

Curriculum Vitae

Aaron M. Lien
School of Natural Resources and the Environment
The University of Arizona
1064 E Lowell St.
Tucson, AZ 85721
520-626-2873
alien@arizona.edu
www.aaronmlien.com

CHRONOLOGY OF EDUCATION

- Ph.D. 2017 **The University of Arizona**, Arid Lands Resource Sciences Graduate Interdisciplinary Program
Dissertation: Incentives for Ecosystem Services on Rangelands: Institutional Design and Stakeholder Attitudes.
- 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.

CHRONOLOGY OF EMPLOYMENT

- 2022 - Present Interim Director of Graduate Studies, Natural Resources Studies, School of Natural Resources and the Environment, The University of Arizona
- 2020 - Present Assistant Professor of Rangeland Ecology and Adaptive Management, School of Natural Resources and the Environment, The University of Arizona
- 2020 - Present Faculty Associate, Udall Center for Studies in Public Policy, The University of Arizona
- 2020 - Present Affiliated Faculty, Bridging Biodiversity and Conservation Science, Arizona Institutes for Resilience, The University of Arizona
- 2017 - 2020 Assistant Research Scientist, School of Natural Resources and the Environment, The University of Arizona
- 2017 - 2020 Post-Doctoral Research Scientist, Bridging Biodiversity and Conservation Science, The University of Arizona
- 2013 - 2017 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, Washington, DC
- 2007 - 2008 Conservation Stewardship Consultant, Rincon Institute, Tucson, AZ
- 2006 - 2008 Graduate Research Assistant, Water Resources Research Center, The University of Arizona
- 2004 - 2006 Program Coordinator, National Council for Science and the Environment, Washington, DC

HONORS AND AWARDS

- 2022 Outstanding Scholarly Achievement by Faculty, School of Natural Resources and the Environment
- 2016 The University of Arizona Graduate Fellowship, Fall and Spring Semesters.

- 2015 First Place, Arid Lands Resource Sciences 3 Minute Research Presentation Challenge.
- 2015 The University of Arizona Graduate Fellowship, Fall and Spring Semesters.
- 2014 Rachel Carson Fellowship, Institute of the Environment, The University of Arizona, 2014-2015.
- 2014 The University of Arizona Graduate Fellowship, Fall and Spring Semester.
- 2014 The University of Arizona Graduate Interdisciplinary Tuition Scholarship, Spring Semester.
- 2013 The University of Arizona Graduate Fellowship, Fall Semester.
- 2008 Central Arizona Project Award for Water Research, First Place.
- 2007 Arizona Planning Association Graduate Scholarship.
- 2007 Urban Land Institute Arizona Sustainable Development Scholarship.

SERVICE AND OUTREACH

Local/State Service and Outreach since 2020

- 2022 Organizer, Range and Forest Management: Back to Basics. Rancher Heritage Alliance and Arizona Cooperative Extension. April 21, 2022.
- 2022 - Present University representative, Society for Range Management Arizona Section
- 2021 - Present Treasurer, Society for Range Management Arizona Section

National/International Service and Outreach

Advisory and Technical Working Group Membership since 2020

- 2023 - Present Member, Rangeland Education Council
- 2022 - Present Member, Grazing Principles Advisory Group, Colorado State University
- 2022 - Present Rangeland Cup Student Competition Coach, Society for Range Management Annual Conference
- 2021 - Present Member, American Southwest Carbon Marketplace Working Group, Biophilia Foundation
- 2021 - Present Advisor, Conservation Effects Assessment Program – Grazing Lands, Natural Resources Conservation Service
- 2021 - 2022 Member, Artificial Light at Night Working Group, Dark and Quiet Skies for Sciences and Society Working Groups
- 2020 - Present Member, Working Group on the Governance of Taxonomic Lists, International Union for Biological Sciences

Proposal Reviews since 2020

- 2023 Panel member, National Science Foundation, Dynamics of Integrated Social Environmental Systems program
- 2022, 2023 Rachel Carson Fellowship Selection Committee, Arizona Institutes for Resilient Environments and Society, University of Arizona
- 2022 Ad Hoc Reviewer, National Science Foundation, Human Environment and Geographical Sciences Program
- 2021 Ad Hoc Reviewer, National Science Foundation, Law and Science Program

Journal Editorial Boards since 2020

- 2020 - Present Subject-matter Editor, Coupled Natural Human Systems, *Ecosphere*
- 2018 - 2022 Associate Editor, *Rangeland Ecology and Management*

Manuscript Peer Reviewer

Conservation Letters, Society and Natural Resources, Biological Conservation, Policy Studies Journal, Restoration Ecology, Conservation Biology, Ecology and Society, International Review of Public Policy, Environmental Research Letters, Environmental Research Communications, International Journal of the Commons

Organization of Symposia at National and International Conferences since 2020

- 2021 New perspectives to inform responses to invasive plant species on rangelands. Symposium, 2021 Society of Range Management Annual Conference. February 15-18, 2021. Online.
- 2020 Working together to find solutions for invasive species management: getting mitigation on-the-ground across ownerships. Symposium, 2020 Society of Range Management Annual Conference. February 17-20. Denver, CO.

Professional Society Memberships

2016 – Present Society for Range Management

Academic Committees at UArizona since 2020

- 2022 Member, Arid Land Ecologist Search Committee, EMRR, School of Natural Resources and the Environment
- 2021 - Present Member, School of Natural Resources and the Environment SPFI Committee
- 2020 - Present Member, School of Natural Resources and the Environment Natural Resources Studies Committee
- 2020 – 2021 Member, School of Natural Resources and the Environment Curriculum Committee

TEACHING, ADVISING, AND MENTORSHIP

Courses Taught

- Fall 2022 Instructor: RNR200: Conservation of Natural Environments. 3-Unit undergraduate course. 92 students.
- Spring 2022 Instructor: RAM382: Rangeland Plant Communities of Western North America. 3-Unit undergraduate course and lab. 62 students.

Post-Doctoral Fellows Mentored

2021-2022 Danielle McLaughlin – Currently tenure-track faculty at Kent State University

Graduate Students Advised

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|-----------|--------------------|--|
| 2021-2026 | Elena Dosamantes | Major Advisor, PhD, Ecology, Management, and Restoration of Rangelands |
| 2021-2026 | Nizhoni Tallas | Major Advisor, PhD, Natural Resources Studies |
| 2021-2023 | Cameron Burleson | Major Advisor, MS, Natural Resources Studies |
| 2022-2024 | Blaze Smith | Committee Member, MS Natural Resources Studies |
| 2022-2027 | Dari Duval | Committee Member, PhD, Natural Resources |
| 2021-2023 | Ashley Stava | Committee Member, MS, Natural Resources Studies |
| 2021-2022 | Alex Binford-Walsh | Committee Member, MS, Natural Resources |

Undergraduate Student Research Experiences since 2020

2022	Marie Frackiewicz	Natural Resources
2022	Amy Heiling	Natural Resources
2022	Ava Hamstead	Natural Resources
2022	Kate Richter	Natural Resources
2022	Alexia Smith	Natural Resources
2022	Paige Satterfield	Natural Resources
2022	Kaitlyn Tyler	Natural Resources
2022	Kate Walker	Natural Resources
2022	Sawyer Theis	GIST
2021-2022	Bailie Wynbelt	Natural Resources
2020-2022	Alex Ponce	Political Science/Economics

Other Mentoring since 2020

2022	Sara Leopold	TA Supervisor/Mentor, RNR200
2022	Cameron Burluson	TA Supervisor/Mentor, RAM382
2022	Wyatt Philabum	TA Supervisor/Mentor, RAM382

PUBLICATIONS

Since 2020: 17 journal articles, with 5 articles as first or last author and one sole author.

**Indicates work substantially undertaken as a part of graduate degrees; Underline indicates undergraduate, graduate, or post-doctoral mentees.*

Refereed Journal Articles

30. Emerson, K, E Baldwin, T Scott, JR Pidot, **AM Lien**, F Currim, S Bethard, S Ram, ML Miller, L López-Hoffman. 2022. Toward NEPA performance: A framework for assessing EIAs. *Environmental Impact Assessment Review*.
29. Chester, C, **AM Lien**, J Sundberg, JE Diffendorfer, C Gonzalez, BJ Mattsson, RA Medellín, DJ Semmens, WE Thogmartin, L López-Hoffman. 2022. Using ecosystem services to identify inequitable outcomes in migratory species conservation. *Conservation Letters*.
28. Baldwin, E, DM McLaughlin, V Jasso, D Woods, DD Breshears, L López-Hoffman, JR Soto, A Swann, **AM Lien**. 2022. Diverse stakeholders and their interests matter to the US Forest Service: a network of action situations analysis of how stakeholder affect forest plan outcomes. *Sustainability Science*.
27. Feng, X, BJ Enquist, DS Park, B Boyle, DD Breshears, RV Gallagher, **AM Lien**, E Newman, JR Burger, BS Maitner, Y Li, KM Huynh, K Ernst, E Baldwin, S Echeverría-Londoño, W Foden, L Hannah, PM Jørgensen, NJB Kraft, JC Lovett, PA Marquet, BJ McGill, C Merow, N Morueta-Holme, DM Neves, MM Núñez-Regueiro, AT Oliveira-Filho, RK Peet, M Pillet, P Roehrdanz, B Sandel, JM Serra-Diaz, I Šimová, J Svenning, C Violle, TD Weitmier, S Wiser, L López-Hoffman. 2022. A review of the heterogeneous landscape of biodiversity databases: opportunities and challenges for a synthesized biodiversity knowledge base. *Global Ecology and Biogeography*.
26. Thogmartin, W, M Haefele, J Diffendorfer, D Semmens, J Derbridge, **AM Lien**, T Huang, L Lopez-Hoffman. 2022. Multi-species, multi-country analysis reveals North Americans are willing to pay for transborder migratory species conservation. *People and Nature*.
25. Wilder, B.T. , Jarnevich, C., Baldwin, E., Franklin, K.A., Grissom P., Hovanes, K., Kibria, A.S.M.G., **Lien, AM.**, Olsson, A., Ponce A., Malusa J., Li Y.M., Lin Y.C., Rowe, J.A., Stahl, M., Soto J., Black, J.S., Young, N., Betancourt, J.L. 2021. Grassification and

- fast-evolving fire connectivity and risk in the Sonoran Desert, USA. *Frontiers of Ecology and Environment*.
24. Feng, X, C Merow, B Maitner, DS Park, P Roehrdanz, Z Liu, E Newman, B Boyle, **AM Lien**, JR Burger, MM Pires, PM Brando, MB Bush, CNH McMichael, DM Neves, L Hannah, DD Breshears, T Evans, JR Soto, K Ernst, BJ Enquist. 2021. The increasing impact of Amazonian fires on biodiversity accelerates in 2019. *Nature*.
 23. **Lien, AM, T Dew**, G Ruyle, N Robbins Sherman, N Perozzo, M Miller, L López-Hoffman. 2021. Trust is essential to implementation of adaptive management on public lands. *Rangeland Ecology and Management*.
 22. **Lien, AM**, E Baldwin, K Franklin. 2021. Collective action and invasive species governance in southern Arizona. *Rangeland Ecology and Management*.
<https://doi.org/10.1016/j.rama.2020.10.004>
 21. **Lien, AM**, S Conix, FE Zachos, L Christidis, P van Dijk, OS Bánki, SK Barik, JS Buckeridge, MJ Costello, D Hobern, N Montgomery, S Nikolaeva, RL Pyle, K Thiele, SA Thomson, Z Zhang, ST Garnett. 2021. Towards a universal list of accepted species IV: Overcoming fragmentation in the governance of taxonomic lists. *Organisms, Diversity and Evolution*.
 20. Johnson, MK, MJ Rowe, **AM Lien**, L López-Hoffman. 2021. Enhancing integration of Indigenous agricultural knowledge into USDA Natural Resources Conservation Service cost-share initiatives. *Journal of Soil and Water Conservation*.
 19. K Thiele, S Conix, RL Pyle, SK Barik, L Christidis, MJ Costello, P van Dijk, P Kirk, **AM Lien**, SA Thomson, FE Zachos, Z Zhang, ST Garnett. 2021. Towards a global list of accepted species I. Why taxonomists sometimes disagree, and why this matters. *Organisms, Diversity and Evolution*.
 18. Conix, S, ST Garnett, KR Thiele, L Christidis, P van Dijk, OS Bánki, SK Barik, JS Buckeridge, MJ Costello, D Hobern, **AM Lien**, S Nikolaeva, RL Pyle, SA Thomson, Z Zhang, FE Zachos. 2021. Towards a global list of accepted species III: Independence and stakeholder inclusion. *Organisms, Diversity and Evolution*.
 17. Pyle, RL, SK Barik, L Christidis, S Conix, MJ Costello, P van Dijk, ST Garnett, D Hobern, PM Kirk, **AM Lien**, TM Orrell, SA Thomson, N Wambiji, FE Zachos. 2021. Towards a global list of accepted species V: The devil is in the details. *Organisms, Diversity and Evolution*.
 16. **Lien, AM**. 2020. The Institutional Grammar Tool in Policy Analysis and Applications to Resilience Research. *Current Opinion in Environmental Sustainability*.
<https://doi.org/10.1016/j.cosust.2020.02.004>
 15. Epstein, G, TH Morrison, **AM Lien**, GG Gurney, D Cole, M Delaroche, S Villamayor Tomas, NC Ban, M Cox. 2020. Historical legacies and the diagnosis of complex social-ecological systems. *Current Opinion in Environmental Sustainability*.
 14. Garnett, ST, L Christidis, S Conix, MJ Costello, FE Zachos, OS Bánki, Y Bao, S Barok, JS Buckeridge, D Hobern, **AM Lien**, N Montgomery, S Nikolaeva, RL Pyle, SA Thomson, PP van Dyck, A Whalen, Z-Q Zhang, K Thiele. 2020. Principles for creating a single authoritative list of the world's taxa. *PLOS Biology*.
 13. ***Lien, AM**, C Svancara, W Vanasco, G Ruyle, S Bonar, and L López-Hoffman. 2019. Opportunities and barriers for endangered species conservation using payments for ecosystem services. *Biological Conservation*. doi.org/10.1016/j.biocon.2019.01.017
 12. Haefele, M, J Loomis, **AM Lien**, JA Dubovsky, R Merideth, K Bagstad, T Huang, B Mattsson, D Semmens, W Thogmartin, R Wiederholt, J Diffendorfer, L López-Hoffman. 2019. Multi-Country Willingness to Pay for Transboundary Migratory Species Conservation: A Case Study of Northern Pintails. *Ecological Economics*.

11. Bethard, S, E Laparra, S Wang, Y Zhao, R Al-Ghezi, **AM Lien**, L López-Hoffman. Inferring missing metadata from environmental policy texts. June 2019, *Workshop on Language Technologies for the Socio-Economic Sciences and Humanities*. Minneapolis, MN.
10. ***Lien, AM**, A Lona, and E Schlager. 2018. Using institutional grammar to improve understanding of the form and function of payment for ecosystem services programs. *Ecosystem Services*. doi.org/10.1016/j.ecoser.2018.03.011
9. ***Lien, AM**, G Ruyle, L López-Hoffman. 2018. Q Methodology: A method for understanding complex viewpoints in communities served by Cooperative Extension. *Journal of Extension*
8. Johnson, M, **AM Lien**, L López-Hoffman. 2018. Barriers associated with the Environmental Quality Improvement Program: Case study on the Hopi Indian Reservation. *Ecosystem Services*. doi.org/10.1016/j.ecoser.2018.05.009
7. Loomis, J, M Haefele, J Dubovsky, **AM Lien**, WE Thogmartin, J Diffendorfer, D Humburg, K Bagstad, BJ Mattsson, L López-Hoffman, R Merideth, and D Semmens. 2018. Do economic values and expenditures for viewing waterfowl in the U.S. differ among species? *Human Dimensions of Wildlife*. doi.org/10.1080/10871209.2018.1496371
6. Haefele, M, J Loomis, R Merideth, **AM Lien**, J Dubovsky, WE Thogmartin, J Diffendorfer, D Humburg, K Bagstad, BJ Mattsson, R Wiederholt, D Semmens, and L López-Hoffman. 2018. Willingness to Pay for Conservation of Transborder Migratory Species: A Case Study of the Mexican Free-tailed Bat in the United States and Mexico. *Environmental Management*. doi.org/10.1007/s00267-018-1046-1
5. ***Lien, AM**, C Svancara, W Vanasco, G Ruyle, and L López-Hoffman. 2017. The land ethic of ranchers: a core value despite divergent views of government. *Rangeland Ecology and Management*. doi.org/10.1016/j.rama.2017.06.004
4. ***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.org/10.1016/j.rala.2015.05.002
3. 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.org/10.1016/j.rala.2015.05.003
2. ***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>
1. **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>

Scholarly Book Chapters or Reports

8. Artificial Light at Night Working Group. 2021. Dark and Quiet Skies for Sciences and Society Working Group Reports.
7. Brady, U, X Basurto, A Bennett, DP Carter, J Hanlon, T Heikkila, **AM Lien**, S Miller Chonaiew, T Olivier, E Schlager, S Siddiki, C Weible. 2018. Institutional analysis of rules-in-form coding guidelines. CBIE Working Paper Servies No. 2018-006: Center for Behavior, Institutions, and the Environment, Arizona State University. https://complexity.asu.edu/sites/default/files/papers/cbie_wp_2018-006_0.pdf

6. 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)
5. 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.
4. **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)
3. ***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.
2. Megdal, SB and ***AM Lien**. 2008. *Tucson Regional Water Planning Perspectives Study*. University of Arizona: Water Resources Research Center. (wrrc.arizona.edu).
1. 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).

Peer Reviewed Conference Proceedings

4. **Lien, AM**. Institutional design of water quality trading programs: rules, action situations, and program effectiveness. Conference paper accepted for the Workshop on the Ostrom Workshop, June 2019.
3. **Lien, AM** & E Baldwin. How and when does polycentric governance emerge? Institutional development in invasive species governance. Conference paper accepted for the Workshop on the Ostrom Workshop, June 2019.
2. **Lien, AM**, E Baldwin, J Soto, L López-Hoffman, A Swann, DD Breshears. Environmental governance strategies for a teleconnected world. Conference paper accepted for the 5th Annual Conference on Environmental Politics and Governance, June 2019.
1. **Lien, AM** & E Baldwin. How and when does polycentric governance emerge? Institutional development in invasive species governance. Conference paper accepted for the Western Political Science Association Conference, April 2019.

Congressional Testimony

1. Pidot, J, S Bethard, K Emerson, B Kim, **AM Lien**, M Miller, S Ram, L López-Hoffman. 2020. Testimony to Senate Committee on Environment and Public Works hearing: “Better, Faster, Cheaper, Smarter, and Stronger: Infrastructure Development Opportunities to Drive Economic Recovery and Resiliency.” July 1, 2020.

Popular Publications and Creative Works

7. López-Hoffman, L, **AM Lien**, and A Swann. America’s 2019 harvest is already in trouble. Contributed op-ed. *The Hill*.
6. Anderson, S, B Francis, **AM Lien** & L López-Hoffman. NEPAAccess: the Undergraduate Team. Short video starring the UA undergraduates involved in creating the NEPAAccess platform. <https://vimeo.com/514047784>
5. Anderson, S, B Francis, **AM Lien** & L López-Hoffman. NEPAAccess: Explained by the Undergraduate Team. Short video where the UA undergraduates involved in creating the

NEPAAccess platform explain what the project is all about and the team involved.

<https://vimeo.com/508049098>

4. Derbridge, JJ, MR Stahl, JC Jackson, P Mirocha, Anderson, S, B Francis, **AM Lien** & L López-Hoffman. NEPA the next 50. A 2-minute version of the short animated film about NEPAAccess, a cutting-edge knowledge platform that uses data science to provide public access to all NEPA documents, and analysis tools that transform the potential for understanding environmental governance in the US. <https://vimeo.com/510886460>
3. Derbridge, JJ, MR Stahl, JC Jackson, P Mirocha, Anderson, S, B Francis, **AM Lien** & L López-Hoffman. NEPA the next 50. A short animated film about NEPAAccess, a cutting-edge knowledge platform that uses data science to provide public access to all NEPA documents, and analysis tools that transform the potential for understanding environmental governance in the US.
2. **Lien, AM**. 2018. Large Landscape Conservation. *Global Rangelands*. Available at: www.globalrangelands.org.
1. ***Lien, AM**, G Ruyle, and L López-Hoffman. 2017. What we've learned about public lands stewardship. *Arizona Cattlelog*.

CONFERENCES AND SCHOLARY PRESENTATIONS

Invited Regional, National, and International Presentations Since 2020

6. Seventh Annual Mining Law Summit, Tucson, AZ, "Invited panelist: Challenges in Domestic Environmental Compliance." November 10, 2022.
5. Research Insights in Semi-Arid Ecosystems. Tucson, AZ, "Of two minds? Public preferences for buffelgrass management," **Lien, AM**, DM McLaughlin, H Cheng, A Ponce, E Baldwin, A Henry, E Gornish, J Soto. November 5, 2022.
4. National Academies of Science, Engineering, and Medicine Board on International Scientific Organizations, "Governance principles for a single authoritative list of life on Earth," **Lien, AM**, S Conix, FE Zachos, L Christidis, P van Dijk, OS Bánki, SK Barik, JS Buckeridge, MJ Costello, D Hobern, N Montgomery, S Nikolaeva, RL Pyle, K Thiele, SA Thomson, Z Zhang, ST Garnett. November 15, 2021.
3. Institutional Grammar Research Institute Seminar, "Design of a national database of state and local COVID-19 policies using the institutional grammar," **Lien, AM**, A Boustead, E Baldwin, N Joshi, L McCann, T Evans. November 2, 2021.
2. Workshop on Dark & Quiet Skies, "Governance approaches for regional light pollution: an introduction to three models of governance," October 3-7, 2021.
1. Arizona Cooperative Extension Virtual Range Livestock Workshop, "Rangelands Gateway: Public Lands and NEPA," **Lien, AM**, B Hutchinson, L Howrey. March 10, 2021.

Contributed Conference Presentations Since 2020

9. **AM Lien**, E Baldwin, A Henry, E Gornish. Mind the gap: citizen preferences and motivations for invasive plant management. *Society for Range Management Annual Conference*. February 13-16, 2023. Boise, ID.
8. Dosamantes, E, E Baldwin, A Henry, E Gornish, **AM Lien**. In the weeds: a review and synthesis of invasive species governance. *Society for Range Management Annual Conference*. February 13-16, 2023. Boise, ID.
7. Burleson, C, G Ruyle, L Lopez-Hoffman, **AM Lien**. Long-term adaptive management trends on USFS Region 3 grazing allotments. *Society for Range Management Annual Conference*. February 13-16, 2023. Boise, ID.

6. Burleson, C, G Ruyle, L Lopez-Hoffman, **AM Lien**. Identifying adaptive management trends in USFS management documents. *Society for Range Management Annual Conference*. February 7-10, 2022. Albuquerque, NM.
5. Rowitt, J, N Joshi, L McCann, A Zimmer, E Baldwin, A Boustead, **AM Lien**, & T Evans. Rural vs. urban differences in COVID-19 non-pharmaceutical interventions. *American Public Health Association Annual Meeting*. October 24-27, 2021. Online.
4. Baldwin, E, A Henry, **AM Lien**, J Jia. Environmental contingency and network effectiveness. *Public Management Research Conference*. June 23-25, 2021. Online.
3. **Lien, AM**, E Baldwin, V Jasso, David Woods, L Lopez-Hoffman, D Breshears. Networks of action situations: an empirical application to forest planning. *International Associations for the Study of the Commons, Polycentricity Virtual Conference*. May 17-19, 2021. Online.
2. **Lien, AM**, E Baldwin, K Franklin. Collective action and invasive species governance in southern Arizona. *Society of Range Management Annual Conference*. February 15-17, 2021. Online.
1. **Lien, AM** and E Baldwin. Cooperation and collective action for buffelgrass mitigation in southern Arizona. *Society of Range Management Annual Conference*. February 17-20, 2020. Denver, CO.

Poster Presentations Since 2020

2. Dosamantes, E, **AM Lien**. A systematic review of invasive species governance. *Society of Range Management Annual Conference*. February 8-10, 2022. Albuquerque, NM.
1. **Lien, AM**, E Dosamantes, J Conley, B Hutchinson, L Howery, G Ruyle, S Noelle, J Pfander, A Brischke, J Grace, A Hall, K McReynolds, J Schlau. Exploring public lands grazing: redesigning the *Global Rangelands* website to effectively reach multiple audiences. February 17, 2020. *Society of Range Management Annual Conference*. Denver, CO.

Other Outreach Presentations and Activities Since 2020

5. **Lien, AM**, L Lopez-Hoffman, G Ruyle. Can implementation of adaptive management reduce conflict? *Range and Forest Management: Back to Basics, Rancher Heritage Alliance*. April 21, 2022.
4. Burleson, C, G Ruyle, L Lopez-Hoffman, **AM Lien**. Identifying adaptive management trends in USFS management documents. *Range and Forest Management: Back to Basics, Rancher Heritage Alliance*. April 21, 2022
3. López-Hoffman, L, **AM Lien**, J Derbridge, K Emerson. 2021. Introduction to NEPAccess. Presentation to Council for Environmental Quality (CEQ), Executive Office of the President of the United States. March 15, 2021
2. López-Hoffman, L, **AM Lien**, J Derbridge, K Emerson. 2021. Introduction to NEPAccess. Environmental Protection Agency (EPA). March 16, 2021
1. López-Hoffman, L, **AM Lien**, J Derbridge, K Emerson. 2021. Introduction to NEPAccess. Bureau of Land Management. January 11, 2021

AWARDED GRANTS AND CONTRACTS

Total Awarded Since 2020 as PI/Co-PI: \$4,323,136

Total Current Awards as PI/Co-PI: \$5,773,136

Total Awarded Lifetime: \$11,727,222

Competitive Federal Grants Awarded Since 2020

- 2023 - 2027 “A future without fences? Optimizing animal and land management through applications of precision animal management on complex southwestern rangelands,” National Institute for Food and Agriculture Interdisciplinary Engagement in Animal Systems // **\$999,985**. PI (Co-PIs: J Beard, J Soto, G Ruyle).
- 2022 - 2024 “Collaborative Training for Virtual Fencing Implementation for Sustainable Rangeland Management under Environmental Uncertainty,” Western Sustainable Agriculture Research and Education Professional Development Program // **\$99,679**. PI (Co-PI: Joslyn Beard, UArizona).
- 2021 - 2026 “DISES: Governance Across Space: Discovering Principles of Equity and Sustainability to Conserve Migratory Species within Telecoupled Social Environmental Systems,” National Science Foundation Dynamics of Integrated Social Environmental Systems // **\$1,599,425**. Co-PI (PI L López-Hoffman, UArizona; Co-PIs J Diffendorfer, USGS; and J Derbridge, UArizona).
- 2020 - 2025 “CNH2-L: Solving grand challenges in coupled natural human systems: An integrated socio-ecological agent-based model to predict effective governance strategies for invasive species,” National Science Foundation Coupled Natural-Human Systems // **\$1,580,012**. Co-PI (PI E Baldwin, UArizona; Co-PIs E Gornish, UArizona, M McClaran, UArizona; A Henry, UArizona).
- 2018 - 2023 “CNH-L: Revealing the Hidden Eco-climate Teleconnections between Forest and Agriculture in the US Enables Novel Governance Strategies for a Telecoupled World,” National Science Foundation Coupled Natural-Human Systems // **\$1,450,000**. Co-PI (PI: D Breshears, UArizona; Co-PIs L López-Hoffman, UArizona; J Soto, UArizona; E Baldwin, UArizona).
Note: Transitioning to PI in 2023; elevated to Co-PI in 2020 when appointed to faculty position.

Other Grants Awarded since 2020

- 2021 - 2022 “Challenge Grant: Cyberinfrastructure for actionable policy science to address emerging social and ecological shocks,” Office of Research, Innovation, and Impact, University of Arizona. // **\$44,035**. PI (Co-PIs: E Baldwin, L Barraza, A Boustead, K Ernst, T Evans, J Osorio)

Competitive Federal Grants Under Review

- 2022 “Center for Arid Landscapes Resilience (CALR),” National Science Foundation Science and Technology Center // **\$29,997,673**. Senior Personnel (PI: J Chorover, UArizona; Co-PIs J Fields, UArizona; K Ogden, UArizona; K Bonine, UArizona; WK Smith, UArizona; E Gornish, UArizona).
- 2022 “NRT-HDR: CAMBIUM – Climate change Adaptation and Mitigation through Biodiversity Informatics edUcation and Mentoring,” National Science Foundation Research Traineeship // **\$2,999,889**. Co-PI (PI: M Barker, UArizona; Co-PIs B Enquist, UArizona; C Rock, UArizona; K Ernst, UArizona).

Competitive Federal Grants not awarded since 2020

- 2022 “NSF-SSRC: All health policy is local: assessing the causes and consequences of county public health policy during COVID,” National Science Foundation-Social Science Research Council // **\$369,196**. Co-PI (PI: A Boustead, UArizona; Co-PIs E Baldwin, UArizona; F Osoria Zago, UArizona; X Sun, UArizona).

- 2022 “Critically evaluating brush management as a tool for conserving above and belowground biodiversity in southwestern drylands,” National Science Foundation // **\$1,017,647**. Co-PI (PI: R Mitchell; Co-PIs E Gornish, UArizona; A Barbaran, UArizona)
- 2022 “Innovations in public participation: learning and diffusion of emerging technologies,” National Science Foundation // **\$398,814**. Co-PI (PI: A Gerlak)
- 2022 “From soil to snout: a workshop series to prepare ranchers and those who train them for drought resilience on southwestern rangelands,” Natural Resources Conservation Service // **\$203,524**. Co-PI (PI: E Gornish, UArizona; Co-PIs A Hall, UArizona; A Wright, UArizona; J Beard, UArizona)

Competitive Federal Grants Awarded at UArizona prior to 2020

- 2018 - 2021 “Collaborative Research: eNEPA—Harnessing the Power of Big Data to Catalyze Scholarly Inquiry and Transform Public Engagement with the National Environmental Policy Act,” National Science Foundation Resource Implementations for Data Intensive Research in the Social Sciences // **\$1,500,000**. Senior Personnel (PI: L López-Hoffman; Co-PIs: E Baldwin, UArizona; S Ram, UArizona; M Miller, UArizona; S Bethard, UArizona)
- 2015 - 2020 “Does adaptive management enhance ecosystem services and provide socio-economic benefits on Southwestern rangelands?” USDA-NIFA Bioenergy, Natural Resources and Environment (BNRE) program, Agroecosystem Management priority area // **\$439,000**. Senior Personnel (PI: L López-Hoffman, UArizona; Co-PIs G Ruyle and M Miller, UArizona)
- 2015 - 2020 “CNH: A telecoupling model to account for spatial subsidies of ecosystem services provided by transboundary migratory species in North America,” National Science Foundation // **\$850,000**. Senior Personnel (PI: L López-Hoffman)
- 2013 - 2016 “Incentives for large landscape conservation: ranching and jaguars,” U.S. Fish & Wildlife Service. // **\$330,086**. Senior Personnel (PI: S Bonar)
- 2012 - 2014 “Supporting Watershed Management Planning for People and the Environment in the Desert Landscape Conservation Cooperative Region: A Demonstration in the Upper Gila River Watershed. Desert Landscape Conservation Cooperative,” Desert Landscape Conservation Cooperative // **\$150,000**. Senior Personnel (PI: S Megdal)

Competitive Internal Grants at UArizona prior to 2020

- 2012 - 2014 “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.” TRIF-Water, Environment, and Energy Solutions, The University of Arizona // **\$7,000**. Senior Personnel (PI: S Megdal)

Competitive Private Foundation Grants at UArizona prior to 2020

- 2012 - 2015 “Implementation of Innovative Approaches to Securing Water for the Environment,” Walton Family Foundation // **\$138,000** (Renewed in 2013 and 2014). Project Director.

Competitive Private Foundation Grants at Other Institutions prior to 2020

- 2010 - 2015 “Cooperative Conservation Partnership Initiative Agreement: Bay Bank Nutrient Management,” Natural Resources Conservation Service. Pinchot Institute for Conservation // **\$450,000**. Project Director.
- 2010 - 2015 “Protecting Drinking Water Sources in the Upper Delaware River Basin,” United States Endowment for Forestry and Communities // **\$1,900,000**. Project Director.
- 2010 “Regional Dialogue on Hydraulic Fracturing in the Delaware River Watershed,” William Penn Foundation // **\$55,000**. Project Director.
- 2010 “Regional Dialogue on Hydraulic Fracturing in the Delaware River Watershed,” Heinz Endowments // **\$50,000**. Project Director.
- 2010 “Regional Dialogue on Hydraulic Fracturing in the Delaware River Watershed,” Nestle Waters North America // **\$5,000**. Project Director.
- 2009 “Common Waters Partnership Development,” William Penn Foundation // **\$80,000**. Project Director.