Dale T. Manning
August 2020

Office Phone: (970) 491-5706
Email: Dale.manning@colostate.edu

Colorado State University
Department of Agricultural and Resource Economics
B304 Clark Building
Colorado State University
Fort Collins, CO 80523

Education

Ph.D. Agricultural and Natural Resource Economics, UC-Davis, June 2013.
Dates: September 2008-June 2013
Thesis: Microeconomic Linkages between Natural Resource Sectors and Other Sectors in Developing Economies

BSBA University of North Carolina, Chapel Hill, 2005.
-Second major in Environmental Studies

Academic Employment

Assistant Professor, Department of Agricultural and Resource Economics, Colorado State University, August 2013-July 2019

Associate Professor, Department of Agricultural and Resource Economics, Colorado State University, August 2019-present

Other Professional Experience

Inter-American Development Bank Research Department Summer Dissertation Fellow, July-September, 2012.

Teaching Assistant, Economics of Development, Fall 2011, UC-Davis.

Teaching Assistant, Collaborative Learning on the Interface of Mathematics and Biology (NSF), Fall 2010-Summer 2011, UC-Davis.

National Science Foundation (NSF) Responding to Rapid Environmental Change IGERT Trainee, Fall 2008-Summer 2010, UC-Davis.

The Mountain Institute, Huaraz, Peru Summer Internship, Summer 2009.

International Monetary Fund (IMF), Asia-Pacific Department Research Assistant, 2007-2008.

Country Assistance and Technical Support, IMF, 2006.

Teaching and Research Fields

Primary: Natural Resource Economics, Development Economics, Environmental Economics
Secondary: Econometrics, Microeconomic Theory

Peer-Reviewed Publications

35) Manning, Dale T., Mani Rouhi Rad, Jordan Suter, Chris Goemans, Zaichen Xiang, and Ryan Baily (forthcoming). Non-Market Valuation in Integrated Assessment Modeling: The Benefits of Water Right Retirement. *Journal of Environmental Economics and Management*.

34) Brown, Jason, Peter Maniloff, and Dale Manning (forthcoming). Impact of Severance Tax on Drilling. *Journal of Environmental Economics and Management*. https://www.kansascityfed.org/~/media/files/publicat/reswkpap/pdf/rwp18-07.pdf?la=en.

33) Suter, Jordan, Mani Rouhi Rad, Dale Manning, Chris Goemans, and Matthew Sanderson (forthcoming). Groundwater Depletion, Climate, and the Incremental Value of Groundwater. *Resource and Energy Economics*.

32) Zhong, Hua, Michael Taylor, Kimberly Rollins, Dale Manning, and Chris Goemans (2019). Who Pays for Water Scarcity? Evaluating the Welfare Implications of Water Infrastructure Investments for Cities. *The Annals of Regional Science*. The Annals of Regional Science, 63(3), 559-600.

31) Opalinski, Nicole, Aditi Bhaskar and Dale T. Manning (2019). Response of Municipal Water Use to Weather across the Contiguous US, JAWRA. https://doi.org/10.1111/1752-1688.12801.

30) Trout, Thomas J. and Dale T. Manning (2019). An Economic and Biophysical Model of Deficit Irrigation. *Agronomy Journal*. doi:10.2134/agronj2019.03.0209

29) Simon Meunier, Dale T. Manning., Dan Zimmerle, Loic Queval, Judith Cherni, and Philippe Dessante (2019). Determinants of the marginal willingness to pay for improved domestic water and irrigation in partially electrified Rwandan villages. *International Journal of Sustainable Development and World Ecology*.

28) Maas, Alexander, Chris Goemans, Jesse Burkhardt, and Mazdak Arabe (2019). Complements of the House: Estimating Demand-side Linkages between Residential Water and Electricity, *Water Resources and Economics*. https://doi.org/10.1016/j.wre.2019.02.001

27) Mutyasira, Vine, Dana Hoag, Dustin Pendell, and Dale Manning (2018). Is Sustainable Intensification Possible? Evidence from Ethiopia. *Sustainability*.

26) Shepler, Ryan, Jordan Suter, Dale Manning, and Chris Goemans (2019). Private Actions and Preferences for Coordinated Groundwater Conservation in Colorado's Republican River Basin, *Journal of the American Water Resources Association*. https://doi.org/10.1111/1752-1688.12741

25) Hess, Joshua, Dale Manning, Terry Iverson, and Harvey Cutler (2019). Uncertainty, Learning, and Local Opposition to Hydraulic Fracturing. *Resource and Energy Economics*. https://doi.org/10.1016/j.reseneeco.2018.11.001

24) Manning, Dale, and Jordan Suter (2019). The Role of Well Capacity Constraints in Determining Gains from Groundwater Management. *Journal of Agricultural and Resource Economics*. DOI: 10.22004/ag.econ.281320

23) Mutyasira , Vine, Dana Hoag, Dale Manning, and Dustin Pendell (2018). Assessing the Relative Sustainability of Smallholder Farming Systems in Ethiopian Highlands, *Agricultural Systems*. https://doi.org/10.1016/j.agsy.2018.08.006

22) Lauer, Stephen, Matthew Sanderson, Dale Manning, Jordan Suter, Aaron Hrozencik*, Bridget Guerrero, Karina Schoengold, and Bill Golden (2018). Values and Groundwater Management in the Ogallala Aquifer Region. *Journal of Soil and Water Conservation.* doi: 10.2489/jswc.73.5.593

21) Behrer, A. Patrick, Dale T. Manning, and Andrew Seidl (2019). The Impact of Institutional and Land Use Change on Local Incomes in Chilean Patagonia." *Journal of Development Studies*. 55:2, 191-208, DOI: 10.1080/00220388.2017.1385766

20) Maniloff, Peter and Dale T. Manning (2018). State Severance Tax Competition and the Division of Natural Resource Rents. *Environmental and Resource Economics*.

19) Manning, Dale T., Salvador Lurbé, Louise H. Comas, Thomas J. Trout, Nora Flynn, and Steven J. Fonte (2018). Economic Viability of Deficit Irrigation in the Western US. *Agricultural Water Management* 196: 114-123.

18) Monger, Randall, Jordan F. Suter, Dale T. Manning, and Joel P. Schneekloth (2018). Retiring Land to Save Water: Participation in Colorado's Republican River Conservation Reserve Enhancement Program. *Land Economics* 94/1:36-51.

17) Manning, Dale T., J. Edward Taylor and James Wilen (2018). General Equilibrium Tragedy of the Commons. *Environmental and Resource Economics* 69/1: 75-101.

16) Jessoe, Katrina, Dale T. Manning, and J. Edward Taylor (2018). Climate Change and Labor Allocation in Mexico: Evidence from Annual Fluctuations in Weather. *Economic Journal* 128: 230-261.

15) Hrozencik, Aaron, Dale T. Manning, Jordan Suter, Christopher Goemans, and Ryan Bailey (2017). The Heterogeneous Impacts of Groundwater Management Policies in the Republican River Basin of Colorado. *Water Resources Research* 53/12: 10757-10778.

14) Ademola, Adenle, Dale T. Manning, and Joseph Arbiol (2017). Mitigating Climate Change in Africa-Barriers to Financing Low-Carbon Development. *World Development* 100: 123-132.

13) Maas, Alexander S., Christopher G. Goemans, Dale T. Manning, Stephan Kroll, Thomas C. Brown (2017). Dilemmas, Coordination and Defection: How Uncertain Tipping Points Induce Common Pool Resource Destruction. *Games and Economic Behavior* 104: 760-774.

12) Maas, Alexander*, Christopher G. Goemans, Dale T. Manning, Stephan Kroll, Mazdak Arabi and Mariana Rodriguez-McGoffina (2017). Evaluating the Effect of Conservation Motivations on Residential Water Demand. *Journal of Environmental Management* 196 (July): 394-401.

11) Manning, Dale T., Christopher Goemans, and Alexander Maas (2017). Producer Responses to Surface Water Availability and Implications for Climate Change Adaptation. *Land Economics* 93/4: 631-653.

10) Magzamen, Sheryl, Jennifer Cross, Jordan Suter, Adam Mayer, Stephanie Barr, Lenora Bohren, Brian Dunbar, Joshua Schaeffer, Dale T. Manning, and Stephen Reynolds (2017). A Multidisciplinary Research Framework on School Environment, Occupant Health and Performance. *Journal of School Health* 87/5: 376-387.

9) Maas, Alexander*, Dale T. Manning, Christopher Goemans, and Andre Dozier (2017). Water Storage in a Changing Environment: The Impact of Allocation Institutions on Value. *Water Resources Research* 53/1: 672-687.

8) Manning, Dale T. and John B. Loomis (2016). Consumer Preferences for Fixed versus Variable Quantities of Electricity: Joint Estimation of Contingent Quantity and Valuation Methods. *Environment and Development Economics* 21/6: 789-811.

7) Manning, Dale T. and Hirotsugu Uchida (2016). Are Two Rents better than None? When Monopolies Correct ill-defined Property Rights. *Marine Resource Economics* 31/2: 141-164.

6) Manning, Dale T. and J. Edward Taylor (2015). Agricultural Efficiency and Labor Supply to Common Property Resource Collection: Lessons from rural Mexico. *Journal of Agricultural and Resource Economics* 40/3: 365-386.

5) Manning, Dale T., Peter Means, Daniel Zimmerle, Kathleen Galvin, John Loomis, and Keith Paustian (2015). Using Contingent Behavior Analysis to Measure Benefits from Rural Electrification in Developing Countries: An Example from Rwanda. *Energy Policy* 86: 393-401.

4) Manning, Dale T. and Joleen C. Hadrich (2015). An Evaluation of the Social and Private Efficiency of Adoption: Anaerobic Digesters and Greenhouse Gas Mitigation. *Journal of Environmental Management* 154: 70-77.

3) Manning, Dale T. and J. Edward Taylor (2014). Migration and Fuel Use in Rural Mexico. *Ecological Economics* 102: 126-136.

2) Manning, Dale T., J. Edward Taylor, and James E. Wilen (2014). Market Integration and Natural Resource Use in Developing Countries: A Linked Agrarian-resource Economy in Northern Honduras." *Environment and Development Economics* 19/2: 133-155.

1) Wetzel, W., I. Lacher, D. Swezey, S. Moffitt, and D. Manning (2012). Analysis Reveals Potential Rangeland Impacts if Williamson Act Eliminated. *California Agriculture* 66/4: 131-136.

Outreach Publications

Chris Goemans, Bill Golden, Bridget Guerrero, Stephen Lauer, Dale Manning, Matt Sanderson, Karina Schoengold, Art Stoecker, Jordan Suter. (2017). *Groundwater Laws Across the Ogallala Aquifer Region*.: Colorado Water.

Flynn, Nora, Louise Comas, Salvador Lurbe, Dale Manning,and Steven Fonte. 2017. "Investigating Deficit Irrigation as a Climate-Smart Farming Option." *Colorado Water*, 34/5, pp. 22-25.

Manning, Dale, Aaron Hrozencik, Chris Goemans, and Jordan Suter. "An Economic Analysis of Management Strategies to Conserve Groundwater in the Republican River Basin of Colorado."

Maas, Alex, Andre Dozier, Dale Manning, and Christopher Goemans. 2015. "The Value of Stored Water and Trading in the West: Lessons from the Colorado-Big Thompson Project." *Colorado Water*. 32/1 pp.5-7.

Wetzel, William C. Iara L. Lacher, Daniel S. Swezey, Sarah Myhre, and Dale Manning 2010. Williamson Act Policy Brief.

Conference Publications

Zimmerle, Dan and Dale T. Manning. "Potential for Methane Emissions Reductions by Addressing Large Emitters." 2015. *Energy Policy Research Conference Paper*.

Optimizing Rural Village Micro Grids to Provide Affordable and Reliable Renewable Electricity in Developing Countries, with Daniel Zimmerle. 2017. *IEEE Conference Paper.*

Working Papers

Impacts of Block-Rate Energy Pricing on Groundwater Demand in Irrigated Agriculture, with Aaron Hrozencik, Jordan Suter, and Chris Goemans, R&R at *American Journal of Agricultural Economics*.

Policy Leakage or Policy Benefit? Spatial Spillovers from Conservation Policies in Common Property Resources, with Mani Rouhi Rad, Jordan Suter, and Chris Goemans. R&R at *Journal of the Association of Environmental and Resource Economists.*

Academic Stars and Energy Stars, an Assessment of Student Academic Achievement and School Building Energy Efficiency, with Jenny Apriesnig, Jordan Suter, Jeni Cross, and Sheryl Magzamen. R&R at *Energy Policy*.

Ecosystem Services and Agricultural Land Rental Markets: The Producer Cost of Bat Population Crashes, with Amy Ando.

Assessing the Impacts of Recent Drought on Ecosystem Service-based Sectors, Criminal Activity, and Health Outcomes in Arizona, Colorado, New Mexico, and Utah, with Alex Maas, Chris Goemans and Jesse Burkhardt.

Natural Insurance and Weak Substitutability: Using Insurance Markets to Value Groundwater Stocks in Kansas, with Matt Sloggy.

Insurance and Extraction Incentives in a Common Pool Resource: Evidence from Groundwater Use in the High Plains, with Matthew Sloggy, Chris Goemans, and Roger Claassen.

The Local Effects of Federal Law Enforcement Policies: Evidence from Sanctuary Jurisdictions and Crime, with Jesse Burhardt.

The Drivers and Processes of Agricultural Intensification in Smallholder Farming Systems: Evidence from Ethiopian Highlands, with Vine Mutyasira, Dana Hoag, and Dustin Pendell (submitted, *Journal of Rural Studies*).

Manning, Dale and Salvador Lurbe. Demand Analysis of Central Grid Electricity Customers in Rwanda, report prepared for off-grid electricity supplier in Rwanda.

Nutrition Protection with Natural Insurance: the Role of Forests, with Kelvin Mulungu.

The Role of Social Comparison in Reducing Residential Water Consumption: Evidence from a Randomized Controlled Trial, with Salvador Lurbe, Chris Goemans, and Jesse Burkhardt

Learning through Experience: The Impact of Technology Reliability on Adoption and Use, with Salvador Lurbe and Jesse Burkhardt.

Manning, Dale. Urban Growth and Rural Welfare: Accounting for Resource Competition and Trade Linkages.

Filipski, M., Manning, D., Taylor, J., Diao, X., & Pradesha, A. 2013. "Evaluating the Local Economywide Impacts of Irrigation Projects." IFPRI Discussion Paper Series 01247.

An Experimental Approach to Assessing the Influence of Information about Conservation Impacts, with Aaron Hrozencik, Jordan Suter, and Chris Goemans.

Optimizing Rural Village Micro Grids to Provide Affordable and Reliable Renewable Electricity in Developing Countries: An Application to Rwanda, with Daniel Zimmerle, and Sule Amadu

Uncertainty and Technology Adoption with Imperfect Property Rights: Lessons from the Arkansas River Valley, with Misti Sharp* and Dana Hoag

The Role of Instantaneous Capacity Constraints in the Decision Making of Groundwater Users, with Sam Collie* and Jordan Suter

General Equilibrium Privatization of a Fishery, with Jenny Apriesnig*, Travis Warziniack, and Chris Goemans

The Value of Artisanal Fisheries, with Jake Salcone*

Manning, Dale. Carbon Leapfrogging in Less-Developed Countries

*Graduate Student

Work in Progress

Natural Resources as a Proximate Cause of Income Differences, with Ed Barbier.

The Welfare Losses of Imperfect Credit Allocation in Pollution Offset Markets with an Application to Water Quality Trading in North Carolina, with Dana Hoag

Impact of Productive Use Activities on Electricity Demand in Rwanda

General Equilibrium Impacts of Climate Change Adaptation in Rural Mexico, with Jesus Arellano Gonzalez

Global Economic Impacts of Predicted Fishery Decline, with Jesse Burkhardt, Amanda Countryman, and Travis Warziniack

Optimal Invasive Species Control with Learning, with William Haden Chomphosy*

Impacts of Green School Retrofits on Student Health, Attendance, and Outcomes, with with Sheryl Magzamen, Jennifer Cross, Jordan Suter, Adam Mayer, Stephanie Barr, Lenora Bohren, Brian Dunbar, Joshua Schaeffer, Stephen Reynolds, and Jenny Apriesnig

Split Incentives and Energy Use with a Payment Threshold, with Chris Goemans, Jordan Suter, and Salvador Lurbe*

Rural Economic Structure and the Impacts of Rural to Urban Water Transfers: A General Equilibrium Analysis, with Christopher Goemans, Harvey Cutler, Kim Rollins, and Michael Taylor.

*Graduate Student

Presentations and Conferences (as Presenter)

Ecosystem Services and Agricultural Land Rental Markets: The Producer Cost of Bat Population Crashes, w4133, Athens, GA, February 13th, 2020.

Spillovers from Conservation Programs in a Common Property Resource, w4133, Santa Fe, NM, February 21st 2019.

"A Spatial-Dynamic Economic Analysis of Groundwater Management Policies," Invited Seminar, Natural Resources Ecology Lab, Fort Collins, CO. May 2, 2018

Taxation and Investment: Evidence from the Oil Sector, W4133, Austin, TX. February 23, 2018

Taxation and Investment: Evidence from the Oil Sector, Invited Seminar, Bozeman, Montana. March 26, 2018

Taxation and Investment: Evidence from the Oil Sector, Invited Seminar, Anchorage, Alaska. March 30, 2018

Presentation of economic analysis of climate policy, Government of Vietnam. Summer 2017, Fort Collins.

Ohio State Seminar Series, invited presenter, 4/7/2017, A Spatial-Dynamic Economic Analysis of Groundwater Management Policies

W-3133 2017: Heterogeneous Resource Access and Water Conservation Policy Support in the Republican River Basin of Colorado

W-3133 2016: A Basin-wide Spatially-explicit Model of Groundwater Use in the Ogallala Aquifer

Quarterly Update to CSU VPR: Rural Village Micro Grid Catalyst for Innovative Partnerships, 2015

Epidemiology Lunch and Learn: Smart Village Micro Grids: An Energy-Based Approach to Rural Development, 2015

Latin American Conference on Energy and Resource Economics, 2015, General Equilibrium Tragedy of the Commons

AAEA, 2015, Climate Change and US Agriculture: Accounting for Surface Water Irrigation

Presentation for Ministry of State for Energy, Kigali, Rwanda, Smart Village Micro Grid Program

W-3133, 2015, Comparing WTP for Infrastructure using Contingent Behavior and Contingent Valuation

Front Range Energy Camp, 2015, State Severance Tax Competition and the Division of Natural Resource Rents

CSU Economics Seminar, 2015, Climate Change and Labor Allocation in Mexico: Evidence from Annual Fluctuations in Weather

Colorado School of Mines, 2014, Climate Change and Labor Allocation in Mexico: Evidence from Annual Fluctuations in Weather

WCERE, 2014, Climate Change and Labor Allocation in Mexico: Evidence from Annual Fluctuations in Weather

AAEA, 2014, Climate Change and Labor Allocation in Mexico: Evidence from Annual Fluctuations in Weather

Front Range Energy Camp, 2014, Split Incentives and Energy Use with a Payment Threshold

CU Environmental and Resource Economics Conference, 2013, Climate Change and Labor Allocation in Mexico: Evidence from Annual Fluctuations in Weather

IAEE/USAEE North American Conference, Anchorage, AK.

AERE 2013 Summer Conference: Banff, Migration and fuel use in rural Mexico

Workshop on Rural Economy of Mexico, Mexico City, December 2012, Economic Linkages and Fuelwood Use

Final Evaluation of Honduran Sustainable National Tourism Program. Presented to Honduran National Tourism Institute, October, 2012.

Inter-American Development Bank: Research Department Dissertation Fellows Presentation, August 2012, Migration and fuel use in rural Mexico.

AERE 2012 Summer Conference: Asheville, NC, Market integration and natural resource use in developing countries: a linked agrarian-resource economy in Northern Honduras.

UC-Davis Brown-bag Series, April, 2012, Market integration and natural resource use in developing countries: a linked agrarian-resource economy in Northern Honduras

Invited poster, Rangeland Science Symposium, UC-Davis January, 2012. Land-Use Impacts of the California Land Conservation Act of 1965

UC-Davis IGERT Fall Conferences, 2009-2010, 2012.

UC-Davis Conference on Land-Use Impacts of the California Land Conservation Act of 1965 (The Williamson Act), September, 2010 (planned and presented).

Awards

WAEA Best Publication Award, 2018.

IAEE/USAEE Best Student Paper, Anchorage, July 2013

National Science Foundation (NSF) Responding to Rapid Environmental Change IGERT bridge fellowship, September 2012-2013, UC-Davis.

Erika C.H. Meng Scholarship Fund for Development Policy and Research, May 2012.

UC-Davis and Humanities Graduate Research Award, September 2011-June 2012.

Jastro-Shields Research Scholarship, September 2011-June 2012.

Funded Grants

NIFA Water for Food. Evaluating Alternative Water Institution Performance in Snow-Dominated Basins: Are Food Production Systems at Risk from Changing Snow Water Availability. PIs: Kimberly Rollins, Adrian Harpold, Gi-Eu Lee, Loretta Singletary, Michael Taylor, Dale Manning, Chris Goemans, Seshadri Rajagopal. CSU budget: $565,662.

AFRI: Crop Insurance and Groundwater Consumption in the Ogallala Aquifer Region, $496,805.

CSU Water Center, Quantifying the Scope and Impact of Permanent Agricultural dry-up due to Rural to Urban Water Transfers Co-PIs: Dale Manning, Drew Bennett, Sarah Parmar, and Steven Filippelli. PI: Michael Falkowski, July 2017-June 2018. $24,873.

Borlaug Fellowship: $24,081: Evaluating a Water Conservation Text Messaging Service in Moulouya River Basin.

CSU VPR Quarterly Funding: $14,535: Assessing the Global Impacts of Predicted Fishery Decline, Co-PI

CSU Water Center Seed Grant: $23,813: Evaluating alternative water and nutrient management strategies as climate-smart agricultural options for Colorado and beyond.

CBEAR: $21,974: Evaluating the Impact of Economic Research Results on Attitudes Related to Groundwater Management Policies: A Randomized Control Trial

NIFA CAP: $2.4 million: Sustaining Agriculture through Adaptive Management Resilient to a Declining Ogallala Aquifer and Changing Climate

Environmental Protection Agency: $999,287: Sustainable Places, Health, and Research in Schools, Co-PI

CSU VPR Catalyst for Innovative Partnership: $198,567: Rural Village Micro Grids, Co-PI

CSU VPR Quarterly Funding: $10,200: Rural Village Micro Grid Project Catalyst, Lead PI

NIFA Agricultural and Food Research Initiative: Water for Agriculture: $498,392.76: Rural to Urban Water Transfers, Climate Change and the Future of Rural Agricultural Economies in the Semi-Arid West: A Comparative Regional Analysis, Co-PI (CSU Lead), until December 2017.

Colorado Water Conservation Board: $159,882: Economic Analysis of Groundwater Pumping Policies in the Republican River Basin, Co-PI, until December 2016.

USDA-USFS-Rocky Mtn. Research Station – CO: $55,840: Modeling Forest Ecosystem Services and Demand for Water in Large Landscapes, Lead PI, until July 2019.

CSU Water Center Seed Grand: $7,450: Inter-temporal Allocation of Water and Adaptation to Climate Change, lead PI.

CSU Energy Institute Seed Grant: $15,600: To Frack or Not To Frack: An Analysis of Local Opposition to Hydraulic Fracturing, Co-PI.

Submitted Grants

NIFA. Performance of Water Institutions under Increasing Variability of Snowfed Systems in the Intermountain West. PIs: Kimberly Rollins, Adrian Harpold, Gi-Eu Lee, Loretta Singletary, Michael Taylor, Dale Manning, Chris Goemans, Seshadri Rajagopal. $499,998.

AFRI: Evaluating Supply Chain Interventions to Enhance the Sustainability of US Agricultural Production with Climate Change, $4 million. (not funded)

NASA: $250,000: Reducing the Health Costs of Wildfire Smoke through Improved Information: An Experimental Analysis (not funded)

FONERWA: Smart Village Micro Grid Program in Rwanda, 2017, $4 million

FONERWA: Smart Village Micro Grid Program in Rwanda, 2016, $3.5 million (not funded)

Professional Service and Memberships

Colorado State University:

Quantitative Exam Committee, 2013-present

Environment and Natural Resource Exam Committee, 2013-2016

Honors Curriculum Committee, 2014

Graduate Student Symposium Steering Committee, 2014

Faculty Search Committee, CSU DARE, 2015

CSU College of Agriculture Technology Committee, 2015-present

Environmental and Resource Economics Field:

W-3133 Vice President, 2017

W-3133 Secretary 2016

Referee for AAEA meetings, 2017

UC-Davis Faculty Search Committee, Student Member, 2012.

Agricultural and Applied Economics Association, member

Association of Environmental and Resource Economists, member

International Association for Energy Economics, member

Referee for The Pacific Conference for Development Economics (PACDEV), 2012.

Referee for AAEA meetings, 2014

Referee for WAEA meetings, 2014

Referee for AAEA/WAEA meetings, 2015

Reviewer for SoGES, CSU

Reviewer for PNAS

Reviewer for JAWRA

Reviewer for *Environmental and Resource Economics*

Reviewer for *Journal of Agricultural and Resource Economics*

Reviewer for *World Development*

Reviewer for the *Journal for the Association for Environmental and Resource Economists*

Reviewer for *Applied Economic Perspectives and Policy*

Reviewer for *Energy*

Reviewer for *Land Economics*

Reviewer for *Energy Economics*

Reviewer for *Water Resources Research*

Reviewer for *American Journal of Agricultural Economics*

Reviewer for *Environment and Development Economics*

Reviewer for *Journal of Environmental Economics and Management*

Reviewer for *Marine Resource Economics*

Reviewer for Inter-American Development Bank Operational Research

Student Committees

Hwayoung Jeon (outside member), ECON.

Di Sheng, doctoral student, DARE

Kadin Young, outside member, Civil and Environmental Engineering

Jeff Davis, doctoral student, ECON

Nicole Opalinksi (outside member), masters student in civil engineering, graduated.

Kelvin Mulungu, PhD student in DARE

Christopher Keyes (outside member), doctoral student ECON

Jake Salcone (outside member), doctoral student HDNR

Sule Amadu (outside member), doctoral student Systems Engineering

Kevin Crofton (outside member), doctoral student ECON

Alex Maas (Co-Chair), doctoral student, graduated 2017, assistant professor at University of Idaho

Aaron Hrozencik (Co-Chair), doctoral student, graduated.

Josh Hess (outside member), doctoral student ECON, graduated.

Brody Hatch (outside member), doctoral student ECON, graduated 2017

Misti Sharpe, doctoral student, graduated.

Vine Mutyasira, doctoral student, graduated.

Jenny Apriesnig, doctoral student, graduate 2017, post doc with Joshua Abbott

Salvador Lurbe (Chair), doctoral student

Ryan Levitt (outside member), doctoral student ECON, graduated.

Randall Monger, Masters' Student, graduated 2016

Patrick Behrer (graduated 2014, PhD student at Harvard), Masters' Student

Sam Collie (graduated 2015, PhD student at UCSB), Masters' Student

Brian Quay (left program, 2015), doctoral student

Classes Taught

AREC/ECON 540 (old format)—2 offerings

AREC/ECON 540 (new format)—2 offerings

AREC/ECON 740—2 offerings

AREC 340—1 offering

AREC 341—3 offerings

AREC 615

ESS 545: Climate Change Economics Module—2 offerings