

# KATHERINE M. RENWICK

Postdoctoral Researcher, Montana State University  
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## Education

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- 2015 **Ph.D.** Colorado State University, Fort Collins, CO  
Graduate Degree Program in Ecology  
Graduate Teaching Certificate
- 2007 **B.A.** Colby College, Waterville, ME  
Double Major: Environmental Studies and Classics  
*summa cum laude, Phi Beta Kappa*

## Professional Experience

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- 2015–current **Montana State University**, Bozeman, MT  
*Postdoctoral Researcher*, Dept. of Ecology  
Research: Mechanistic modeling of climate change impacts on sagebrush ecosystems
- 2010–2015 **Colorado State University**, Fort Collins, CO  
*Research Assistant*, Dept. of Ecosystem Science and Sustainability  
Research: Interactive effects of climate change and disturbance on forest vegetation
- 2009–2010 **Cornell University**, Ithaca, NY  
*Research Assistant*, Boyce Thompson Institute for Plant Research  
Research: Insect developmental biology
- 2009 **Cary Institute of Ecosystem Studies**, Millbrook, NY  
*Project Assistant*  
Research: Lyme disease in small mammal communities
- 2007–2008 **Medomak Valley Land Trust**, Waldoboro, ME  
*Outreach and Stewardship Specialist*  
Project management, conservation planning, and volunteer coordination
- 2007 **Acadia National Park**, Bar Harbor, ME  
*Biological Science Technician*  
Research: Long-term monitoring of forest health
- 2006 **Colby College**, Waterville, ME  
*Undergraduate Research Assistant*, Dept. of Environmental Studies  
Research: Landscape-scale habitat conservation for apex predators

## Teaching and Mentoring Experience

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- 2016 **Advances in Ecological Modeling**, BIOE516, Montana State University  
*Co-Instructor*: Helped develop and teach new course on simulation models; mixed graduate/undergraduate
- 2015 **Global Environmental Sustainability**, GES470, Colorado State University  
*Instructor*: Senior capstone course for sustainability minor
- 2015 **Fire Ecology**, F324, Colorado State University  
*Teaching Assistant*: Graded student assignments and fielded questions on material
- 2014 **Multivariate Statistics**, ECOL592, Colorado State University  
*Co-instructor*: Helped develop and teach labs
- 2014 **Ecosystem Ecology**, ESS311, Colorado State University  
*Teaching Assistant*: Contributed to course development, designed and graded assignments, led discussions
- 2013, 2014 **Research Skills for Ecosystem Science II**, ESS221, Colorado State University  
*Research Mentor*: Supervised three independent study projects
- 2012, 2013 **Research Skills for Ecosystem Science**, ESS220, Colorado State University  
*Field Skills Instructor*: Helped with curriculum development; led field skills module
- 2012 **Forest Ecology**, F311, Colorado State University  
*Teaching Assistant*: Taught eight classes, helped design and grade student assignments

2004-2007 **Expository Writing**, EN112, Colby College  
*Instructor and Tutor*: Helped students in all disciplines improve writing skills

## Fellowships and Awards

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2014 NASA-MSU Professional Enhancement Award, Michigan State University  
2013–2014 Sustainability Leadership Fellow, School of Global Environmental Sustainability, CSU  
2012 Rocky Mountain Research Fellowship, Rocky Mountain Conservancy  
2011 Research Ambassador Fellow, NSF and Evergreen State College  
2011, 2012 Honorable Mention, NSF Graduate Research Fellowship Program  
2011–2014 Travel Awards, 5 total from CSU, ESA, and NCEAS  
2010 Program of Research and Scholarly Excellence Fellowship, Colorado State University  
2010 University Graduate Fellowship, Colorado State University  
2007 Environmental Studies Achievement Award, Colby College (top graduating senior)

## Publications and Reports

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2016 **Renwick, K.M.**, Rocca, M.E., and T.J. Stohlgren. Biotic disturbance facilitates range shift at the trailing but not the leading edge of lodgepole pine's altitudinal distribution. *Journal of Vegetation Science*, 27(4):780-788.  
2015 **Renwick, K.M.** and M.E. Rocca. Temporal context affects the observed rate of climate-driven range shifts in tree species. *Global Ecology and Biogeography*, 24:44-51.  
2012 **Renwick, K.M.**, and M.E. Rocca. Impacts of climate change and mountain pine beetle along forest ecotones. *Report to Rocky Mountain National Park*.  
2011 **Renwick, K.M.**, and M.E. Rocca. Aspen recruitment in mixed aspen-lodgepole stands: will the mountain pine beetle outbreak benefit aspen? *Report to Rocky Mountain National Park*.  
In review **Renwick, K.M.**, and M.E. Rocca. The importance of non-climatic constraints on the distribution and migration potential of Rocky Mountain tree species. *Journal of Ecology*.  
In review Druckenbrod, D., Martin-Benito, D., Orwid, D., Pederson, N., Poulter, B., **Renwick, K.M.**, and H. Shugart. Redefining temperate forest response to climate and disturbance in eastern North America: new insights at the mesoscale. *Ecography*.

## Selected Presentations

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2016 **Renwick, K.M.**, Kleinhesselink, A., Curtis, C., Schlaepfer, D., Bradley, B., Poulter, B., and P. Adler. "How will climate change affect sagebrush?," Early Career Climate Conference, Amherst, MA \*Awarded 1st place in the presentation competition  
2016 **Renwick, K.M.**, Kleinhesselink, A., Curtis, C., Schlaepfer, D., Bradley, B., Poulter, B., and P. Adler. "Estimating climate sensitivity of semi-arid vegetation: what can we learn by comparing forecasts derived from different modeling techniques?," Ecological Society of America annual meeting, Fort Lauderdale, FL  
2016 **Renwick, K.M.**, Kleinhesselink, A.K., Curtis, C., Schlaepfer, D., Bradley, B., Poulter, B., and P. Adler. "Forecasting changes in the distribution and abundance of sagebrush under climate change," Sagebrush Ecosystems Conservation Conference, Salt Lake City, UT  
2016 **Renwick, K.M.**, Rocca, M.E. "Impacts of climate-disturbance interactions on current and projected species distributions," Boise State University Biology Department Seminar, Boise, ID (*invited seminar*)  
2016 **Renwick, K.M.**, Poulter, B., and P. Adler. "Forecasting changes in sagebrush distribution and abundance under climate change," USGS Snake River Field Station, Boise, ID (*invited seminar*)  
2015 Poulter, B., Emmett, K., Joetzer, E., Ogunkoya, G, and **K.M. Renwick**. "Addressing spatial scales and new mechanisms in climate impact ecosystem modeling," AGU Fall Meeting, San Francisco, CA  
2015 **Renwick, K.M.** and M.E. Rocca. "Incorporating non-climatic variables into species distribution models to improve forecasts of landscape-scale range shifts," Open Science Conference, Fort Collins, CO

- 2014 **Renwick, K.M.**, and M.E. Rocca. “Climate change impacts at the range margins of Rocky Mountain tree species: interactions with disturbance and implications for future forests,” Mountain Climate Research Conference, Midway, UT
- 2014 **Renwick, K.M.**, and M.E. Rocca. “The relative importance of biotic variables in determining current and future tree species distributions,” US-IALE Annual Symposium, Anchorage, AK
- 2013 **Renwick, K.M.**, and M.E. Rocca. “Interactive effects of climate and disturbance on landscape-scale range dynamics of Rocky Mountain tree species,” US-IALE Annual Symposium, Austin, TX *\*Awarded Honorable Mention in the graduate student presentation competition*
- 2013 **Renwick, K.M.**, and M.E. Rocca. “Are Rocky Mountain tree species responding to climate change?” Front Range Student Ecology Symposium, Fort Collins, CO *\*Awarded 3rd place in the graduate student presentation competition*
- 2012 **Renwick, K.M.**, Nelson, K. and M.E. Rocca. “Will the mountain pine beetle outbreak benefit aspen?” Rocky Mountain National Park Research Conference, Estes Park, CO
- 2012 **Renwick, K.M.** and M.E. Rocca. “Recruitment patterns in mixed aspen-lodgepole stands: will the mountain pine beetle outbreak benefit aspen?” Front Range Student Ecology Symposium, Fort Collins, CO
- 2007 **Renwick, K.M.**, Sadanowicz, A., Dubuque, G., Becker, R., Thompson, C. and D. Garneau. “Small mammal assemblages under urban influence in central Maine,” Northeast Regional Sigma Xi Conference, Ithaca, NY
- 2007 **Renwick, K.M.**, Harrison, D., Adelphio, A., Firmage, D., Garneau, D. and K. Ness. “Analysis of land-use patterns in the Long Pond watershed and effects on water quality,” Maine Water Conference, Augusta, ME *\*Awarded 1st place in the undergraduate student presentation competition*

## Leadership and Service

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present	Editorial Committee, Early Career Climate Forum
2012–2014	Newsletter Editor, Graduate Degree Program in Ecology
2013–2014	Outreach Chair, Front Range Student Ecology Symposium
2012–2013	Graduate Student Rep., Dept. of Ecosystem Science and Sustainability
2011–2012	President, Front Range Student Ecology Symposium
2010–2011	Fundraising Chair, Front Range Student Ecology Symposium
2011	Student Rep., Faculty Search Committee, Colorado State University
2005–2007	President, Colby College Environmental Coalition
Reviewer	Global Ecology and Biogeography, Journal of Plant Ecology, Ecological Modeling
Professional Society Membership	Ecological Society of America, Early Career Ecologists Section International Association for Landscape Ecologists Association for Women in Science

## Skills and Interests

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Research	Plant community dynamics, global change impacts, forest and rangeland management, ecosystem modeling, applied statistics
Teaching	general ecology, biology/biodiversity, forest ecology, botany, research methods, data analysis/statistics, environmental sustainability, science for non-majors
Programming	R · Markdown · JAGS · Shell · CDO · L <sup>A</sup> T <sub>E</sub> X · Git · basic C++ <i>examples at <a href="https://github.com/krenwick">https://github.com/krenwick</a></i>