Adam Mahood

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EDUCATION

2021 PhD, Geography, University of Colorado Boulder, Boulder, CO
Dissertation Title: *Evidence for and Mechanisms of Ecosystem Transformation in the Great Basin of the Western United States*
Advisor: Dr. Jennifer K. Balch

2017 MA, Geography, University of Colorado Boulder, Boulder, CO
Thesis Title: *Long-Term Effects of Repeated Fires on the Diversity and Composition of Great Basin Sagebrush Plant Communities*
Advisor: Dr. Jennifer K. Balch

2013 Graduate Certificate, Geographic Information Science, University of North Dakota

2004 BS, Conservation Biology, University of Minnesota, Minneapolis, MN

PEER-REVIEWED PUBLICATIONS

2021 * **Mahood, A.L.**, Fleishman, E., Balch, J.K., Fogarty, F., Horning , N., Leu, M., Zillig M., Bradley, B.A. Cover-based allometric estimate of aboveground biomass of a non-native, invasive annual grass (Bromus tectorum L.) in the Great Basin, USA. *Journal of Arid Environments,* 193, 104582; https://doi.org/10.1016/j.jaridenv.2021.104582

2021 Fusco, E. J., .Balch, J. K,. **Mahood, A. L.**, Nagy, R. C., Syphard, A. D., Bradley, B. A. The human-grass-fire cycle: How people and invasives co-occur to drive fire regimes. Accepted for publication at *Frontiers in Ecology and the Environment*.

2021 Gill, N.[+], **Mahood, A.L.**[+], Stricker E., Nagy, R.C., Muthukrishnan, R., Morrisette, J., Petri, L., Duffy, K. Meier, C. Six central questions about biological invasions that NEON data science is poised to address. Accepted for publication at *Ecosphere. [+]equally contributing first authors*

2021 Nagy, R.C., Balch, J.K.,...**Mahood, A.L.** Harnessing the NEON Data Revolution to Advance Open Environmental Science with a Diverse, Inclusive, and Data-Capable Community. Accepted for publication at *Ecosphere*.

2021 Nagy, R. C., Fusco, E. J., Balch, J. K., Finn, J. T., **Mahood, A.**, Allen, J. M., & Bradley, B. A. (2021). A synthesis of the effects of cheatgrass invasion on US Great Basin carbon storage. *Journal of Applied Ecology*, 58, 327–337. https://doi.org/10.1111/1365-2664.13770

2020 Balch, J. K., St. Denis, L. A., **Mahood, A. L**., Mietkiewicz, N. P., Williams, T. P., McGlinchy J, and Cook, M. C. FIRED (Fire Events Delineation): An open, flexible algorithm & database of U.S. fire events derived from the MODIS burned area product (2001-19). *Remote Sensing*, 12(21), 3498; https://doi.org/10.3390/rs12213498

2020 Balch, J. K., Iglesias, V., Braswell, A. E., Rossi, M. W., Joseph, M. B., **Mahood, A. L.**, … Travis, W. R. (2020). Social-Environmental Extremes: Rethinking Extraordinary Events as Outcomes of Interacting Biophysical and Social Systems. *Earth's Future*, 8(7), 1–21. https://doi.org/10.1029/2019EF001319

2020 Cattau, M. E., Wessman C., **Mahood, A. L.**, Balch, J. K. Anthropogenic and lightning-started fires are becoming larger and more frequent over a longer season length in the U.S.A. *Global Ecology and Biogeography*, 29, 668–681. https://doi.org/10.1111/geb.13058

2019 **Mahood, A. L**., & Balch, J. K. Repeated fires reduce plant diversity in low-elevation Wyoming big sagebrush ecosystems (1984 – 2014). *Ecosphere*, 10(2), e02591. https://doi.org/10.1002/ecs2.2591

2019 Joseph, M. B., Rossi, M. W., Mietkiewicz, N. P., **Mahood, A. L.**, Cattau, M. E., Nagy, R. C., … Balch, J. K. Spatiotemporal prediction of wildfire size extremes with Bayesian finite sample maxima. *Ecological Applications*, 29(6), 1266–1281. https://doi.org/10.1002/eap.1898

2017 Balch, J. K., Bradley, B. A., Abatzoglou, J. T., Nagy, R. C., Fusco, E. J., & **Mahood, A. L.**. Human-started wildfires expand the fire niche across the United States. *Proceedings of the National Academy of Science*, 114(111), 2946-2951. https://doi.org/10.1073/pnas.1617394114

PUBLICATIONS UNDER REVIEW

in review * **Mahood, A. L.**, Jones, R. O., Board, D. A, Balch, J. K., Chambers, J. C. Interannual climate variability mediates changes in carbon and nitrogen pools caused by annual grass invasion in a semi-arid shrubland.

In review Cattau, M. E., Wessman C., **Mahood, A. L.**, Balch, J. K. National-scale fire regimes: Modern pyromes of the contiguous United States.

in review Balch, J. K. Abatzoglou, J., Koontz, M., Williams, P., … **Mahood, A. L**. Warming weakens the nighttime barrier to global fire.

PUBLICATIONS IN PREPARATION

in prep * **Mahood, A. L.**, Balch, J. K. Even without repeated fire, annual grass invasion drives biodiversity loss in a semi-arid shrubland

in prep * **Mahood, A. L.**, Balch, J. K. High fuel connectivity from annual grass invasion increases burn severity, which alters seedbank composition to favor annual grass invasion.

in prep **Mahood, A. L.**, Balch, J. K. It's not just cheatgrass: Examining how forbs help maintain flammable fuel continuity in annual herbaceous Wyoming big sagebrush systems.

in prep Balch, J. K., **Mahood, A. L.**, Mietkiewicz, N. P….et al. The fastest fires in the U.S.

in prep Joseph, M. J. Rossi M. W.….**Mahood A. L.** Ten simple rules for working with high resolution remote sensing data.

in prep Fusco, E.J., Nagy R.C., **Mahood, A. L.** Bradley B.A., Buffelgrass and soil carbon on a sonoran desert mountainside.

in prep Muthukrishnan, R., **Mahood, A. L.** Exploring native and exotic richness relationships from the meter to the continental scale.

*Dissertation chapters

PROFESSIONAL EXPERIENCE

Ecological Research

2021 - present Postdoctoral Associate, Earth Lab, University of Colorado Boulder, CO

2015 - 2020 Graduate Research Assistant, University of Colorado Boulder, Boulder, CO.

2015 Botany Crew Leader, National Ecological Observatory Network, Tucson, AZ.

2014 Biological Science Technician, Yosemite National Park, National Park Service, El Portal, CA.

2013 Biological Science Technician, Northern Colorado Plateau Network, National Park Service, Moab, UT.

2003 Research Assistant, Insect Ecology Lab, University of Minnesota, St. Paul, MN.

Teaching

2015 - 2021 Graduate Teaching Assistant, University of Colorado Boulder, Boulder, CO.
Geography 4023/5023: Advanced Quantitative Methods (2 semesters)
Geography 1001: Climate and Vegetation (4 semesters)

2017 Co-Advisor, undergraduate honor's thesis (with Dr. Jennifer Balch).
Title: *Using Random Forest Machine Learning Methods to Identify Spatiotemporal Patterns of Cheatgrass Invasion through Landsat Land Cover Classification in the Great Basin from 1984 - 2011.*
Author: Dylan Murphy

Land management

2014 Restoration Specialist, Tucson Audubon Society, Tucson, AZ.

2012 Biological Science Technician, Grand Canyon National Park, National Park Service, Grand Canyon, AZ.

2012-2014 Fisheries Technician, Grand Canyon National Park, National Park Service, Grand Canyon, AZ.

2012 Field Assistant, Starr Ranch, National Audubon Society, Trabuco Canyon, CA.

2007 Restoration Technician, Great River Greening, St. Paul, MN.

2005, 2007 Environmental Operations Technician, Minneapolis Park and Recreation Board, Minneapolis, MN.

2006 Corps Member, Minnesota Conservation Corps, St Paul, MN.

GRANTS, SCHOLARSHIPS and AWARDS

2020 CU Boulder Geography Solstice Travel grant - $500
2020 CIRES Photography Contest Winner - Very nice print of the winning photo
2019 Beverly Sears Graduate Research Grant - $1000
2019 Mabel Duncan Memorial Scholarship Award - $1500
2019 CU Boulder Geography Mentor Award - $1000
2018 Beverly Sears Graduate Research Grant - $1000
2018 Dinaburg Memorial Scholarship - $1000
2018 Mabel Duncan Memorial Scholarship Award - $3000
2017 CU Boulder Geography Mentor Award - $500
2017 Undergraduate Research Opportunities (UROP) Team Grant 2017 - $3000
2017 United Government of Graduate Students Travel Grant - $300
2017 CU Boulder Graduate School Travel Grant - $300
2016 Adam Kolff Memorial Research Fellowship Award - $2000
2016 Mabel Duncan Memorial Scholarship Award - $3000
2016 UROP Team Grant - $3000

CONFERENCE PRESENTATIONS

2020 Oral Presentation. *Exploring recovery from fire in low-elevation Wyoming big sagebrush with a satellite-derived chronosequence and Bayesian indirect gradient analysis*. Ecological Society of America Annual Meeting (virtual).

2019 Oral Presentation (invited). *Repeated fires reduce plant diversity in low-elevation Wyoming big sagebrush ecosystems (1984–2014).* 8th International Fire Ecology and Management Congress.

2017 Poster: *Is one fire enough? Long term effects of repeated wildfires on plant communities in the Great Basin, U.S.A.* Ecological Society of America Annual Meeting, Portland, OR.

RELEVANT SKILLS

Software: Linux, ArcGIS, QGIS, git, AWS (cloud computing), docker
Programming languages: R, python, bash
Spoken languages: English (Fluent), Spanish (Proficient), French (Intermediate), Darija (Moroccan Arabic) (Beginner)

PROFESSIONAL SOCIETIES

Ecological Society of America
American Association of Geographers

UNDERGRADUATE MENTEES

Kathleen Weimer - Lab Assistant 2016
Brittany Mullane - Lab Assistant 2017
Nick Whittemore - Field/Lab Assistant 2016-2017
Abdelhakim Mamash - Greenhouse Assistant 2017
Julia Lopez - Field Assistant 2017
Sidney DuVarney - Field Assistant 2017
Dylan Murphy - Field/Lab Assistant 2017-2019
Andrea Harmon - Lab Assistant 2018
Dinah Bowman - Lab Assistant 2021
Estelle Lindrooth - Lab Assistant 2021

JOURNAL REFEREE

Basic and Applied Ecology
Rangeland Ecology & Management
Fire Ecology
Biodiversitas Journal of Biological Diversity