

14 December 2017

MITCHEL PAUL McCLARAN

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EMPLOYMENT

2015-present Associate Director, Agricultural Experiment Station, University of Arizona
2013-2015 Assistant Director, Agricultural 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-present 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-present

Rangeland Plant Communities, 3 units, (RAM 382), 29 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

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

Graduate Students: 18 completed, M. Anable (MS), D. Angell (MS), S. Biedenbender (PhD), G. Bolton (PhD), J. Coronado (PhD), A. Dalke (MS), P. Ford (PhD), K. Hawkes (MS), F. Mashiri (PhD), N. Mgxashe (MS), A. Moote (MS), A. Nafus (MS), M. Neuman (MS), D. Valdez (MS), K. Van Deren (MS), J. Ward (MS), K. Widmer (MS), J. Womack (MS);
currently advising: S. Buckley (PhD), Sudan Kariuki (MS), Damian Rawoot (MS).
Post docs: Elizabeth Pierson (completed), Haiyan Wei (Completed), Tyson Swetnam (Completed).

HONOR AND AWARDS

- 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), 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: 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-level

- Chair: Arizona Experiment Station Leadership Committee, 2015-present
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: 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-present
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-present
Member: Faculty Status Committee. School of Natural Resources, 1993-95, 2001-03, 2006-08
Member: Faculty Search Committees, School of Natural Resources, 1994, 2007
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

- 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 1st- 14th 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. \$362,000 in years 1-2.
- 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 Conservation Service: Wildlife Habitat Improvement Program. \$30,376.
- 2008-09 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

- 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 Wagtendonk 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=94)

Refereed Publications--- First or Sole Author (N=42)

- 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.
- 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.
- McClaran, M.P., C. McMurtry, and S.R. Archer. 2013. A tool for estimating impacts of woody encroachment in arid grasslands: allometric equations for biomass, carbon and nitrogen content in *Prosopis velutina*. *Journal of Arid Environments* 88:39-42.
- McClaran, M.P., D.M. Browning, and C. Huang. 2010 Temporal dynamics and spatial variability in desert grassland vegetation. In R.H. Webb, D.E. Boyer, and R.M. Turner (eds.). Repeat Photography: Methods and Applications in the Natural Sciences. Island Press. Pages 145-166.
- McClaran, M.P., J. Moore-Kucera, D.A. Martens, J. van Haren, S.E. Marsh. 2008. Soil carbon and nitrogen in relation to shrub size and death in a semi-arid grassland. *Geoderma* 145:60-68.
- McClaran, M.P. and A.M. Nafus. 2007. Noteworthy collections: Arizona, *Enneapogon cenchroides*. *Madrono* 54:203.
- McClaran, M.P. and D.L. Angell. 2007. Mesquite and grass relationships at two spatial scales. *Plant Ecology* 191:119-126.
- McClaran, M.P. and D.L. Angell. 2006. Long-term vegetation response to mesquite removal in Desert Grassland. *Journal of Arid Environments* 66:686-697.
- McClaran, M.P. 2003. A century of vegetation change on the Santa Rita Experimental Range. In M.P. McClaran, P.F. Ffolliott, and C.B. Edminster (tech. coords.). Santa Rita Experimental Range: 100 years (1903 to 2003) of accomplishments and contributions; conference proceedings; 2003 October 30-November 1; Tucson, AZ. USDA Forest Service, Rocky Mountain Research Station *RMRS-P-30*. pages 16-33.
- McClaran, M.P., M. Coder. 2003. Phytolith shape and chemical composition in Desert Grassland plants. *Journal of the Arizona-Nevada Academy of Sciences* 36:21-33.
- McClaran, M.P., P.F. Ffolliott, and C.B. Edminster (tech. coords.). 2003. Santa Rita

- Experimental Range: 100 years (1903 to 2003) of accomplishments and contributions; conference proceedings; 2003 October 30-November 1; Tucson, AZ. USDA Forest Service, Rocky Mountain Research Station *RMRS-P-30*. 197 pages.
- McClaran, M.P., D. L. Angell, and C. Wissler. 2002. Santa Rita Experimental Range Digital Database User's Guide. USDA Forest Service, Rocky Mountain Research Station *RMRS-GTR-100*. 13 p.
- McClaran, M.P., J.W. Bartolome. 2002. Noteworthy collections: Moorea, Society Islands, French Polynesia. *Madrone* 49:132-133.
- McClaran, M.P., M.W. Brunson, and L. Huntsinger. 2001. Future Social Changes and the Rangeland Manager. *Rangelands* 23(6):33-35.
- McClaran, M.P. 2000. Selecting the 5 most important papers in the first fifty years of the Journal of Range Management. *Journal of Range Management* 53:250-254.
- McClaran, M.P. 2000. History of the range curriculum: are there new trails? *Rangelands* 22(6):23-27.
- McClaran, M.P. 2000. Improving livestock management in wilderness. In D.N. Cole, S.F. McCool, W.T. Barrie, J. O'Laughlin (compilers). Wilderness science in a time of change – Conference. Volume 5: Wilderness Ecosystems, Threats, and Management. USDA Forest Service, Rocky Mountain Research Station *RMRS-P-15 VOL-5*. pages 49-63.
- McClaran, M.P. and M. Umlauf. 2000. Desert grassland dynamics estimated from carbon isotopes in grass phytoliths and soil organic matter. *Journal of Vegetation Science* 11:71-76.
- McClaran, M.P. and D.A. King. 1999. Procedural fairness, personal benefits, agency expertise, and planning participants' support for the Forest Service. *Natural Resources Journal* 39:443-458.
- McClaran, M.P. and G.R. McPherson. 1999. Southwestern oak savanna. In, R.C. Anderson, J.S. Fralish and J.M. Baskin (eds.). Savannas, Barrens, and Rock Outcrop Plant Communities of North America. Cambridge University Press. Pages 275-287.
- McClaran, M.P. 1995. Desert grasslands and grasses. In, M.P. McClaran and T.R. Van Devender (eds.) *The Desert Grassland*. University of Arizona Press. Pages 1-30.
- McClaran, M.P., P. Ang, A. Capurro, D. Deutschman, D. Shafer and J. Guarini. 1995. Interpreting explanatory processes for time series patterns: lessons from three time series. In, T.R. Powell and J.H. Steele (eds.) *Ecological Times Series*. Chapman and Hall, N.Y. Pages 465-82.
- McClaran, M.P. and G.R. McPherson. 1995. Can soil organic carbon isotopes be used to describe grass-tree dynamics within a savanna and at the savanna-grassland ecotone? *Journal of Vegetation Science* 6:857-862.
- McClaran, M.P. and T. R. Van Devender. (Editors). 1995. *The Desert Grassland*. University of Arizona Press, Tucson.
- McClaran, M.P. and W.W. Brady. 1994. Arizona's diverse vegetation and contributions to plant ecology. *Rangelands* 16:208-17.
- McClaran, M.P. and D.N. Cole. 1993. Packstock in wilderness: use, monitoring, management, and research. USDA Forest Service, Intermountain Research Station. *General Technical Report INT-GTR-301*.
- McClaran, M.P. and M.E. Anable. 1992. Spread of introduced Lehmann lovegrass along a grazing intensity gradient. *Journal of Applied Ecology* 29:92-98.
- McClaran, M.P. and P.C. Sundt. 1992. Population dynamics of the rare orchid, *Spiranthes delitescens*. *The Southwestern Naturalist* 37:299-303.
- McClaran, M.P. 1991. Forest Service and livestock permittee behavior in relation to wilderness designation. *Journal of Range Management* 44:483-86.
- McClaran, M.P. 1990. Livestock in wilderness: a review and forecast. *Environmental Law*

20:856-89.

- McClaran, M.P. and J.W. Bartolome. 1990. Comparison of actual and predicted blue oak age structures. *Journal of Range Management* 43:61-63.
- McClaran, M.P. 1989. Recreational packstock management in Sequoia and Kings Canyon National Parks. *Rangelands* 9:3-8.
- McClaran, M.P. and J.W. Bartolome. 1989. Fire related recruitment in stagnant *Quercus douglasii* populations. *Canadian Journal of Forest Research* 19:580-585.
- McClaran, M.P. and J.W. Bartolome. 1989. Effects of *Quercus douglasii* (FAGACEAE) on herbaceous understory along a rainfall gradient. *Madrono* 36:141-153.
- McClaran, M.P. 1988. Comparison of fire history estimates between open-scarred and intact *Quercus douglasii*. *American Midland Naturalist* 120:432-435.
- McClaran, M. P. 1987. Blue oak age structure in relation to livestock grazing history in Tulare County, California. Pages 358-360. T.R. Plumb and N.H. Pillsbury, technical coordinators. Proceedings of the symposium on Multiple-use Management of California's Hardwood Resources; November -12-14, 1986, San Luis Obispo, California. Gen. Tech. Rep. PSW-100. USDA Forest Service Pacific Southwest Forest and Range Experiment Station, Berkeley, CA. 462 pages.
- McClaran, M.P. and J.W. Bartolome. 1985. The importance of oak to ranchers in the California foothill woodland. *Rangelands* 7:158-161.
- McClaran, M.P., J.M. Romm and J.W. Bartolome. 1985. Differential farmland assessment and land use planning relationships in Tulare County, California. *Journal of Soil and Water Conservation* 40:252-255.
- McClaran, M.P. 1983. Visalia and the valley oak. *Fremontia* 11(3):23-25.
- McClaran, M.P. 1981. Propagating native perennial grasses. *Fremontia* 9(1):21-23.
- McClaran, M.P. and J.W. Bartolome. 1981. Revegetating with native perennial grasses: a promising future. *Fremontia* 9(3):14-15.
- McClaran, M.P. 1979. Chromosome number of *Calochortus tiburonensis* (Liliaceae). *Madrono* 26:191.

Refereed Publications--- Second or Later Co-author (N=52)

- Swetnam, T.L., J.K. Gillan, T.T. Sankey, M.P. McClaran, M. Nichols, P. Heilman, P. and J. McVay. *In press*. Considerations for achieving cross-platform point cloud data fusion across different dryland ecosystem structural states. *Frontiers in Plant Science*.
- 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
- 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
- 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>
- 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*. doi: 10.1002/rse2.44.

- 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.
- Crimmins, M.A. and M.P. McClaran. 2016. Where do seasonal climate predictions belong in the drought management toolbox? *Rangelands* 38:169-176.
- 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.
- 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.
- 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.
- 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 21st century drought. *Ecology* 95: 2121-2133.
- 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.
- Polyakov, V.O., M.H. Nichols, M.P. McClaran, and M.A. Nearing, 2014. Effect of check dams on runoff, sediment yield and retention on small semi-arid watersheds. *Journal of Soil and Water Conservation* 69:414-421.
- Gold, A.J., D. Parker, R.M. Waskom, J. Dobrowolski, M. O'Neill, P.M. Groffman, K. Addy, M. Barber, S. Batie, B. Benham, M. Bianchi, T. Blewett, C. Evenson, K. Farrell-Poe, C. Gardner, W. Graham, J. Harrison, T. Harter, J. Kushner, R. Lowrance, J. Lund, R. Mahler, M. McClaran, M. McFarland, D. Osmond, J. Pritchett, L. Propkopy, C. Rock, A. Shoher, M. Silitonga, D. Swackhammer, J. Thurston, D. Todey, R. Turco, G. Vellidis, and Wright Morton, L. 2013. Advancing water resource management in agricultural, rural, and urbanizing watersheds: why land-grant universities matter. *Journal of Soil and Water Conservation* 68(4):337-348.
- Moore, P.E., J.W. van Wagendonk, J.L. Yee, M.P. McClaran, D.N. Cole, N.K. McDougald, and M.L. Brooks. 2013. Net primary productivity of subalpine meadows in Yosemite National Park in relation to climate variability. *Western North American Naturalist* 73:409-418.
- Ponce Campos, G.E., M.S. Moran, A. Huete, Y. Zhang, C. Bresloff, T.E. Huxman, D. Eamus, D.D. Bosh, A.R. Buda, S.A. Gunter, T. H. Scalley, S.G. Kitchen, M.P. McClaran, W.H. McNab, D.S. Montoya, J.A. Morgan, D.P.C. Peters, E.J. Sadler, M.S. Seyfried, and P.J. Starks. 2013. Ecosystem resilience despite large-scale altered hydroclimatic condition. *Nature* 494:349-352.
- Pulido, F., D. McCreary, I. Canellas, M.P. McClaran, and T. Plieninger. 2013. Oak regeneration: ecological dynamics and restoration techniques. In P. Campos, J.L. Oviedo, P. Starrs, M. Diaz, R.I. Standiford, and G. Montero. (eds.). *Mediterranean Oak Woodland Working Landscapes: Dehesas of Spain and Ranchlands of California*. Springer-Verlag. Pages 123-144.
- 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. 2013. Extreme precipitation patterns reduced terrestrial ecosystem production across biomes. *Journal of Geophysical Research-Biogeosciences* 118:1-10.
- Anderson, J., M.P. McClaran, and P.B. Adler. 2012. Cover and density of semi-desert grassland plants in permanent quadrats mapped from 1915 to 1947. *Ecology* 93:1492.

- Bagchi, A., D.D. Briske, X.B. Wu, M.P. McClaran, B.T. Bestelmeyer, and M.E. Fernandez-Gimenez. 2012. Empirical assessment of state-and-transition models with a long-term vegetation record from the Sonoran Desert. *Ecological Applications* 22:400-411.
- Olsson, A.D., J. Betancourt, M.P. McClaran, and S.E. Marsh. 2012. Sonoran desert ecosystem transformation by a C₄ grass without the grass/fire cycle. *Diversity and Distributions* 18:10-21.
- Goodrich, D.C., D.P. Guertin, I.S. Burns, M.A. Nearing, J.J. Stone, H. Wei, P. Heilman, M. Hernandez, K. Speath, F. Pierson, G.B. Page, S.N. Miller, W.G. Kepner, G. Ruyle, M.P. McClaran, M. Weltz, and L. Jolley. 2011. AGWA: The automated geospatial watershed assessment tool to inform rangeland management. *Rangelands* 33(4):41-47.
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- Moore, S.D. and M.P. McClaran. 1991. Symbolic dimensions of the packstock debate. *Leisure Sciences* 13:221-237.

Book Reviews

- McClaran, M.P. 2001. A Natural History of the Sonoran Desert edited by Steven J. Phillips and Patricia Wentworth Comus. *Natural Resources Forum* 25:73-74.
- Dixon, K. and M.P. McClaran. 1990. The Politics of Environmental Mediation by Douglas J. Amy and Public Lands Conflict Resolution: Managing National Forest Disputes by Julia M. Wondolleck. *Journal of Range Management* 43:277-278.

Popular (Non-refereed)

- Brugger, J., Crimmins, M., and McClaran, M.P. 2016. Groups co-developing approaches to improve planning for drought on public lands. Part III. DroughtScape (Summer 2016). Pages 15-18. National Drought Mitigation Newsletter.
- Brugger, J. and M.P. McClaran. 2016. Ranchers, Forest Service, University of Arizona co-develop approaches to improve planning for drought on public lands, Part II. DroughtScape (Winter 2016). Pages 12-14. National Drought Mitigation Center Newsletter.
- Brugger, J. and M.P. McClaran. 2015. Ranchers, Forest Service, University of Arizona co-develop approaches to improve planning for drought on public lands. DroughtScape (summer 2015). Pages 12-13. National Drought Mitigation Center Newsletter.
- McClaran, M.P. 2015. Introduction to Robert R. Humphrey's article. *Fire Ecology* 11(2): 1-4.
- Brugger, J., M. Crimmins, G. Ruyle, and M. McClaran. 2013. Ranching with drought in the southwest: a workshop report and invitation. *Cattlelog* 67 (6):17-18, 25.
- McClaran, M.P. 2012. Santa Rita Experimental Range Long Term Transect Database. In: Dengler, J., Oldeland, J., Jansen, F., Chytrý, M., Ewald, J., Finckh, M., Glöckler, F., Lopez-Gonzalez, G., Peet, R.K., Schaminée, J.H.J. (eds.): *Vegetation databases for the 21st century*. *Biodiversity & Ecology* 4: 435–435. DOI: 10.7809/b-e.00222.
- Butler, G.J., G.B. Ruyle, M. McClaran, and D. Austin. 2012. Ranching with drought. *Arizona Cattlelog* 66(8):16-17.
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- Skirvin, S.M., S.E. Drake, M.P. McClaran, S.E. Marsh, and D.M. Meko. 2000. Climate change and land tenure: potential impacts on vegetation and development in the San Pedro watershed, Southeastern Arizona. 4th International Conference on Integrating GIS and Environmental Modeling (GIS/EM4): Problems, Prospects and Research Needs. Banff, Alberta, Canada. September 2-8, 2000. <http://www.colorado.edu/research/cires/banff/upload/249/>.
- 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*, 17-19 August. Tucson, AZ.
- Ruyle, G.B., K.H. McReynolds, L.D. Howery, and M.P. McClaran. 1998. Guidelines for monitoring Arizona's rangelands. Arizona Cooperative Extension, University of Arizona.
- Muir, S. and M.P. McClaran. 1997. Rangeland inventory, monitoring, and evaluation. <http://cals.arizona.edu/agnic/az/inventorymonitoring/>.
- Wissler, C, K. Borstad, D. Angell, and M.P. McClaran. 1997. Using ARC/INFO to develop a data query interface for the Santa Rita Experimental Range ecological information system. *ESRI User Conference Proceedings*. <http://www.esri.com/base/common/userconf/PROC97/TO350/PAP328/P328.HTM>

McClaran, M.P. 1996. Encounters with the elusive lady's tresses orchard, *Spiranthes delitescens*. *North American Native Orchid Journal* 2:159-176.

PRESENTATIONS (N=162)

Invited Oral Presentations (N=57):

- 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.
- McClaran, M.P. 2017. Standardized Precipitation Index Explorer Tool. Coronado National Forest Grazing Permittee Annual Meeting. Sonoita, AZ. 29 August 2017.
- 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. 9th 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. 60th 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. 10th 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. 14th 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=105):

- 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. 14th 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? 14th 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. 13th 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. 68th 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. 13th 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. 13th 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. 67th 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. 67th 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. 10th 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. 66th 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. 9th 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. 9th 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. 9th 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? 9th 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. 9th 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. 8th 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. 10th 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? 8th 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 21st century. The 4th 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, 34th International Symposium on Remote Sensing of the Environment. April, Sydney, Australia.
- Moore, P.E. J.W. van Wagtendonk, M.P. McClaran, N. McDougald, and M.L. Brooks. 2011. Temperature and precipitation effects on meadow productivity. 10th 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, 34th 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. 7th 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. 7th 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. 7th 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. 6th 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. 5th 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. 28th 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. 5th 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. 59th 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 (CH₄) cycling

- to grazing and velvet mesquite (*Prosopis velutina*) expansion and removal on the Santa Rita Experimental Range. 4th 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. 59th 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. 4th 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. 59th 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. 4th 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. 4th 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. 6th 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. 3rd 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. 51st 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. 3rd 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. 3rd 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. 3rd 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.
- Throop, H. S.R. Archer, C. McMurtry, and M.P. McClaran. 2006. Relationships between

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- Throop, H., S.R. Archer, and M.P. McClaran. 2006. Soil organic carbon responses to grazing and woody plant encroachment in a semi-desert grassland. American Geophysical Union Fall Meeting. December, San Francisco, CA.
- Throop, H. S. Archer, C. McMurtry, and M.P. McClaran. 2006. Relationships between aboveground woody biomass and soil organic carbon in a semi-arid semi-desert grassland. Ecological Society of America Annual Meeting. August, Memphis, TN.
- Van der Leeuw, E., M.P. McClaran, S.E. Marsh, and C. Wissler. 2006. Two types of residential developments and their impacts on the Santa Rita Experimental Range. 3rd 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. 2005. Cover-biomass relationships in woody plants: effects of fire and implications for remote sensing. 2nd Annual Symposium on Research Insights in Semi-arid Environments (RISE). October, Tucson, AZ.
- Martens, D.A. and M.P. McClaran. 2005. Rapid loss of soil active C pools fuels depletion of soil C following mesquite removal in semiarid grasslands. Third USDA Symposium on Greenhouse Gasses and Carbon Sequestration in Agriculture and Forestry. March, Baltimore, MD.
- McClaran, M.P. and D.L. Angell. 2005. Does age matter? Grass density differences under young and old mesquite. 57th 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. 8th 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.
- McClaran, M.P. and D.A. Martens. 2004. Soil carbon differences beneath open grassland, and old, new and cut mesquite trees in the Desert grassland. 57th Annual Meeting, Society for Range Management. February, February, Salt Lake City, UT.
- 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 Santa Rita Experimental Range digital database. Meeting Resource Management Information Needs, Fourth Conference on Research and Resource Management in the Southwestern Deserts. May, Tucson, AZ.
- McClaran, M.P. and D.L. Angell. 2002. Forty-three years of desert grassland vegetation dynamics following velvet mesquite removal. 55th 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 Wagtendonk, P.E. Moore, and N.K. McDougald. 2001. Effects of grazing by horses in subalpine meadows, Yosemite National Park. 54th 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. 54th 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.
- Skirvin, S.M., S.M. Drake, M.P. McClaran, S.E. Marsh, and D. Meko. 2001. Assessment of potential effects of climate change on the vegetation in the San Pedro River watershed, southeastern Arizona. ArcGIS Southwest Users Group Conference. October, Tucson, AZ.
- Widmer, K.A. and M.P. McClaran. 2001. In florivory of Palmer agave in relation to livestock management. 54th Annual Meeting, Society for Range Management. January, Kona, HI.
- Biedenbender, S.H., M.P. McClaran, J. Quade, and M.A. Weltz. 2000. Differences in carbon isotope values between above and belowground plant material for 15 semidesert grassland species. Ecological Society of America Annual Meeting. August, Snowbird, UT.
- Biedenbender, S.H., M.P. McClaran, J. Quade, and M.A. Weltz. 2000. Radiocarbon ages and stable carbon isotopes in soil organic matter indicate landscape scale vegetation in an Arizona grassland. 53rd Annual Meeting, Society for Range Management. January, Boise, ID.
- Conley, J.L., G.B. Ruyle, M.P. McClaran, and C.R. Schwalbe. 2000. Influences of the Endangered Species Act on grazing management on the Coronado National Forest. 53rd Annual Meeting, Society for Range Management. Boise, ID.
- Skirvin, S.M., S.E. Drake, M.P. McClaran, S.E. Marsh, and D.M. Meko. 2000. Climate change and land tenure: potential impacts on vegetation and development in the San Pedro watershed, southeastern Arizona. 4th International Conference on Integrating GIS and Environmental Modeling, Banff, Canada.
- Widmer, K.A. and M.P. McClaran. 2000. In florivory of Palmer agave in relation to livestock management. Audubon Research Ranch 2000. June, Audubon Society Appleton-Whittel Research Ranch, AZ.
- Womack, J.D., M.P. McClaran, G. B. Ruyle, and M.J. Zwolinski. 2000. Mortality and sprouting vigor of burned versus cut velvet mesquite (*Prosopis juliflora* var. *velutina* (Woot.) Sarg. 53rd Annual Meeting, Society for Range Management. Boise, ID.
- Angell, D.L. and M.P. McClaran. 1999. Long term desert grassland dynamics in relation to nonnative Lehmann lovegrass density. 52nd Annual Meeting Society for Range Management. February, Omaha, NE.
- Biedenbender, S.H., M.A. Weltz, 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. 52nd 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. 10th Conference on Research and Resources in Parks and Public Lands, George Wright Society, Asheville, NC.
- Womack, J.D., M.P. McClaran, G. B. Ruyle, and M.J. Zwolinski. 1999. Mortality and sprouting vigor of velvet mesquite (*Prosopis juliflora* var. *velutina* (Woot.) Sarg. as influenced by basal diameter, number of stems and soil. 52nd Annual Meeting Society for Range Management. February, Omaha, NE.
- Coronado-Q, J.A. and M.P. McClaran. 1998. Rangeland condition is related to precipitation variability and land tenure in Sonora, Mexico. Society for Range Management Annual Meeting, February, Guadalajara, Mexico.
- Brenner, D.L., R. Amundson, and M.P. McClaran. 1997. Effects of plants and seasonality of precipitation on soil water and stable isotope ratios in a desert grassland. American Geophysical Union Fall Meeting, December, San Francisco, CA.
- McClaran, M.P., G.B. Ruyle, J.L. Pfander, and M. Haseltine. 1997. Developing a rangeland management homepage for world wide web access. 50th Annual Meeting, Society for Range Management., February, Rapid City, SD.
- Moore, P., M.P. McClaran, J. van Wagtendonk, and D. Cole. 1997. Developing a scientific basis for managing packstock grazing in Yosemite National Park. George Wright Society Annual Meeting, March, Albuquerque, NM.
- 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. 45th Annual Meeting, Society for Range Management. January, Washington, DC.
- McClaran, M.P. 1991. Packstock management in the National Wilderness Preservation System. 44th 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. 43rd 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. 40th 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.