, MD.
- 2015 **Lien, AM,** R Balam Castro Torres, L López-Hoffman, C Reynoso, and E Schlager.. A rules-based classification of payment for ecosystem services programs. *International Association for the Study of the Commons Biennial Conference*. May 25-30, 2015. Edmonton, Alberta, Canada.
- 2014 **Lien, AM,** R Balam Castro Torres, C Reynoso, L Lopez Hoffman, and E Schlager.. Understanding Institutional Designs of Payment for Ecosystem Services Programs. *A Community on Ecosystem Services*. December 7-12, 2014. Washington, DC.
- 2014 **Lien, AM,** W Price, and S Dalke. Designing Payment for Watershed Services Programs. *American Associations for Geographers*. April 7-12, 2014. Tampa, FL.

- 2011 Megdal, SB, **AM Lien**, JB Nadeau, and C Rupprecht. Conserve to Enhance: Linking Water Conservation to the Environment. *American Water Resources Association*. November 7-10, 2011. Albuquerque, NM.
- 2010 **Lien, AM**. The Common Waters Partnership and Fund *American Water Resources Association*. November 1-4, 2010. Philadelphia, PA.

POSTER PRESENTATIONS

- 2015 **Lien, AM**, C Svancara, G Ruyle, and L López-Hoffman. Ranching, Jaguars, and Large Landscape Conservation. Invited poster at: *Graduate Interdisciplinary Programs Student Research Showcase*. December 10, 2015, Tucson, AZ
- 2012 **Lien, AM** and L Shipek. Conserve to Enhance: a tool for linking green infrastructure, water conservation, and consumer education Poster. *Arid Low Impact Development Conference*. March 27-29, 2012, Tucson, AZ.
- 2012 **Lien, AM**, JB Nadeau, C Rupprecht, and SB Megdal. Conserve to Enhance: Linking Water Conservation to the Environment. Poster. May 1-5, 2012. *Madrean Archipelago Conference*, Tucson, AZ.

TEACHING

- 2017 Instructor, Sustainable Food, Conservation, and Agriculture in the Southwest. Undergraduate seminar. Spring 2017. University of Arizona.
- 2017 Graduate Teaching Assistant, Natural Resources Policy and Law. Undergraduate seminar. Spring 2017. University of Arizona.
- 2016 Graduate Teaching Assistant, Natural Resources Policy and Law. Undergraduate seminar. Spring 2016. University of Arizona.
- 2014 Graduate Teaching Assistant, Ecosystem Services: Science and Policy. Undergraduate seminar. Fall 2014. University of Arizona.
- 2002-2003 Teaching Assistant, Physical Geology Lab. Willamette University.
- 2000-2003 Peer Writing Tutor, The Writing Center. Willamette University.

ACADEMIC SERVICE

- 2016 Peer Reviewer, *Conservation Letters*
- 2015 Appointed Student Member, Arid Lands Resource Sciences Graduate Interdisciplinary Program Academic Performance Review Committee
- 2014 Travel Grant Judge, University of Arizona Graduate and Professional Student Council
- 2010 Grant Referee/Peer Reviewer, National Fish and Wildlife Foundation Delaware River Estuary Grants Program

COMMUNITY SERVICE

- 2015-2017 Appointed Member, Tucson-Pima County, Arizona Bicycle Advisory Committee
- 2009-2011 Appointed Member, Arlington County, Virginia Environment and Energy Conservation Commission
- 2009-2011 Appointed Member, Arlington County, Virginia Bicycle Advisory Committee

- 2006-2007 Elected Board Member, Arizona Planning Association Southern Section
- 2006-2007 Elected Student Representative, Arizona Planning Association State Board
- 2002-2003 Co-President, Environmental Community Outreach Society, Willamette University