

CHARLES J.W. CARROLL

Department of Forest and Rangeland Stewardship, Colorado State University, Fort Collins, CO
cjwcarroll@gmail.com • cjwcarroll.weebly.com

EDUCATION

- Colorado State University, Fort Collins, CO** 2018
Ph.D., Graduate Degree Program in Ecology
Dissertation: *The Future of Colorado Forests: Assessing Seedling Performance Under Climate Change*
Advisors: Dr. Alan Knapp and Dr. Patrick Martin
- Yale School of Forestry and Environmental Studies** 2012
M.F.S. (Master of Forest Science)
Thesis: *Water use ecophysiology of spruce and fir along an elevation gradient*
Advisor: Dr. Os Schmitz
- Colby College, Waterville, ME** 2008
B.A. *magna cum laude* Environmental Studies and International Studies
Advisor: Dr. Tom Tietenberg

RECENT PROFESSIONAL EXPERIENCE

- Colorado State University, Fort Collins, CO** 2018
Postdoctoral Fellow
- Colorado State University, Fort Collins, CO** 2013-2018
Graduate Research Assistant, Graduate Teaching Assistant
- Colorado State University, Fort Collins, CO** 2012-2013
Research Associate and Project Manager
- Urban Resources Initiative, New Haven, CT** 2010-2011
GIS Analyst
- The Nature Conservancy, Minneapolis, MN** 2009
GIS Analyst (volunteer position)

PUBLICATIONS

Peer-reviewed articles

Carroll CJW and Redmond MD. *In review*. Boreal forest dynamics at the hardwood ecotone: Shade tolerance and functional niche differentiation. National Center for Case Study Teaching in Science, University of Buffalo.

Carroll CJW, Martin PH, Knapp AK. *In review*. Ecology Warming increases growth rates of Rocky Mountain montane tree seedlings.

Carroll CJW, Martin PH, Knapp AK, Ocheltree T.W. 2019. Environmental and Experimental Botany 159: 132-137. Temperature induced shifts in leaf water relations and growth efficiency indicate climate change may limit aspen growth in the Colorado Rockies.

Breshears DD, **Carroll CJW**, Redmond MD, Wion A, Allen CD, Cobb NS, Meneses N, Field PJ, Wilson LA, Law DJ, McCabe LM, Newell-Bauer O. 2018. Frontiers in Forests and Global Change 1 1:4. A Dirty Dozen Ways to Die: Metrics and Modifiers of Mortality Driven by Drought and Warming for a Tree Species.

Knapp AK, **Carroll CJW**, Griffin-Nolan RJ, Slette IJ, Chaves FA, Baur L, Felton AJ, Gray J, Hoffman AM, Lemoine NP, Mao W, Post AK, Smith MD. 2018. Ecology 99: 2145-2151. A reality check for climate change experiments: do they reflect the real world?

Griffin-Nolan RJ, Bushey JA, **Carroll CJW**, Challis A, Chieppa J, Garbowski M, Hoffman AM, Post AK, Slette IJ, Spitzer D, Zambonini D, Ocheltree TW, Tissue DT, Knapp AK. 2018. Trait selection and community weighting are key to understanding ecosystem responses to changing precipitation regimes. Functional Ecology 32(7): 1746-1756.

Griffin-Nolan RJ, **Carroll CJW**, Denton EM, Johnston MK, Collins SL, Smith MD, Knapp AK. 2018. Legacy effects of a regional drought on aboveground net primary production in six central US grasslands. Plant Ecology 219: 505-515.

Carroll CJW, Knapp AK, Martin PH. 2017. Dominant tree species of the Colorado Rockies have divergent physiological and morphological responses to warming. Forest Ecology and Management 402: 234-240.

Knapp AK, Avolio ML, Beier C, **Carroll CJW**, Collins SL, Dukes JS, Fraser LH, Griffin-Nolan RJ, Hoover DL, Jentsch A, Loik ME, Philips RP, Post AK, Sala OE, Slette IJ, Yahdjian L, Smith MD. 2017. Pushing precipitation to the extremes in distributed experiments: recommendations for simulating wet and dry years. Global Change Biology 23(5): 1774-1782.

Qin Y, Nyhus PJ, Tilson R, Muntiferung J, Dahmer T J, Jun L, Larson C, **Carroll CJW**. 2015. An assessment of South-China tiger reintroduction potential in Hupingshan and Houhe National Nature Reserves, China. Biological Conservation 182: 72-86.

Knapp AK, **Carroll CJW**, Denton EM, La Pierre KJ, Collins SL, Smith MD. 2015. Differential sensitivities of six Central US Grasslands to natural drought. Oecologia 177(4): 949-957.

Covey K, **Carroll CJW**, Duguid MC, Dorji K, Dorji T, Tashi S, Wangdi T, Ashton M. 2015. Developmental dynamics following selective logging of an evergreen oak forest in the Eastern Himalaya, Bhutan: Structure, composition, and spatial pattern. Forest Ecology and Management 336: 163-173.

Articles in preparation

Carroll CJW, Redmond MD, Pearse IS. *In prep*. Shifting understory community dynamics over a half-century in Utah.

Carroll CJW, Griffin-Nolan RJ, Ocheltree TW. *In prep*. Drought across taxa: Drought-induced shifts in turgor, osmotic potential, and non-structural carbohydrates in grasses, shrubs, and trees.

Copenhaver-Parry, P.E., M.V. Talluto, **Carroll CJW**, Martin PH. *In prep* Global Ecology and Biogeography. Cross-scale integration of recruitment and range dynamics in a changing climate.

Book chapters

Knapp AK, **Carroll CJW**, Fahey TJ. 2014. Patterns and Controls of Terrestrial Primary Production in a Changing World. In Monson RK, ed. Ecology and the Environment. Springer, New York, NY.

Edited books

Irland LC, Camp AE, **Carroll CJW**. 2013. Long-term Silvicultural & Ecological Studies: Results for Science and Management Vol II. Global Institute of Sustainable Forestry, Research Paper 013.

Other book contributions

Nyhus PJ, Dufraine CE, Ambrogi MC, Hart SE, **Carroll C**, Tilson R. 2010. Human-tiger conflict over time. In Tilson R, Nyhus PJ, eds. Tigers of the World: The Biology, Politics, and Conservation of Panthera tigris (2nd ed.). Elsevier: New York, NY.

Online publications

Carroll, C. 2008. Analysis of carbon sequestration potential in Maine. Senior honors thesis. Colby College Environmental Studies Program, Waterville, ME.

Alex J, **Carroll J**, Pinkston J. 2007. The State of Energy. In State of Maine's Environment. Colby College Environmental Studies Program, Waterville, ME.

PRESENTATIONS & POSTERS

Oral Presentations

Carroll CJW, Redmond MD, Breshears DD, Cobb NS, Allen CD, Law DJ, Field JP, Meneses N, Wion AP, McCabe LM, Wilson L, Newell-Bauer O. 2018. A rapid launch of near-term ecological forecasting: Chasing tree die-off experimentally during an intensifying drought. American Geophysical Union Fall Meeting, Washington D.C.

Carroll CJW, Martin PH, Knapp AK. 2018. Tree growth responds strongly to warming temperatures through time despite static spatial patterns. Ecological Society of America Annual Meeting, New Orleans, LA.

Carroll CJW, Knapp AK, Martin PH. 2017. Using common gardens to isolate the effects of a warmer future on the drivers of seedling growth. Front Range Student Ecology Symposium. Colorado State University, Fort Collins, CO.

Carroll CJW, Knapp AK, Martin PH. 2016. Coping with climate change: acclimation strategies and the future of Colorado forests. Front Range Student Ecology Symposium. Colorado State University, Fort Collins, CO.

Carroll CJW, Knapp AK, Martin PH. 2015. The Future Forest Experiment. Front Range Student Ecology Symposium. Colorado State University, Fort Collins, CO.

Posters

Carroll CJW, Martin PH, Knapp AK. 2017. Established montane seedlings benefit from warming: using common gardens to test future forest growth patterns. Graduate Climate Conference, Woods Hole, MA.

Carroll CJW, Knapp AK, Martin PH. 2016. Coping with climate change: acclimation strategies and the future of Colorado forests. Ecological Society of America Annual Meeting, Fort Lauderdale, FL.

Carroll CJW, Larson CL. 2008. Colby College Undergraduate Symposium. Modeling potential tiger habitat in Hupingshan-Houhe and Mangshan-Nanling National Nature Reserves China.

TEACHING EXPERIENCE

Colorado State University

Primary Instructor. FRS 310: Forest and Rangeland Ecogeography	Upcoming Spring 2019
Graduate Teaching Fellow. ECOL 505: Foundations of Ecology (graduate level)	Fall 2017
Graduate Teaching Assistant. BZ 105: Basic Concepts of Plant Life	Spring 2017
Graduate Teaching Assistant. BZ 120: Principles of Plant Biology	Spring 2015-2017, Fall 2016
Guest lecturer. LAND/LIFE 220: Fundamentals of Ecology	Fall 2015
Guest lecturer. Forestry/Rangeland 310: Forest and Rangeland Ecogeography	Fall 2015, Spring 2017
Guest lecturer. Forestry 311: Forest Ecology	Fall 2018

GRANTS, FELLOWSHIPS, AND AWARDS

Methods in Plant Water Relations and Transport workshop (McCall, ID) travel grant (\$500)	2017
Warner College of Natural Resources McIntire-Stennis Grant (\$11,600)	2017
John Marr Ecology Fund scholarship (\$500)	2016
Graduate Degree Program in Ecology student travel grant (\$407)	2016
Graduate Degree Program in Ecology small grants for graduate research (\$500)	2016
Colorado Mountain Club Foundation fellowship (\$1,000)	2015
Graduate Degree Program in Ecology small grants for graduate research (\$1,890)	2014
Colorado State University Graduate Fellowship (\$1,000)	2013
F&ES Globalization Internships and Research Fund (\$1,950)	2011
Carpenter/Sperry Fund (\$500)	2011
Colby College departmental distinctions: Environmental Studies and International Studies	2008
Colby College Dean's List	2004-2008

PROFESSIONAL ACTIVITIES & SERVICE

Professional organizations

American Geophysical Union
Botanical Society of America
Ecological Society of America
The American Conifer Society

Professional service

Abstract committee chair, 2014 Front Range Student Ecology Symposium, Fort Collins, CO
Reviewer for Agricultural and Forest Meteorology, Environmental and Experimental Botany, European Journal of Forest Research, Trees, New Zealand Journal of Forestry Science, Ecosphere, Plants