

Meghan Avolio

Curriculum Vitae

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Education

2012 Ph.D., Ecology and Evolutionary Biology, Yale University, New Haven, CT
2006 M.S., Biological Sciences, Fordham University, Bronx, NY
2002 B.A., Barnard College, Columbia University, New York, NY

Professional Experience

2015 - SESYNC-LTER Postdoctoral Synthesis Fellow. National Socio-Environmental Synthesis Center. Annapolis, MD.
2014- 2015 Research Assistant Professor. Department of Biology, University of Utah, Salt Lake City, UT.
2012-2014 Postdoctoral Fellow. Department of Biology, University of Utah, Salt Lake City, UT.
Summer 2012 Postdoctoral Associate. Department of Ecology and Evolutionary Biology, Yale University, New Haven, CT
2005-2006 Fulbright Grantee. Institut für Zelluläre und Molekular Botanik, Transport in der Mycorrhiza, Bonn University, Bonn, Germany.
2000 Student. Earth Semester: Biosphere 2 Center, Columbia University, Oracle, AZ
2000-2002 Undergraduate Research Assistant. American Museum of Natural History and Wildlife Conservation Society, New York, NY.

Publications

2015

20. Koerner, SK, **Avolio, ML**, Chang, CC, Gray, J, Hoover, DL, Smith, MD. Invasibility of a mesic grassland depends on the time-scale of fluctuating resources. In press at *Journal of Ecology*
19. **Avolio, ML**, La Pierre, K, Houseman, G, Grman, E, Isbell, F, Johnson, D, Koerner, S, Wilcox, K. A framework for quantifying the magnitude and variability of community responses to global change drivers. In press at *Ecosphere*.
18. **Avolio, ML**, Pataki, D, Pincetl, S, Gillespie, TW, Jenerette, D, McCarthy, HR, Weller-Clarke, L. 2015. Tree diversity in southern Californian's urban forest: the interacting roles of social and environmental variables. *Frontiers in Ecology and Evolution*. 3: 73.
17. Knapp, AK, Hoover, DL, Wilcox, KR, **Avolio, ML**, Koerner, SE, La Pierre, KJ, Loik, ME Luo, Y,

Sala, EO, Smith, MD. 2015. Characterizing differences in precipitation regimes of extreme wet and dry years: Implications for climate change experiments. *Global Change Biology*. 21:2624-2633.

16. **Avolio, ML**, Pataki, D, Pincetl, S, Gillespie, TW, Jenerette, D, McCarthy, HR. 2015. Understanding preferences for tree attributes: the relative effects of socio-demographic and local environmental factors. *Urban Ecosystems*. 18: 73-86.
15. **Avolio, ML**, Chang, CC, Wies, JJ, Smith, MD. 2015. The effect of genotypic richness and genomic dissimilarity of *Andropogon gerardii* on invasion resistance and productivity. *Plant Ecology & Diversity*. 8: 61-71.

2014

14. **Avolio, ML**, Koerner, S, La Pierre, K, Wilcox, K, Wilson, GTW, Smith, MD, Collins, S. 2014. Changes in plant community composition, not diversity, to a decade of nitrogen and phosphorus additions drive changes in aboveground productivity in a tallgrass prairie. *Journal of Ecology*. 102: 1649-1660.
13. Smith, NG, Rodgers, VL, Brzostek, ER, Kulmatiski, A, **Avolio, ML**, Hoover, DL, Koerner, SE, Grant, K, Jentsch, A, Niyogi, D. 2014. Towards a better integration of biogeochemical and ecological data from precipitation manipulation experiments into land surface models. *Reviews of Geophysics*. 52: 412-434.

2013

12. **Avolio, ML** and Smith, MD. 2013. Intra-specific responses of a dominant C₄ grass to altered precipitation patterns. *Plant Ecology* 214: 1377-1389.
11. **Avolio, ML** and Smith, MD. 2013. Correlations between genetic and species diversity: effects of resource quantity and heterogeneity. *Journal of Vegetation Science* 24:1185-1194.
10. **Avolio, ML** and Smith, MD. 2013. Mechanisms of selection: phenotypic differences among genotypes explain patterns of selection in a dominant species. *Ecology* 94: 953-965.
9. **Avolio, ML**, Beaulieu, J, Smith MD. 2013. Genetic diversity of a dominant C₄ grass is altered with increased precipitation variability. *Oecologia* 171: 571-581.

2012

8. **Avolio, ML**, Beaulieu, J, Lo, E, Smith, MD. 2012. Measuring genetic diversity in ecological studies. *Plant Ecology* 213:1105-1115.
7. **Avolio, ML**, Müller, T, Mpangara, A, Fitz, M, Becker, B, Pauck, A, Kirsch, A, Wipf, D. 2012. Regulation of genes involved in nitrogen utilization on different C/N ratios and nitrogen sources in the model ectomycorrhizal fungus *Hebeloma cylindrosporum*. *Mycorrhiza* 22:515-524.

2011

6. Ersts, P., Pomilla, C., Kiszka, J., Cerchio, S., Rosenbaum, H.C., Vély, M., Razafindrakoto, Y., Loo, J.A., Leslie, M.S., and **Avolio, ML**. 2011. Observations of individual humpback whales utilizing multiple migratory destinations in the southwestern Indian Ocean. *African Journal of Marine Science* 33: 333-338.
5. La Pierre, KJ, Yaun, S, Chang, CC, **Avolio, ML**, Hallett, LM, Schreck, T, Smith, MD. 2011. Explaining temporal variation in aboveground productivity in a mesic grassland: the role of climate and flowering. *Journal of Ecology* 99: 1250-1262.
4. **Avolio, ML**, Chang, C, and Smith MD. 2011. Assessing the fine-scale genotypic structure of *Andropogon gerardii* in the tallgrass prairie. *American Midland Naturalist* 165: 211-224.

2007-2009

3. **Avolio, ML**, Tuininga, A, Lewis, JD, Marchese, M. 2009. Ectomycorrhizal responses to organic and inorganic nitrogen sources when associating with two host species. *Mycological Research* 114: 897-907.
2. Müller T, **Avolio ML**, Olivi M, Chalot M. and Wipf D. 2007. Organic nitrogen transport in the ectomycorrhiza on the basis of the *Hebeloma cylindrosporum*-*Pinus pinaster* association. *Phytochemistry* 68: 41-51.
1. Müller T, Benjdia, M, **Avolio, ML**, Voigt, B, Menzel, D, Pardo, A, Frommer W.B., and Wipf, D. 2006. Functional expression of the green fluorescent protein in the ectomycorrhizal model fungus *Hebeloma cylindrosporum*. *Mycorrhiza*, 16: 437-44.

In Review/Revision

- Jenerette, D, Weller-Clarke, L, **Avolio, ML**, Pataki, D, Gillespie, TW, Pincetl, S, Nowak, D, Hutyrá, L, McHale, M, McFadden, J, Alonzo, M. Climate Filters and Trait Choices Shape Urban Tree Biodiversity: Beyond Biome Matching and Homogenization. Submitted to *Global Ecology and Biogeography*
- Gillespie, TW, deGoede, J, Aguilar, L, Jenerette, DE, Fricker, A, Avolio, M, Clarke, LW, Pincetl, S, Pataki, DE. Predicting tree species richness of urban forests in Mediterranean regions. Submitted to *Journal of Applied Ecology*
- Wheeler, MM, Neill, C, Groffman, PM, **Avolio, M**, Bettez, N, Cavender-Bares, J, Chowdhury, RR, Darling, L, Grove, M, Hall, SJ, Hobbie, SE, Larson, KL, Morse, JL, Nelson, KC, Ogden, LA, O'Neil-Dunne, J, Pataki, DE, Polsky, C, Steele, M, Trammell, T. Continental-scale homogenization of residential lawn plant communities. Submitted to *Ecology*
- Koerner, SK, **Avolio, ML**, La Pierre, K, Wilcox, K, Smith, MD, Collins, S. Nutrient additions cause divergence of tallgrass prairie plant communities resulting in loss of ecosystem stability. In revision at *Journal of Ecology*
- Tsvuura, Z, **Avolio, ML**, Kirkman, KP. Mycelial biomass of mycorrhizal fungi enhanced by nitrogen but not phosphorus addition in a mesic grassland in South Africa. In revision at *South African Journal of Plant and Soil*

In Preparation (draft available)

Avolio, ML, and Smith, MD. Intra-population differences among genotypes to water stress: from gene expression, physiology, and biomass accumulation.

Avolio, ML, Pataki, D, Pincetl, S, Gillespie, TW, Jenerette, D, Weller-Clarke, L. Plant community assembly in cultivated environments: A case-study in Los Angeles.

Avolio, ML, Pataki, D, Trammell, T. The role of nurseries and resident preferences in shaping of the Urban Forest in Salt Lake County.

Fellowships and Honors

2015-2017	Long-Term Ecological Research Postdoctoral Synthesis Fellowship
2010-2012	EPA Science to Achieve Results (STAR) Fellowship
2005/2006	Fulbright Award to Germany
2002-2004	Clare Boothe Luce Fellowship
2002	Anne Davidson Fellowship
2002	Distinction on Senior Thesis, Barnard College

Research Grants

2013-2016. NSF Ecosystems Program. Does the legacy of long-term chronic climate change alter ecosystem responses to short-term climatic extremes? \$666,640 PIs: Knapp, AK, Smith, MD, Blair, JM, Avolio, ML.

2013. NSF LTER Network Office. Mechanisms of convergence and divergence: understanding the variability of plant community responses to multiple resource manipulations. Synthesis working group. \$13,744. PIs: Avolio, ML, La Pierre, KJ.

2011. Yale EEB, Lee Pierce Fund. Global change impacts on tallgrass prairie productivity: the effects of alterations in soil moisture, mycorrhizal colonization, and genetic diversity of the dominant grass species, *Andropogon gerardii*. \$3,000.

2008. Nature Conservancy, NE Chapter, J.E. Weaver Competitive Grant. The relative effects of genetic diversity in a dominant species and the mycorrhizal community in determining the response of tallgrass prairie to climate change. \$3,000.

2008 Sigma Xi, Grants-in-Aid of Research, The effect of more variable precipitation patterns on the mycorrhizal fungal community. \$1,000.

2007 Yale EEB Chair's Fund. Investigating fine-scale patterns of the genetic diversity of *Andropogon gerardii*. \$1,800.

2007 YIBS Center for Field Ecology Grant. How environmental conditions affect genetic diversity of *Andropogon gerardii*. \$1,500.

Teaching Experience

University of Utah

Summer 2015	Guest Lecturer	Urban Ecology Primer for High School Teachers
Spring 2015	Instructor	Urban Ecology

Yale University,

Winter 2009	Guest Lecturer	General Ecology
Fall 2008	Instructor	AFLP technique 3-day Course
Spring 2008/2010	Teaching Fellow	Lab for Evolution, Ecology, and Behavior
Fall 2007	Teaching Fellow	General Ecology
Spring 2006	Teaching Fellow	Principles of Evolution, Ecology, and Behavior

Fordham University

Fall 2002-2004	Laboratory Teaching Assistant	Introductory Biology Lab I
Spring 2003-2005	Laboratory Teaching Assistant	Introductory Biology Lab II

Invited Presentations

2015	National Socio-Environmental Synthesis Center (SESYNC)
2015	Rice University, Department of Biosciences
2015	Iowa State University, Department of Ecology, Evolution, and Organismal Biology
2015	Purdue University, Department of Forestry and Natural Resources
2014	New Jersey Institute of Technology, Department of Biological Sciences
2013	Hofstra University, Department of Biology
2011	Leibniz-Institut für Meereswissenschaften an der Universität Kiel
2010	Yale University, Department of Molecular Cellular and Developmental Biology
2008	Kansas State University, Division of Biology

Presentations

Avolio, M, Pataki, D, Pincetl, S, Gillespie, TW, Jenerette, D, McCarthy, HR, Clarke, LW. Plant community assembly in cultivated urban ecosystems. 100th **Annual Meeting of the Ecological Society of America**. Aug. 2015.

Avolio, M, Koerner, S, La Pierre, K, Smith, MD, Wilcox, K, Collins SL. Chronic nitrogen and phosphorus additions alter the composition and productivity of tallgrass prairie communities. **Konza LTER Meeting**, May 2015.

Avolio, ML, Pataki, D, Pincetl, S, Gillespie, TW, Jenerette, D, McCarthy, HR. The effect of resident trees preferences on urban forest biodiversity in southern California. 99th **Annual Meeting of the Ecological Society of America**, Aug. 2014.

- Avolio, ML and Pataki, D, Pincetl, S, Gillespie, TW, Jenerette, D, McCarthy, HR. Understanding preferences for tree attributes: the relative effects of socio-demographic and local environmental factors. **98th Annual Meeting of the Ecological Society of America**, Aug. 2013.
- Avolio, M, Koerner, S, La Pierre, K, Smith, MD, Wilcox, K, Collins SL. Species re-ordering due to long-term nitrogen and phosphorous inputs has consequences for plant community diversity and productivity. **97th Annual Meeting of the Ecological Society of America**, Aug. 2012.
- Avolio, M and Smith, MD. How increased rainfall variability induced changes in a population of *Andropogon gerardii*. **EPA STAR Graduate Fellowship Conference**, Sept. 2011; **Department of Energy, Terrestrial Ecosystem Science Meeting**, April 2012; **Konza LTER Meeting**, June 2012.
- Avolio, M., and Smith M.D. The relationship between levels of biological diversity in tallgrass prairie and their affect on productivity in the context of global climate change. **Grasslands in a Global Context Symposium**, Sept. 2011.
- Avolio, M., and Smith M.D. Genotypes of a dominant tallgrass species vary in their response to changes in precipitation means and variability **96th Annual Meeting of the Ecological Society of America**, Aug. 2011.
- Avolio, M., and Smith M.D. Intra-specific population responses to altered precipitation patterns: phenotypic differences between genotypes. **Konza LTER Meeting**, April 2010; **95th Annual Meeting of the Ecological Society of America**, Aug. 2010.
- Avolio, M., Beaulieu, J., Smith M.D. Climate change increases genetic diversity of a dominant tallgrass through diversifying selection. **94th Annual Meeting of the Ecological Society of America**, Aug. 2009; **LTER's All Scientists Meeting** Sept. 2009.
- Avolio, M., Smith M.D. Effect of climate change on the genotypic diversity of a dominant species, *Andropogon gerardii*. **93rd Annual Meeting of the Ecological Society of America**, Aug. 2008; **UMass Genetic basis of plant adaptation symposium**, Oct 2008.
- Avolio, M, Tuininga, A, Lewis JD, Marchese, M. Nitrogen form affects ectomycorrhizal fungal colonization and growth. **90th Annual Meeting of the Ecological Society of America**, Aug. 2005
- Avolio, M, Ersts, P, Vely, M, Bastid, JJ, Wendling, B, Seitre, R, Seitre, J, Darmmangeat, P, Collin-Omnes, P, Razafindrakoto, Y and Rosenbaum, HC Humpback Whale Distribution and Marine Mammal Diversity in the Waters of Mayotte, (Comoros Archipelago) in the Mozambique Channel. **14th Biennial Conference on the Biology of Marine Mammals**, Dec. 2001

Students Mentored

2013-	Ava Hoffman, Graduate Student, Colorado State University
2013-2014	Moumita Kundo, City and Metropolitan Planning Master's Student, University of Utah
Summer 2014	Claire O'Donnell, Undergraduate iUTAH Fellow, University of Utah

Volunteer Experience

2013-Present	Judge. Ecological of America's Braun/Buell Award.
2009-2011	Reading Tutor. New Haven Reads, New Haven, CT
2009-2011	Undergraduate Presentation Awards Coordinator. Ecological Society of America Student Section Officer.
2009/2010	Judge. Ecological Society of America's Undergraduate Presentation Contest
2007/2008	Mentor. New Haven Science Fair, New Haven, CT
2002/2003	Education Assistant. For the Birds! Audubon New York, NY

Professional Affiliations and Activities

Memberships:	Ecological Society of America
Editorial Boards:	Journal of Ecology
Journal Reviews:	American Journal of Botany, Canadian Journal of Forest Research, Functional Ecology, Global Change Biology, Ecology and Evolution, Ecology Letters, Journal of Ecology, Journal of Vegetation Science, Landscape Ecology, Methods in Ecology and Evolution, Molecular Ecology, Mycorrhiza, Oecologia, New Phytologist, Plant Ecology, and Plant Ecology & Diversity.
Proposal Review:	National Science Foundation (NSF) Population and Community Ecology
Working Groups:	Participant. Dominance in Grasslands. Ongoing.
	Participant. A toolbox for analysis of long-term ecological dynamics using the Kepler Workflow System. NCEAS, 2015.
	Organizer. Mechanisms of convergence and divergence: understanding the variability of plant community responses to multiple resource manipulations. LTER Synthesis, 2013.
	Participant. EcoSeRE Planning Meeting. LTER Synthesis, 2013.
	Organizer. Engineering Global Change Experiments. LTER All Scientists Meeting Graduate Student Symposium, 2009.