

Nathan Mietkiewicz, Ph. D.

Postdoctoral Reserach Fellow, Earth Lab

University of Colorado · Boulder · 4001 Discovery Dr.

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Education

Clark University, Worcester, MA

Ph. D., Geography, 2012 - 2016

Dissertation Title: Interactions of spruce beetle outbreak and wildland fire in Colorado: legacies and future projections under a changing climate.

Advisor: Dr. Dominik Kulakowski

M.A., Geography, 2015

M.S., GIS for Development and Environment, 2010-2013

Thesis: A century of ecological change in a subalpine forest of the Swiss Alps.

Advisors: Dr. Dominik Kulakowski, Dr. John Rogan, Dr. Peter Bebi

University of Maine, Orono, ME

B.S., Earth Science, 2009

Peer-reviewed Publications

Mietkiewicz, N., J. K. Balch, T. Schoennagel, L. St. Denis, B. Bradley. *Costs of human-ignited wildfires in the U.S. (2001-2015)-from the Wildland-Urban Interface to wildlands*. In review. Proceedings of the National Academy of Sciences

Mietkiewicz, N., D. Kulakowski, and T.T. Veblen. *Spruce beetle legacies on fire behavior under a varying climate in CO, USA*. In preparation.

Mietkiewicz, N., D. Kulakowski, and T.T. Veblen. *Disturbance legacies and forest fuel loads in the southern Rocky Mountains, CO, USA*. In press. Ecological Applications.

Mietkiewicz, N., D. Kulakowski, D. Rogan, and P. Bebi. *Long-term change in sub-alpine forest cover, tree line and species composition in the Swiss Alps*. Journal of Vegetation Science. 28:951-964. DOI: 10.1111/jvs.12561

Schoennagel, T., J. K. Balch, H. Brenkert-Smith, P. E. Dennison, B. J. Harvey, M. A. Krawchuk, **N. Mietkiewicz**, P. Morgan, M. A. Moritz, R. Rasker, M. G. Turner, and C. Whitlock. 2017. *Adapt to more wildfire in western North American forests as climate changes*. Proceedings of the National Academy of Sciences. 114:4582-4590.

Mietkiewicz, N. and D. Kulakowski. 2016. *Relative importance of climate and mountain pine beetle outbreaks on the occurrence of large wildfires in the western US*. Ecological Applications:10.1002/eap.1400

Bakaj, F., **N. Mietkiewicz**, T. T. Veblen, and D. Kulakowski. 2016. *The relative importance of tree and stand properties in susceptibility to spruce beetle outbreak in the mid-20th century*. Ecosphere 7(10):e01485. 10.1002/ecs2.1485

Hart, S. J., T. T. Veblen, **N. Mietkiewicz**, and D. Kulakowski. 2015. *Negative Feedbacks on Bark Beetle Outbreaks: Widespread and Severe Spruce Beetle Infestation Restricts Subsequent Infestation*. PLoS ONE 10:e0127975.

Book Chapters

Rogan, J., and **N. Mietkiewicz**. 2015. *Land Cover Change Detection* in A. Aranganathan, editor. Land Resources Monitoring, Modeling, and Mapping with Remote Sensing.

Grants, Awards, and Fellowships

- 2018 \$250,000 - Co-PI, Submitted - USGS Powell Center Working Group
One fire: Defining modern U.S. fire regimes by synthesizing existing data
\$1,600,000 - Senior Personnel, Submitted - National Science Foundation: Coupled Natural-Human Systems
Human settlements in flammable U.S. landscapes: How will people coexist with wildfire?
- 2017 \$1,852,683 - Co-PI, Submitted - National Science Foundation: Macrosystems
Macroscale Resilience: Understanding how forests recover after beetle-kill, fire, and drought
by linking observations—from single trees to the western U.S.
\$1200 - Fire Prediction Across Scales conference travel award - Columbia University
- 2015 \$700 - Clark University's Outstanding Teaching Assistant Award
\$300 - Marion I. Wright '46 Travel Award, Fall 2015
\$250 - Pruser Dissertation Enhancement Award
\$300 - Graduate Student Council Travel Award, Spring 2016
- 2013 \$600 - Marion I. Wright '46 Travel Award, Spring/Fall 2013
\$750 - Pruser Dissertation Enhancement Award
- 2012 \$4,000 - Libbey Enhancement Award
\$55,000 - Full tuition remission and stipend (5 years, approx. per year)
- 2010 \$15,980 - Awarded scholarship towards Master's degree (2 years, approx. per year)

Research Appointments

- 2016 - Postdoctoral Research Fellow, Earth Lab, University of Colorado, Boulder
- 2013 - 2016 Research Assistant, Forest Ecology Research Laboratory, Clark University
Forest Ecology Research Laboratory Manager, Clark University
- 2012 Research and Development, Clark Labs, Worcester, MA
- 2011 GIS Consultant, Department of Public Works, Ashland, MA
GIS Analyst, United States Department of Agriculture: National Resource Conservation Service
- 2008 Field Researcher, Scott Glacier, Antarctica via University of Maine, Orono
- 2007 Field Researcher, Marine Sediments Laboratory, University of Maine, Orono
- 2006 Laboratory Technician, Climate Change Institute, University of Maine, Orono
Numerical Modeling Technician, Numerical Modeling Laboratory, University of Maine, Orono

Teaching Appointments

Faculty Positions

Clark University

2015 Forest Ecology (GEOG 116); Overall Effectiveness = 4.6/5

Teaching Assistant Positions

Clark University

2015 Advanced Topics in GIS: Raster GIS (GEOG 397); Overall Effectiveness = 4.94/5

2014 Introduction to Remote Sensing (GEOG 383); Overall Effectiveness = 4.89/5
Advanced Topics in GIS: Raster GIS (GEOG 397); Overall Effectiveness = 4.74/5

2013 Forest Ecology (GEOG 116); Overall Effectiveness = 4.62/5
Advanced Topics in GIS: Raster GIS (GEOG 397); Overall Effectiveness = 4.74/5

2012 Earth System Science (GEOG 104); Overall Effectiveness = 4.97/5

Professional Presentations

2017 **Mietkiewicz, N.**, Balch, J., St. Denis, L., Schoennagel, T. *United States: the relative contribution of human ignitions vs climate to fire size and probability*. Presentation at the Fire Prediction Across Scales Conference, Columbia University, New York City, NY, USA.

2017 **Mietkiewicz, N.**, Balch, J., St. Denis, L., *Human-ignited fires at the wildland-urban interface: consequences and costs*. Presentation at the Ecological Society of America Portland, OR, USA.

2016 **Mietkiewicz, N.**, D. Kulakowski, and T.T. Veblen. *Spruce beetle legacies on fire behavior under a varying climate in CO, USA*. Paper presentation at the Association of American Geographers, San Francisco, CA.

2016 **Mietkiewicz, N.**, D. Kulakowski, and T.T. Veblen. *Spruce beetle legacies on fire behavior under a varying climate in CO, USA*. Poster presentation at the 5th International Fire Behavior and Fuels Conference, Portland, OR

2014 **Mietkiewicz, N.**, Kulakowski, D. *How do spruce beetle outbreaks affect fuel loads in the southern Rocky Mountains, CO*. Paper presented at the Association of American Geographers, Tampa, FL.

2013 **Mietkiewicz, N.**, Kulakowski, D., and Rogan, J. *Identifying sub-continental drivers of wildland fire under a varying climate*. Paper presented at New England-St. Lawrence Valley Geographical Society (NESTVAL), Worcester, MA.

2013 **Mietkiewicz, N.**, Kulakowski, D., and Rogan, J. *What are the landscape requirements preceding wildland fire occurrence?* Paper presented and Biogeography session chaired at the Annual Conference of the Association of American Geographers, Los Angeles, CA.

2012 **Mietkiewicz, N.**, Kulakowski, D., and Rogan, J. *A century of ecological change in a subalpine forest of the Swiss Alps*. Paper presented at the Annual Conference of the Association of American Geographers, New York, NY.

Outreach, Synergistic Activities, and Professional Development

2017 **Invited Speaker** in an undergraduate class, Introduction to Physical Geography, University of Colorado, Boulder, CO.

2017 **Participant** at the Rocky Mountain Advanced Computing Consortium 2017, University of Colorado, Boulder, CO.

2017 **Invited Speaker** at the Wildfire Information Development Workshop, Boulder, CO, USA. Entitled: Human-ignited fires at the wildland-urban interface: case study for using ICS-209s.

2017 **Participant** at the NASA Wildland Fire Applications 2017 Team Meeting, University of Colorado, Boulder, CO.

2017 **Invited Speaker** at the Earth Science & Observation Center Colloquium, University of Colorado, Boulder, CO. Entitled: Earth Lab: Accelerating discovery with advanced earth analytics.

2014 **Participant** in a Seminar in College Teaching, Certificate in College Teaching. Colleges of Worcester Consortium, Inc.

2014 **Professional exhibitor** representing Clark Labs at the Annual Conference of the Association of American Geographers, Tampa, FL.

2014 **Professional exhibitor** representing Clark Labs at the American Society for Photogrammetry and Remote Sensing, Baltimore, MD.

2013 **Professional exhibitor** representing Clark Labs at the Annual Conference of the Association of American Geographers, Los Angeles, CA.

Peer-reviewed for the following journals: Ecology and Evolution, International Journal of Wildfire, Open Access Forests

Skills

Applications: QGis, ArcGIS, IDRISI, Adobe Illustrator/Photoshop, RStudio, RMarkdown, Docker, GitHub, Amazon Web Services (S3, EC2)

Programming: R