

**MITCHEL PAUL McCLARAN**

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**EMPLOYMENT**

- 2019-present Director, Arizona Experiment Station
- 2015-2019 Associate Director, Arizona Experiment Station, University of Arizona
- 2013-2015 Assistant Director, Arizona Experiment Station, University of Arizona
- 2004-present Director for Research. Santa Rita Experimental Range. University of Arizona
- 2001-present Professor of Range Management. School of Natural Resources and the Environment. University of Arizona
- 1992-2001 Associate Professor of Range Management. School of Natural Resources. University of Arizona
- 1995 Visiting Associate Professor, Department of Environmental Science, Policy and Management, University of California, Berkeley
- 1986-1992 Assistant Professor of Range Management. School of Natural Resources. University of Arizona

**Major Fields:** Rangeland Ecology, Rangeland Policy

**EDUCATION**

- 1978 B.S. Conservation of Natural Resources, University of California, Berkeley
- 1981 M.S. Range Management, University of California, Berkeley
- 1986 Ph.D. Wildland Resources Science, University of California, Berkeley

**Dissertation** Age Structure of *Quercus douglasii* in Relation to Livestock Grazing and Fire History.

**& Director:** Dr. James W. Bartolome

**PROFESSIONAL STANDING and DEVELOPMENT**

- 1996-present Certified Rangeland Manager, State of California, #21
- 1999-2024 Certified Professional in Rangeland Management, Society for Range Management #CP99-32
- 2009-10 LEAD21 Leadership Development Program participant
- 2016 FAST TRACK Leadership Development
- 2017 Little Bighorn Battlefield Leadership Development

**COURSES TAUGHT AT UNIVERSITY OF ARIZONA, 1986-2019**

- Rangeland Plant Communities, 3 units, (RAM 382), 30 times
- Arizona Plant Life, 3 units, (RAM 222), 8 times
- Rangeland Policy, 3 units, (RAM 595a), 7 times
- Selected Topics in Range Management, 1 unit, (RAM 696a), 13 times
- Sustaining Local Food, Biodiversity, and Livestock Grazing in the Alps (RNR 397A), 1 time

**GRADUATE STUDENTS AND POSTDOCS, UNIVERSITY OF ARIZONA, 1986-present**

Graduate Students: 20 completed, M. Anable (MS), D. Angell (MS), S. Biedenbender (PhD), G. Bolton (PhD), S. Buckley (PhD), J. Coronado (PhD), A. Dalke (MS), P. Ford (PhD), K. Hawkes (MS), S. Kariuki (MS), F. Mashiri (PhD), N. Mgxashe (MS), A. Moote (MS), A. Nafus (MS), M. Neuman (MS), D. Rawoot (MS), D. Valdez (MS), K. Van Deren (MS), J. Ward (MS), K. Widmer (MS), J. Womack (MS);

Post docs: Guillermo Ponce Campos (Current), Jeff Gillan (Current), Elizabeth Pierson (completed), Tyson Swetnam (Completed), and Haiyan Wei (Completed).

**HONOR AND AWARDS**

- 2019 Outstanding Course (Rangeland Plant Communities, RAM 382), School of Natural Resources and the Environment, University of Arizona
- 2015 Outstanding Course, School of Natural Resources and the Environment, University of Arizona. Drought on Rangelands (RAM 696a-002, Fall 2015)
- 2014 Fellow, Society for Range Management
- 2013 Outstanding Scholarly Achievement, School of Natural Resources and the Environment, University of Arizona
- 2010 Fellow, Bart Cardon Academy for Teaching Excellence, College of Agriculture and Life Sciences, University of Arizona
- 2009 Bart Cardon Sustained Excellence in Teaching, College of Agriculture and Life Sciences, University of Arizona
- 2005 Shirley O'Brien Diversity Award, College of Agriculture and Life Sciences, University of Arizona
- 2004 Outstanding Scholarly Achievement (The Santa Rita Experimental Range), School of Natural Resources, University of Arizona
- 2004 Outstanding MS Thesis Advisor (Ms. Judy Ward), School of Natural Resources, University of Arizona
- 1999 Outstanding Undergraduate Teacher, Range Science Education Council
- 1999 Outstanding Course (Rangeland Plant Communities, RAM 382), School of Natural Resources, University of Arizona
- 1997 Outstanding Academic Book, (The Desert Grassland), Choice magazine
- 1996 Phi Kappa Phi, Faculty Status, University of Arizona
- 1996 Outstanding Scholarly Achievement (The Desert Grassland), School of Natural Resources, University of Arizona
- 1993 Outstanding Course (Rangeland Plant Communities), School of Natural Resources, University of Arizona
- 1979 University of California Regents' Fellowship
- 1978 Phi Beta Kappa and Graduation with Honors, University of California, Berkeley

**INTRAMURAL SERVICE: University of Arizona**

University-level

- Associate: Center for Climate Adaptation Science and Solutions, 2014-present
- Member: Implementation Committee for the Future of Food and Agriculture in Drying Climate (ICoFA), November 2023-present
- Member: Science Advisory Board, Biosphere 2. 2021-present
- Member: Interdisciplinary Faculty in Global Change Studies, 1995-present.
- Member: Executive Committee, Arid Lands Resource Studies, 2007-2014.

Member: Executive Committee, Institute for the Study of Planet Earth, 1996-2006  
Member: Executive Committee, Udall Center for the Study of Public Policy, 1997-2006  
Member: Graduate College, Graduate Council, 2002-03  
Member: University Academic Personnel Policy Committee, 1997-2000  
Member: Search Committee, Director of Institute for the Study of Planet Earth, 1997

#### College-ALVSCE Division level

Director: Arizona Experiment Station 2020-present  
Chair: Arizona Experiment Station Leadership Committee, 2015-2019  
Chair: Santa Rita Experimental Range Research Advisory Committee, 1996-2005.  
Chair: Promotion and Tenure Committee, 2007-08  
Vice-Chair: Promotion and Tenure Committee, 2006-07  
Member: Executive Council, 2021-present  
Member: Curriculum Committee, 2002-03, 2009-2013  
Member: Promotion and Tenure Committee, 2004-05  
Member: Search Committee, Associate Dean for Research and Director of the Agricultural Experiment Station, August-December 2011

#### School-level

Chair: Ecology, Management, and Restoration of Rangelands Program (B.S., M.S. and Ph.D.), 2004-05, 2012-19  
Chair: Natural Resource Studies Graduate Programs (M.S. and Ph.D.), 1996-2016  
Chair: Organizing Committee, Showcase of Promising Scientists in Natural Resources Lecture Series, School of Natural Resources, 2004-05  
Chair: Organizing Committee, Collaboration in Natural Resources Management Speaker Series and Graduate Seminar, 2009-2010  
Chair: Awards Ceremony 2012  
Chair: Faculty Status Committee, School of Natural Resources, 1995-6, 2003-4, 2008-9  
Chair: Faculty Search Committee, School of Natural Resources, 2003-04  
Co-Chair: Organizing Committee, SNRE Seminar Series for Spring 2018, 20017-18  
Co-Chair: Faculty Search Committee, School of Natural Resources, 1998  
Member: Strategic Planning Committee, School of Natural Resources, 2008-2019  
Member: Faculty Status Committee. School of Natural Resources, 1993-95, 2001-03, 2006-08  
Member: Faculty Search Committees, School of Natural Resources, 1994, 2007, 2023  
Member: Natural Resource Studies Graduate Program (M.S. and Ph.D.), 1987-1996  
Representative: University of Arizona ADVANCE program to eliminate subtle bias, 2007-10

#### **EXTRAMURAL SERVICE**

Expert: Defined and weighed the importance of knowledge areas, work activities, work context, and tasks common to the occupation of Range Managers for the U.S. Department of Labor, Occupational Information Network June 2024  
Associate  
Editor: *Journal of Range Management*, 2001-2005  
Chair: Society for Range Management, Accreditation Visitation Panel at Utah State University, 2017  
Chair: External Review, Proposed On-line MS degree in Natural Resources Management, Oregon State University June 2010  
Chair: Society for Range Management, Accreditation Panel, 2009

- Co-Chair: Organizing Committee for 1<sup>st</sup>-19<sup>th</sup> Annual Research Insights in Semiarid Ecosystems (RISE) Symposium, Tucson, AZ, 2004-present
- Co-Chair: Organizing Committee for Symposium, Santa Rita Experimental Range: One-Hundred Years (1903-2003) of Accomplishments and Contributions. Tucson, AZ, 2002-03
- Member: Review Panel for Humboldt State University revision to Rangeland Resources Curriculum. December 2016.
- Member: Review Panel, USDA-NIFA Foundational Programs in Thresholds and Management of Agroecosystems, 2011
- Member: Review Panel, USDA-ARS National Program 215 in Range, Pasture and Turf Management, 2011
- Member: US OSTP-National Climate Assessment, Vulnerability Workshop, 2011
- Member: USDA-ARS Stakeholder Workshop for National Program 211 in Water and Water Availability Research Program, 2010 and 2015
- Member: Desert Southwest Domain Science and Education Coordinating Committee (DSECC), National Environmental Observatory Network (NEON), 2009-2014
- Member: Malpai Borderlands Group Science Advisory Panel, 2003-05
- Member: Society for Range Management, Accreditation Revision Task Group, 2004-05
- Member: Society for Range Management, Accreditation Panel, 2007-2008
- Member: Society for Range Management, Rangeland Ecology and Management journal Steering Committee, 2008-2009
- Member: Review Committee for University of Idaho, Department of Rangeland Ecology and Management Graduate Program, 2004
- Member: Range Science Education Council, University of Arizona Representative, 1987-1995, 2004
- Member: Society for Range Management, Certified Professional in Range Management Committee 1998-2003
- Member: Pima County, Sonoran Desert Conservation Plan Steering Committee, 1999-2003
- Member: Pima County, Comprehensive Land Use Panel, Upper Santa Cruz Subregion, 2001
- Member: Society for Range Management, Accreditation Visitation Panel at University of Idaho, 2001; Utah State University, 2008
- Member: Scientific Review Team, USDA ARS, Jornada Experimental Range, NM, 1996
- Member: Arizona - Sonora Desert Museum Board of Trustees, 1991-1994
  
- Peer Reviews: Approximately 5 manuscripts, research proposals, and project reports reviewed per year for a variety of scientific journals, research funding agencies, and land management agencies
- Member: Arizona Native Plant Society, California Botanical Society, California Native Plant Society, Society for Range Management

## **GRANTS AND CONTRACTS**

### **Federal--- Sole Principal Investigator**

- 2015-20 LTAR-NEON Collaboration to Quantify Rangeland Vegetation Production. Specific Cooperative Agreement with USDA ARS Southwest Watershed Research Center. Project 2022-13610-011-22S. \$484,757 total.
- 2012-16 Developing tools for meadow management at Yosemite National Park. USDI-National Park Service. \$44,000.
- 2008-10 Buffelgrass control on the Santa Rita Experimental Range. USDA Natural Resources

- 2008-09 Conservation Service: Wildlife Habitat Improvement Program. \$30,376.  
Buffelgrass control on the Santa Rita Experimental Range. US Fish and Wildlife Service: Partners for Fish and Wildlife. \$41,588.
- 2005-08 Continuation of long-term vegetation measurements and repeat photography on the Santa Rita Experimental Range. US Forest Service \$73,218.
- 2001-02 Potential landscape distribution of buffelgrass in Saguaro National Park. US National Park Service. \$8,000.
- 2001-02 Invasive non-native perennial grass inventory. US National Park Service. \$10,000.
- 2000-05 Long-term response of vegetation to management on the Santa Rita Experimental Range. US Forest Service. \$83,500.
- 1999-01 Relationship between *Agave palmeri* flower stalk herbivory and livestock management. US Geological Survey. \$42,000.
- 1995-00 Development of a digital archive for the Santa Rita Experiment Range. US Forest Service. \$60,000.
- 1991-99 Global climate change research in the San Pedro River Basin, AZ. Bureau of Land Management and National Biological Survey. \$530,000.
- 1990-91 Develop a system to monitor utilization and community composition changes at Lake Mead National Recreation Area. \$15,831.
- 1989-91 Complete a State-of-Knowledge of recreational pack stock management in western U.S. backcountry and wilderness. \$21,702.
- 1987-89 Develop a system to monitor species composition changes in the backcountry of Sequoia and Kings Canyon National Parks, \$34,554.

**Federal--- Co-Investigator**

- 2021-25 LTAR-NEON Collaboration to Quantify Rangeland Vegetation Production Phase 2. Specific Cooperative Agreement with USDA ARS Southwest Watershed Research Center. Project 58-2022-0-009 Total to date: \$514,130. Co-PIs. M. Crimmins and S. Gao.
- 2021-26 Conservation Effects Assessment Project-Grazing Lands. US Department of Agriculture Natural Resources Conservation Service. NRCS/UA agreement #NR213A750023C013. \$5,756,000 through FY24. (Co-PI McClaran 95%, Guertin Co-PI 5%, Despain 5%)
- 2019-24 Conservation Effects Assessment Project-Grazing Lands. US Department of Agriculture Natural Resources Conservation Service. NRCS/UA agreement #NR193A750007C002. \$3,430,000 through FY24. (Co-PI McClaran 95%, Guertin Co-PI 5%, Perry 5%)
- 2019-22 Co Investigator: Solving Grand Challenges in Coupled Natural Human Systems: An Integrated Socio-ecological agent-based model to predict effective governance strategies for invasive species mitigation. National Science Foundation Coupled Natural Humans System program. PI E. Baldwin University of Arizona. Estimated \$ 1,580,012.
- 2018-23 Co-Principal Investigator: Ranching, Rangelands, and Resilience: Ensuring adaptive capacity in an increasingly variable climate. USDA-AFRI Climate Variability Program: PI K. Suding, U Colorado. \$232,365 to UA, total project \$1,194,000.
- 2016-17 Co-Project Director with Mike Crimmins (Director), Reducing livestock production and legal risks from increased climate variability by co-developing tools for ranch-scale drought detection. Western Extension Risk Management Education, USDA NIFA. \$50,000.
- 2014-17 Principal Investigator with 6 others, Using a co-development process to improve, integrate and encourage use of drought information and adaptive management

- of livestock grazing on National Forests. National Oceanic and Atmospheric Administration, Climate Program Office Sectoral Applications Program \$285,644.
- 2010-13 Principal Investigator with 8 others, Climate-Rangeland Connections: Building a Knowledge Center of Best Practices for Climate Change Mitigation and Adaptation on Southwestern Rangelands. Planning Proposal. USDA Climate Change Program \$50,000.
- 2009-13 Principal Investigator with D. Guertin and G. Ruyle, Evaluating the Effects of Grazing Land Conservation Practices on Southwestern Watersheds, USDA-CSREES Conservation Effects Assessment Project (CEAP). \$598,000.
- 2005-09 Co-Project Director with S. Archer and H. Throop. Ecosystem carbon and nitrogen pools in managed rangelands: a spatial accounting of management influences. USDA-NRI Managed Ecosystems Program, \$503,000.
- 2005-06 Co-Investigator with C. Huang and S. Marsh. Tree-grass co-existence in semiarid savannas, NSF Doctoral Dissertation Improvement Grant, \$12,000.
- 2001-05 Co-Principal Investigator with C. Hutchinson, S. Marsh et al. Establishing a basis for carbon management policy at the state level: carbon dynamics at site, landscape, and regional scales for Arizona State lands. NASA Carbon Cycle Science and Related Opportunities in Biology and Biochemistry of Ecosystems, \$756,338.
- 1998-00 Co-Principal Investigator with R. Amundson, Carbon and oxygen isotope composition of feral horse diets and tooth enamel. National Science Foundation. \$38,000.
- 1994-98 Co-investigator with J. Van Wagendonk and D. Cole. Influence of grazing intensity on Sierran Mountain Meadows. U.S. Forest Service and Yosemite Fund. \$45,000.

**State--- Co-Investigator**

- 2005-10 Co-Investigator with K.Suding and W. Harpole. Landscape-scale relationships between oak recruitment and livestock management. University of California Integrated Hardwood Range Management Program, \$128,417.
- 1986-88 Co-investigator with J.W. Bartolome. Effects of fire on foothill oak regeneration, California Department of Forestry, \$36,850.
- 1985-86 Co-investigator with J.W. Bartolome. Geographic variation in the relationship between oak cover and herbaceous composition and production, California Department of Forestry, \$10,000.

**University--- Principal Investigator**

- 1987-88 Role of disturbance in maintaining the rare orchid *Spiranthes graminea*, University of Arizona Small Grant Program, \$2,442.

**University--- Co-Investigator**

- 1995-97 Co-investigator with C. Hutchinson and R. MacArthur. Design and implement a digital database for historic data from the Santa Rita Experimental Range. Vice President for Research, \$30,000.

**Private--- Principal Investigator**

- 1981 Stand age structure of blue and interior live oak in the Blue Oak Woodland, Sequoia Natural History Association, \$1,250.

## PUBLICATIONS (N=120)

### Refereed Publications--- --- First or Sole Author (N=42), Second or Later Co-author (N=78)

120. Díaz-Martínez, P. others, M.P. McClaran, and others. 2024. Vulnerability of mineral-associated soil organic carbon to climate across global drylands. *Nature Climate Change*. <https://doi.org/10.1038/s41558-024-02087-y>
119. Wilmer, H, D.B. Ferguson, M. Dinan, E. Thacker, P.B. Adler, K.B. Walsh, K.B., J.B. Bradford, M. Brunson, J.D. Derner, E. Elias, A. Felton, C.A. Gray, C. Greene, M.P. McClaran, R.K. Shriver, M. Stephenson, and K.N. Suding. 2024. Resilience is not enough: toward a more meaningful rangeland adaptation science. *Rangeland Ecology and Management* 95: 56-67. <https://doi.org/10.1016/j.rama.2024.04.003>
118. Eldridge, D.J., others, M.P. McClaran, and others. 2024. Hotspots of biogeochemical activity linked to aridity and plant traits across global drylands. *Nature Plants* 10: 760–770. <https://doi.org/10.1038/s41477-024-01670-7>
117. Ponce-Campos, G.E., McClaran, M., Heilman, P. and Gillan, J.K. 2023. UAV and Satellite-Based Sensing to Map Ecological States at the Landscape Scale. *Open Journal of Ecology*, 13:560-596. <https://doi.org/10.4236/oje.2023.138035>
116. Liptzin, D. others, M.P. McClaran, and others. 2023. An evaluation of nitrogen indicators for soil health in long-term agricultural experiments. *Soil Science Society of America Journal* 1–17. <https://doi.org/10.1002/saj2.20558>
115. Nota, G., N. Anselmetto, A. Gorlier and M.P. McClaran. 2022. Differences in population size structures drive grass response to long-term livestock removal. *Applied Vegetation Science*. 2022;25:e12696. <https://doi.org/10.1111/avsc.12696>
114. Greene, C., H. Wilmer, D.B. Ferguson, M.A. Crimmins, and M.P. McClaran. 2022. Rancher's Knowledge of Social-Ecological Change: Centering Agency and Scale in Resilience. *Journal of Rural Studies*. 96:217-226. <https://doi.org/10.1016/j.jrurstud.2022.11.001>
113. Rieke, E.L. others, M.P. McClaran, others. 2022. Evaluation of Aggregate Stability Methods for Soil Health. *Geoderma* 428: 116156. <https://doi.org/10.1016/j.geoderma.2022.116156>
112. Crimmins, M., A. Brischke, A. Hall, M.P. McClaran. 2022. Ranch-Scale Drought Monitoring Tools for Arizona. *Univ Arizona Cooperative Extension Bulletin* az1995. <https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1995-2022.pdf>
111. Bagnall, D.K. others, M.P. McClaran, and others. 2022. Carbon-sensitive pedotransfer functions for plant available water. *Soil Science Society of America Journal* 86:612-629. <https://doi.org/10.1002/saj2.20395>
110. Bagnall, D.K., others, M.P. McClaran, and others. 2022. Selecting soil hydraulic properties as indicators of soil health: Measurement responses to management and site characteristics. *Soil Science Society of America Journal* 85 (5):1206-1226. <https://doi.org/10.1002/saj2.20428>
109. Rieke, E.L. others, M.P. McClaran, others. 2022. Linking microbial community structure to potential carbon mineralization: A continental scale assessment. *Soil Biology and Biochemistry* 168: 108618. <https://doi.org/10.1016/j.soilbio.2022.108618>
108. Gillan, J.K., G.E. Ponce-Campos, T.L. Swetnam, A. Gorlier, P. Heilman, and M.P. McClaran. 2021. Innovations to expand drone data collection and analysis for rangeland monitoring. *Ecosphere* 12(7):e03649. <http://dx.doi.org/10.1002/ecs2.3649>

107. Gornish, E.S., H. Ganjurjav, M. Liang, J.L. Simonis, and M.P. McClaran. 2021. Identifying restoration opportunities beneath native mesquite canopies. *Restoration Ecology* 29 (2), e13334 <https://onlinelibrary.wiley.com/doi/full/10.1111/rec.13334>
106. Smart, A.J., K. Harimony, J.D. Scasta, M.B. Stephenson, J.D. Volesky, L.T. Vermiere, J.C. Mosley, K. Sedivec, M. Meehan, T. Haigh, J.D. Derner, and M.P. McClaran. 2021. Critical decision dates for drought management in Central and Northern Great Plains Rangelands. *Rangeland Ecology and Management*. <https://doi.org/10.1016/j.rama.2019.09.005>
105. Throop, H.L., S. Munson, N. Hornslein, and M.P. McClaran. 2021. Shrub influence on soil carbon and nitrogen in a semi-arid grassland is mediated by precipitation and largely insensitive to livestock grazing. *Arid Land Research and Management*. <https://doi.org/10.1080/15324982.2021.1952660>
104. Brugger, J., M.P. McClaran, and J.E. Sprinkle. 2020. Story-telling natural resource conflict on U.S. public lands. *Ethnos: Journal of Anthropology*. 85:1, 54-78 <https://doi.org/10.1080/00141844.2018.1456476>
103. Baccei, J.S., M.P. McClaran, T.J. Kuhn, and S.C. Hart. 2020. Multi-scale drivers of soil resistance predict vulnerability of seasonally wet meadows to trampling in the Sierra Nevada, USA. *Ecological Processes*. 9:32. <https://doi.org/10.1186/s13717-020-00236-7>
102. Kariuki, S., R.E. Gallery, J.P. Sparks, R. Gimblett, and M.P. McClaran. 2020. Soil microbial activity is resistant to recreational camping disturbance in a *Prosopis* dominated semiarid savanna. *Applied Soil Ecology*. 147: 103424. <https://doi.org/10.1016/j.apsoil.2019.103424>
101. Noelle, S., Lyons, T., Gorlier, A., McClaran, M.P., Nichols, M., and Rulye, G. 2020. How long before a second defoliation of actively growing grass plants in the Desert Grassland? *Frontiers in Veterinary Science*, section Animal Behavior and Welfare. 7, article 600734. <https://doi.org/10.3389/fvets.2020.600734>
100. Throop, H.L., S.A. Archer, and M.P. McClaran. 2020. Soil organic carbon in drylands: shrub encroachment and vegetation management effects dwarf those of livestock grazing. *Ecological Applications*. 30(7), 2020, e02150, <http://dx.doi.org/10.1002/eap.2150>
99. Gillan, J., M.P. McClaran, T. Swetnam, and P. Heilman. 2019. Estimating forage utilization with drone-based photogrammetric point clouds. *Rangeland Ecology and Management* 72:575-585.
98. Weston, J., M.P. McClaran, R.K. Whittle, C.W. Black, and J.S. Fehmi. 2019. Satellite Patches, Patch Expansion, and Doubling Time as Decision Metrics for Invasion Control: *Pennisetum ciliare* Expansion in Southwestern Arizona. *Invasive Plant Science and Management* 12:36-42.
97. Brugger, J., K. L. Hawkes, A. M. Bowen and M. P. McClaran. 2018. Framework for a collaborative process to increase preparation for drought on U.S. public rangelands. *Ecology and Society* 23 (4):18. [online] URL: <https://www.ecologyandsociety.org/vol23/iss4/art18/>
96. Hawkes, Kelsey .L., Mitchel.P. McClaran, Julie Brugger, Michael A. Crimmins, Larry D. Howery, George B. Ruyle, James E. Sprinkle and Douglas R. Tolleson. 2018. Guide to Co-Developing Drought Preparation Plans for Livestock on Southwest National Forests. Univ Arizona Cooperative Extension Bulletin az1764. <https://extension.arizona.edu/pubs/guide-co-developing-drought-preparation-plans-livestock-grazing-southwest-national-forests>
95. Huang, C., S.A. Archer, M.P. McClaran, and S.E. Marsh. 2018. Shrub encroachment into grasslands: end of an era? *PeerJ* 6:e5474; <https://doi.org/10.7717/peerj.5474>
94. Swetnam, T.L., J.K. Gillan, T.T. Sankey, M.P. McClaran, M. Nichols, P. Heilman, P. and J. McVay. 2018. Considerations for achieving cross-platform point cloud data fusion across different dryland ecosystem structural states. *Frontiers in Plant Science*. <https://doi.org/10.3389/fpls.2017.02144>
93. Bagchi, S., N.J. Singh, D.D. Briske, B.T. Bestelmeyer, M.P. McClaran, and K. Murthy. 2017. Quantifying long-term trajectories of plant community change with movement models: implication for ecological resilience. *Ecological Applications*. 27:1514-1528



92. Crimmins, M.A., M. McClaran, J. Brugger, A. Hall, D. Tolleson. 2017. Do-it-yourself construction guide: Rugged accumulation precipitation gauge for remote monitoring. College of Agriculture and Life Sciences, University of Arizona (Tucson, AZ). *University of Arizona Cooperative Extension Publication AZ1747-2017*, 12p.  
[https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1747-2017\\_0.pdf](https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1747-2017_0.pdf)
91. Crimmins, M.A., M. McClaran, J. Brugger, A. Hall, D. Tolleson, and A. Brischke. 2017. Rain Gauges for Range Management: Precipitation Monitoring Best Practices Guide. College of Agriculture and Life Sciences, University of Arizona (Tucson, AZ). *University of Arizona Cooperative Extension Publication AZ1751-2017*, 7 p.  
<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1751-2017.pdf>
90. Sankey, T., J. McVay, T. Swetnam, M.P. McClaran, P. Heilman, and M. Nichols. M. 2017. Hyperspectral and lidar data fusion for arid and semi-arid land vegetation monitoring. *Remote Sensing in Ecology and Conservation*. <https://doi.org/10.1002/rse2.44>
89. Chu, C., A. Kleinhesselink, K. Havstad, M. McClaran, D. Peters, L. Vermeire, H. Wei, and P. Adler. 2016. Direct effects dominate responses to climate perturbations in grassland plant communities. *Nature Communications* 7:11766, doi: 10.1038/ncomms11766.
88. Crimmins, M.A. and M.P. McClaran. 2016. Where do seasonal climate predictions belong in the drought management toolbox? *Rangelands* 38:169-176.
87. Jernigan, M.B., M.P. McClaran, S.H. Biedenbender, and J.S. Fehmi. 2016. Uprooted buffelgrass thatch reduces buffelgrass seedling establishment. *Arid Land Research and Management* 30:320-329.
86. Williamson, J.C., Bestelmeyer, B.T., McClaran, M.P., Robinett, D., Briske, D.D., Wu, X.B., and Fernandez-Gimenez, M. 2016. Can ecological land classification increase the utility of vegetation monitoring data? *Ecological Indicators*. 69:657-666.
85. McClaran, M.P., G.J. Butler, H. Wei, and G.D. Ruyle. 2015. Increased preparation for drought among livestock producers reliant on rain-fed forage. *Natural Hazards* 79:151-170.
84. Chu, C., K.M. Havstad, N. Kaplan, W.K. Lauenroth, M.P. McClaran, D.P. Peters, L.T. Vermeire, and P.B. Adler, P.B. 2014. Life form influences survivorship patterns for 109 herbaceous perennials from six semi-arid ecosystems. *Journal of Vegetation Science* 25:947-954.
83. McClaran, M.P. and H.Wei. 2014. Recent drought phase in a 73-year record at two spatial scales: Implications for livestock production on rangelands in the Southwestern United States. *Agricultural and Forest Meteorology* 197:40-51.
82. Moran, M.S., G.E. Ponce Campos, A. Huete, M.P. McClaran, Y. Zhang, E.P. Hamerlynck, D.J. Augustine, S.A. Gunter, S.G. Kitchen, D.P.C. Peters, P.J.Starks, and M. Hernandez. 2014. Functional response of U.S. grasslands to the early 21<sup>st</sup> century drought. *Ecology* 95: 2121-2133.
81. Perlinski, A.T., G. Paige, and M.P. McClaran. 2014. Evaluating a state-and-transition model using a long-term dataset. *Rangeland Ecology and Management*. 67:173-182.
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- Walsh, Katie Bills, Greene, C., Crimmins, M., Ferguson, D., Kaplan, N., McClaran, M., Wilmer, H. 2022. What does resilience mean to ranchers. <https://storymaps.arcgis.com/collections/b08b39a1ca134e658d98915afe91b13f> Story Map describing rancher responses to group discussions at 7 locations in the Western U.S. This is a product of The Livestock Ranching, Rangelands, and Resilience: Ensuring Adaptive



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## **PRESENTATIONS (N=177)**

### **Invited Oral Presentations (N=63):**

- McClaran, M.P. and A. Stevens. 2023. The Arizona Experiment Station: What We Do, Where we Get Money, and How We Spend It. Presentation to Yuma Fresh Vegetable Association. Virtual on 05 October 2023.
- McClaran, M.P. and M. Green. 2021. Future of Arizona Experiment Station as Growth Engines for Arizona. University of Arizona Ag100 Semiannual Meeting 23 April 2021.
- McClaran, M.P. 2021. Santa Rita Experimental Range: History of Change Provides Research Opportunities. Western Colorado University BIOL 697: The Ecology of Place. Course via Zoom 25 February 2021.
- Gornish, E. and McClaran, M.P. 2018. Grassland and Mesquite on the Santa Rita Experimental Range: An Historical Perspective. Altar Valley Conservation Alliance Brush Management Workshop. Santa Rita Experimental Range, AZ. 22 January 2018.
- Landreville, K. and McClaran, M.P. Guide to Increasing Drought Preparation. Farm Home Ranch Day, Graham County Cooperative Extension. Safford, AZ. 16 February 2018.
- McClaran, M.P. Standardized Precipitation Index Explorer Tool. Farm Home Ranch Day, Graham County Cooperative Extension. Safford, AZ. 16 February 2018.
- McClaran, M.P. 2018. Drought and Tools to Help. Arizona Cattle Growers Winter meeting. Phoenix, AZ 21 February 2018.
- McClaran, M.P. 2018. Three lessons from drought planning to help plan for climate change. 20th Meeting United Nations FAO-CIHEAM (International Centre for Advanced Mediterranean Agronomic Studies) Mountain Pasture Network. Ballstad, Norway. 10 September 2018.
- McClaran, M.P. 2017. Standardized Precipitation Index Explorer Tool. Region 3 National Forest Range and Wildlife Managers Annual Meeting. Albuquerque, NM. 29 November 2017.
- McClaran, M.P. 2017. Review of Collaborative Drought Preparation for Forest Service Grazing Allotments. Region 3 National Forest Range and Wildlife Managers Annual Meeting. Albuquerque, NM. 29 November 2017.
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- McClaran, M.P. 2017. Livestock Management and Drought Planning Workshop. Coronado National Forest Grazing Permittee Annual Meeting. Sonoita, AZ. 29 August 2017.
- McClaran, M.P. 2017. Standardized Precipitation Index Explorer Tool. Cattlemen's College, Arizona Cattle Growers Association Annual Meeting. Prescott, AZ. 26 July 2017.
- McClaran, M.P. 2017. Collaborative Drought Preparation Project Review. Cattlemen's College, Arizona Cattle Growers Association Annual Meeting. Prescott, AZ. 26 July 2017.
- McClaran, M.P. 2017. Standardized Precipitation Index Explorer Tool. Arizona Section Society for Range Management Annual Meeting, Tucson, AZ. 06 January 2017.
- McClaran, M.P. 2017. Review of Collaborative Drought Preparation for Forest Service Grazing Allotments. Arizona Section Society for Range Management Annual Meeting, Tucson, AZ. 05 January 2017.
- McClaran, M.P. 2016. How to Select and Complete Research. Teacher Outreach and Training Workshop. Santa Rita Experimental Range, Arizona. 11 November 2016.
- McClaran, M.P. 2016. Planning as a prerequisite to using drought information. Winter Season Outlook and Impacts Forum. National Integrated Drought Information System, USDA



- Southwest Climate Hub and National Drought Mitigation Center conveners. Las Cruces, NM. 25 October 2016.
- McClaran, M.P. 2016. Planning as a prerequisite to using drought information. Intermountain West Drought Early Warning System Drought and Climate Outlook. National Integrated Drought Information System and National Oceanic and Atmospheric Administration conveners. Oracle, AZ Biosphere 2. 20 September 2016.
- McClaran, M.P. 2016. Santa Rita Experimental Range and National Ecological Observatory Network. UA Arid Lands III. UA Global Initiatives. Tucson, AZ. 01 March 2017.
- McClaran, M.P. 2015. Protection motivation theory applied to ranchers' preparation for drought in southern Arizona. Social Science Methods in Climate Adaptation: Five Short Talks. Center for Climate Adaptation Science and Solutions (CCASS), Institute of the Environment, University of Arizona. 26 October 2015.
- McClaran, M.P. and H. Wei. 2013. Recent drought phase in a 73-year record viewed at two spatial scales: Implications for livestock production on rangelands in the Southwest. Invited presentation, USDA-ARS Southwest Watershed Research Center, 19 December 2013.
- McClaran, M.P. 2013. Drought on rangelands: Considering scales of space and time. Development of Real-World Drought Management Scenarios for Arizona Rangelands. Cottonwood AZ, 19 September 2013.
- McClaran, M.P., P.D. Guertin, G. Ruyle, H. Wei, A. Dalke, G. Butler, and M. Ross. 2013. Grazing Land Conservation Practices and Drought on Southwestern Rangelands. CEAP Rangeland Assessment Symposium, Soil and Water Conservation Society Annual Meeting, 22 July 2013, Reno NV.
- McClaran, M.P. 2013. Future of Livestock Production in the Southwest in the Face of Climate and Economic Uncertainty: Range Scientist Perspective. Future of Meat Production, Processing & Local Distribution in Pima County, Southeastern Arizona. 06 June. Tucson, Arizona.
- McClaran, M.P. 2013. Change In Grasslands. Desert Grasslands: Issues in Art-Panel Discussion. 17 February. Tucson Museum of Art
- McClaran, M.P. 2012. Meet your 110 year-old neighbor the Santa Rita Experimental Range. Green Amateur Radio Club, September 2012, Green Valley, AZ.
- McClaran, M.P., J. Brueger, and M. Crimmins. 2012. Including the adapter in the co-development of adaptation strategies. Invited presentation in Translating Climate Science into Actionable Knowledge: The Role of Social Sciences. Tri-Societies Meeting. Cincinnati, OH, 24 October 2012.
- McClaran, M.P., Guertin, D.P., Ruyle, G., Wei, H., Dalke, A., Butler, G. 2012. Grazingland conservation practices and drought on Southwestern Watersheds. Invited presentation, National Water Conference, Portland, OR. 24 May 2012.
- McClaran, M.P. and H. Wei. 2012. Grazingland conservation practices and drought on Southwestern Watersheds. Invited presentation, USDA-ARS Southwest Watershed Research Center, 11 June 2012.
- Dalke, A., M.P. McClaran, M.P., and D. Robinett. 2012. Validating Expert-Based State and Transition Models Using Long-Term Data. Invited Poster for Ecological Site Description Workshop, Society for Range Management Annual Meeting, Spokane, WA. 28 January 2012.
- McClaran, M.P. 2011. A century of change in the Desert Grassland: Insights from building and sharing a long-term data base. Presented to USDA-ARS Great Basin Rangeland Research Unit, Reno, NV. November 2011.
- McClaran, M.P. 2011. Meet your 109 year-old neighbor the Santa Rita Experimental Range. Green Valley Forum. August, Green Valley, AZ.
- McClaran, M.P. 2009. The botany of desert grasslands and the Santa Rita Experimental Range. Friends of the Santa Rita Experimental Range. April, Green Valley, AZ.

- McClaran, M.P. 2009. NEON: A multi-disciplinary, continental-scale observatory for measuring, understanding, and forecasting ecosystem response to environmental change. 9<sup>th</sup> SAHRA Annual Meeting on Climate, Water and Land Cover in a Non-Stationary World. September, Tucson, AZ.
- Archer, S.R., T.W. Boutton, M.P. McClaran, H.L. Throop, and X.B. Wu. 2008. Grasses, shrubs, and the carbon cycle: functional consequences of ecosystem state changes. 60<sup>th</sup> Annual Meeting, Society for Range Management. February, January, Louisville, KY.
- McClaran, M.P. 107 year of vegetation change on the Santa Rita Experimental Range. Green Valley Community Lecture Series. March, Green Valley, AZ.
- McClaran, M.P., K. Wisneski, and A. Olsson. 2007. Buffelgrass control program on the Santa Rita Experimental Range. 10<sup>th</sup> Annual Conference of the Southwest Vegetation Management Association. October, Tucson, AZ.
- McClaran, M.P. 2006. Santa Rita Experimental Range: Overview of setting, facilities and on-going work. Jornada Experimental Range. March, Las Cruces, NM.
- McClaran, M.P. 2005. Century of vegetation change on the Santa Rita Experimental Range. Department of Animal and Range Science, New Mexico State University. November, Las Cruces, NM.
- Havstad, K.M. and M.P. McClaran. 2004. Challenges and advances towards sustainable utilization of arid land resources in the USA. International Symposium on the Utilization of Indigenous Plant and Animal Genetic Resources in the Mediterranean Region. Food and Agriculture Organization and University of Mostar, Bosnia. October, Mostar, Bosnia.
- McClaran, M.P. 2004. Cajooling serendipity. 14<sup>th</sup> Annual Jornada Symposium. July, Las Cruces, NM.
- McClaran, M.P. 2003. Developing ecological histories. Graduate Seminar on Ecological History Research, University of California, Berkeley. September, Berkeley, CA.
- McClaran, M.P. 2003. A century of vegetation change on the Santa Rita Experimental Range. Santa Rita Experimental Range: 100 years (1903-2003) of accomplishments and contributions. October, Tucson, AZ.
- McClaran, M.P., M. W. Brunson, and L. Huntsinger. 2001. Future social changes and rangeland use. Rangeland Professionals and Society: Looking Forward, Symposium at Society for Range Management. January, Kona, Hawaii.
- McClaran, M.P. 2001. Future social changes and rangeland use. Departmental Seminar, Rangeland Ecology and Management, Texas A&M University. November, College Station, TX.
- McClaran, M.P. 2000. Historical development of the range curriculum. Blazing New Trails: Range Management Science Education in the 21st Century Symposium, Range Science Education Council and Society for Range Management. January, Boise, ID.
- McClaran, M.P. 2000. Ecological changes on the Santa Rita Experimental Range. Arizona Ecological Site Symposium, Society for Range Management Arizona Section. August, Tucson, AZ.
- McClaran, M.P. and D.L. Angell. 2000. Long-term records available for the Santa Rita Experimental Range. Arizona Ecological Site Symposium, Society for Range Management Arizona Section. August, Tucson, AZ.
- McClaran, M.P. 1999. The five most significant papers published in the first 50 years of the Journal of Range Management. Arizona Section Society for Range Management Annual Meeting Plenary Papers. January, Casa Grande, AZ.
- McClaran, M.P. 1999. Sonoita area vegetation and its sensitivity to human activities. Sonoran Institute Local Planning Coalition. April, Sonoita, AZ.
- McClaran, M.P. 1999. Improving livestock management in wilderness. State of the Knowledge presentation at Wilderness Science in a Time of Change Symposium, USDA Forest Service. July, Missoula, MT.

- McClaran, M.P. 1998. Fairness, Benefits, and Discretion in Public Participation. Natural Resources and Environmental Policy Program Seminar Series. November, Utah State University, Logan, UT.
- McClaran, M.P. 1998. The 5 Most Important Papers in the Journal of Range Management, Volumes 1-50. Rangeland Resources Department Seminar Series. November, Utah State University, Logan, UT.
- McClaran, M.P., M. Haseltine, B. Hutchinson and J. Pfander. 1996. Building an electronic knowledge center for rangeland management: the Arizona AgNIC Project. Conference on Future of Arid Grasslands: Identifying Issues, Seeking Solutions, October, Tucson, AZ.
- McClaran, M.P. 1994. Landscape-level temporal and spatial variation in the semi-desert grassland. Annual Meeting International Association of Landscape Ecologists. March, Tucson, AZ.
- McClaran, M.P. 1992. Range resources and sustainable ranching. University of Arizona College of Agriculture Land and People Conference on Environmental Stewardship. February, Tucson, AZ.
- McClaran, M.P. 1992. Public natural resources policy: From law to implementation. Cooperative Extension Workshop on Public Lands Management. March, University of Arizona, Tucson, AZ.
- McClaran, M.P., L.S. Allen, and G.B. Ruyle. 1992. Livestock and grazing management in the encinal oak woodlands of Arizona. US Forest Service Symposium on Ecology and Management of Oak and Associated Woodlands: Perspectives in the Southwestern United States and Mexico. April, Sierra Vista, AZ.
- McClaran, M.P. 1991. Administering and managing recreational and production livestock in wilderness. Central and Southern Sierra Interagency Wilderness Managers Workshop. September, Yosemite National Park, CA.
- McClaran, M.P. 1989. Recreational livestock management. Central and Southern Sierra Interagency Wilderness Managers Workshop. September, Bear Valley, CA.
- McClaran, M.P. 1988. Recreational pack stock management in the National Park System. Livestock Management in the National Park Service Training Course. August. Albuquerque, NM.
- McClaran, M.P. 1988. Differential assessment for agricultural land protection. Arizona Tax Conference. September, Prescott, AZ.
- McClaran, M.P. 1987. Rasen und weiden der sudlichen Sierra Nevada, Kalifornien. Botanisches Kolloquium, Institut fur Botanik der Universitat Innsbruck. July, Innsbruck, Austria.

**Submitted Oral and Poster Presentations (N=116):**

- Gorlier, A. and M.P. McClaran. 2023. The Santa Rita Experimental Range Repeat Photography Archive Shows Desert Grassland Dynamics Across 121 Years and 115 Locations. 19<sup>th</sup> Symposium on Research Insights in Semi-arid Environments (RISE). Tucson, AZ, 21 October 2023. (poster)
- Ponce-Campos, G., McClaran, M.P., and Heilman, P. 2023. Hind-Casting Ecological State Maps in Semi-Arid Rangelands. American Geophysical Union Fall Meeting, San Francisco, CA. (poster)
- Anselmetto, N., G. Nota, A. Gorlier, and M.P. McClaran. 2022. Differences in population size structure drive grass response to long-term livestock removal. 18<sup>th</sup> Symposium on Research Insights in Semi-arid Environments (RISE). Tucson, AZ, 05 November 2022. (poster)
- Eitzel, M.V., S. Rodriguez-Burtitica, W.S. Harpole, R. Aicher, L. Larios, M.P. McClaran, and K. Suding. 2022. Reproduction and Recruitment of Blue Oak in the Sierra Nevada Foothills of California. Eighth Symposium on Oak Woodlands: Sustaining Oak Woodlands Under Current and Future Conditions, October 31-November 3, 2022, San Luis Obispo, California.
- Ponce Campos, G.E., M.P. McClaran, P. Heilman, and J.K. Gillan. 2022. Using UAV and

- Satellite-based sensing to detect eroded ecological states at the landscape scale. 18<sup>th</sup> Symposium on Research Insights in Semi-arid Environments (RISE). Tucson, AZ, 05 November 2022. (poster)
- Ponce-Campos, G., McClaran, M.P., Heilman, P., and Gillan, J.K. 2022. Using UAV and Satellite-based Sensing to Detect Eroded Ecological States at the Landscape Scale. American Geophysical Union Fall Meeting, San Francisco, CA. (poster)
- Githu, D.W.; Fehmi, J.S.; McClaran, M., Elizabeth M.; Josephson, A. 2021. Pastoralist Use of Reseeded Fields for Additional Resilience to Climate Variability through Alternate Livelihood Activities. International Rangeland Congress, Nairobi, Kenya, October 2021. (poster)
- Crimmins, M.A., McClaran, M.P., and Hawkes, K.L. 2018. Filling in the Gaps: Managing and Interpreting Site-Specific Precipitation Observations with the myRAINgeLog Tool. 71<sup>th</sup> Annual Meeting, Society for Range Management, Sparks, NV February 2018 (poster).
- Gillan, J., McClaran, M.P., Swetnam, T., Heilman, P, Noelle, S. and Turner, R. 2018. Estimating forage biomass and utilization in a desert grassland with small unmanned aerial system imagery. 71<sup>st</sup> Annual Meeting, Society for Range Management, Sparks, NV February 2018 (oral presentation).
- Hawkes, K.L., McClaran, M.P., and Crimmins, M. A. 2018. Guide to Co-Developing Drought Preparation Plans for Livestock Grazing on SW National Forests. 71<sup>st</sup> Annual Meeting, Society for Range Management, Sparks, NV February 2018 (poster).
- McClaran, M.P., Crimmins, M.A. and Hawkes, K.L. 2018. Talking About Drought: SPI Explorer Tool Builds a Common Language. 71<sup>st</sup> Annual Meeting, Society for Range Management, Sparks, NV February 2018 (poster).
- Bagchi, S., N.J. Singh, B.P. Bestelmeyer, M.P. McClaran, D.D. Briske, and K. Murthy. 2017. Quantifying plant community dynamics using animal movement models-implications for ecosystem resilience. Gordon Research Conference on Movement Ecology of Animals. Ventura, CA, 19-24 March 2017.
- Gillan, J.K., M.P. McClaran, T. Swetnam, P. Heilman, and R. Turner. 2017. Estimating forage utilization with unmanned aerial imagery. 14<sup>th</sup> Symposium on Research Insights in Semi-arid Environments (RISE). Tucson, AZ, 21 October 2017.
- Hall, A.L., M. Crimmins, M. McClaran, and A. Brischke. 2017. Developing resources to help ranchers plan for drought in Arizona. Western Region National Association of County Agricultural Agents Annual Meeting, Las Cruces, NM. 24 October 2017.
- Kariuki, S., M. McClaran, and R. Gallery. 2017. How does recreational camping affect cover-mediated soil microbial activity? 14<sup>th</sup> Symposium on Research Insights in Semi-arid Environments (RISE). Tucson, AZ, 21 October 2017.
- Kariuki, S., M. McClaran, and R. Gallery. 2017. How does recreational camping affect cover-mediated soil microbial activity? Soil Ecology Society Biennial Meeting. Ft Collins, CO. 06 June 2017.
- Hawkes, K.L., M.P. McClaran, J. Brugger, M.A. Crimmins, L.D. Howery, G.B. Ruyle, J.E. Sprinkle, and D.R. Tolleson 2016. Using an Interactive Scenario-Planning Tool for Ranchers and Forest Service to Prepare for Drought. 13<sup>th</sup> Symposium on Research Insights in Semi-arid Environments (RISE). 08 October, Tucson, AZ, October 2016.
- Hawkes, K.L., M.P. McClaran, J. Brugger, M.A. Crimmins, L.D. Howery, G.B. Ruyle, J.E. Sprinkle, and D.R. Tolleson 2016. Using a co-development process to improve livestock grazing during drought on National Forests. 68<sup>th</sup> Annual Meeting, Society for Range Management, Corpus Christi, TX February 2016.
- Noelle, S., G. Ruyle and M.P. McClaran. 2016. Short-term Rangeland Monitoring Archive: A New Resource for Researchers. 13<sup>th</sup> Symposium on Research Insights in Semi-arid Environments (RISE). 08 October, Tucson, AZ, October 2016.
- Rawoot, D.N., M.P. McClaran, L.A. Fisher. 2016. Spatial distribution of conservation easements in relations to protected areas and grasslands in the Maderan Archipelago. 13<sup>th</sup> Symposium

- on Research Insights in Semi-arid Environments (RISE). 08 October, Tucson, AZ, October 2016.
- McClaran, M.P. and H. Wei. 2014. Frequency and duration of drought patches across the Santa Rita Experimental Range, 1940-2012. 67<sup>th</sup> Annual Meeting, Society for Range Management, Orlando, FL, February 2014.
- Wei, H. and M.P. McClaran. 2014. Spatial scale of drought in a meso-scale southwestern watershed. 67<sup>th</sup> Annual Meeting, Society for Range Management, Orlando, FL, February 2014.
- McClaran, M.P. and H. Wei. 2013. Frequency and duration of drought patches across the Santa Rita Experimental Range, 1940-2012. 10<sup>th</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ, October 2013.
- Dalke, A. and M.P. McClaran. 2013. Native and introduced perennial grass abundance responds differently to grazing, mesquite, and ecological site. 66<sup>th</sup> Annual Meeting, Society for Range Management, February, Oklahoma City, OK.
- Ross, M., P.D. Guertin, S. Burns, M. McClaran, P. Hielman. 2013. Assessing the effectiveness of conservation practices on a working ranch in southeastern Arizona using the Rangeland Hydrology Erosion Model (RHEM). Soil and Water Conservation Society Annual Meeting, 22 July 2013, Reno NV.
- Wei, H. and M.P. McClaran. 2013. Spatial scale of drought in a meso-scale southwestern watershed. Soil and Water Conservation Society Annual Meeting, 22 July 2013, Reno NV.
- Dalke, A. and M.P. McClaran. 2012. Perennial grass biomass is related to grazing exclusion and ecological site, but not mesquite cover. 9<sup>th</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ
- Hawkes, K. and M.P. McClaran. 2012. Amount, not spatial arrangement of grass cover differs between grazed-ungrazed settings. 9<sup>th</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ
- Huang, C., S. Archer, M. McClaran, and S. Marsh. 2012. Shrub encroachment into grasslands: end of an era?. Ecological Society of America Annual Meeting. August, Portland, OR.
- Mashiri, F.E., G. Ruyle, M.P. McClaran, L. Howery, M. Heitlinger, A. Phipps, and A. McGibbon. 2012. An adaptive management approach to livestock grazing on the Santa Rita Experimental Range. Strategic Grazing Management for Complex Adaptive Systems symposium, November 29-30, at Colorado State University, Ft. Collins, CO.
- McNamee, C., D.C. Laughlin, M.M. Moore, and M.P. McClaran. 2012. Soil phytolith assemblages and historical ecology: using phytolith analysis to investigate vegetation change in Arizona. 9<sup>th</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ.
- Ponce-Campos, G.E., M.S. Moran, A. Huete, Y. Zhang, C. Bresloff, T.E. Huxman, D.D. Bosch, A.R. Buda, S.A. Gunter, S.G. Kitchen, W.H. McNab, M.P. McClaran, J.A. Morgan, D.P.C. Peters, E.J. Sadler, M.S. Seyfried, P.J. Starks, D. Sutherland Montoya, T.H. Scalley, and D. Eamus. 2012 Response of cross-biome productivity to the early 21st Century drought. American Geophysical Union annual meeting, December 2012.
- Wei, H., M.P. McClaran, and D.P. Guertin. 2012. Do conservation practices influence vegetation responses to drought? 9<sup>th</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ
- Wei, H. M.P. McClaran, and D.P. Guertin. 2012. Spatial scale of drought on the Santa Rita Experimental Range. 9<sup>th</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ.
- Zhang, Y., M.S. Moran, M.A. Nearing, G.E. Ponce Campos, A.R. Huete, A.R. Buda, D.D. Bosch, S.A. Gunter, S.G. Kitchen, W.H. McNab, J.A. Morgan, M.P. McClaran, D.S. Montoya, D.P.C. Peters, and P.J. Starks. 2012. Extreme precipitation patterns reduced terrestrial ecosystem production across biomes during 2000-2009. American Geophysical Union

- annual meeting, December 2012.
- Dalke, A., McClaran, M.P., and Robinett, D. 2011. Validating Expert-Based State and Transition Models Using Long-Term Data. 8<sup>th</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ
- Moore, P.E. J.W. van Wagtenonk, M.P. McClaran, N. McDougald, and M.L. Brooks. 2011. Temperature and precipitation effects on meadow productivity. 10<sup>th</sup> Conference on Research and Resources in Parks and Public Lands, George Wright Society, April, New Orleans, LA.
- Wei, H., McClaran, M.P., and Guertin, D.P. 2011. Are extreme precipitation conditions equally likely among pastures in a rotation systems? 8<sup>th</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ.
- Moran, M.S. Y. Zhang, G. Ponce, A.R. Huete, M.P. McClaran, R.G. Denton, S.G. Kitchen, J.A. Morgan, and D. Peters. 2011. Response of southwestern grasslands to precipitation and temperature extremes of the early 21<sup>st</sup> century. The 4<sup>th</sup> Interagency Conference on research in the Watersheds. September, Fairbanks, AK.
- Huang, C., S.R. Archer, M.P. McClaran, and S.E. Marsh. 2011. Long-term cross-scale assessment of woody cover stability in drylands. ISRSE 2011, 34<sup>th</sup> International Symposium on Remote Sensing of the Environment. April, Sydney, Australia.
- Moore, P.E. J.W. van Wagtenonk, M.P. McClaran, N. McDougald, and M.L. Brooks. 2011. Temperature and precipitation effects on meadow productivity. 10<sup>th</sup> Conference on Research and Resources in Parks and Public Lands, George Wright Society, April, New Orleans, LA.
- Ponce, G., M.S. Moran, A. Huete, C. Bresloff, T. Huxman, D. Bosch, J. Bradford, A. Buda, S. Gunter, H. McNab, M.P. McClaran, D. Peters, J. Sadler, M. Seyfried, P. Starks, D. Sutherland Montoya, and T. Heartsill. 2011. Convergence of Dynamic Vegetation Net Productivity Responses to Precipitation Variability from 10 Years of MODIS EVI. ISRSE 2011, 34<sup>th</sup> International Symposium on Remote Sensing of the Environment. April, Sydney, Australia.
- Mashiri, F.E., G. Ruyle, M.P. McClaran, L. Howery, M. Heitlinger, A. Phipps, A. McGibbon, and J. May. 2010. Adaptive management approach to livestock grazing on the Santa Rita Experimental Range. 7<sup>th</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ.
- Ponce, G., C. Bresloff, M.S. Moran, A. Huete, T. Huxman, D. Bosch, J. Bradford, A. Buda, S. Gunter, H. McNab, M. P. McClaran, D. Peters, J. Sadler, M. Seyfried, P. Starks and D. Sutherland Montoya. 2009. MODIS EVI as a surrogate for net primary production across precipitation regimes. 7<sup>th</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ.
- Wei, H. D.P. Guertin, and M.P. McClaran. 2010. Interpolation vs. nearest gauge: Comparing estimates of precipitation at distant study sites. 7<sup>th</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ.
- Bresloff, C., M.S. Moran, A. Huete, T. Huxman, D. Bosch, J. Bradford, A. Buda, S. Gunter, H. McNab, M. P. McClaran, D. Peters, J. Sadler, M. Seyfried, P. Starks and D. Sutherland Montoya. 2009. MODIS EVI as a proxy for net primary production across precipitation regimes. American Geophysical Union Fall Meeting. December, San Francisco, CA.
- Shepherd, A.L. and M.P. McClaran. 2009. Historic trends in stocking rates and precipitation on the Santa Rita Experimental Range. 6<sup>th</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ.
- Cate, A., C. Wissler, and M.P. McClaran. 2008. The Santa Rita Experimental Range Historic Study Area search application. 5<sup>th</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ.
- Moran, M.S., D.P.C. Peters, M.P. McClaran, M.H. Nichols, and M.B. Adams. 2008. Long-term

- data collection at USDA Experimental sites for studies in ecohydrology. 28<sup>th</sup> Conference on Agriculture and Forest Meteorology April-May, Orlando, FL.
- Shepherd, A.L. and M.P. McClaran. 2008. Differences in buffelgrass abundance between wash and upland habitats. 5<sup>th</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ.
- Mashiri, F.E., M.P. McClaran, and J.S. Fehmi. 2007. Short and long-term responses of grass density to grazing systems. 59<sup>th</sup> Annual Meeting, Society for Range Management. February, February, Albuquerque, NM.
- McLain, J.E.T., M.P. McClaran, and D.A. Martens. 2007. Responses of methane (CH<sub>4</sub>) cycling to grazing and velvet mesquite (*Prosopis velutina*) expansion and removal on the Santa Rita Experimental Range. 4<sup>th</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ.
- Nafus, A., M.P. McClaran, and C. McMurtry. 2006. A general allometric model for estimating biomass of Desert grassland grasses. 59<sup>th</sup> Annual Meeting, Society for Range Management. February, February, Albuquerque, NM.
- Olsson, A., K. Wisneski, and M.P. McClaran. 2007. Geospatial collaboration for buffelgrass control on the Santa Rita Experimental Range. 4<sup>th</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ.
- Throop, H. S.R. Archer, M.P. McClaran, D. Ojima, C. Keogh, W. Parton, and D.L. Gell. 2007. Soil organic carbon responses to grazing and woody plant encroachment in a semi-desert grassland. 59<sup>th</sup> Annual Meeting, Society for Range Management. February, February, Albuquerque, NM.
- Throop, H., S.R. Archer, and M.P. McClaran. 2007. Long-term influence of woody plant removal on soil organic carbon pools in a semi-desert grassland. Ecological Society of America Annual Meeting. August, San Jose, CA.
- Wisneski, K., A. Olsson, and M.P. McClaran. 2007. The contribution of geospatial technologies to buffelgrass detection and control at the Santa Rita Experimental Range. 4<sup>th</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ.
- Mashiri, F.E. and M.P. McClaran. 2007. Long-term effects of yearlong and seasonal rotation grazing on the spatial homogeneity of grass. 4<sup>th</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ.
- Harpole, W.S., K. Suding, M.P. McClaran, and R. Aicher. 2006. Landscape-scale relationships between oak recruitment and livestock management. 6<sup>th</sup> California Oak Symposium: Today's Challenges, Tomorrow's Opportunities. October, Rohnert Park, CA.
- Huang, C., S.E. Marsh, S.R. Archer, and M.P. McClaran. 2006. A top-down approach to understanding the biotic and abiotic characteristics of stable semi-arid savanna ecosystems. 3<sup>rd</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ.
- Huang, C., S.E. Marsh, M.P. McClaran, and S.R. Archer. 2006. Cover-biomass relationships in woody plants: effects of fire and implications for remote sensing. 51<sup>st</sup> Annual Meeting of the Arizona-Nevada Academy of Sciences. April, Tucson, AZ.
- Huang, C., S.E. Marsh, M.P. McClaran, and S.R. Archer. 2006. Post-fire stand structure of woody plants: implications for remote sensing. Ecological Society of America Annual Meeting. August, Memphis, TN.
- Mashiri, F.E., M.P. McClaran, and J. Fehmi. 2006. Comparing short- and long-term effects of grazing systems precipitation and mesquite on grass dynamics. 3<sup>rd</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ.
- McMurtry, C., S.R. Archer, M.P. McClaran, D. Browning, and H. Throop. 2006. Estimating *Prosopis velutina* aboveground biomass: field and remote sensing approaches. 3<sup>rd</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ.
- Moore-Kucera, J., M.P. McClaran, and D.A. Martens. 2006. Soil fractionation accounting of

- carbon dynamics. Soil Science Society of America Annual Meeting. November, Indianapolis, IN.
- Nafus, A., M.P. McClaran, and C. McMurtry. 2006. Allometric equations to estimate biomass of perennial grasses. 3<sup>rd</sup> Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ.
- Throop, H. S.R. Archer, M.P. McClaran, D. Ojima, C. Keogh, W. Parton, and D.L. Gell. 2006. Carbon responses to grazing and woody plant encroachment in a semi-desert grassland. Soil Science Society of America Annual Meeting. November, Indianapolis, IN.
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- McClaran, M.P. and D.L. Angell. 2005. Does age matter? Grass density differences under young and old mesquite. 57<sup>th</sup> Annual Meeting, Society for Range Management. February, February, Ft. Worth, TX.
- McClaran, M.P., D.A. Martens, and S.E. Marsh. 2005. Organic carbon stocks in relation to grass, mesquite, and land use in the Desert Grassland. Ecological Society of America Annual Meeting. August, Montreal, Canada.
- Tanzer, L. and M.P. McClaran. 2005. Distinguishing hyperbole from action in corporate strategic responses to global climate change. 8<sup>th</sup> Annual Electric Utilities Environmental Conference. January, Tucson, AZ.
- Browning, D.M., S.R. Archer, G.P. Asner, M.P. McClaran, and C.A. Wessman. 2004. Pitfalls interpreting woody plant cover change from historical aerial photography. Ecological Society of America Annual Meeting. August, Portland, OR.
- Fang, H., S. Liang, M.P. McClaran, W. van Leeuwen, S. Drake, S.E. marsh, A. Thompson, R.C. Izarrralde, and N.J. Rosenberg. 2004. Deriving land surface biophysical parameters from satellite data for soil carbon sequestration. IGARSS'04 Anchorage, AK.
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- Biedenbender, S.H., M.P. McClaran, and B.A. Roundy. 2003. Effects of neighbor species and distance on 2- and 4-year survival of Lehmann lovegrass and native grasses. Santa Rita Experimental Range: 100 years (1903-2003) of accomplishments and contributions. October, Tucson, AZ.
- Angell, D.L., M.P. McClaran and C. Wissler. 2002. Facilitating access to ecological data: the



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- McClaran, M.P. and D.L. Angell. 2002. Forty-three years of desert grassland vegetation dynamics following velvet mesquite removal. 55<sup>th</sup> Annual Meeting, Society for Range Management. February, Kansas City, MO.
- Ward, J. and M.P. McClaran. 2002. Using inventory information to prioritize control efforts on buffelgrass in Saguaro National park, Arizona. Meeting Resource Management Information Needs, Fourth Conference on Research and Resource Management in the Southwestern Deserts. May, Tucson, AZ.
- Bartolome, J.W., M.P. McClaran, B. Allen-Diaz, J. Dunne, L.D. Ford, R.B. Standiford, N.K. McDougald, and L.C. Forero. 2001. Effects of fire and browsing on regeneration of blue oak. Oaks in California's Changing Landscape. Fifth Symposium on California's Oak Woodlands. October, San Diego, CA.
- Cole, D.N., M.P. McClaran, J. van Wagendonk, P.E. Moore, and N.K. McDougald. 2001. Effects of grazing by horses in subalpine meadows, Yosemite National Park. 54<sup>th</sup> Annual Meeting, Society for Range Management. January, Kona, HI.
- Conley, J.L., G.B. Ruyle, M.P. McClaran, C.R. Scwalbe, and C.R. Fernandez-Gimenez. 2001. Ranching with endangered species: rancher attitudes and practice in relation to endangered species policy on the Coronado National Forest. 54<sup>th</sup> Annual Meeting, Society for Range Management. January, Kona, HI.
- Skirvin, S.M., S.M. Drake, M.P. McClaran, S.E. Marsh, and D. Meko. 2001. Potential effects of climate change on the vegetation in the San Pedro River watershed, southeastern Arizona. Predicting Hydrologic Geologic and Biologic Responses to A Drier and Warmer Climate in the Desert Southwest, USGS Western Region. April, Tucson, AZ.
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- Widmer, K.A. and M.P. McClaran. 2001. Inflorivory of Palmer agave in relation to livestock management. 54<sup>th</sup> Annual Meeting, Society for Range Management. January, Kona, HI.
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- Angell, D.L. and M.P. McClaran. 1999. Long term desert grassland dynamics in relation to

- nonnative Lehmann lovegrass density. 52<sup>nd</sup> Annual Meeting Society for Range Management. February, Omaha, NE.
- Biedenbender, S.H., M.A. Wertz, J. Quade, and M.P. McClaran. 1999. Carbon isotopes in soil organic matter as indicators of past vegetation for a semidesert grassland in southeastern Arizona. 52<sup>nd</sup> Annual Meeting Society for Range Management. February, Omaha, NE.
- Moore, P.E., D.N. Cole, J.W. Van Wagtendonk, M.P. McClaran, and N.K. McDougald. 1999. Meadow response to packstock grazing in the Yosemite Wilderness: integrating research and management. Wilderness Science in a Time of Change Symposium, USDA Forest Service. July, Missoula, MT.
- Van Wagtendonk, J.W., M.P. McClaran, D.N. Cole, N.K. McDougald, and P.E. Moore. 1999. Changes in mountain meadows associated with grazing. 10<sup>th</sup> Conference on Research and Resources in Parks and Public Lands, George Wright Society, Asheville, NC.
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- McClaran, M.P., G.B. Ruyle, J.L. Pfander, and M. Haseltine. 1997. Developing a rangeland management homepage for world wide web access. 50<sup>th</sup> Annual Meeting, Society for Range Management., February, Rapid City, SD.
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- Moore, P., M.P. McClaran, J. van Wagtendonk, and D. Cole. 1997. Meadow response to packstock grazing in Yosemite National Park. Natural Areas Association Annual Conference, August, Portland, OR.
- Wissler, C., R. MacArthur, and M.P. McClaran. 1996. Developing a spatial information system for long term ecological data at the Santa Rita Experimental Range in Arizona. ECOINFORMA 96, Global Networks for Environmental Information, November, Orlando, FL.
- Moote, M.A. and M.P. McClaran. 1994. Changing models of administrative decision-making: public involvement in public land management. Fifth International Symposium on Society and Natural Resources, June, Fort Collins, CO.
- Sundt, P.L. and M.P. McClaran. 1993. Binomial use monitoring (BUM): a simple method of monitoring defoliation on desert shrubs. Symposium on Vegetation Management of Hot Desert Rangeland Ecosystems, July, Phoenix AZ.
- Hatch, D.A., J.W. Bartolome, H.F. Heady, and M.P. McClaran. 1992. Long-term changes in perennial grass populations in oak savannas. Annual Meeting Ecological Society of America. August, Honolulu, HI.
- Van Deren, K.J. and M.P. McClaran. 1992. Administering livestock in BLM wilderness: a case study. 45<sup>th</sup> Annual Meeting, Society for Range Management. January, Washington, DC.
- McClaran, M.P. 1991. Packstock management in the National Wilderness Preservation System. 44<sup>th</sup> Annual Meeting, Society for Range Management. January, Washington, DC.
- Anable, M.E., M.P. McClaran, G.B. Ruyle, and S.C. Martin. 1990. Alien plant invasion in relation to site characteristics and disturbance: *Eragrostis lehmanniana* on the Santa Rita Experimental Range, Arizona 1937-1989. 43<sup>rd</sup> Annual Meeting, Society for Range Management. February, Reno, NV.

- McClaran, M.P. and J.W. Bartolome. 1987. Geographic variation in the effect of blue oak canopy on herbaceous production and composition in California. 40<sup>th</sup> Annual Meeting, Society for Range Management. February, Boise ID.
- McClaran, M.P. 1986. Blue oak age structure in relation to livestock grazing history in Tulare County, California. Symposium on Multiple Use Management of California's Hardwood Resources. November, Cal Poly University, San Luis Obispo, CA.
- McClaran, M.P. 1986. Yearly variation in blue oak seedling emergence. Symposium on Multiple Use Management of California's Hardwood Resources. November, Cal Poly University, San Luis Obispo, CA.