

## PERSONAL

### Dr. Charles E. Mitchell

Department of Biology  
The University of North Carolina  
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## EDUCATION

1995-2001 Ph.D. in Ecology. University of Minnesota. Advisor: David Tilman.  
1991-1995 B.S. in Biology and Spanish, Environmental Studies minor. Emory University.

## PROFESSIONAL EXPERIENCE

Jan 2011 – present Associate Professor.  
Jan 2005 – Dec 2010 Assistant Professor.  
Tenure home: Department of Biology, The University of North Carolina at Chapel Hill.  
Additional concomitant appointments, The University of North Carolina at Chapel Hill:  
2009-present faculty member, Curriculum for the Environment and Ecology.  
2005-2009 Joint appointment, the Curriculum in Ecology.  
2007-2009 Joint appointment, the Institute for the Environment.  
2005-2007 Joint appointment, the Carolina Environmental Program.  
2001-2004 Postdoctoral Fellow / Associate, Cornell University with Alison G. “Sunny” Power.

## HONORS

2002-2004 NSF Postdoctoral Research Fellowship in Microbial Biology.  
1998-2000 Geraldine R. Dodge Foundation Graduate Fellowship from The Land Institute  
1995-1998 University of Minnesota Graduate School Fellowship.  
1991-1995 Emory University Duncan Scholarship (merit-based, full tuition).  
1991 National Merit Scholar.  
1990 U.S. Department of Education Columbus Scholar (50 nationally).  
1990 U.S. Department of Energy Environmental Science Scholar (Texas; 1 per state).

## BIBLIOGRAPHY

Underlining indicates student, technician, or postdoc under my mentorship.

### Peer-reviewed journal articles:

Adler, P.B. and 57 additional authors including **C.E. Mitchell**, 2011. Productivity is a poor predictor of plant species richness. *Science* 333(6050):1750-1753.  
Power, A.G., E.T. Borer, P. Hosseini, **C.E. Mitchell**, E.W. Seabloom, 2011. The community ecology of barley/cereal yellow dwarf viruses in Western US grasslands. *Virus Research* 159:95-100. (Invited).  
Rúa, M.A., E.C. Pollina, A.G. Power, **C.E. Mitchell**, 2011. The role of viruses in biological invasions: friend or foe? *Current Opinion in Virology* 1(1):68-72. (Invited).  
Keesing, F., L.K. Belden, P. Daszak, A. Dobson, C.D. Harvell, R.D. Holt, P. Hudson, A. Jolles, K.E. Jones, **C.E. Mitchell**, S.S. Myers, T. Bogich, R.S. Ostfeld, 2010. Impacts of biodiversity on the emergence and transmission of infectious diseases. *Nature* 468:647-652 (covered internationally by NPR, BBC, etc).

- Mitchell, C.E.**, D. Blumenthal, V. Jarošík, E.E. Puckett, P. Pyšek, 2010. Controls on pathogen species richness in plants' introduced and native ranges: roles of host biological traits, range size, and residence time. *Ecology Letters* 13(12):1525-1535.
- Cronin, J.P., M.E. Welsh, M.G. Dekkers, S.T. Abercrombie, **C.E. Mitchell**, 2010. Host physiological phenotype explains pathogen reservoir potential. *Ecology Letters* 13(10): 1221–1232. (A Research Highlight in the 22 July 2010 issue of *Nature*).
- Dickson, T.L. and **C.E. Mitchell**, 2010. Herbivore and Fungal Pathogen Exclusion Affects the Seed Production of Four Common Grassland Species. *PLoS-One* 5(8): e12022. 6 journal pages.
- E.T. Borer, Seabloom, E.W., **C.E. Mitchell**, A.G. Power, 2010. Local context drives infection of grasses by vector-borne generalist viruses. *Ecology Letters* 13:810-818.
- Seabloom, E.W., E.T. Borer, **C.E. Mitchell**, A.G. Power, 2010. Viral diversity and prevalence gradients in North American Pacific Coast grasslands. *Ecology* 91(3):721-732.
- Fabiszewski, A.M., J. Umbanhowar, **C.E. Mitchell**, 2010. Modeling landscape-scale pathogen spillover between domesticated and wild hosts: Asian soybean rust and kudzu. *Ecological Applications* 20(2):582-592.
- Seabloom, E.W., E.T. Borer, A. Jolles, **C.E. Mitchell**, 2009. Direct and indirect effects of viral pathogens and the environment on invasive grass fecundity in Pacific Coast grasslands. *Journal of Ecology* 97:1264-1273.
- Blumenthal, D., **C.E. Mitchell**, P. Pyšek, V. Jarosik, 2009. Synergy between pathogen release and resource availability in plant invasion. *PNAS* 106:7899-7904. (Covered in a *Nature News & Views* article by Tim Seastedt on 11 June 2009).
- Borer, E.T., **C.E. Mitchell**, A.G. Power, E.W. Seabloom, 2009. Consumers indirectly increase infection risk in grassland foodwebs. *PNAS* 106:503-506.
- Costanza, J.L., S.E. Marcinko, A.E. Goewert, **C.E. Mitchell**, 2008. Potential geographic distribution of atmospheric nitrogen deposition from intensive livestock production in North Carolina, USA. *The Science of the Total Environment* 398:76-86. (product of ECOL/ENST 199, Spring 2005).
- Morris, W.F., R.A. Hufbauer, A.A. Agrawal, J.D. Bever, V.A. Borowicz, G.S. Gilbert, J.L. Maron, **Mitchell, C.E.**, I.M. Parker, A.G. Power, M.E. Torchin, D.P. Vázquez, 2007. Direct and interactive effects of enemies and mutualists on plant performance: a meta-analysis. *Ecology* 88(4):1021-1029.
- Mitchell, C.E.**, A.A. Agrawal, J.D. Bever, G.S. Gilbert, R.A. Hufbauer, J.N. Klironomos, J.L. Maron, W.F. Morris, I.M. Parker, A.G. Power, E.W. Seabloom, M.E. Torchin, D.P. Vázquez, 2006. Biotic interactions and plant invasions. *Ecology Letters* 9(6):726-740. (Invited; cited over 150 times).
- Agrawal, A.A., P.M. Kotanen, **C.E. Mitchell**, A.G. Power, W. Godsoe, J. Klironomos, 2005. Enemy release? An experiment with congeneric plant pairs and diverse above- and belowground enemies. *Ecology* 86(11):2979-2989.
- Power, A.G. and **C.E. Mitchell**, 2004. Pathogen spillover in disease epidemics. *The American Naturalist* 164:S79-S89. (Invited).
- Torchin, M.E. and **C.E. Mitchell**, 2004. Parasites, pathogens, and invasions by plants and animals. *Frontiers in Ecology and the Environment* 2(4):183-190. (Invited).
- Mitchell, C.E.**, P.B. Reich, D. Tilman, and J.V. Groth, 2003. Effects of elevated CO<sub>2</sub>, nitrogen deposition, and decreased species diversity on foliar fungal plant disease. *Global Change Biology* 9:438-451.
- Mitchell, C.E.** and A.G. Power, 2003. Release of invasive plants from fungal and viral pathogens. *Nature* 421:625-627. (Covered internationally by print, radio, and web media. Cited over 350 times.)
- Mitchell, C.E.**, 2003. Trophic control of grassland production and biomass by pathogens. *Ecology Letters* 6(2):147-155
- Harvell, C.D., **C.E. Mitchell**, J.R. Ward, S. Altizer, A.P. Dobson, R.S. Ostfeld, M.D. Samuel, 2002. Climate warming and disease risks for terrestrial and marine biota. *Science* 296: 2158-2162. (Featured by NPR, the BBC, *The LA Times*, *The Wall Street Journal*, and other media outlets).

**Mitchell, C.E.**, D. Tilman, and J.V. Groth, 2002. Effects of plant species diversity, abundance, and composition on foliar fungal disease. *Ecology* 83(6): 1713-1726. (Results highlighted in *Science*, in *The New York Times*, and on Minnesota public television).

Knops, J.M.H. D. Tilman, N.M. Haddad, S. Naeem, **C.E. Mitchell**, J. Haarstad, M.E. Ritchie, K.M. Howe, P.B. Reich, E. Siemann, J. Groth, 1999. Effects of plant diversity on invasion dynamics, disease outbreaks, insect abundances and diversity. *Ecology Letters* 2(5):286-293.

#### **Book Chapters:**

Rúa, M.A. and **C.E. Mitchell**, 2011. Pathogens, Plant. pp. 520-525 in *The Encyclopedia of Invasive Introduced Species*, edited by Daniel Simberloff and Marcel Rejmánek. The University of California Press, Berkeley.

Wilby, A., **C.E. Mitchell**, D. Blumenthal, P. Daszak, C.S. Friedman, P. Jutro, A. Mazumder, A-H Prieur-Richard, M-L Desprez-Loustau, M. Sharma, M.B. Thomas, 2009. Biodiversity, food provision, and human health. pp. 13-39 in *Biodiversity Change and Human Health: From ecosystem services to spread of disease*, edited by O.E. Sala, L.A. Meyerson, C. Parmesan. Island Press, Washington D.C..

**Mitchell, C.E.** and A.G. Power, 2006. Disease dynamics in plant communities. pp. 58-72 in *Disease ecology: community structure and pathogen dynamics*, edited by S.K. Collinge and C. Ray. Oxford University Press.

Díaz, S., D. Tilman, J. Fargione, F.S. Chapin III, R. Dirzo, T. Kitzberger, B. Gemmill, M. Zobel, M. Vilá, **C. Mitchell**, A. Wilby, G.C. Daily, M. Galetti, W.F. Laurance, J. Pretty, R. Naylor, A. Power, D. Harvell, 2006. Biological regulation of ecosystem services. pp. 297-329 in *Ecosystems and Human Well-being: Current state and trends*, edited by The Millenium Ecosystem Assessment, commissioned by the United Nations, published by Island Press, Washington D.C..

#### **Other unrefereed publications:**

Grace, J.B., P.B. Adler, and 35 additional authors including **C.E. Mitchell**, 2012. Response to comments on “Productivity is a poor predictor of plant species richness”. *Science* 335: 1441. (Technical Comment).

Band, L. and D. Salveson, editors, with 35 contributors including **C.E. Mitchell**, 2009. *Climate Change Committee Report*. Commissioned by the N.C. State Senate. 197 pages.

**Mitchell, C.E.** and P.B. Reich, 2003. Assessing environmental changes in grasslands. *Science* 299: 1844. (Letter to the Editor).

**Mitchell, C.E.**, 2001. *Global Environmental Change and Foliar Fungal Plant Disease: Testing the potential for interactive effects in a grassland ecosystem*. The University of Minnesota. 154 pages. (Dissertation).

#### **Invited talks at universities, institutes, and workshops:**

2012: Virginia Tech (Department of Biology).

2012: University of Colorado at Boulder (Department of Ecology and Evolutionary Biology).

2011: University of North Carolina at Greensboro (Department of Biology).

2011: Montana State University (Department of Ecology; spoke on resources as drivers of disease).

2011: Montana State University (Department of Plant Science & Plant Pathology; spoke on invasions).

2011: The Cary Institute of Ecosystem Studies, Millbrook NY.

2010: The Royal Society of London (Symposium on Disease Invasion with the London Zoological Society).

2010: University of Kentucky (Department of Biology).

2010: University of Missouri (Division of Plant Sciences).

2010: North Carolina State University (Department of Plant Pathology).

2009: Cornell University (Odum Conference on Invasions).

2009: Duke University (Population Biology group).  
2008: University of Virginia (Mountain Lake Biological Station).  
2008: Czech University of Life Sciences, Prague (Global Invasions Network Workshop).  
2008: Univ. of North Carolina at Charlotte (Center for Applied Geographic Information Science).  
2008: Michigan State University (Plant Virus Ecology Network Workshop).  
2007: University of California at Berkeley (Dept. Environmental Science, Policy, & Management).  
2006: Michigan State University (Kellogg Biological Station, Hickory Corners MI).  
2006: Michigan State University (Ecology, Evolutionary Biology, and Behavior Program).  
2005: Appalachian State University, NC (Department of Biology).  
2005: Duke University (University Program in Ecology).  
2005: North Carolina State University (Department of Plant Biology).  
2003-2004: Imperial College London – Silwood Park, University of Arizona, Gettysburg College, University of Chicago, University of California – San Diego, University of Washington, Boston University, McGill University, University of North Carolina – Chapel Hill, Arizona State University, National Center for Ecological Analysis and Synthesis (NCEAS) Santa Barbara CA,  
2002-2003 Notre Dame University, University of Tennessee, University of Kansas  
2001-2002 Cornell University, University of Pittsburgh, SUNY College of Environmental Science and Forestry, Stony Brook University, University of California – Santa Barbara  
1997 Emory University

**Invited presentations and/or abstracts:**

Underlining indicates student, technician, or postdoc under my mentorship.

Welsh, M.E., J.P. Cronin, C.E. Mitchell, 2011. Plant host physiology and risk of infection with generalist, vector-borne pathogens. In the Symposium: Towards trait-based disease ecology: integrating theory and data across kingdoms. Ecological Society of America, Austin TX.

Metcalf, C.J.E., M.E. Welsh, C.E. Mitchell, J.P. Cronin, 2011. The community context of disease risk: functional traits, demography and competition in a changing environment. In the Symposium: Towards trait-based disease ecology: integrating theory and data across kingdoms. Ecological Society of America, Austin TX.

Cronin, J.P., M.E. Welsh, M.G. Dekkers, S.T. Abercrombie, C.E. Mitchell, 2010. Host physiological phenotype predicts key epidemiological parameters. The XI<sup>th</sup> International Plant Virus Epidemiology Symposium. Cornell University, Ithaca NY.

Borer, E.T., E.W. Seabloom, C.E. Mitchell, and A.G. Power, 2009. Location, location, location: context is the driver of infection by a vector-borne generalist grass pathogen group. Ecology & Evolution of Infectious Diseases Conference. University of Georgia, Athens GA.

Mitchell, C.E. and E.E. Pulley, 2008. The fate of introduced plants: accumulation of pathogens on scales of states and centuries. In the Organized Oral Session: Plant Pathogen Ecology: The Effects of Plant Pathogens on Individuals, Populations, Communities and Ecosystems. Ecological Society of America, Milwaukee WI.

Power, A.G., J. Koslow, and C.E. Mitchell, 2008. Pathogen-mediated competition in experimental plant communities. In the Organized Oral Session: Plant Pathogen Ecology: The Effects of Plant Pathogens on Individuals, Populations, Communities and Ecosystems. Ecological Society of America, Milwaukee WI.

Borer, E.T., E.W. Seabloom, and C.E. Mitchell, 2008. Fertilization, tissue chemistry, and competition: community context determines prevalence of barley yellow dwarf virus. In the Organized Oral Session: Plant Pathogen Ecology: The Effects of Plant Pathogens on Individuals, Populations, Communities and Ecosystems. Ecological Society of America, Milwaukee WI.

- Blumenthal, D. and C.E. Mitchell, 2007. First tests of the Resource-Enemy Release hypothesis. In the Symposium: Integrating the ecological and evolutionary dynamics of invasions. Ecological Society of America, San Jose CA.
- Mitchell, C.E., 2007. Vector Transmission Within and Between Native and Introduced Grass Populations: Patterns and Consequences. In the Symposium: Epidemics, ecological immunology, & environmental change: insights from theory and field systems. Ecological Society of America, San Jose CA.
- Blumenthal, D. and C.E. Mitchell, 2006. Food and diversity: balancing intensive and extensive agriculture. In the Symposium, Biodiversity, Ecosystem Processes, and Human Health. Ecological Society of America, Memphis TN.
- Mitchell, C.E., 2004. Plant community dynamics and disease under global change. Ecology & Evolution of Infectious Diseases Conference. Emory University, Atlanta GA.
- Mitchell, C.E. and A.G. Power, 2003. Plant community dynamics, disease, and productivity under global change. In the Symposium, Emerging diseases: stressing the union of community ecology and epidemiology. Ecological Society of America, Savannah GA.
- Power, A.G. and C.E. Mitchell, 2003. Host diversity and pathogen spillover in plant communities. In the Organized Oral Session, Plant pathogens in nature: rethinking vegetation dynamics. Ecological Society of America, Savannah GA.

**Contributed presentations and/or abstracts:**

Underlining indicates student, technician, or postdoc under my mentorship.

- Cronin, J.P., M.E. Welsh, M.G. Dekkers, Rúa, M.A., C.E. Mitchell, 2012. Effects of host functional traits on tolerance of infectious disease: an experimental test. Ecological Society of America, Portland OR. (Oral presentation).
- Gross, K., R.A. Lyzinski, C.E. Mitchell, 2012. How does localized vs. widespread infection impact the dynamics of competing pathogen strains? Ecological Society of America, Portland OR. (Oral presentation).
- Heckman, R.W., J.P. Wright, C.E. Mitchell, 2012. The effects of soil nutrients on foliar herbivory and disease on native and exotic old field species. Ecological Society of America, Portland OR. (Poster presentation).
- Rúa, M.A., R. McCulley, C.E. Mitchell, 2012. The role of biotic and abiotic factors in altering pathogen dynamics for tall fescue in a managed grassland. Ecological Society of America, Portland OR. (Oral presentation).
- Rúa, M.A., R. McCulley, C.E. Mitchell, 2012. Fungal endophyte infection and host genotype jointly modulate host response to an aphid-transmitted viral pathogen. 28th New Phytologist Symposium, Functions and ecology of the plant microbiome, Rhodes, Greece. (Poster presentation).
- Schwartz, N.B., B.E. Lopez, K.M. Becraft, P.A. Wilfahrt, R. Shrestha, L. Dodd, Y.S. Zhang, C.E. Mitchell, 2011. Productivity and land-use: Effects on bird communities. Student Conference on Conservation Science, New York, NY. (Poster presentation).
- Heckman, R.W., J.P. Wright, C.E. Mitchell, 2011. The effects of soil nutrients on foliar herbivory and disease on native and exotic old field species. Ecological Society of America, Austin TX. (Poster presentation).
- Rúa, M.A., R. McCulley, C.E. Mitchell, 2011. Endophytic fungi and climate change interact to alter virus prevalence in grasses. Ecological Society of America, Austin TX. (Poster presentation).
- Rúa, M.A., J. Umbanhowar, C.E. Mitchell, 2011. The effect of mutualists on pathogen-host dynamics. Annual Conference on the Ecology and Evolution of Infectious Disease, U.C. – Santa Barbara. (Poster presentation).

- Rúa, M.A., J. Umbanhowar, S. Hu, K. Burkey, C.E. Mitchell, 2011. Interactions between viral pathogens and fungal mutualists affect plant response to elevated CO<sub>2</sub>. Soil Ecology Society, British Columbia. (Poster presentation).
- Mitchell, C.E., E.T. Borer, K. Gross, P. Hosseini, A.G. Power, E.W. Seabloom, 2011. The community ecology of viral pathogens - Causes and consequences of coinfection in hosts and vectors. Plant Virus Ecology RCN Workshop, Montpellier, France. (Poster presentation).
- Mitchell, C.E., E.T. Borer, K. Gross, P. Hosseini, A.G. Power, E.W. Seabloom, 2011. The community ecology of viral pathogens - Causes and consequences of coinfection in hosts and vectors. NSF/NIH Ecology of Infectious Disease PI Meetings, Madison WI. (Poster presentation).
- Cronin, J.P., M.E. Welsh, M.G. Dekkers, S.T. Abercrombie, C.E. Mitchell, 2010. Explaining variation in host tolerance of infectious disease. Ecological Society of America, Pittsburgh PA. (Oral presentation).
- Rúa, M.A., R. McCulley, C.E. Mitchell, 2010. Endophytic fungi and climate change drivers interact to alter virus prevalence in grasses. Ecological Society of America, Pittsburgh PA. (Poster presentation).
- Cronin, J.P., M.E. Welsh, M.G. Dekkers, S.T. Abercrombie, C.E. Mitchell, 2010. Host physiological phenotype predicts key epidemiological parameters. Ecology & Evolution of Infectious Diseases Conference. Cornell University, Ithaca NY. (Oral presentation).
- Cronin, J.P., M.E. Welsh, C.E. Mitchell, 2009. Broad patterns in host physiological traits predict key epidemiological traits. Ecological Society of America, Albuquerque NM. (Oral presentation).
- Rúa, M.A., J. Barton, C.E. Mitchell, J. Umbanhowar, S. Hu, 2009. Impacts of the interaction between viral pathogens and mutualistic fungi on plant performance under elevated CO<sub>2</sub>. Ecological Society of America, Albuquerque NM. (Poster presentation).
- Welsh, M.E., J.P. Cronin, C.E. Mitchell, 2009. Linking plant virus infection to nitrogen supply via host ecophysiological traits. Ecological Society of America, Albuquerque NM. (Poster presentation).
- Koslow, J.M., A.G. Power, and C.E. Mitchell, 2009. Disease prevalence in a multi-host plant community driven by a dominant reservoir species. Ecological Society of America, Albuquerque NM. (Oral presentation).
- Fabiszewski, A.M., J. Umbanhowar, and C.E. Mitchell, 2009. Modeling landscape-scale pathogen spillover between domesticated and wild hosts: soybean rust and kudzu. Ecology & Evolution of Infectious Diseases Conference. University of Georgia, Athens GA. (Poster presentation).
- Cronin, J.P., M.E. Welsh, and C.E. Mitchell, 2009. Broad patterns in host physiological traits predict key epidemiological traits. Ecology & Evolution of Infectious Diseases Conference. University of Georgia, Athens GA. (Poster presentation).
- Rúa, M.A., J. Barton, C.E. Mitchell, J. Umbanhowar, S. Hu, 2009. Impacts of the interaction between viral pathogens and mutualistic fungi on plant performance under elevated CO<sub>2</sub>. Ecology & Evolution of Infectious Diseases Conference. University of Georgia, Athens GA. (Poster presentation).
- Seabloom, E.W., E.T. Borer, C.E. Mitchell, and A.G. Power, 2008. Local and regional control of pathogen diversity: barley and cereal yellow dwarf viruses in grasslands on the west coast of North America. Ecological Society of America, Milwaukee WI. (Oral presentation).
- Koslow, J.M. A.G. Power, and C.E. Mitchell, 2008. Pathogen dilution: Fitness effects on a highly competent host. Ecological Society of America, Milwaukee WI. (Oral presentation).
- Moore, S.M., C.E. Mitchell, and E.T. Borer, 2008. Spatial dynamics of a generalist plant pathogen in a fragmented landscape: barley yellow dwarf virus in Cascade meadow systems. Ecological Society of America, Milwaukee WI. (Oral presentation).
- Cronin, J.P., M.E. Welsh, S.T. Abercrombie, and C.E. Mitchell, 2008. Assessing competition-resistance and competition-tolerance tradeoffs in native and invasive Mediterranean grasses. Ecological Society of America, Milwaukee WI. (Poster presentation).

- Rúa, M.A., J. Umbanhowar, C. Tu, S. Hu, C.E. Mitchell, 2008. Impacts of the interaction between viral pathogens and mutualistic fungi on plant performance. Ecological Society of America, Milwaukee WI. (Poster presentation).
- Fabiszewski, A.M., J. Umbanhowar, and C.E. Mitchell, 2007. A landscape-scale population model of rust transmission between soybean and kudzu. The National Soybean Rust Symposium, Louisville KY. (Poster presentation).
- Mitchell, C.E., E.T. Borer, J.P. Cronin, A.P. Dobson, P. Hosseini, A.G. Power, E.W. Seabloom, 2007. The role of an insect-vectored generalist virus in heavily invaded west coast grasslands. NSF/NIH Ecology of Infectious Disease PI Meetings, Albuquerque NM. (Poster presentation).
- Hosseini, P.R. and C.E. Mitchell, 2007. A model to examine the interaction between resource competition and infection by parasites and mutualists. Ecological Society of America, San Jose CA. (Oral presentation).
- Power, A.G. and C.E. Mitchell, 2007. Pathogen dilution in experimental plant communities. Ecological Society of America, San Jose CA. (Oral presentation).
- Borer, E.T., E.W. Seabloom, C.E. Mitchell, A.G. Power, 2007. Top-down and bottom-up controls on plant pathogens: viral prevalence in California grasslands. Ecological Society of America, San Jose CA. (Oral presentation).
- Morgan, J.A., F. Miglietta, B.A. Kimball, W.J. Parton, D.R. LeCain, A. Zaldej, J.D. Reeder, E. Pendall, D.G. Williams, D.M. Blumenthal, C.E. Mitchell, S. Bachman, J. Schomp, P. Koenig, M. West, G.S. McMaster, D.T. Booth, R. Follett, J. Derner, P. Stahl, A. Andales, 2006. The High Plains Global Change Experiment: Semi-arid Grassland Responses to Combined Elevated CO<sub>2</sub> and Warming. Ecological Society of America, Memphis TN. (Poster presentation).
- Mitchell, C.E. and A.G. Power, 2004. Direct and indirect effects among four grass species and a shared pathogen. Ecological Society of America, Portland OR. (Oral presentation).
- Power, A.G. and C.E. Mitchell, 2003. Host diversity and pathogen spillover in plant communities. Ecological Society of America, Savannah GA. (Oral presentation).
- Mitchell, C.E. and A.G. Power, 2003. Plant community dynamics, disease, and productivity under global change. Ecological Society of America, Savannah GA. (Oral presentation).
- Mitchell, C.E. and A.G. Power, 2002. Escape of pathogens by introduced plant species. Ecological Society of America, Tucson AZ. (Oral presentation).
- Mitchell, C.E., 2000. Effects of experimentally excluding foliar fungal plant disease on a grassland ecosystem: linking belowground production and allocation to leaf longevity and photosynthetic capacity. Ecological Society of America, Snowbird, UT. (Oral presentation).
- Mitchell, C.E., P.B. Reich, D. Tilman, and J.V. Groth, 2000. Interactive effects of elevated CO<sub>2</sub>, nitrogen deposition, and decreased species diversity on plant disease. Long Term Ecological Research (LTER) Network All Scientists Meeting, Snowbird, UT. (Poster presentation).
- Mitchell, C.E., D. Hurchanik, N. Haddad, and M.A. Davis, 1999. Spatial patterns of disease and host recruitment: black knot canker of black cherry. Ecological Society of America, Spokane, WA. (Poster presentation).
- Mitchell, C. E., D. Tilman, and J. V. Groth, 1998. Pathogens influence plant community structure. Ecological Society of America, Baltimore, MD. (Oral presentation).
- Mitchell, C. E., D. Tilman, and J. V. Groth, 1997. Species diversity influences disease severity in experimental grasslands. Ecological Society of America, Albuquerque NM. (Oral presentation).

## **TEACHING RECORD**

### **Courses taught:**

2011 Fall: BIOL 669 / ECOL 669: Distributed Graduate Seminar (with ~15 universities from around the world) on “Dimensions of Biodiversity”. (co-taught with Allen Hurlbert and Robert Peet). Funded by

- a **\$33,000** subcontract from **NSF** DEB-1050680. <http://www.dbdgs.org/>. 12 students, 2.0 credit hours.
- 2011 Spring: ECOL 569: Current Issues in Ecology. 8 students. 3.0 credit hours.
- 2011 Spring: BIOL 691H/692H: Senior Honors Thesis (co-taught with Jeff Sekelsky). 27 students, 3.0 credit hours.
- 2010 Fall: BIOL 568 / ENST 490 / ECOL 891: Disease Ecology and Evolution. 25 students. 3.0 credit hours.
- 2010 Fall: BIOL 691H/692H: Senior Honors Thesis (co-taught with Jeff Sekelsky). 6 students, 3.0 credit hours.
- 2010 Spring: BIOL 201: Ecology and Evolution. (co-taught with Maria Servedio). 222 students. 4.0 credit hours.
- 2009 Fall: BIOL 669 / ECOL 669: Discussion-based seminar on “Biological Invasions and Emerging Infectious Diseases: Parallels, contrasts, and linkages”. 9 students. 2.0 credit hours.
- 2009 Spring: on pre-tenure Research and Study Leave.
- 2008 Fall: BIOL 568: Disease Ecology and Evolution. 16 students (including NC State University). 3.0 credit hours.
- 2008 Spring: BIOL 201: Ecology and Evolution. (co-taught with Mark Mazurek). 210 students. 4.0 credit hours.
- 2007 Fall: BIOL 669 / ECOL 669: Discussion-based seminar on “Bottom-Up and Top-Down Feedbacks in Biological Invasions”. 13 students. 2.0 credit hours.
- 2007 Spring: ECOL 569 / ENST 569: Interdisciplinary graduate project course on “Globalization and Infectious Disease”. 7 students. 3.0 credit hours.
- 2006 Fall: BIOL 490: Disease Ecology and Evolution. 13 students (including Duke University). 3.0 credit hours.
- 2006 Spring: BIOL 054: Ecology and Population Biology. (co-taught with Maria Servedio). 165 students. 4.0 credit hours.
- 2005 Fall: on leave from teaching provided as part of my recruitment package.
- 2005 Spring: ECOL 199 / ENST 199: Interdisciplinary graduate project course on “Management of terrestrial systems to mitigate aquatic environmental impacts”. 12 students. 3.0 credit hours.
- 2003 Spring: Cornell University, BioEE 760-3: Microbial associations with plants and animals. Graduate seminar with 10 students from 4 departments.

**Postdoctoral researchers supervised:**

- 2013 (arriving 1 Jan) onward: Erin A. Mordecai, NSF Postdoctoral Research Fellow in the Intersection of Biology and Math (co-mentored by Kevin Gross at North Carolina State University).
- 2006-present: James P. Cronin, postdoctoral research associate. 2007 UNC Postdoctoral Scholars Award for Research Excellence.
- 2006-2007: James Umbanhowar, postdoctoral research associate. (Now Research Assistant Professor, Department of Biology, UNC-CH).

**Graduate Students supervised:**

- 2010 – present: Fletcher W. Halliday, Biology EEOB Ph.D. program.
- NSF Graduate Research Fellowship 2009-2012 (\$121,500).
  - Honorable Mention for NSF Graduate Research Fellowship 2011.
  - Mrs. Coker Botanical Graduate Research Fellowship, 2010-2011 (\$22,000).
- 2009 – present: Robert W. Heckman, Biology EEOB Ph.D. program.
- Passed oral comprehensive exam May 2011.
  - Mrs. Coker Botanical Graduate Research Fellowship, 2009-2010 (\$20,000).
- 2007 – present: Miranda A. Welsh, Curriculum in Ecology Ph.D. program.

- Passed proposal feasibility examination and advanced to candidacy Dec 2010.
  - Honorable Mention for NSF Graduate Research Fellowship 2009.
  - Mrs. Coker Botanical Graduate Research Fellowship, 2007-2008 (\$20,000).
- 2007 – present: Megan A. Rúa, Curriculum in Ecology Ph.D. program.
- Leaving to take NSF Postdoctoral Research Fellowship (\$199,000).
  - Successfully defended PhD March 2012.
  - NSF Graduate Research Fellowship 2009-2012 (\$121,500).
  - Honorable Mention for NSF Graduate Research Fellowship 2008.
  - UNC Alliances for Graduate Education and the Professoriate (AGEP) Research Assistantship, 2007-2008 (\$25,000).
  - Declined: Merit Assistantship from the UNC Graduate School, 2007-2008 (\$16,000).

**Graduate student dissertation committees at UNC-CH:**

Jesica Coyle, Department of Biology EEOB program, Ph.D. expected 2015.

Peter Wilfahrt, Curriculum for the Environment and Ecology (CEE), Ph.D. expected 2015.

Jessica Higgins, Department of Biology EEOB program, Ph.D. expected 2014.

Artur Romanchuk, Department of Biology MCDB program, Ph.D. expected 2014.

Sarah Seiter, Department of Biology EEOB program, Ph.D. expected 2013.

Cass Jabara, Department of Biology EEOB program, Ph.D. expected 2012.

Brooke Wheeler, Curriculum for the Environment and Ecology, Ph.D. 2011.

Sarah Diamond, Department of Biology EEOB program, Ph.D. 2010.

Elizabeth Selig, Curriculum for the Environment and Ecology, Ph.D. 2008.

**Undergraduate thesis students supervised:**

Briana Whitaker, B.S. in Biology with Honors, expected 2012.

- 2012 F.J. LeClair Award to an outstanding graduating senior for academic excellence in biology with an emphasis in plant sciences.
- 2012 J.N. Couch Award to the senior undergraduate with interests in plant biology who has demonstrated the highest ideals of scholarship and research.

K. Amanda Saunders, B.A. in Environmental Studies with Honors, 2010.

Leslie Peck, B.S. in Environmental Science with Honors, 2009.

Sam Abercrombie, B.A. in Biology with Research Commendation, 2008.

Anna Fabiszewski, B.S. in Environmental Science with Highest Honors, 2007.

**Extramural teaching (guest lectures in classes):**

2012 North Carolina State University, Department of Plant Pathology: Plant Disease Resistance.

2010 North Carolina State University, Department of Plant Pathology: Plant Disease Resistance.

2009 Duke University, Department of Biology: Disease Ecology and Evolution.

2008 University of Virginia, Mountain Lake Biological Station: Ecology of Wildlife Diseases.

2008 North Carolina State University, Department of Biological Sciences: Community Ecology.

**Extramural graduate student committee memberships:**

UNC-Charlotte, Sarah Haas (advisor: Ross Meentemeyer), Ph.D. in Geography expected 2013.

NC State Univ, Becky Lyzinski (advisor: Kevin Gross), M.S. in Biomathematics 2011.

Duke University, Meredith Barrett (advisor: Anne Yoder), Ph.D. in Ecology 2011.

NC State Univ, Brenda Johnson (advisor: Nick Haddad), M.S. in Fisheries & Wildlife Science 2009.

## GRANTS

### External funding as PI:

- 2010-2015 Collaborative Research: The community ecology of viral pathogens – Causes and consequences of coinfection in hosts and vectors. PI: C.E. Mitchell (**NSF DEB-1015909; \$745,000**). Collaborators: E.T. Borer and E.W. Seabloom (University of Minnesota), K. Gross (North Carolina State University), P.R. Hosseini (the EcoHealth Alliance), A.G. Power (Cornell University); total collaboration budget \$2,500,000. Renewal for **NSF EF-0525641**. I am sole PI at UNC and lead PI on the entire collaboration.
- 2009-2013 Predicting disease risk from community context and host phenotype: a trait-based approach. PI: C.E. Mitchell (**NSF DEB-0923671; \$675,000**). I am sole PI.
- 2011-2012 Dimensions of Biodiversity Distributed Graduate Seminar. **Subcontract** to A.H. Hurlbert, C.E. Mitchell, and R.K. Peet (**\$33,000** from **NSF DEB-1050680**). Lead PI Julia Parrish, University of Washington, co-PI Sandy Andelman, Conservation International; total collaboration budget \$922,000. A.H. Hurlbert is the lead at UNC.
- 2005-2010 Collaborative Research: Predicting the effects of environmental change and host diversity on the dynamics of insect-vectored generalist pathogens. PI: C.E. Mitchell (**NSF EF-0525641; \$511,000** including REU supplements). Collaborators: E.T. Borer and E.W. Seabloom (Oregon State), A.G. Power (Cornell), A.P. Dobson and P.R. Hosseini (Princeton); total collaboration budget \$1,900,000. I was sole PI at UNC.
- 2005-2009 Collaborative Research: Host community diversity, species composition, and the spread of generalist plant pathogens. PI: C.E. Mitchell (**NSF DEB-0445080; \$32,000**). Collaborator: A.G. Power (Cornell); total collaboration budget \$462,000. I was sole PI at UNC.
- 2006-2008 Pathogen-mediated interactions between native and introduced grass species. PI: C.E. Mitchell. (**NSF DBI-0626072; \$50,000**). I was sole PI.

### External funding of my students and postdocs:

- 2009-2012 NSF Graduate Research Fellowship to Megan A. Rúa, \$121,500.

### Other funding:

- 2008 UNC Junior Faculty Development Award. \$7500.
- 2003-2006 NCEAS (National Center for Ecological Analysis and Synthesis, Santa Barbara CA) working group: Biotic Interactions and Plant Invasions. Co-leaders: C.E. Mitchell and A.G. Power, plus thirteen additional members. (\$53,000).
- 2002-2004 Postdoctoral Research: Effects of environmental change on a generalist microbial pathogen: barley yellow dwarf virus in wild grass communities. (NSF DBI-0200469; \$100,000).
- 1998-2000 Geraldine R. Dodge Foundation Graduate Fellowship from The Land Institute. (\$12,000).

## PROFESSIONAL SERVICE TO DISCIPLINE

### Organizer:

- 2003-2006. Working group on Biotic Interactions and Plant Invasions, NCEAS (National Center for Ecological Analysis and Synthesis, Santa Barbara CA). Co-leader: A.G. Power, with 13 additional members from four countries.

### Invited participant:

- 2008-2013. NSF Research Coordination Network: The Nutrient Network (NutNet) - a globally-replicated experiment in top-down and bottom-up control of grasslands.
- 2007-2012. NSF Research Coordination Network: Plant Virus Ecology.

- 2007-2012. NSF Research Coordination Network: TraitNet – linking ecological and evolutionary processes to species traits.
- 2006-2011. NSF Research Coordination Network: Integrating the Ecology and Evolution of Invasions.
2009. Odum Conference, New York Invasive Species Research Institute, Cornell University, held at Rensselaerville NY (<http://nyisri.org/Odum.aspx>).
2007. Fifth Annual Ecology and Evolution of Infectious Disease Conference, Cornell University.
2005. Cary Conference, Institute for Ecosystem Studies, Milbrook NY: Infectious Disease Ecology: Effects of disease on ecosystems and of ecosystems on disease. **Chair:** working group on Disease and Biogeochemistry. (<http://www.ecostudies.org/cary11/index.html>).
- 2003-2005. SCOPE Rapid Assessment Program on Biodiversity and Human Health. Member of Scientific Advisory Committee. **Chair:** working group on Biodiversity, Food Production, and Human Well-being. **Product:** *Biodiversity Change and Human Health: From ecosystem services to spread of disease*, edited by O.E. Sala, L.A. Meyerson, C. Parmesan. Island Press.
2003. Biocomplexity Workshop: Designing a Capstone Experience for Recent PhDs Embarking on Interdisciplinary Careers. Catalina Island CA.
- 1999-2002. Infectious Diseases and Conservation Biology working group at the National Center for Ecological Analysis and Synthesis (NCEAS), Santa Barbara CA.

**NSF grant proposal review panelist (U.S. National Science Foundation).**

- 2004 – 2012. Panelist (four times for three different programs); grants up to \$2.5M over 5 years (45 proposals and 20 pre-proposals).

**Ad hoc reviews of grant proposals for science agencies (U.S).**

- 2003 – present. U.S. National Science Foundation (NSF): Ecology, Ecosystems, Population and Evolutionary Processes, International Programs (16 proposals).
2011. California Department of Food and Agriculture (1 proposal).
2006. U.S. Department of Energy National Institute for Climate Change Research (1 proposal).

**Panel and ad hoc reviews for science agencies and academies (foreign and international).**

- 2005 – 2010. European Science Foundation, standing Pool of Reviewers (4 proposals).
2008. Czech Republic Academy of Sciences Grant Agency, ad hoc reviewer (1 proposal).
- 2007, 2008. Dutch Research Council, Earth and Life Sciences Program, ad hoc reviewer (2 proposals).
2004. Canadian Natural Sciences and Engineering Research Council, ad hoc reviewer (1 proposal).

**Peer review of manuscripts:**

- 2003 – present. Journal articles (89 reviews for 31 journals in total as of 3 April 2012): *The American Naturalist*, *American Midland Naturalist*, *Annals of Botany*, *Biological Invasions*, *Biology Letters*, *Botany* (formerly the *Canadian Journal of Botany*), *Diversity and Distributions*, *Ecography*, *Ecology*, *Ecology Letters*, *Ecological Applications*, *Ecosphere*, *Evolution*, *Evolutionary Applications*, *Frontiers in Ecology and the Environment*, *International Journal of Plant Sciences*, *Journal of Ecology*, *Journal of the Royal Society Interface*, *Molecular Ecology*, *Nature*, *Oecologia*, *Oikos*, *Phytopathology*, *Plant Disease*, *PLoS Biology*, *PNAS*, *Proceedings of the Royal Society Series B: Biological Sciences*, *Science*, *Trends in Ecology and Evolution*, *Trends in Plant Science*, *Weed Research*.
2005. Two book chapters in: *Infectious Disease Ecology: Effects of disease on ecosystems and of ecosystems on disease*, edited by R.S. Ostfeld, F. Keesing, V.T. Eviner, 2008, Princeton University Press.

**Service to professional societies and organizations:**

2008 – present. Organization for Tropical Studies, Delegate (one of two from UNC-Chapel Hill).

2005. Buell/Braun award judge: Ecological Society of America meetings, Montreal Canada.

2002. Session chair: Herbivore responses to plants, Ecological Society of America meetings, Tucson AZ.

**PROFESSIONAL SERVICE WITHIN UNC – CHAPEL HILL**

2011-present Curriculum for the Environment and Ecology Chair's Advisory Committee (3 year term).

2011-present Department of Biology committee on botanical graduate fellowships.

2010-present Department of Biology committees for reappointments of Assistant Professors (2).

2008-present Mason Farm Biological Reserve Steering Committee

2008-present Department of Biology co-Liaison to the Curriculum for the Environment and Ecology.

2007-present Department of Biology EEOB Graduate Studies Committee.

2006-present Department of Biology Greenhouse Committee.

2005-present Department of Biology EEOB Graduate Admissions Committee.

2010-2011 Curriculum for the Environment & Ecology Faculty Search Committee (hired one Asst. Prof.).

2011 (spring) Chair, Department of Biology Undergraduate Honors Research Committee.

2008 (spring) - 2011 Member, Department of Biology Undergraduate Honors Research Committee.

2007-2008 Department of Biology Ecologist Faculty Search Committee (hired two Asst. Profs.).

2006-2008 Curriculum in Ecology Faculty Advisor to the Seminar Committee.

2005-2008 Department of Biology Undergraduate Advising Committee.

2005-2007 Curriculum in Ecology Graduate Admissions Committee.