

# Matthew D. Hurteau

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Department of Biology  
University of New Mexico  
MSC03 2020  
Albuquerque, NM 87131

<http://www.hurteaulab.org/>  
Phone: (505) 277-0863  
mhurteau@unm.edu

## Education

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- Ph.D. – Ecology, University of California, Davis, June 2007.  
Dissertation: The effects of climate change and nitrogen deposition on the Sierran mixed-conifer understory plant community.
- B.S. – Forestry, Northern Arizona University, Flagstaff, AZ, May 2001. *Cum Laude*.

## Professional Experience

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- Professor of Biology, University of New Mexico, Department of Biology, 2021-present.
- Associate Professor of Biology, University of New Mexico, Department of Biology, 2017-2021.
- Assistant Professor of Biology, University of New Mexico, Department of Biology, 2015-2017.
- Adjunct Faculty, Pennsylvania State University, Department of Ecosystem Science and Management, 2015-2017.
- Assistant Professor of Forest Resources, Pennsylvania State University, Department of Ecosystem Science and Management, 2011-2015.
- Adjunct Faculty, Northern Arizona University, Department of Biological Sciences, 2011-2015.
- Visiting Assistant Professor, Northern Arizona University, School of Earth Sciences and Environmental Sustainability, 2010-2011.
- Post-doctoral research associate, Northern Arizona University, National Institute for Climatic Change Research, Western Region, 2007-2010.

## Grants

\* indicates student/postdoc

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| 2022-2023 | Environmental Defense Fund, Western US forest carbon potential, PI: Matthew Hurteau, co-PIs: Emily Francis, Chang Gyo Jung, \$391,313  |
| 2022-2025 | Joint Fire Science Program, Co-development of geospatial data products to support treatment planning and monitoring in the upper Rio Grande watershed, PI: Matthew Hurteau, co-PIs: Emily Francis, Harold Zald, Gavin Jones, \$360,188 |
| 2022-2023 | USDA NIFA, Using paleo-fire data to improve simulation model projections under climate change, Sabbatical Grant, PI: Matthew Hurteau, \$103,133  |

- 2022-2025 USDA NIFA, Quantifying the role of microclimate variability on post-fire seedling survival, PI: Matthew Hurteau, co-PIs: Christopher Marsh\*, Owen Burney, Josh Sloan, \$650,000.
- 2019-2023 California Energy Commission, Comprehensive open source development of next generation wildfire models for grid resiliency, PI: David Saah, co-PIs: Janice Coen, Scott Stephens, Chris Lautenberger, Leroy Westerling, Christopher Anderson, John Battles, Owen Doherty, Phil Dye, Carlos Fernandez-Pello, Mark Finney, Mariko Geronimo, Michael Gollner, Todd Hawbaker, Matthew Hurteau, Gary Johnson, Dan Keenan, Zeke Lunder, David Marvin, Jason Moghaddas, Max Moritz, Ryan Pressler, Shane Romsos, Joe Scott, Benjamin Sleeter, Matthew Spencer, Maria Theodori, Jean-Pierre Wack, \$5,000,000
- 2019-2025 CAL FIRE, The carbon consequences of catchment-scale prescribed burning, PI: Matthew Hurteau, co-PIs: Malcolm North, Harold Zald, Brandon Collins, Brian Smithers, 2019-21: \$396,089, 2021-25: \$499,934.
- 2021-2022 Joint Fire Science Program, Tree growth response to multiyear drought events in fire-maintained and fire-excluded semi-arid forests, PI: Kevin Willson\*, co-PI: Matthew Hurteau, \$24,982
- 2020-2022 Joint Fire Science Program, Quantifying the effects of heat and drought on southwestern tree seedling mortality, PI: Joseph Crockett\*, co-PI: Matthew Hurteau, \$24,552
- 2017-2020 USDA NIFA Carbon Cycle Science, Quantifying the effects of species range shifts and management of post-fire recovery on regional carbon dynamics in a changing climate, PI: Matthew Hurteau, co-PIs: Daniel Krofcheck, Marcy Litvak, Scott Collins, \$850,000
- 2017-2018 The Nature Conservancy, Santa Fe firehatched simulation experiment, PI: Matthew Hurteau, co-PI: Daniel Krofcheck, \$45,000
- 2016-2020 CAL FIRE, Quantifying the carbon costs and benefits of maintaining fuel treatment effectiveness, PI: Matthew Hurteau, co-PIs: Harold Zald, Malcolm North, Robert York, \$454,983
- 2016-2019 Joint Fire Science Program, Quantifying the effects of post-fire decision-making on forest recovery in a severely burned southwestern landscape, PI: Matthew Hurteau, co-PIs: Craig Allen, Dan Krofcheck\*, \$326,128.
- 2015-2018 Joint Fire Science Program, Changes in forest vegetation and fuel conditions 15 years after prescribed fire, PI: Malcolm North, co-PIs: Brandon Collins, Harold Zald, Matthew Hurteau, \$386,087
- 2014-2017 Joint Fire Science Program, Outcomes prioritization on fuel treatment placement in extreme fire weather in three CFLRP landscapes, PI: E. Louise Loudermilk, co-PIs: Matthew Hurteau, Robert Scheller, \$350,343
- 2014-2015 Penn State Institutes for Energy and the Environment Seed Grant Program, Summer temperature variability, drought and the Atlas Cedar: a tree-ring  $\delta^{13}\text{C}$  based multi-centennial record in Northwestern Africa, PI: Soumaya Belmcheri, co-PIs: Matthew Hurteau, Lee Newsome, \$24,971
- 2013-2014 Joint Fire Science Program, Graduate Research Innovation: Quantifying the effect of fuel size on charcoal formation during prescribed fire, PI: Morgan

- Wiechmann\*, co-PIs: Matthew Hurteau, Jason Kaye, \$23,612
- 2012-2016 USDA NIFA, Projecting climate change mitigation and adaptation in fire-prone forests under future climate change, PI: Matthew Hurteau, co-PIs: Anthony Westerling, Tamara Wall, Christine Wiedinmyer, \$749,335
- 2012-2013 USDA Forest Service, Southern Nevada Public Land Management Act, Drought Stress and bark beetle outbreaks in the future forest: extending an existing model to inform climate change adaptation, PI: Robert Scheller and Louise Loudermilk, co-PIs: Matthew Hurteau, Peter Weisberg, \$127,013
- 2011-2015 Strategic Environmental Research and Development Program: Modeling the carbon implications of ecologically-based forest management, PI: Matthew Hurteau, co-PIs: George Koch, Bruce Hungate, Malcolm North, \$1,067,057.
- 2011-2013 Joint Fire Science Program: Fuels treatment effects on forest carbon and insect induced mortality 10-years after treatments, PI: Matthew Hurteau, co-PIs: George Koch, Malcolm North, David Rizzo, \$314,489
- 2010-2013 NSF, SMP: A Professional Science Master's in Climate Science and Solutions for Northern Arizona University, PI: George Koch, co-PIs: Thomas Acker, Bruce Hungate, Matthew Hurteau, Darrell Kaufman, \$698,733
- 2010-2013 NASA Global Climate Change Education: Research Experiences, Teaching and Learning, Undergraduate research experiences in global climate change at Northern Arizona University, PI: George Koch, co-PIs: Bruce Hungate, Matthew Hurteau, \$387,580
- 2008-2011 USDA Forest Service, Southern Nevada Public Land Management Act, Modeling the influence of management actions on fire risk and spread under future climatic conditions, PI: Matthew Hurteau, co-PIs: Malcolm North and George Koch, \$157,820
- 2008-2011 USDA NRI Managed Ecosystems, Carbon and water balance implications of restoration thinning, PI: Thomas Kolb, co-PIs: George Koch, Alex Finkral, Mario Montes-Helu, Matthew Hurteau, Stephen Dewhurst, Stephen Hart, \$399,904
- 2010 NSF, A rapid assessment of post-fire changes in biophysical variables, carbon stocks, and soil microbial processes in the tallest angiosperm forest, PI: George Koch, co-PIs: Matthew Hurteau, Bruce Hungate, \$76,656
- 2008-2009 USDA Forest Service, Thinning and prescribed fire effects on carbon pools in Sierran mixed-conifer forests, 2008, PIs: Matthew Hurteau and Malcolm North, co-PI: Sean Parks, \$75,000
- 2008 Environmental Research, Development and Education for the New Economy, TRIF, The economic value of goods and services from managed forest ecosystems in the southwestern US: Developing a verification methodology for forest carbon sequestration within forest restoration projects, PI: Alex Finkral, co-PIs: Ching-Hsun Huang, Mario Montes-Helu, JJ Smith, Tom Kolb, George Koch, Matthew Hurteau, Deborah Spalding, \$87,780

- Liang, S, **MD Hurteau**. In press. Novel climate-fire-vegetation interactions and their influence on forest ecosystems in the western USA. *Functional Ecology*.
- May, CJ, HSJ Zald, MP North, AN Gray, **MD Hurteau**. In press. Repeated burns fail to restore pine regeneration to the natural range of variability in a Sierra Nevada mixed-conifer forest, USA. *Restoration Ecology*.
- Dickman, LT, et al. In press. Integrating plant physiology into simulation of fire behavior and effects. *New Phytologist*.
- \*Goodwin, MJ, LP Kerhoulas, HSJ Zald, MP North, **MD Hurteau**. In press. Conifer water-use patterns across temporal and topographic gradients in the southern Sierra Nevada. *Tree Physiology*. <https://doi.org/10.1093/treephys/tpac124>
- \*Marsh, C, JL Crockett\*, D Krofcheck, A Keyser\*, CD Allen, M Litvak, **MD Hurteau**. 2022. Planted seedling survival in a post-wildfire landscape: from experimental planting to predictive probabilistic surfaces. *Forest Ecology and Management*, 525:12054.
- Sam, JA, WJ Baldwin, AL Westerling, H Preisler, Q Xu, **MD Hurteau**, BM Sleeter, SB Thapa. 2022. Simulating burn severity maps at 30 meters in two forested regions in California. *Environmental Research Letters*, 17:105004.
- Jones, GM, EK Vraga, PF Hessburg, **MD Hurteau**, CD Allen, RE Keane, TA Spies, MP North, BM Collins, MA Finney, JM Lydersen, AL Westerling. 2022. Counteracting wildfire misinformation. *Frontiers in Ecology and the Environment*, 20:392-393.
- Shuman, JK, et al. 2022. Reimagine fire science for the Anthropocene. *PNAS Nexus*, 1:1-14.
- Xu, Q., A.L. Westerling, A. Notohamiprodjo, C. Wiedinmyer, J.J. Picotte, S.A. Parks, **M.D. Hurteau**, M.E. Marlier, C.A. Kolden, J.A. Sam, W.J. Baldwin, C. Ade. In press. Wildfire burn severity and emissions inventory: an example implementation over California. *Environmental Research Letters*.
- Margolis, E.Q., C.H. Guiterman, R.D. Chavardes, J.D. Coop, K. Copes-Gerbitz, D.A. Dawe, D.A. Falk, J.D. Johnston, E. Larson, H. Li, J.M. Marschall, C.E. Naficy, A.T. Naito, M-A. Parisien, S.A. Parks, J. Portier, H.M. Poulos, K.M. Robertson, J.H. Speer, M. Stambaugh, T.W. Swetnam, A.J. Tepley, I. Thapa, C.D. Allen, Y. Bergeron, L.D. Daniels, P.Z. Fule, D. Gervais, M.P. Girardin, G.L. Harley, J.E. Harvey, K.M. Hoffman, J.M. Huffman, **M.D. Hurteau**, L.B. Johnson, C.W. Lafon, M.K. Lopez, R.S. Maxwell, J. Meunier, M. North, M.T. Rother, M.R. Schmidt, R.L. Sherriff, L.L. Yocom, K.B. Arabas, A.H. Arizpe, D. Arseneault, A.A. Tarancon, C. Baisan, E. Bigio, F. Biondi, G.D. Cahalan, A. Caprio, J. Cerano-Paredes, B.M. Collins, D.C. Dey, I. Drobyshhev, C. Farris, M.A. Fenwick, W. Flatley, M.L. Floyd, Z. Gedalof, A. Holz, L.F. Howard, D.W. Huffman, J. Iniguez, K.F. Kipfmuller, S.G. Kitchen, K. Lombardo, D. McKenzie, A.G. Merschel, K.L. Metlen, J. Minor, C.D. O'Connor, L. Platt, W.J. Platt, T. Saladyga, A.B. Stan, S. Stephens, C. Sutheimer, R. Touchan, P.J. Weisberg. 2022. The North American tree-ring fire-scar network. *Ecosphere* 13:e4159.
- Juang, C.S., A.P. Williams, J.T. Abatzoglou, J.K. Balch, **M.D. Hurteau**, M.A. Moritz. 2022. Large forest fires drive the exponential response of annual forest-fire area to aridity in the western United States. *Geophysical Research Letters*, 49:e2021GL097131.
- Zald, H.S.J., C.C. Callahan, **M.D. Hurteau**, M.J. Goodwin\*, M.P. North. 2022. Tree growth responses to extreme drought after mechanical thinning and prescribed fire in a Sierra

- Nevada mixed-conifer forest, USA. *Forest Ecology and Management*, 510:120107.
- \*Crockett, J.L., **M.D. Hurteau**. 2022. Post-fire early successional vegetation buffers surface microclimate and increases survival of planted conifer seedlings in the southwestern United States. *Canadian Journal of Forest Research*, 52:416-425.
- \*Marsh, C., D. Krofcheck, **M.D. Hurteau**. 2022. Identifying microclimate tree seedling refugia in post-wildfire landscapes. *Agricultural and Forest Meteorology*, 313:108741.
- \*Goodwin, M.J., H.S.J. Zald, M.P. North, **M.D. Hurteau**. 2021. Climate-driven tree mortality and fuel aridity increase wildfire's potential heat flux. *Geophysical Research Letters*, 48:e2021GL094954.
- Stevens J.T., C.M. Haffey, J.D. Coop, P.J. Fornwalt, L. Yocom, C.D. Allen, A. Bradley, O.T. Burney, D. Carril, M.E. Chambers, T.B. Chapman, S.L. Haire, **M.D. Hurteau**, J.M. Iniguez, E.Q. Margolis, C. Marks, L.A.E. Marshall, K.C. Rodman, C.S. Stevens-Rumann, A.E. Thode, J.J. Walker. 2021. Tamm Review: Postfire landscape management in frequent-fire conifer forests of the southwestern United States. *Forest Ecology and Management*, 502:119678.
- McDowell, N.G., Z. Tan, **M.D. Hurteau**, R. Prasad. 2021. Trade-offs of forest management scenarios on forest carbon exchange and threatened and endangered species habitat. *Ecosphere*, 12:Article e03779
- \*Remy, C.C., A.R. Keyser\*, D.J. Krofcheck, M.E. Litvak, **M.D. Hurteau**. 2021. Future fire-driven landscape changes along a southwestern US elevation gradient. *Climatic Change*, 166:46.
- Odland, M.C., M.J. Goodwin\*, B.V. Smithers, **M.D. Hurteau**, M.P. North. 2021. Plant community response to thinning and repeated fire in Sierra Nevada mixed-conifer forest understories. *Forest Ecology and Management*, 495:119361
- Prichard, S.J., P.F. Hessburg, R.K. Hagmann, N.A. Povak, S.Z. Dobrowski, **M.D. Hurteau**, V.R. Kane, R.E. Keane, L.N. Kobziar, C.A. Kolden, M. North, S.A. Parks, H.D. Safford, J.T. Stevesn, L.L. Yocom, D.J. Churchill, R.W. Gray, D.W. Huffman, F.K. Lake, P. Khatri-Chhetri. 2021. Adapting western North American forests to climate change and wildfires: ten common questions. *Ecological Applications*, 31:e02433.
- Jaffe, M.R., B.M. Collins, J. Levine, H. Northrop, F. Malandra, D. Krofcheck\*, **M.D. Hurteau**, S.L. Stephens, M. North. 2021. Prescribed fire shrub consumption in a Sierra Nevada mixed-conifer forest. *Canadian Journal of Forest Research*, 51:1718-1725.
- North, M.P., R.A. York, B.M. Collins, **M.D. Hurteau**, G.M. Jones, E.E. Knapp, L. Kobziar, H. McCann, M.D. Meyer, S.L. Stephens, R.E. Tompkins, C.L. Tubbesing. 2021. Pyrosilviculture needed for landscape resilience in dry western U.S. forests. *Journal of Forestry*, 119:520-544.
- Stephens, S.L., A.L. Westerling, **M.D. Hurteau**, M.Z. Peery, C.A. Schultz, S. Thompson. 2021. Undesirable outcomes in seasonally dry forests. *Frontiers in Ecology and the Environment*, 19:87-88.
- Fargione, J., D.L. Haase, O.T. Burney, O.A. Kildisheva, G. Edge, S.C. Cook-Patton, T. Chapman, A. Rempel, **M.D. Hurteau**, K.T. Davis, S. Dobrowski, S. Enebak, R. De La Torre, A. Bhuta, F. Cabbage, B. Kittler, D. Zhang, R.W. Guldin. 2021. Challenges to the reforestation pipeline in the United States. *Frontiers in Forests and Global Change*, 4:629198.
- Steel, Z.L., M.J. Goodwin\*, M.D. Meyer, G.A. Fricker, H.S.J. Zald, **M.D. Hurteau**, M.P. North.

2021. Fuels reduction treatments have variable effects on conifer resistance to beetle infestation and drought mortality. *Ecosphere*, 12:e03344.
- \*Goodwin, M.J., M.P. North, H.S.J. Zald, **M.D. Hurteau**. 2020. Changing climate reallocates the carbon debt of frequent-fire forests. *Global Change Biology*, 26:6180-6189.
- \*Keyser, A.R., D.J. Krofcheck\*, C.C. Remy\*, C.D. Allen, **M.D. Hurteau**. 2020. Simulated increases in fire activity reinforce shrub conversion in a southwestern US forest. *Ecosystems*, 23:1702-1713.
- Coop, J.D., S.A. Parks, C.S. Stevens-Rumann, S. Crausbay, P.E. Higuera, **M.D. Hurteau**, A. Tepley, E. Whitman, T. Assal, B.M. Collins, K.T. Davis, S. Dobrowski, D.A. Falk, P.J. Fornwalt, P.Z. Fulé, B.J. Harvey, V.R. Kane, C.E. Littlefield, E.Q. Margolis, M. North, M.-A. Parisien, S. Prichard, K.C. Rodman. 2020. Wildfire-driven conversion in western North American landscapes. *BioScience*, 70:659-673.
- Stephens, S.L., A.L. Westerling, **M.D. Hurteau**, M.Z. Peery, C.A. Schultz, S. Thompson. 2020. Fire and climate change: conserving seasonally dry forests is still possible. *Frontiers in Ecology and the Environment*, 18:354-360.
- Cassell, B., R.M. Scheller, M. Lucash, **M.D. Hurteau**, E.L. Loudermilk. 2019. Widespread severe wildfires under climate change lead to increased forest homogeneity in dry mixed conifer forests. *Ecosphere* 10:e02934.
- \*Krofcheck, D.J., C.C. Remy\*, A.R. Keyser\*, **M.D. Hurteau**. 2019. Optimizing forest management stabilizes carbon under projected climate and wildfire. *Journal of Geophysical Research – Biogeosciences* 124:3075-3087.
- \*Krofcheck, D.J., M.E. Litvak, **M.D. Hurteau**. 2019. Allometric relationships for *Quercus gambelii* and *Robinia neomexicana* for biomass estimation following disturbance. *Ecosphere* 10:e02905.
- \*Remy, C.C., D.J. Krofcheck\*, A.R. Keyser\*, M.E. Litvak, S.L. Collins, **M.D. Hurteau**. 2019. Integrating species-specific information in models improves regional projections under climate change. *Geophysical Research Letters* 45:6554-6562.
- Hessburg, P.F., C.L. Miller, N.A. Povak, A.H. Taylor, P.E. Higuera, S.J. Prichard, M.P. North, B.M. Collins, **M.D. Hurteau**, A.J. Larson, C.D. Allen, S.L. Stephens, H.R. Huerta, C.S. Rumann, L.D. Daniels, Z. Gedalof, R.W. Gray, V.R. Kane, D.J. Churchill, R.K. Hagmann, T.A. Spies, S.A. Parks, C.A. Cansler, R.T. Belote, T.T. Veblen, M.A. Battaglia, C. Hoffman, C.N. Skinner, H.D. Safford. 2019. Climate, environment, and disturbance history govern resilience of western North American forests. *Frontiers in Ecology and Evolution* 7:239.
- Hurteau, M.D.**, M.P. North, G.W. Koch, B.A. Hungate. 2019. Opinion: Managing for disturbance stabilizes forest carbon. *Proceedings of the National Academy of Sciences* 116:10193-10195.
- \*Krofcheck, D.J., E.L. Loudermilk, J.K. Hiers, R.M. Scheller, **M.D. Hurteau**. 2019. The effects of management on long-term carbon stability in a southeastern US forest matrix under extreme fire weather. *Ecosphere* 10:e02631.
- Hurteau, M.D.**, S. Liang\*, A.L. Westerling, C. Wiedinmyer. 2019. Vegetation-fire feedback reduces area burned under climate change. *Scientific Reports* 9:2838.
- Fargione, JE, S Bassett, T Boucher, SD Bridgham, RT Conant, SC Cook-Patton, PW Ellis, A

- Falucci, J Fourquerean, T Gopalakrishna, H Gu, B Henderson, **MD Hurteau**, KD Kroeger, T Kroeger, TJ Lark, SM Leavitt, G Lomax, RI McDonald, PJ Megonigal, DA Miteva, CJ Richardson, J Sanderman, D Shoch, SA Spawn, JW Veldman, CA Williams, PB Woodbury, C Zganjar, M Baranski, P Elias, RA Houghton, E Landis, E McGlynn, WH Schlesinger, JV Siikamaki, AE Sutton-Grier, BW Griscom. 2018. Natural climate solutions for the United States. *Science Advances* 4:eat1869
- \*Goodwin, M.J., M.P. North, H.S.J. Zald, **M.D. Hurteau**. 2018. The 15-year post-treatment response of a mixed-conifer understory plant community to thinning and burning treatments. *Forest Ecology and Management* 429:617-624.
- \*Swanteson-Franz, R.J., D.J. Krofcheck\*, **M.D. Hurteau**. 2018. Quantifying forest carbon dynamics as a function of tree species composition and management under projected climate. *Ecosphere* 9:e02191.
- \*Liang, S., **M.D. Hurteau**, A.L. Westerling. 2018. Large-scale restoration increases carbon stability under projected climate and wildfire. *Frontiers in Ecology and the Environment* 16:207-212.
- \*Krofcheck, D.J., **M.D. Hurteau**, R.M. Scheller, E.L. Loudermilk. 2018. Prioritizing forest fuels treatments based on the probability of high-severity fire restores adaptive capacity in Sierran forests. *Global Change Biology* 24:729-737.
- Scheller, R.M., A.M. Kretchun, E.L. Loudermilk, **M.D. Hurteau**, P.J. Weisberg, C. Skinner. 2018. Interactions among management, species composition, bark beetles and climate change and the potential effects on forests of the Lake Tahoe Basin. *Ecosystems* 21:643-656.
- Maestrini, B., E.C. Alvey, **M.D. Hurteau**, H. Safford, J.R. Miesel. 2017. Fire severity alters the distribution of pyrogenic carbon stocks across ecosystem pools in a Californian mixed-conifer forest. *Journal of Geophysical Research – Biogeosciences*, 122, doi: 10.1002/2017/JG003832
- \*Liang, S., **M.D. Hurteau**, A.L. Westerling. 2017. Potential decline in carbon carrying capacity under projected climate-wildfire interactions in the Sierra Nevada. *Scientific Reports* 7:2420.
- Hurteau, M.D.** 2017. Quantifying the carbon balance of forest restoration and wildfire under projected climate in the fire-prone southwestern US. *PLoS ONE*, 12(1):e0169275.
- \*Krofcheck, D.J., **M.D. Hurteau**, R.M. Scheller, E.L. Loudermilk. 2017. Restoring surface fire stabilizes forest carbon under extreme fire weather in the Sierra Nevada. *Ecosphere*, 8(1):e01663.10.1002/ecs2.1663.
- \*Liang, S., **M.D. Hurteau**, A.L. Westerling. 2017. Response of Sierra Nevada forests to projected climate-wildfire interactions. *Global Change Biology*, 23:2016-2030.
- Kretchun, A.M., E.L. Loudermilk, R.M. Scheller, **M.D. Hurteau**, S. Belmecheri. 2016. Climate and bark beetle effects on forest productivity: linking dendroecology with forest landscape modeling. *Canadian Journal of Forest Research*, 46:1026-1034.
- Hurteau, M.D.**, S. Liang\*, K.L. Martin\*, M.P. North, G.W. Koch, B.A. Hungate. 2016. Restoring

- forest structure and process stabilizes forest carbon in a wildfire-prone southwestern ponderosa pine forests. *Ecological Applications*, 26:382-391.
- \*Laflower, D.M., **M.D. Hurteau**, G.W. Koch, M.P. North, B.A. Hungate. 2016. Climate-driven changes in forest succession and the influence of management on forest carbon dynamics in the Puget Lowlands of Washington State, USA. *Forest Ecology and Management*, 362:194-204.
- Buchholz, T., **M.D. Hurteau**, J. Gunn, D. Saah. 2016. A global meta-analysis of forest bioenergy greenhouse gas emission accounting studies. *Global Change Biology – Bioenergy*, 8:281-289.
- \*Wiechmann, M.L., **M.D. Hurteau**, J.P. Kaye, J.R. Miesel. 2015. Macro-particle charcoal C content following prescribed burning in a mixed-conifer forest, Sierra Nevada, California. *PLOS ONE*, 10(8):e0135014.
- \*Wiechmann, M.L., **M.D. Hurteau**, M.P. North, G.W. Koch, L. Jerabkova. 2015. The carbon balance of reducing wildfire risk and restoring process: an analysis of 10-year post-treatment carbon dynamics in mixed-conifer forest. *Climatic Change*, 132:709-719.
- Addington, R.N., S.J. Hudson, J.K. Hiers, **M.D. Hurteau**, T.F. Hutcherson, G. Matusick, J.M. Parker. 2015. Relationships among wildfire, prescribed fire, and drought in a fire-prone landscape in the southeastern United States. *International Journal of Wildland Fire*, 24:778-783.
- \*Martin, K.L., **M.D. Hurteau**, B.A. Hungate, G.W. Koch, M.P. North. 2015. Carbon tradeoffs of restoration and provision of endangered species habitat in a fire-maintained forest. *Ecosystems*, 18:76-88.
- Hurteau, M.D.**, A.L. Westerling, C. Wiedinmyer, B.P. Bryant. 2014. Projected effects of climate and development on California wildfire emissions through 2100. *Environmental Science and Technology*, 48:2298-2304.
- Earles, J.M., M.P. North, **M.D. Hurteau**. 2014. Carbon storage and resilience of fire-dependent forests under future wildfire and drought. *Ecological Applications*, 24:732-740.
- \*Dangal, S.R.S., B.S. Felzer, **M.D. Hurteau**. 2014. Effects of agriculture and timber harvest on carbon sequestration in the Eastern United States. *Journal of Geophysical Research – Biogeoscience*, 119:35-54.
- Hurteau, M.D.**, J.B. Bradford, P.Z. Fule, A.H. Taylor, K.L. Martin\*. 2014. Climate change, fire management, and ecological services in the southwestern US. Special Issue: *Forest Ecology and Management*, 327:280-289.
- Hurteau, M.D.**, T.A. Robards, D. Stevens, D. Saah, M. North, G.W. Koch. 2014. Modeling climate and fuel reduction impacts on forest carbon stocks. *Forest Ecology and Management*, 315:30-42.
- Kerhoulas, L.P., T.E. Kolb, **M.D. Hurteau**, G.W. Koch. 2013. Managing for climate change



- adaptation in forests: a case study from the U.S. Southwest. *Journal of Applied Ecology*, 50:1311-1320.
- Moritz, M.A., **M.D. Hurteau**, K.N. Suding, C.M. D'Antonio. 2013. "Bounded ranges of variation" as a framework for future conservation and fire management. *Annals of the New York Academy of Sciences*, The Year in Ecology and Conservation Biology, 1286:92-107
- Hurteau, M.D.**, B.A. Hungate, G.W. Koch, M.P. North, G.R. Smith. 2013. Aligning ecology and markets in the forest carbon cycle. *Frontiers in Ecology and the Environment*, 11:37-42.
- \*Waddell, C.J., **M.D. Hurteau**, D. Huntzinger. 2011. Product carbon footprinting: a proposed framework to increase confidence, reduce costs, and incorporate profit incentive. *Carbon Management*, 2:645-657.
- North, M. and **M. Hurteau**. 2011. High-severity wildfire effects on carbon stocks and emissions in fuels treated and untreated forest. *Forest Ecology and Management*, 261:1115-1120.
- Wu, T., Y-S. Kim, **M.D. Hurteau**. 2011. Cutting trees to save forests: using economic incentives to overcome barriers to forest restoration. *Restoration Ecology*, 19:441-445.
- Hurteau, M.D.** and M.L. Brooks. 2011. Short- and long-term effects of fire on carbon in US dry temperate forest systems. *BioScience*, 61:139-146.
- Hurteau, M.D.**, M.T. Stoddard, P.Z. Fulé. 2011. The carbon costs of mitigating high-severity wildfire in southwestern ponderosa pine. *Global Change Biology*, 17:1516-1521.
- Hurteau, M.D.** and C. Wiedinmyer. 2010. Response to comment on "Prescribed fire as a means of reducing forest carbon emissions in the Western United States. *Environmental Science and Technology*, 44:6521
- Hurteau, M.D.** and M. North. 2010. Carbon recovery rates following different wildfire risk mitigation treatments. *Forest Ecology and Management*, 260:930-937.
- Wiedinmyer, C. and **M.D. Hurteau**. 2010. Prescribed fire as a means for reducing forest carbon emissions in the western US. *Environmental Science and Technology*, 44:1926-1932.
- Hurteau, M.** and M. North. 2009. Fuel Treatment effects on tree-based carbon storage and emissions under modeled wildfire scenarios. *Frontiers in Ecology and the Environment*, 7:409-414. (Featured on front cover, Beyond the Frontier Podcast)
- Hurteau, M.**, M. North, T. Foin. 2009. Modeling the influence of precipitation and nitrogen deposition on forest understory fuel connectivity in Sierra Nevada mixed-conifer forest. *Ecological Modelling* 220:2460-2468.
- Mignone, B.K., **M.D. Hurteau**, Y. Chen, B. Sohngen. 2009. Carbon offsets, reversal risk and US climate policy. *Carbon Balance and Management* 4:3.
- Hurteau, M.D.**, B.A. Hungate, G.W. Koch. 2009. Accounting for risk in valuing forest carbon offsets. *Carbon Balance and Management* 4:1.
- North, M., **M. Hurteau**, J. Innes. 2009. Fire suppression and fuels treatment effects on

- mixed-conifer carbon stocks and emissions. *Ecological Applications* 19:1385-1396.
- Hurteau, M.** and M. North. 2009. Response of *Arnica dealbata* to climate change, nitrogen deposition, and fire. *Plant Ecology*, 202:191-194.
- Hurteau, M.D.**, G.W. Koch, B.A. Hungate. 2008. Carbon protection and fire risk reduction: toward a full accounting of forest carbon offsets. *Frontiers in Ecology and the Environment*, 6:493-498.
- Hurteau, M.** and M. North. 2008. Forest understory response to climate change, nitrogen, and fire in Sierra Nevada mixed-conifer. *Global Change Biology*, 14:1543-1552.
- Hurteau, M.**, H. Zald, M. North. 2007. Species-specific response to climate reconstruction in upper-elevation mixed-conifer forests of the western Sierra Nevada, California. *Canadian Journal of Forest Research*, 37:1681-1691.
- North, M., **M. Hurteau**, R. Fiegenger, M. Barbour. 2005. Influence of fire and El Niño on tree recruitment varies by species in Sierran mixed conifer. *Forest Science*, 51:187-197.
- Hurteau, M.**, M. Stoddard, B. Oberhardt. 2001. Sampling method captures vegetation and wildlife data in sagebrush-grassland ecosystem (Arizona). *Ecological Restoration* 19:267-268.

## Published Data Sets

\* indicates student/postdoc author

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- Hurteau, M., C. Marsh\*, J. Crockett\*. 2022. Supporting data for: Planted conifer seedling survival in a post-wildfire landscape in New Mexico: From experimental planting to predictive probabilistic surfaces, doi: 10.5061/dryad.fn2z34tw6.
- Hurteau, M., M. Goodwin\*, H. Zald, M. North. 2021. Supporting data for climate-driven tree mortality and fuel aridity increase wildfire's potential sensible heat flux, doi:10.5061/dryad.rjdfn2zbr
- Hurteau, M., C. Marsh\*, D. Krofcheck. 2021. Supporting data for identifying microclimate tree seedling refugia in post-wildfire landscapes, doi:10.5061/dryad.x69p8czhq
- Hurteau, M., J. Crockett\*. 2021. Supporting data for post-fire early successional vegetation buffers microclimate and increases survival of planted conifer seedlings in the southwestern United States, doi:10.5061/dryad.hx3ffbgs
- Hurteau, M., M. Goodwin\*, H. Zald, M. North. 2020. Supporting data for changing climate reallocates the carbon debt of frequent-fire forests, doi: 10.5061/dryad.7pvmcvdqn.
- Hurteau, M., A. Keyser\*, D. Krofcheck\*, C. Remy\*, C. Allen. 2020. Supporting data for Increasing fire activity reinforces shrub conversion in southwestern US forests, doi: 10.5061/dryad.qrfj6q5b6.
- Hurteau, M., M. Goodwin\*, M. North, H. Zald, B. Collins. 2019. Data from: The 15-year post-treatment response of a mixed-conifer understory plant community to thinning and burning treatments, doi: 10.5061/dryad.8931zcrm7.
- \*Remy, C., D. Krofcheck\*, A. Keyser\*, M. Litvak, S. Collins, M. Hurteau. 2019. Supporting data for Integrating species-specific information in models improves regional projections under climate change, [https://digitalrepository.unm.edu/bio\\_data/2](https://digitalrepository.unm.edu/bio_data/2)

- \*Krofcheck, D.J., M.D. Hurteau, M.E. Litvak. 2019. Supporting data for Allometric relationships for *Quercus gambelii* (Gambel oak) and *Robinia neomexicana* (New Mexico locust) for field and remote sensing biomass retrieval in post-disturbance landscapes, doi: 10.25827/d92a-k170.
- \*Krofcheck, D.J., A.R. Keyser\*, C.R. Remy. 2019. Supporting data for Optimizing forest management stabilizes carbon under projected climate and wildfire, doi: 10.25827/4rgd-bg60.
- Hurteau, M.D., S. Liang, A.L. Westerling, C. Wiedinmyer. 2018. Supporting data for Vegetation-fire feedback reduces projected area burned under climate change, doi: 10.25827/m7nr-ft88.

## Other Publications

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- Hurteau, M.D. 2021. (Invited) The role of forests in the carbon cycle and in climate change. In *Climate Change 3<sup>rd</sup> ed: Observed impacts on planet earth*. Ed, T.M. Letcher. Elsevier B.V., Amsterdam, Netherlands.
- Hurteau, M.D. 2013. (Invited) Effects of wildland fire management on forest carbon stores. In *Land use and the carbon cycle: advances in integrated science, management, and policy*. Eds, D.G. Brown, D.T. Robinson, N.H.F. French, and B.C. Reed. Cambridge University Press, Cambridge UK.
- Mitchell, R.J., K.L. Clark, M.D. Hurteau, B.J. Palik, M.E. Rocca, M.C. Wimberly, J.B. Bradford, P.M. Brown, J.J. Charney, B. Clinton, P.Z. Fule, P.C. Goebel, R.S.H. Kennedy, Y. Liu, L.H. MacDonald, J. J. O'Brien, H. Renninger, R. Scheller, N. Skowronski, G. Starr, A.H. Taylor. 2012. Fire-Climate Interactions: A Technical Input Report for the National Climate Assessment.
- Magi, B., M. Coughlan, A. Edwards, M. Hurteau, A. Petty, F. Seijo, C. Wiedinmyer. 2008. Cultural uses and impacts of fire: past, present and future. Meeting Report, *Eos*, 89:380.
- Alcoze, T. and M. Hurteau. 2001. (Invited) Implementing the archeo-environmental reconstruction technique: rediscovering the historic ground layer of three plant communities in the greater Grand Canyon Region. In *The historical ecology handbook*. Eds, Dave Egan and Evelyn Howell. Island Press, Covelo, CA.

## Teaching Experience

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- BIOL 419/519 Science writing, University of New Mexico, Fall 2017, 2018, 2020
- BIOL 419/519 Science-policy, University of New Mexico, Fall 2016, 2018
- BIOL 203 Evolution and Ecology, University of New Mexico, Fall 2015, 2017
- FOR 200 Professional Careers in Forest Resources, Pennsylvania State University, University Park, PA, Fall 2012, 2013
- FOR 201GN Global Change and Ecosystems, General Education – Natural Science,

FOR 597A	Pennsylvania State University, University Park, PA, Fall semester beginning 2012 Science-Policy Interface, Pennsylvania State University, University Park, PA, Spring 2012, Fall 2013
FOR 597B	Science as a Process, Pennsylvania State University, University Park, PA, Fall 2012
ECLGY 515	Advances in Ecology, Pennsylvania State University, University Park, PA, Fall 2014
ENV 591	The Science and Management of Greenhouse Gases, Northern Arizona University, Flagstaff, AZ, Spring 2011
BIO 326	Ecology, Northern Arizona University, Flagstaff, AZ, Fall 2007
NR 330	Native California Tree and Shrub Identification, American River College, Sacramento, CA, Fall 2003-2005

## Invited Seminars

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ISEM Seminar, Université de Montpellier, Nov 2022  
 IDIL Seminar, Université de Montpellier, Sept 2022  
 Integrative Biology, University of Colorado, Denver, Dec 2019  
 School of Forestry, Northern Arizona University, Oct 2018  
 Schat Seminar, Department of Forestry and Wildland Resources, California State University  
 Humboldt, Mar 2017  
 Department of Geography, University of New Mexico, Oct 2015  
 School of Forest Resources Seminar, Pennsylvania State University, Apr 2012  
 IGDP Ecology Seminar, Pennsylvania State University, Feb 2012  
 Terrestrial Biogeoscience Seminar, Boston University, Oct 2011  
 Campus Seminar, The Evergreen State College, Feb 2011  
 Biology Seminar, Southern Utah University, Sept 2010  
 Environmental Systems Seminar, University of California, Merced, Sept 2009  
 School of Forestry, Northern Arizona University, Feb 2009  
 Biological Sciences Seminar, Northern Arizona University, Oct 2008

## Recent Presentations and Posters

\* indicates student/postdoc

Hurteau, M, M Goodwin, H Zald, M North. (Invited) Increasing potential wildfire energy flux from climate-driven mortality and fuel aridity. 9<sup>th</sup> International Conference on Forest Fire Research, 11/14-18/2022, Coimbra, Portugal.

Hurteau, MD, AA Ali. (Keynote) Increasing potential energy flux from wildfire with ongoing climate-driven mortality and increasing aridity. Foret Froides – International Research Network, Annual Congress 10/6-8/2022, Joensuu, Finland.

Hurteau, MD, C Marsh\*, J Crockett\*. (Invited) Topographic and climatic controls on post-fire seedling establishment. Forest Disturbances and Ecosystem Dynamics in a Changing World, 9/19-22/2022, Berchtesgaden National Park, Germany.

Hurteau, M., C. Marsh\*, D. Krofcheck. (Invited) Topographic and climatic controls on post-fire planted seedling establishment in the southwestern US. 9<sup>th</sup> International Fire Ecology

and Management Congress.

Hurteau, M. (Invited) Factors controlling tree establishment following a fire-induced state change from forest to non-forest. 2021 meeting of the Ecological Society of America.

Hurteau, M., S. Liang, A. Westerling, C. Wiedinmyer. Accounting for prior wildfires decreases area burned and emissions under projected climate in the Sierra Nevada. 3<sup>rd</sup> International Smoke Symposium.

Hurteau, M., D. Krofcheck, C. Remy\*, A. Keyser\*. (Invited) Optimizing treatment placement and expanding prescribed fire use minimizes ecosystem carbon losses and high-severity fire risk. 8<sup>th</sup> International Fire Ecology and Management Congress.

Hurteau, M., D. Krofcheck\*, E.L. Loudermilk, J.K. Hiers, R. Scheller. (Invited) Management can mitigate the risk from extreme fire weather in an upland pine – wetland forest matrix in the southeastern US. International Fire Ecology and Management Congress.

\*Crockett, J., M.D. Hurteau. Quantifying the physical controls on post-wildfire vegetation establishment in the Southwestern US. 8<sup>th</sup> International Fire Ecology and Management Congress.

\*Keyser, A., D.J. Krofcheck, C.C. Remy†, M. Hurteau. Quantifying the influence of fire probability on post-fire vegetation development in the Southwestern US. 8<sup>th</sup> International Fire Ecology and Management Congress.

\*Remy, C.C., A.R. Keyser†, D.J. Krofcheck, M. Hurteau. Future vegetation trajectories driven by climate change and fire in the upper Rio Grande watershed. 8<sup>th</sup> International Fire Ecology and Management Congress.

Xu, Q., A.L. Westerling, M.D. Hurteau, C. Wiedinmyer, K. Schnier, J.W. Baldwin. Wildfire PM2.5 emissions and respiratory health outcomes in California. 2019 Fall Meeting of the American Geophysical Union.

\*Goodwin, M.J., H. Zald, M. North, M.D. Hurteau. (invited). The carbon dynamics of thinning and repeated burning to restore surface fire in a mixed-conifer forest. 2019 meeting of the Ecological Society of America.

Zald, H., M.J. Goodwin, M. North, M.D. Hurteau, A.N. Gray. (invited). Tree regeneration and understory vegetation responses to second entry prescribed burns in a Sierra Nevada mixed conifer forest. 2019 meeting of the Ecological Society of America.

Hurteau, M.D. (invited). Quantifying abiotic and biotic controls on seedling survival in a post-burn environment. 2019 meeting of the US International Association of Landscape Ecology.

## Awards

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Edward D. Bellis Award for outstanding contribution and dedication to educating and training graduate students in the IGDP in Ecology at Penn State, April 2014

Gamma Sigma Delta – Honor Society of Agriculture, 2013

The Research Ambassador Program, Fellow February 2011

Analysis, Integration and Modeling of the Earth System (AIMES), Young Scholar Network,  
Scholar July 2008

Dissertations Initiative for the Advancement of Climate Change Research (DISCCRS),  
Scholar November 2008

Xi Sigma Pi – Forestry Honors Society, 2000

## **Selected Outreach**

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Invited speaker – New Mexico State Forestry, Monthly learning, Aug 25, 2022

Santa Fe New Mexican – [Use all the tools to improve forest health](#), May 28, 2022

Santa Fe New Mexican – [Use all the tools – including fire – to restore forest resiliency](#), Apr 23, 2022

Santa Fe New Mexican – [Fires will help the health of Southwestern forests](#), Oct 16, 2021

Invited panelist – The West is Burning, Santa Fe Fireshed, Sept 16, 2021

The Hill – [The right fire to fight fire – why limiting prescribed burning is short-sighted](#), Aug 8, 2021

The Washington Post – [Trump has a point: The fires are worse because we managed the forests badly](#), Sept 18, 2020

Invited speaker – New Mexico State Forestry, All Staff Meeting, Espanola, NM, Mar 3, 2020

Invited speaker – New Mexico Fire Service Conference, Ruidoso, NM, Sept 27, 2019

Invited speaker – Sandia National Forest Collaborative field trip, Aug 6, 2019

Invited speaker – Burned Area Learning Network field trip, Apr 23, 2019

Invited panelist – Finding common ground regarding the role of wildfire in northern New Mexico Landscapes, Santa Fe, NM, Apr 3, 2019

The Guardian – [What Trump gets wrong about wildfires, by a fire scientist](#), Nov 13, 2018

Invited speaker, Global Climate Action Summit, San Francisco, CA, Sept 12, 2018

Climate, wildfire, and management influences on forest carbon carrying capacity, Dinkey Creek Collaborative Restoration Project, May 18, 2017

Invited speaker, California Fire Science Consortium, May 2, 2017

Keynote speaker, Sierra Nevada Watershed Improvement Program Summit: The Forest Carbon Story, Mar 3, 2016, Sacramento, CA

Invited speaker, USDA Pacific Northwest Climate Hub, Adaptation and Mitigation for Working Forestlands: Challenges and Solutions in the Face of Climate Change, Dec 2, 2015, Corvallis, OR

Invited speaker, Bureau of Indian Affairs, Southwest Regional Foresters Meeting, Oct 21, 2015,

Albuquerque, NM

The Conversation – [We set the fuel for the Rim fire, climate change lit the match](#), August 30, 2013

The Nature Conservancy, Fire Learning Network: Fire, Carbon and Climate Change Adaptation Symposium Nov 9, 2010, Rockport, TX, Invited Expert/Panelist

The climate mitigation benefit of fire prone forests, Presented to the Arizona Governor's Forest Health Council, April 16, 2009

Climate change and forest management, Presented at the 2008 World Wildlife Fund Climate Camp, San Francisco, CA, February 25, 2008.

Imagine Magazine – [Why more trees might not mean less carbon dioxide](#) September/October 2009