

Marcos Robles
Lead Scientist

1510 E Fort Lowell Rd
Tucson, AZ
(520) 545-0185
mrobles@tnc.org



EDUCATION

Master of Science, Ecology, 1995, Colorado State University, Fort Collins, CO

Bachelor of Arts, Environmental Science, 1993, University of California at Berkeley, Berkeley, CA

EXPERIENCE

Oct 2020 – present: Lead Scientist, The Nature Conservancy, Tucson AZ

As lead scientist for the Arizona chapter, Marcos leads the development of science that demonstrates impacts of our conservation strategies. Working with science and conservation teams, he identifies key research questions and directions, implements a compelling scientific agenda, cultivates partnerships with external scientific agencies and academic institutions, and communicates our science work to media, public, private and academic sectors. As a working scientist on the team, Marcos develops science to advance forest climate mitigation and adaptation strategies at landscape to regional scales.

Aug 2006 – Oct 2020: Conservation Scientist, The Nature Conservancy, Tucson AZ

Developed scientific knowledge and natural climate solutions that will sustain Arizona and western US ecosystem resilience in a changing environment. Projects included evaluation of climate change, wildfire and drought impacts on streamflow and forest mortality, regeneration, and carbon. Other projects included grassland and desert program strategic planning; conservation priorities to guide transportation and renewable energy planning and mitigation; drought effects on grassland resilience; forest restoration and human water demand effects on river flow; Southwest Climate Change Assessment; ecoregional conservation geodatabase and map for the western United States and northwestern Mexico.

Jan 2005 – Jul 2006: Project Manager, NatureServe, Fort Collins CO

As project management lead, developed conservation planning framework, facilitated stakeholder workshops and completed a Seamless Network of Protected Areas report to initiate landscape-scale partnerships between the National Park Service (NPS) and management agencies in neighboring jurisdictions in the southeastern United States.

Nov 2000 – Dec 2004: Senior Conservation Database Specialist, NatureServe, Arlington VA

Completed scientific analyses using comprehensive information of North American species biodiversity. Projects included: natural resource assessments of several National Parks; an analysis of at-risk species on private forest lands; provision of federally listed species data to the pesticide industry.

Sept 1995 – Feb 1999: Conservation Volunteer, United States Peace Corps, Guatemala

Promoted agroforestry and soil conservation practices to subsistence farmers and completed a preliminary inventory of tree, shrub, epiphyte and vine species in a sub-montane cloud forest threatened by slash and burn agriculture.

July 1994 – Feb 1995: Graduate Research Assistant, Colorado State University, Fort Collins CO

Completed analyses and published scientific articles quantifying changes in soil organic matter resulting from conservation management of former wheat agriculture fields in southeastern Wyoming.

PUBLICATIONS

Biederman, JA; Robles, MD; Scott, RL; Knowles, JF. Streamflow response to wildfire differs with season and elevation in adjacent headwaters of the Lower Colorado River Basin. **Water Resources Research In Review**.

McCauley, LA; Bradford, JB; Robles, MD; Shriver, RK; Woolley, Andrews, CA. Landscape-scale forest restoration decreases drought mortality under climate change in Southwest US ponderosa forest. **Forest Ecology and Management In Review**.

Bradford, JB; Shriver, RK; Robles, MD; McCauley, LA; Woolley, TJ; Crimmins, M; Bell, DM. Tree mortality response to drought-density interactions suggests opportunities to enhance drought resistance. **Journal of Applied Ecology In Press**.

Robles, MD; Hammond JC; Kampf SK; Biederman JA; Demaria EMC. Winter Inputs Buffer Streamflow Sensitivity to Snowpack Losses in the Salt River Watershed in the Lower Colorado River Basin. **Water** 2021, 13, 3. <https://dx.doi.org/10.3390/w13010003>.

Bradford, JB, Andrews CA, Robles MD, McCauley LA, Woolley TJ, Marshall RM. 2020. Landscape-scale restoration minimizes tree growth vulnerability to 20th century drought in a dry forest. **Ecological Applications**, <https://doi.org/10.1002/eap.2238>.

Hunter, ME, Robles MD. 2020. Tamm review: The effects of prescribed fire on wildfire regimes and impacts: A framework for comparison. **Forest Ecology and Management** 475: 118435. <https://doi.org/10.1016/j.foreco.2020.118435>.

McCauley, LA, Robles MD, Woolley TJ, Marshall RM, Kretchun A, Gori DF. 2019. Large-scale forest restoration stabilizes carbon under climate change in the Southwest United States. **Ecological Applications** 00(00): e01979. <https://doi.org/10.1002/eap.1979>.

Robles MD, Turner DS, Haney JA. 2017. A century of changing flows: Forest management changed flow magnitudes and warming advanced the timing of flow in a southwestern US river. **PLoS ONE** 12(11): e0187875. <https://doi.org/10.1371/journal.pone.0187875>.

Demaria EMC, Dominguez F, Hu H, von Glinski G, Robles MD, Skindlov J, and Walter J. 2017. Observed hydrologic impacts of landfalling atmospheric rivers in the Salt and Verde river basins of Arizona, United States. **Water Resources Research**, 53. <https://doi.org/10.1002/2017WR020778>.

Bodner GS and Robles MD. 2017. Enduring a decade of drought: Patterns and drivers of vegetation change in a semi-arid grassland. **Journal of Arid Environments** 136: 1-14. <https://doi.org/10.1016/j.jaridenv.2016.09.002>.

Robles MD, Marshall RM, O'Donnell F, Smith EB, Haney JA, Gori DF. 2014. Effects of Climate Variability and Accelerated Forest Thinning on Watershed-Scale Runoff in Southwestern USA Ponderosa Pine Forests. **PLoS ONE** 9(10): e111092. <https://doi.org/10.1371/journal.pone.0111092>.

- Marshall RM, Robles MD, Majka DR, Haney JA. 2010. Sustainable Water Management in the Southwestern United States: Reality or Rhetoric? **PLoS ONE** 5(7): e11687. <https://doi.org/10.1371/journal.pone.0011687>.
- Robles MD, Flather CH, Stein SM, Nelson MD, and Cutko A. 2008. The geography of private forests that support at-risk species in the conterminous United States. **Frontiers in Ecology and the Environment** 6(6): 301-307.
- Robles MD and Burke IC. 1998. Soil organic matter recovery on Conservation Reserve Program fields in Southeastern Wyoming. **Soil Science Society of America Journal** 62: 725-730.
- Robles MD and Burke IC. 1997. Legume, grass, and Conservation Reserve Program effects on soil organic matter recovery. **Ecological Applications** 7(2): 345-357.
- Burke IC, Lauenroth WK, Vinton MA, Kelly RH, Epstein HE, Robles MD, Murphy KL, and Gill RA. 1997. Plant-Soil interactions in grasslands. **Biogeochemistry** 42: 121-143.
- Robles M and Chapin FS III. 1995. Comparison of the influence of two exotic species on ecosystem processes in the Berkeley Hills. **Madroño** 42(3): 349-357.

SCIENTIFIC REPORTS

- Robles MD and Enquist C. 2010. Managing changing landscapes in the Southwestern United States. The Nature Conservancy, Tucson, Arizona. 26 pp.
- Robles MD, Eckert GE, and Mehrhoff L. 2007. Seamless network of protected areas in the southeastern United States: Opportunities for partnerships in biodiversity conservation, invasive species control, and recreation. NatureServe, Arlington, Virginia.
- Robles MD, Madden CJ, Lara MR, Jones DL, and Butler MJ. 2005. Condition of the natural resources of Florida Bay, Everglades National Park: A state of the parks technical report. National Parks Conservation Association, Washington, D.C.
- Robles MD, White RD, Petranks JW, Smith RK, and Capuano NA. 2003. Condition of the natural resources of Great Smoky Mountains National Park: A state of the parks technical report. National Parks Conservation Association, Washington, D.C.