

# TERESA C. BALSER (TERI)

---

Department of Soil Science  
University of Wisconsin  
Madison, WI 53706

email: [tcbalser@wisc.edu](mailto:tcbalser@wisc.edu)  
(608) 262-0132 (office)  
(608) 265-2595 (FAX)  
[www.ecosystem-microbiology.wisc.edu](http://www.ecosystem-microbiology.wisc.edu)

---

## SUMMARY OF QUALIFICATIONS

- Strong teaching record with incorporation of active learning, innovative curriculum design, and teaching-as-research to advance educational goals. Active in faculty and graduate student development. Former WI Teaching Fellow, Current National Biology Scholar.
- Active, collaborative, interdisciplinary research program. NSF Career Award winner.
- Experience with a wide range of teaching activities including small and large classes, public outreach, agronomic extension, and professional development workshops. Involvement with the Delta Program and Teaching Academy (Steering and Executive Committees).
- Extensive training in leadership and facilitation, with positions held at the campus level and in professional societies. Current CIC Academic Leadership Program Fellow.
- Facilitative leadership style, with innovative, entrepreneurial spirit, and commitment to growth and vision in higher education. Associate with Office of Human Resources.

## EDUCATION

Ph.D.	Soil Microbiology, <b>University of California at Berkeley</b> , Berkeley CA.	2000
A.B.	Biology, <b>Dartmouth College</b> , Hanover, NH. <i>cum laude</i>	1992
A.B.	Earth Sciences, <b>Dartmouth College</b> , Hanover, NH. <i>cum laude</i>	1992

## POSITIONS HELD

2008-present	<b>Director</b> , Institute for Cross-College Biology Education, University of Wisconsin-Madison
2007-present	<b>Associate Professor</b> , Department of Soil Science, University of Wisconsin-Madison
2007-present	<b>Faculty Associate in Human Resource Development</b> , Office of Human Resource Development, UW-Madison
2006-present	<b>Faculty Affiliate</b> , Women's Studies Department, UW-Madison
2005	<b>Visiting Research Scholar</b> , Center for Ecological Research, Kyoto University, Japan
2004- present	<b>Doctoral Trainer</b> , Microbiology Doctoral Training Program UW-Madison
2001- present	<b>Faculty Affiliate in Molecular and Environmental Toxicology</b> , UW-Madison
2001- present	<b>Faculty Affiliate</b> , Gaylord Nelson Institute for Environmental Studies, UW-Madison
2001-07	<b>Assistant Professor</b> , Department of Soil Science, University of Wisconsin-Madison

2000-01      **Visiting Scholar**, part-time, Institute fur Umweltwissenschaften, Zürich Switzerland  
2/00 - 9/01    **Postdoctoral Scholar**, Stanford University, Stanford, CA.

---

## ADMINISTRATIVE AND LEADERSHIP EXPERIENCE

### *Professional development*

- **CIC-ALP Fellowship:** The CIC Academic Leadership Program (ALP) is designed to develop the leadership and managerial skills of faculty on CIC campuses who have demonstrated exceptional ability and administrative promise. The Consortium for Institutional Cooperation (CIC) includes the 11 members of the Big Ten Conference and the University of Chicago.
- **Leadership development and trainer-training:** Completed 18 months of leadership and trainer-training run by Millennium3 Education, Dallas Texas. Graduated from Basic and Advanced programs, 3-month Leadership program, and invitation-only 6-month Leadership Trainer-Training program. Regularly develop and deliver workshops and training in leadership and professional development.
- **Facilitation training:** Certificate in Integral Facilitation, UW Office of Quality Improvement and Facilitator U, Santa Monica, CA. October 2007. Currently deliver workshops and provide facilitation services for UW campus and professional societies.

### *Administrative and leadership activities*

- **Institute for Cross-College Biology Education, Director:** Manage and lead a widely diverse group of programs and people associated with the Institute. The mission of the Institute for Cross-college Biology Education (ICBE) is to provide infrastructure, leadership, and a forum for consultation needed to achieve the best possible education in biology for students at UW-Madison, for future students (K-12), and for informal learners of all ages.
  - **UW-Madison 2009 Reaccreditation project, Theme Co-Chair:** Member of the Project Steering Committee and Co-Chair for Self-study Theme 5: 'Building a welcoming respectful and empowered UW-Madison Community.' Experience with campus-level project and intensive consensus building. Conducted listening sessions; assembled a diverse team of faculty, academic and classified staff, students and alumni; coordinated and facilitated team retreats; wrote and presented 60+ page final self-study report to the campus higher leadership (Dean's Council, VCA Council, and Provost).
  - **RSP Task Force on Effort, Chair:** Assembled and led faculty advisory team to the Associate Vice-Chancellor for Research and Sponsored Projects. Provided input and faculty perspective on the new effort reporting structure, assisted in developing effort reporting training materials for faculty and staff.
  - **Leadership Exploration Group, Director:** Founded in Fall 2006. Group includes faculty, staff, students and community professionals. Meets regularly to discuss challenges and issues in leadership. Facilitated and managed by Dr. Balsler.
-

---

## HONORS AND AWARDS

- 2008 Committee on Institutional Cooperation Academic Leadership (CIC-ALP) Fellow
- 2008 National Biology Scholar, American Society for Microbiology
- 2008 Tenure case chosen as exemplar for Physical Sciences tenure workshop
- 2007 Promoted to Full Member, Sigma Xi Scientific Honor Society
- 2007 University of Wisconsin-Madison Teaching Academy Fellow
- 2007 University of Wisconsin System OPID Teaching Fellow
- 2006 NSF CAREER Award Recipient, Division of Environmental Biology
- 2005 Visiting Faculty Fellowship, Center for Ecological Research, Kyoto University, Japan
- 1999-00 Kearney Foundation for Soil Science Research, Postdoctoral Scholar, U.C. Berkeley, CA
- 1997 Distinguished Teaching Award, U.C. Berkeley, CA
- 1997 Founder Region Fellowship, Soroptomist International, U.C. Berkeley, CA
- 1994-97 NASA Graduate Student Researcher Fellowship, U.C. Berkeley, CA
- 1992-94 James P. Bennett Graduate Fellowship, U.C. Berkeley, CA
- 1992-93 University of California Regents Fellowship, U.C. Berkeley, CA
- 1992 John J. Ebers Award, for excellence in Earth Sciences, Dartmouth College, Hanover, NH
- 1992 Upham Geology Prize for honors thesis research, Honorable Mention
- 1991 Elected to Sigma Xi Scientific Honor Society, student member
- 1991-92 Rufus Choate Scholar (top 10% of graduating class), Dartmouth College, Hanover, NH

---

## GRANTS

### *Workshop and Research grants*

- 2008-13 "Microbial Observatories: Exploring the symbiotic association between tropical social insects and actinomycetes", Co-PI with Cameron Currie and Matias Cafaro. NSF DEB, Microbial Observatories. \$920,004
- 2008-09 "Belowground carbon dynamics and biodiversity in biofuels cropping systems: ecology and policy implications", Project leader and Co-PI with Randy Jackson and Claudio Gratton, Thrust 4 (Sustainability), Projects 4.3 and 4.4, Great Lakes Bioenergy Center. U.S. Department of Energy. \$475,608
- 2008-09 "Using phytoremediation to reduce lead exposure in socio-economically disadvantaged neighborhoods: an interdisciplinary social and ecological study", Co-PI with Janean Dilworth-Bart and David Bart. UW-Madison Fall Research Competition. \$34,000
- 2007-12 "CAREER: Research and education approaches to integrating microbiology and ecosystem functioning in global change ecology", NSF DEB, Ecosystems. \$595,289
- 2007-10 "The ecological consequences and policy implications of land management choices by WI farmers in a biofuels era", WI NC-SARE, Pilot study. \$13,000

- 2007-09 "Role of microbial community structure and forest management practices in carbon storage." USDA-CREES McIntire-Stennis. \$75,000
- 2006-07 "Microscale approaches to macroscale issues in terrestrial ecosystem ecology", Interdisciplinary workshop, NSF DEB and Microbial Biology, \$77,000
- 2006-08 "Evaluating changes in soil carbon cycling in reed canary grass invaded soils", US DOE, \$180,000
- 2006-08 "Collaborative research: Landscapes to latrines: effects of spatial and temporal variation in nutrient transport by coastal river otters on terrestrial communities", with Merav Ben-David (PI), J. Gullede, N. Nibbelink, and C. Meyers. NSF-Ecosystems, \$688,075
- 2006-09 "Breaking the stranglehold: Reed canary grass and nutrient cycling in WI wetland soils", with David Bart. USDA CSREES-Hatch, \$90,000
- 2005-07 "Testing controlled environment chambers for NASA". Subcontract with Orbital Technologies, Inc., Madison, WI. \$25,000
- 2005-07 "Does microbial ecophysiological response to environmental change determine carbon sequestration?" National Science Foundation, Division of Environmental Biology, Ecosystems Program. \$150,000
- 2002-05 "Role of microbial community structure and forest management practices in carbon storage", with Joel Pedersen. USDA-CREES McIntire-Stennis. \$75,000
- 2002-03 "Studies to elucidate the soil microhabitats, functional diversity, and ecological roles of uncultured bacteria with in the divisions Acidobacterium and Verrucomicrobia", with R.M. Goodman. National Science Foundation, Division of Environmental Biology, Microbial Ecology program. \$200,000
- 2001-04 "Linking soil microbial communities and ecosystem functioning: structure and function of ammonium oxidizer communities in tropical and temperate ecosystems", with Sharon J. Hall. Andrew W. Mellon Foundation. \$425,000
- 2001-03 "Microbial community structure and soil carbon cycling in old-growth and managed forests of the southern Lake Superior uplands". USDA-CREES Hatch. \$39,601
- 1997-98 "Defining soil quality in terms of microbial community structure", with M.K. Firestone. Kearney Foundation for Soil Science Research. \$40,000
- 1996-97 "The role of microorganisms in soil carbon storage". National Science Foundation Doctoral Dissertation Improvement Grant, Division of Environmental Biology, Ecological Studies Program. \$10,000

*Grants awarded for instructional improvement or teaching research*

- 2008-11 "Educational partnerships for the bioenergy sustainability thrust", Great Lakes Bioenergy Center, University of Wisconsin, \$155,000
- 2008-09 "Peer Mentoring for Forum on the Environment (ES/SS101)", UW College of Agricultural and Life Sciences Undergraduate Initiative Funds, \$8,242

- 2008-09 "Aligning Essential Learning Outcomes with Students' Perceptions of Their Own Learning", UWS Leadership Site Essential Learning Outcomes Grant Program, participation in a UW System-wide program.
- 2008-09 "Using technology to enhance student collaboration and increase transparency of group process", Engage Adaptation Awards, \$1,000
- 2006-07 "Multidisciplinary approaches to integrating microbial analysis and ecosystem-scale research", UW Grad School, \$15,000
- 2006-07 "Improving the Soil Science Senior capstone using peer mentoring", UW College of Agricultural and Life Sciences Undergraduate Initiative Funds, \$13,909
- 2005-06 "Revitalizing Environmental Studies 101, Forum on the Environment", UW College of Agricultural and Life Sciences Undergraduate Initiative Funds, \$12,000

---

## TEACHING, LEARNING, AND EDUCATION ACTIVITIES

### *Interests and experience*

Interested in promoting the goals of liberal education, in improving graduate student training and mentoring, and in creating learner- rather than teacher-centered classrooms and teaching culture. Teaching experience includes large (100-250 students) courses as well as smaller seminars, at all levels from freshman to graduate students. Strong proponent of interdisciplinary education, and believe that true interdisciplinary understanding must be grounded in an awareness of disciplinary differences and scientific/academic cultures. Experienced in outreach teaching, developing and delivering professional workshops, curriculum and program design.

### *Interdisciplinary science workshop developed and delivered*

- 2007 "Using Microscale Techniques to Address Macroscale Issues in Ecology". Organized and facilitated 3-day workshop on Interdisciplinary integration in large and small scale ecology. 30 faculty, graduate students, postdocs and research specialists in attendance. April 16-18, 2007, Washington D.C. Funded by the U.S. National Science Foundation. White paper and two manuscripts in progress.

### *Faculty and graduate student teacher development*

- 2008 "Managing People, Building Teams" Invited facilitator and developer, 2-hour workshop for Early Career members of American Societies of Agronomy, Crops and Soil Sciences. October 6, 2008. Houston, TX.
- 2007 "Lose the Podium – discussion series" Facilitator and developer, 3 session series on teaching and learning issues for faculty at UW-Madison.
- 2007 "Navigating the Maze: Professional development and strategic career planning" Facilitator and presenter, 3-hour workshop for Ecological Society of America Annual Meetings, August 5, 2007. San Jose CA.

- 2007 "Balancing Teaching, Research and Service" Invited Panelist, UW-Madison New Faculty Programs panel and discussion. (15 faculty in attendance), February 13, 2007. UW-Madison, Madison, WI.
- 2007 "Getting Them Engaged: Activating Learning in the Classroom" Facilitator and presenter, NSF-CIRTL's Delta Program Roundtable Dinner invited speaker. (60 faculty and students in attendance), March 7, 2007. UW-Madison, Madison, WI.
- 2006 "Graduate Professional Development" Facilitator and presenter, Department of Soil Science Seminar Series, (25 faculty and students in attendance), September 5 and 13, 2006. UW-Madison, Madison, WI.
- 2005 "Creating a teaching culture" Co-facilitator, College of Agriculture and Life Sciences Instruction Improvement Committee Brown Bag Series, (25 faculty and staff in attendance), Dec 8 2005 UW-Madison, Madison, WI.
- 2005 "Classroom assessment for the rest of us" Invited speaker, College of Agriculture and Life Sciences Instruction Improvement Committee Successes in Collaborative Learning Brown Bag Series, (35 faculty and staff in attendance) UW-Madison, Madison, WI.
- 2004 "Collaborative Learning: A case study in course design, implementation, and evaluation." Invited speaker, College of Agriculture and Life Sciences Instruction Improvement Committee Successes in Collaborative Learning Brown Bag Series, (30 faculty and staff in attendance) UW-Madison, Madison, WI.

*Leadership workshops developed and delivered*

- Oct, 2008 "Leadership Development II: Expanding Your Skills" Developed and facilitated full-day advanced workshop on developing Leadership. American Society of Agronomy. 30 participants. Oct 5, 2008, Houston TX.
- Oct, 2008 "Leadership Development I: Finding Your Voice" Developed and facilitated full-day workshop on discovering Leadership for the American Society of Agronomy. 25 participants. Oct 4, 2008, Houston TX.
- Nov, 2007 "Right brain skills in a Left-Brained world". Developed and delivered 1 hr session in the 20<sup>th</sup> Annual WI Hunter Conference and 2<sup>nd</sup> Annual Inspiration from Unusual Sources conference. 15 participants in session on going beyond linear logical solutions to work challenges. Nov 10, 2007, Madison, WI.
- Nov, 2007 "Leadership Development." Developed and facilitated full-day workshop on Leadership for the American Society of Agronomy. 34 participants in this first cohort. Nov 3, 2007, New Orleans. Was appointed ASA Leadership Development Coordinator, and will offer this and an advanced workshop annually.
- Oct, 2007 "Making coaching accessible". Delivered two sessions on managing and coaching to Madison area supervisors, managers and leaders at the Annual Managers and Supervisors Continuing Education Conference. October 6, 2007, Madison, WI. 50 in attendance.
- Jan, 2007 "Building Your Leadership Toolbox". Developed and presented 3-hour workshop for K-12 Administrators attending WI Early Childhood Educator conference, Launching into Literacy. January 21, 2007, Madison, WI. 35 in attendance.

## Classroom teaching – courses developed and taught

---

### *Undergraduate courses*

#### **Forum on the Environment** (Environmental Studies/Soil Science 101, Univ. of Wisconsin)

*Course description and goals:* Took over course in 2006, and redesigned as an active learning experience using guest-lectures and small group discussions. Course is broadly interdisciplinary, with freshman to senior students, and 60 different majors. Course objectives: provide introduction to environmental issues, raise level of environmental literacy on campus, challenge students to extend their learning about environmental issues to all areas of their lives. Course averages 200 students.

#### **Soil Biology** (Soil Science/Plant Pathology 323, University of Wisconsin))

*Course description and goals:* Took over course in 2002, and redesigned it using active inquiry and group learning elements. Course objectives: foster an appreciation for basic science while raising awareness of the role soil biology plays in ecology and the environment. I place an emphasis on the principles underlying the functioning of both managed and unmanaged systems, comparing the biogeochemical cycling and soil communities across a wide range of soils. Taught for 6 years, course averages 25 students ranging from 3rd year juniors to senior-level graduate students.

#### **Biological Interactions** (Biocore 333, Biology Core Curriculum, University of Wisconsin)

*Course description and Balse's role:* Capstone course for four-semester honors introductory biology sequence that provides a broad, in-depth, and integrated background for students interested in any area of biological science. Course is designed to help students build on and integrate the knowledge gained in previous three semesters, by addressing current research in topics such as signaling pathways and genetic disease. One of a team of 4 instructors. Was invited to participate in 2006, developed and now teach a unit on the human health and environmental consequences of bacterial genetic mobility in soil. Course averages 90 students.

### *Graduate courses*

#### **Teaching large classes** (Soil Science 875)

Course was developed in 2008 as a companion to ES/SS101, Forum on the Environment. The goal was to have participants read and discuss literature about teaching large classes, and develop a teaching module to implement in ES/SS101. First offered in 2008, 10 participants. The four units delivered were by far the most popular in the Forum.

#### **Workplace Skills** (Environmental Studies 900)

Course was developed during 2006-2007 to provide experiential skills-training for professional M.S. students in the Nelson Institute for Environmental Studies. Course objectives: provide opportunity for graduate students in environmental studies to develop and practice interpersonal and management skills. First year offered: 2008. 25 students enrolled.

#### **Women and Leadership in Science Medicine and Engineering** (Engineering 690/Soil Science 875, University of Wisconsin)

Course developed as part of a team of four faculty from engineering, medicine and social sciences in 2006-2007. Course objectives: raise awareness of gender biases in academic leadership and explore leadership styles and philosophies.

**Microbial Communities and Global Change** (Soil Science 875, University of Wisconsin)

Course was created by Prof. Balsler in 2001 as a seminar for graduate students, postdocs and faculty. Course goals are to foster interdisciplinary collaboration while raising awareness of the role soil biology plays in global change ecology. Taught for 5 years, seminar averages approx 10 people. Two publications have resulted from the class (one forthcoming).

*Other classroom teaching*

**Short Course in Microbial Ecology**, Institute für Umweltwissenschaften, Zürich, Switzerland. Fall 2001. Developed and delivered a short course for graduate students and postdoctorals in Zurich Ecology Institute.

**Invited classroom lectures** – regularly participate in colleague’s courses on campus. Departments include Botany, Zoology, Agronomy, Molecular and Environmental Toxicology.

Outreach workshops and presentations

---

*Climate change education*

“The role of soils and soil organisms in climate change”, Invited speaker for Focus the Nation national teach-in (more than 1550 campuses participating). UW-Madison, Jan 31, 2008.

“Ecology Underground”, Invited outreach presentation for UW-Alumni’s Wednesday Night at the Lab series. UW-Madison, WI, February 28, 2007.

“Paradise Lost”, Contributor to traveling exhibition presenting climate change science through art. Displayed throughout the Upper Midwest in 2006-2007, with delivery of climate change education to K-12 classrooms.

“Microbial Ecology and Global Change”, Invited outreach presentation and participant in workshop to present climate change science through art. Manitowoc WI, May 5-10, 2006.

“Microbial Ecology and Global Change”, Invited outreach presentation at University of WI Earth Day Teach-in. Madison WI, April 22, 2006.

*Community groups – soil ecology*

“The Ground Beneath Your Feet” Invited Keynote speaker, RiverEdge Native Landscaping Conference, July 16 2008. 65 in attendance.

“Soil Ecology”, invited teacher for Field Natural History course for home-schooled high school students, 4 hour session at UW-Arboretum, Madison WI, May 7, 2008. 9 in attendance.

“Ecology underground: the hidden life of the prairie”, invited speaker for the Greater Madison Area Naturalists Winter Lecture Series, 2 hour session. UW-Arboretum, Madison WI, Jan 18, 2008. 90 in attendance.

“The Ground Beneath Your Feet”, Invited outreach presentation for Fox Valley Chapter of the Wild Ones, WI Native Landscaping group winter workshop. Oshkosh, WI, January 21, 2007. 75 in attendance.

“The Ground Beneath Your Feet”, Invited outreach presentation for Living Off the Land Graziers ‘Taste of the Country’ festival. Springfield, WI, September 16, 2006. 35 in attendance.

"The Ground Beneath Your Feet", Outreach workshop, First Unitarian Society of Madison Adult Education programs. Madison WI, April 4, 2006. 18 in attendance.

"Ecology Underground," Invited presenter at 'Wild Ones' Regional Workshop for Native Landscaping, Memorial Union, UW-Madison, Madison, WI 50 in attendance.

#### *Soil quality and farming extension*

"Understanding the Dynamics of Carbon Sequestration." Presentation for Team Grains, Extension In Service Day, Madison WI, June 19 2008, Approx. 25 in attendance.

"Soil Ecology and Soil Quality" Soil Ecology presenter for Extension series on Soil Quality in WI. Aug. 2, 18, 30, and Sept 22 2005. Sept 27, 2006. Approx 50 in attendance each session.

"Soil Ecology and Soil Quality" Invited speaker for Midwest BioAg company annual meeting, Bloomer, WI Dec 2005. Approx. 100 in attendance.

"The Ecology of Nitrogen Cycling" Invited presenter at WI Aglime and Fertilizer Convention, Alliant Energy Center, Madison WI. 1200 in attendance.

"The Soil Food Web," Invited speaker at Workshop on Soil Ecology and Soil Quality, held at Devil's Head Resort, Merrimac, WI. 60 in attendance.

---

## ADVISING

### Master's Degree Candidates

#### *Completed*

**Jessica Mentzer** (Soil Science), "Seasonal response of a microbial community to hydrologic and nutrient treatments in a simulated wet prairie ecosystem". December, 2003.

**Nicole Craig** (Nelson Institute for Environmental Studies, Land Resources) "Exploring the biotic and social aspects of Rain Gardens in Dane County, Wisconsin". May, 2007.

**Devin Wixon** (Botany; co-advised with T. Allen), "Black boxes and complexity: Microbial decomposition temperature response factors and functions". December, 2007.

**Lindsey Moritz** (Soil Science) "Carbon cycling and microbial communities with depth in soils from contrasting parent materials in the old-world tropics". May, 2008.

#### *In progress, M.S.*

**Laura Lipps** (Gaylord Nelson Institute for Environmental Studies, Land Resources). "Sustainable biofuel production? Crop management and decision support." Expected completion Spring 2009.

### Doctoral Candidates

#### *Completed*

**Jenny Kao-Kniffin** (Nelson Institute for Environmental Studies, Land Resources), "The importance of plant and microbial composition in predicting ecosystem responses to global change". July, 2007.

**Jessica Mentzer** (Soil Science), "Exploring long-term microbial responses to simulated global change". August, 2007.

**Chao Liang** (Soil Science), "The contribution of microbial biomass to stable soil carbon". July 2008.

*In progress Ph.D.*

**Mirna Santana** (Soil Science), "Plant traits and carbon cycling in invaded wet prairie soils". Expected completion Spring 2010.

**Devin Wixon** (Botany; co-advised with Tim Allen), "Mathematical models and reality: The carbon consequences of microbial response to temperature stress". Expected completion Spring 2009.

**A. Peyton Smith** (Soil Science), "Microbial and mycorrhizal ecology and restoration of degraded lands". Expected completion Spring 2012.

#### Undergraduate Research

**Tiffani Puccio** (Biology), "Carbon dynamics and microbial stress responses". January 2009 to May 2009.

**Rachael Steller** (Molecular Biology and Environmental studies), "Carbon sequestration under biofuels crops". May 2008 to May 2009. *Honors Thesis, University Bookstore Award winner.*

**Anne Drehfal** (Molecular Biology), "Microbiology at the Biocore Prairie". September 2006 to May 2007. *Honors Thesis, University Bookstore Award winner.*

**Kristen Becklund** (Molecular Biology), "The importance of functional and taxonomic diversity for microbial stress response". September 2006, to May 2007. *Honors Thesis.*

**Vivian Chang** (Biology), "The impact of freeze-thaw and freeze-drying on molecular and lipid soil community profiles". September 2006 to May 2007.

**Christie Boser** (Biology), "The impact of extraction protocol and extant land use on soil lipid profiles". September 2002 to August 2003. Currently a Conservation Biologist in Illinois.

**Meredith Schumann** (Molecular Biology and Philosophy), "The occurrence of ammonium oxidizing bacteria in extremely acid Hawaiian tropical soils" September 2004 to August 2005. *Honors Thesis, University Hilldale Award winner.* Currently a Fulbright Scholar in Jena, Germany.

**Ruth Franco-Almestica** (Biology), "The diversity of coprophilic fungal specialists in zoo-kept and wild vertebrate feces". Student intern from Puerto Rico, summer 2006. Currently: senior undergraduate in Puerto Rico.

**Dominique Freyre** (Molecular Biology), "Molecular and lipid profiles of methanogenic and methanotrophic bacterial communities in invaded wet prairie soils". Student intern, summer 2006. Currently: senior undergraduate.

### Postdoctoral Research Associates

**Dirk Krueger** (Soil Mycology), University of Wisconsin-Madison, January 2006 to February 2007. Currently: Senior Scientist (Biodiversity), Helmholtz Centre for Environmental Research – UFZ Department of Soil Ecology, Halle/Saale (Sachsen-Anhalt), Germany.

**David Bart** (Anthropology and Plant Ecology), University of Wisconsin-Madison, July 2004 to December 2006. Currently: Assistant professor, Landscape Architecture, UW Madison.

**Daouda Ndiaye** (Soil Microbiology, Co-advised by J. Gullledge), September 2005 to Jan 2006. Currently: Soil Ecology Consultant at the Center for Ecological Monitoring in Dakar, Senegal, Africa.

**Michele Zwolinski** (Soil Microbiology), October 2001 to July 2002. Currently: Assistant Professor, Microbiology, Weber State University, Ogden Utah.

**Mine Ekenler** (Soil Ecology), March 2003 to 2004. Currently: Independently employed.

### Academic Staff Supervised

**Dr. Harry Read** (Soil Science), October, 2001 to present

**Kevin Budsberg** (Bacteriology), March, 2007 – present

**Marlo Dobrient** (Biology), July, 2006 to December, 2006

### Other Research Advising

In addition to Balsler lab advising, support and mentoring is provided for graduate students and postdoctorals who participate in Visiting Scholars Program in Ecosystem Microbiology. Program was developed in Fall 2002 with the intention of providing access to microbiological methods for ecology students on the Madison campus and internationally. Research advising is provided prior to, during, and following all visits. To date 28 students, postdoctorals and faculty from 14 institutions and 4 countries have participated.

---

## **UNIVERSITY SERVICE AND LEADERSHIP**

### Academic Leadership

- 2008- present Chair, CALS Council on Teaching and Learning, College of Agricultural and Life Sciences, UW Madison.
- 2007-2009 Co-Chair, UW Reaccreditation SubTheme #5 Self Study, UW Madison.
- 2007-2009 UW Madison 2009 Reaccreditation Steering Committee, UW Madison.
- 2007-present Teaching Academy Executive Committee, UW Madison.
- 2007-present Steering Committee UW Madison, NSF CIRTL's Delta Program, UW Madison.
- 2007-2008 CALS Council on Teaching and Learning, College of Agricultural and Life Sciences, UW Madison.
- 2006-2007 Chair, Research and Sponsored Programs Task Force on Effort Reporting, UW Madison.
- 2005-2007 UW Agroecology MS Program Governance Committee, UW Madison.

2002-2006 Madison Ecology Group (MEG) Executive Committee, Member at Large, UW Madison.

#### Curriculum/program review

2006- present Applied Masters in Environmental Studies program curriculum development committee, Gaylord Nelson Institute for Environmental Studies, UW Madison.

2006- present Graduate program core curriculum development committee, Gaylord Nelson Institute for Environmental Studies, UW Madison.

2004-05 Water Resources Management curriculum review committee, Gaylord Nelson Institute for Environmental Studies, UW Madison.

1993-96 Graduate Programs Committee, designed and wrote proposal for new Environmental Science, Policy and Management graduate student programs. Department of Environmental Science, Policy and Management (ESPM), U.C. Berkeley, CA.

#### Search and Standing Committee Service

2008-present UW Arboretum Committee, UW Madison

2007-2010 Graduate School Research Committee, Physical Sciences Division, UW Madison.

2007-2008 Nelson Institute Director Search and Screen Committee, UW Madison.

2005-2008 UW Committee on Women in the University, UW Madison.

2004-present Space Committee, Dept. of Soil Science, UW Madison.

2001-2006 Faculty Merit Procedures Committee, Dept. of Soil Science, UW Madison.

2001-2004 Teaching Practicum Committee, Dept. of Soil Science, UW Madison.

#### Regional or National

2008-2009 NCERA 59 Regional Committee on Soil Organic Matter, Vice-president

2007-present Leadership Development Coordinator, American Society of Agronomy

2004-present NCERA 59, Regional Committee on Soil Organic Matter and Quality

2005-2008 UW System Women and Science Advisory Board

2007-2008 American Society of Agronomy Education Task Force

2007-2008 NCERA 59 Regional Committee on Soil Organic Matter Secretary

---

### **PROFESSIONAL ACTIVITIES AND SERVICE**

#### *Membership in Professional societies*

American Geophysical Union (2000 – 2002)

American Institute for Biological Sciences (2004 – present)

American Society for Microbiology (2007 – present)

Ecological Society of America (1995 – present)

International Society for Microbial Ecology (1999 – present)

Professional Organizational Developers (POD) Network (2005 – present)

Sigma Xi Scientific Honor Society (1991 – present)

Soil Science Society of America (1992 – present)

## *Other activities*

### **Federal agency grant review panels**

Panelist: USDA National Research Initiative, Soil Processes Program. Washington, D.C., May 2008.

Panelist: National Science Foundation Division of Environmental Biology, Ecology Program. Washington, D.C., April 2008.

Panelist: German National Science Foundation Review panel for renewal proposal of biodiversity initiative, Jena, Germany. May 2005

Panelist: National Science Foundation, Biocomplexity Program: Coupled Biogeochemical Cycles. May 2002

**External manuscript reviewer** for more than 20 professional journals, including Nature, Ecology, Biogeochemistry, Applied and Environmental Microbiology, Ecological Applications, Global Change Biology, Microbial Ecology, Oecologia, Proceedings of the National Academy of Sciences, Science of the Total Environment, Soil Biology and Biochemistry and Soil Science Society of America Journal.

**External grant reviewer** for 16 national and international funding agencies, including the German Science Foundation, the European Science Foundation, Biodiversity Initiative, the Swiss Science Foundation, the UW Chapter of Graduate Women in Science, Auburn University External Experiment Station, USDA CSREES Hatch, CBRD proposal, NAU, DOE Carbon Cycle Science SBIR I and II, NSF: Microbial Ecology, Microbial Observatories, Ecosystems, Ecological Biology, Coupled Biogeochemical Cycles, Geosciences.

**Co-convenor, Colloquium** on "Understanding the Microbiological aspects of global change". Invited by American Society of Microbiology, for annual conference in Boston, MA, June 1-5, 2008.

**Invited workshop participant**, "Integrating NEON and Microbial Biology", Convened by Gary King, National Ecological Observatories Network (NEON), Baton Rouge, LA, Feb. 14-17, 2008.

**Invited delegate and speaker**, week-long Oxford Round Table conference on Global Warming and Sustainable Development: Governing a Crisis. 35 delegates from 9 disciplines in attendance. Oxford, U.K., August 12-17, 2007.

**Organizer and facilitator**, 3-day NSF Funded Workshop on Linking Micro-and Macro-scale ecology. April 16-18, 2007. 30 participants, Washington, D.C.

**Invited participant and speaker**, Biodiversity Symposium at the Max Planck Institute for Biogeochemistry, Jena Germany. May 16, 2007.

**Facilitator and Founder**, Madison Area Wisconsin Women on Leading Group (WWOL). Monthly leadership discussion group, greater Madison community, 110 members to date.

**Panel member**, site visit and curriculum review of Masters Degree program in Environmental Studies at the United Arab Emirates National University, Al Ain campus. May, 2003.

**Working group leader and lead writer**, 4-day workshop (sponsored by NCAR) to formulate a science plan for U.S. nitrogen cycle research.

**Discussion leader**, workshop on “Frontiers in Agroecology”, Madison, WI.

**Panel member**, International Scientific Advisory Board for German long-term experiment in Biodiversity and Ecosystem Processes, Jena, Germany.

**Session Chair**, International Society for Microbial Ecology 9th Meeting, Amsterdam, Netherlands. Session on “Linking microbial community structure and function”.

---

## INVITED RESEARCH SEMINARS AND WORKSHOPS

### *Workshops attended*

“Integrating NEON and Microbial Biology”. Invited participant, Workshop for the National Ecological Observatory Network. Baton Rouge, LA February 14-17, 2008.

“Governing Climate Change”. Invited participant and speaker, Interdisciplinary Oxford Roundtable. Oxford University, UK, August 12-17, 2007.

“Linking Microscale and Macroscale Ecology”. Organizer, NSF workshop. Washington, DC, April 16-18, 2007.

“Outreach and global change in the Midwest” Invited participant, sponsored by Union of Concerned Scientists. Minneapolis MN, March 20-21, 2006.

“Developing a U.S. Nitrogen Cycle Plan”. Invited participant and working group leader/lead writer. Workshop sponsored by National Center for Atmospheric Research to formulate and write a U.S. Science Plan to guide research on Nitrogen Deposition research. Boulder, CO, November 15-18, 2003.

---

### *Invited Research Presentations (part of annual conferences)*

“When micro meets macro: microbial lipid analysis and ecosystem ecology”. Invited Abstract for special session on lipid analysis, American Geophysical Union annual conference, San Francisco, CA, December 15-19, 2008.

“Microbial determinants of soil carbon response to climate warming”. Invited oral presentation, ISSM annual conference, Shizuoka, Japan, November 17-21, 2008.

“Towards an ecophysiological understanding of microbial communities in soil: Stress responses and climate change”. Invited Abstract, for NSF Poster Session. Soil Science Society of America annual conference, Houston, TX, October 5-10, 2008.

“Towards an ecophysiological understanding of microbial communities in soil: Stress responses and climate change”. Invited speaker, for Organized Oral Session “Have microbes read the book? Theoretical Ecology for Microbial Communities”. Ecological Society of America annual conference, Milwaukee, WI, August 3-8, 2008.

“Long-term patterns in microbial community response to multiple interacting environmental changes”. Invited symposium speaker and co-convener, for Colloquium “Understanding the Microbiological aspects of global change”. American Society for Microbiology annual conference, Boston, MA, June 1-5, 2008.

"Is there a general microbial community response to disturbance? A climate change case study." Invited speaker in Organized Oral Session "Have Microbes Read the Book? Theoretical Ecology for Microbial Communities". Ecological Society of America Annual Conference, Milwaukee, WI, August 3-8, 2008.

"Microbial role in soil carbon storage". Invited symposium speaker, Soil Science Society of America Annual meeting, Indianapolis, IN, Nov. 12-16 2006.

"Back to Basics: the ecological underpinnings of modern microbial ecology." Invited Panelist for Roundtable session at International Society for Microbial Ecology conference, Vienna Austria, August 20-25, 2005.

---

*Invited research Seminars (not part of annual conferences)*

**2008**

"Soil microbial communities and global change - stress response and feedbacks to the climate cycle" Invited speaker, Department of Earth and Environmental Sciences Seminar Series, University of Illinois at Chicago, Sept 11 2008.

"A tale of two lives: environmental research and leadership in global change ecology". Invited speaker, University of Waterloo, Waterloo, Ontario, June 16, 2008.

**2007**

"Linking ecophysiology and ecosystems: Climate warming and microbial controls over carbon cycling". Invited speaker, Queen's University Department of Biology Seminar, Kingston, Ontario, December 7, 2007.

"Disturbance, legacies, and soil microbial control over ecosystem functioning". Invited speaker, Queen's University Ecology and Environmental Biology Seminar, Kingston, Ontario, December 6, 2007.

"Microbial communities and ecosystem functioning." Student-invited speaker, Michigan Tech University Forestry and Environmental Science Seminar, Houghton, MI, March 20, 2007.

"Microbial ecophysiology and ecosystem functioning: The global consequences of being stressed-out." Invited speaker, University of Wisconsin-Milwaukee, WI February 23, 2007.

**2006**

"Microbial ecophysiology and ecosystem functioning: The global consequences of being stressed-out." Invited speaker, Kellogg Biological Station, MI October 6, 2006.

"Does bacterial ecophysiology determine ecosystem response to global change?" Invited speaker, Kenneth Raper Symposium, Madison, WI September 3, 2006.

"Does microbial ecophysiology control carbon and nutrient cycling?" Invited speaker, Dept of Ecology and Evolutionary Biology, University of Minnesota, April 12, 2006.

**2005**

"The functional consequences of hidden diversity: integrating agricultural and ecological perspectives in soil biology", Entomology Annual Collegium, Invited Speaker, UW-Madison, Madison, WI, Oct. 21, 2005.

"Climate and ecosystem functioning – does microbial diversity matter?" Invited speaker, Center for Ecological Research, Kyoto University, Japan, July 8, 2005.

"Linking microorganisms and terrestrial ecosystem functioning – does diversity matter?" Invited speaker, Yokohama National University, Yokohama, Japan, July 1, 2005.

#### **2004**

"Is there a meaningful connection between above and belowground diversity?" International Symposium on Biodiversity, Invited Speaker, Max Planck University, Jena, Germany, May 14, 2004.

"Linking microorganisms and terrestrial ecosystem functioning: do microbial communities matter?" Department of Zoology/Limnology, University of Wisconsin, Madison. April 15, 2004.

#### **2002**

"Linking Microbial Communities and Soil Processes – Who, What, When, Where, How and Why?" University of Pennsylvania Biology Department Seminar Series, Philadelphia, PA, December 9, 2002.

"Linking soil microbiology with ecosystem functioning," Biodiversity Symposium, Kyoto, Japan, Nov. 15, 2002.

"Ecology Underground: Linking soil microbiology and ecosystem functioning," Madison Ecology Group 8th Annual Ecology Symposium, UW-Madison, Madison, WI, Oct. 4, 2002

"Linking microorganisms and terrestrial ecosystem functioning: do microbial communities matter?" Institute for Environmental Studies, Millbrook, NY. May 3, 2002.

"Linking Microbial Communities and Soil Processes – Who, What, When, Where, How and Why?" UW-Madison Soil Science Departmental Seminar, Madison, WI, April 17, 2002.

"Linking microorganisms and terrestrial ecosystem functioning: does diversity matter?", Linking Natural Science, Social Science, and Practice Lecture Series, University of Wisconsin Institute for Environmental Studies. May 3, 2002.

"Nutrient availability and microbial communities across a chronosequence of Hawaiian forest soils.", Department of Forest Ecology and Management Seminar Series, University of Wisconsin. February 28, 2002.

"Linking microorganisms and ecosystem functioning in tropical and temperate soils: does community composition matter?", Environmental and Molecular Toxicology Seminar Series, University of Wisconsin. February 26, 2002.

"Linking microorganisms and ecosystem functioning in tropical and temperate soils: does diversity matter?", Student-Invited speaker, Department of Plant Pathology Seminar Series, University of Wisconsin. February 8, 2002.

#### **2001**

"Linking microbial communities and ecosystem functioning in tropical and temperate soils", University of Wisconsin Botany Colloquium. December 19, 2001.

“Linking microbial communities and ecosystem functioning in tropical and temperate soils”, Institute für Umweltwissenschaften, Zurich Switzerland. August 28, 2001.

**2000**

“Linking microbial communities and ecosystem functioning in tropical and temperate soils”, Biogeochemistry Lecture Series, Stanford University. May 15, 2000.

---

**VOLUNTEERED RESEARCH PRESENTATIONS**

**2008**

Liang, C., T.C. Balser. Are Newly Biosynthesized Microbial Residues More Stable Than Extant in Soil Carbon Storage? Volunteered oral presentation, Soil Science Society of America annual conference, Houston, TX, October 5-10, 2008.

Balser, T.C., Gutknecht, J.L.M. Towards an ecophysiological understanding of microbial communities in soil: Stress responses and climate change”. Volunteered Poster, 12<sup>th</sup> International Society for Microbial Ecology conference, Cairns, Australia, August 14-20, 2008.

Balser, T.C., S. Gray, C. Vatovec. Does level in school and major-discipline impact student attitude and awareness of environmental issues in a large undergraduate introductory environmental studies class? Poster presentation. Ecological Society of America annual conference, Milwaukee, WI, August 3-8, 2008.

Vatovec, C., T. Balser. Assessing the effectiveness of podcasts for teaching global climate change in the college classroom. Poster presentation. Ecological Society of America annual conference, Milwaukee, WI, August 3-8, 2008.

Stoffel, J., D. Mladenoff, S. Gower, T. Balser. Determining public misconceptions about the carbon cycle. Poster presentation. Ecological Society of America annual conference, Milwaukee, WI, August 3-8, 2008.

Liang, C., Balser, T.C. A novel notion: what antibiotic use leaves to us? Streptomycin complicates bacterial interpretation. Poster presentation, International Joint annual meeting of 3rd ENCSS and 7th U.S. EPA Science Forum (Environment and Public Health Network for Chinese Students and Scholars & U.S. Environmental Protection Agency Science Forum), Washington D.C., USA, May 19 – 22, 2008.

**2007**

Liang, C., C. Stiles, T.C. Balser. Preferential sequestration of microbial amino sugars in subsoils of a glacial-landscape toposequence, Dane County, WI. Poster presentation. Soil Science Society of America Annual Conference, New Orleans, LA. Nov 4-8, 2007.

Moritz, L, Rota Wagai, Kanehiro Kitayama, and Teri Balser. Microbial Dynamics through Depth in Two Contrasting Tropical Soil Orders at Mt. Kinabalu, Borneo. Poster presentation. Soil Science Society of America Annual Conference, New Orleans, LA. Nov 4-8, 2007.

Jokela, William, John H. Grabber, Douglas Karlen, and Teri Balser. Cover Crop and Manure Effects on Soil Properties in a Corn Silage System. Poster presentation. Soil Science Society of America Annual Conference, New Orleans, LA. Nov 4-8, 2007.

Liang, C., Harry R. Read, and Teri C. Balser. Streptomycin may interfere with muramic acid assay. Oral presentation. Ecological Society of America Annual Conference, San Jose, CA, August 5-10, 2007.

### **2006**

Balser, T.C. Microbial determinants of soil carbon response to climate warming. Poster presentation. World Conference of Soil Science, Philadelphia, PA. July 19-24 2006.

Liang, C., G. Cheng, and T.C. Balser. Evaluating the microbial role in soil carbon dynamics using Markov Chain analysis. Poster presentation. World Conference of Soil Science, Philadelphia, PA. July 19-24 2006.

Selimi, M., T. Balser, and D.I. Rouse. Effects of Combined Cultural Practices on Suppression of Soilborne Pathogens and Microbial Community Patterns in a Plainfield Sandy Loam. Poster presentation. World Conference of Soil Science, Philadelphia, PA. July 19-24 2006.

Mentzer, J.L., T.C. Balser. Response of grassland microbial community structure to simulated global change over time. Oral presentation. International Society for Microbial Ecology, 12th International Meeting, Vienna, Austria. August 20-25, 2006.

Kao-Kniffin, J.T., and T. C. Balser. Exotic invasion and soil nutrient status effects on microbial communities in Hawaiian forests. Poster presentation. Ecological Society of America Annual Meeting, Memphis, TN. August 6-11, 2006.

Craig, N., and T. C. Balser. 2006. Beyond infiltration: A characterization of microbial communities in urban rain gardens. Poster presentation. Ecological Society of America Annual Meeting, Memphis, TN. August 6-11, 2006.

Balser, T.C. Microbial stress response and ecosystem functioning. Oral presentation. BIOGEMON Conference – Santa Cruz, CA June 26-30, 2006.

### **2005**

Balser, T.C. Is there a microbial ecophysiological constraint on long-term soil carbon storage? Poster presentation. 2nd International Conference on Mechanisms of Organic Matter Stabilization and Destabilization in Soil, Asilomar, CA October 10-12, 2005.

Balser, T.C. Is there a microbial ecophysiological constraint on long-term carbon cycling? Oral presentation. Ecological Society of America 90th Annual Meeting – Montreal, Canada August 7-12, 2005.

Ndiaye, D., T.C. Balser, J. Gullede. Changes in microbial community composition through the soil depth profile in a boreal forest soil subjected to long-term N fertilization. American Society of Microbiology Annual Meeting, San Francisco CA. July 23-28, 2005.

Kao-Kniffin, J.T., and T.C. Balser. Response of reed canary grass to elevated CO<sub>2</sub>, mono versus polyculture, and nitrogen availability. Oral presentation. Ecological Society of America 90th Annual Meeting – Montreal, Canada August 7-12, 2005.

### **2004**

Balser, T.C., Ryosuke Fujinuma, Erica A.H. Smithwick, Kris Metzger, Jun Zhu and Monica G. Turner. Overcoming methodological challenges in ecosystem-scale research: a landscape-scale assessment of microbial community composition following forest fire. Oral presentation. Ecological Society of America 89th Annual Meeting – Portland, Oregon August 1-6, 2004.

Boser, C., R. Fujinuma, H. Read and T.C. Balser. 2004. Influence of extraction protocol and extant land-use on soil lipid profiles. Poster presentation. Ecological Society of America 89th Annual Meeting, Portland, OR. 1-6 August 2004.

Fujinuma, R. and T.C. Balser. Canopy tree species and soil microbial community composition in an upper Michigan old growth forest. Poster presentation. Ecological Society of America 89th Annual Meeting, Portland, OR. 1-6 August 2004.

Mentzer, J.L., M.R. Shaw, and T.C. Balser. Impacts of multiple global change drivers on the composition of a grassland soil microbial community. Oral presentation. Ecological Society of America 89th Annual Meeting, Portland, OR. 1-6 August 2004.

Smithwick, E.A.H., M.G. Turner, M.C. Mack, F.S. Chapin III, J. Zhu and T.C. Balser. 2004. Spatial heterogeneity in ecosystem processes after severe fire in a black spruce (*P.mariana*) forest, Alaska (USA). Oral presentation. Ecological Society of America 89th Annual Meeting, Portland, OR. 1-6 August 2004.

### **2003**

Smithwick, E.A.H., M.G. Turner, K.L. Metzger, and T.C. Balser. Variation in NH<sub>4</sub><sup>+</sup> mineralization and microbial communities with stand age in lodgepole pine (*Pinus contorta*) forests, Yellowstone National Park (USA). Poster presentation. American Geophysical Union, San Francisco, CA. 8-12 December 2003.

Diener, L.M., A.S. Yuroff, T.C. Balser, and W.F. Bleam. Sulfur K-edge XANES studies of microbial cell lysates. Poster presentation. American Chemical Society meeting, Division of Environmental Chemistry, New York City, NY. Abstracts of papers of the American Chemical Society 226: U491-U491 142-ENVR Part 1, September, 2003.

### **2002**

Cahill, K. N., C. J. Kucharik, T.C. Balser, and J.A. Foley. Carbon Cycling in Restored Wisconsin Grasslands: Examining Linkages Between Plant Diversity, Microbial Communities and Ecosystem Processes. Poster presentation. American Geophysical Union, San Francisco, CA. December, 2002.

## **2001**

- Balser, T.C., P. Matson, P. Vitousek. Response of soil microbial communities to long-term nitrogen addition. Oral presentation. Annual Meeting of Soil Science Society of America, Charlotte, NC. November, 2001.
- Balser, T.C., B. Cade-Menun, L. Olander. Microbial community response to high and low P availability. Poster presentation. Annual Meeting of Soil Science Society of America, Charlotte, NC. November, 2001.
- Balser, T.C., P. Matson, P. Vitousek. Response of soil microbial communities to long-term nitrogen addition. Oral presentation. Second International Conference on Nitrogen in the Environment, Potomac MD. October, 2001.
- Balser, T.C., P. Matson, P. Vitousek. Microbial community composition across a Hawaiian soil chronosequence. Oral presentation. International Society for Microbial Ecology 9th Meeting, Amsterdam, Netherlands. August, 2001.
- Balser, T.C., P. Matson, P. Vitousek. Response of soil microbial communities to long-term nitrogen addition. Oral presentation. Ecological Society of America Annual Meeting, Madison, WI. August, 2001.

## **1994-1999 (Pre-graduate degree)**

- Balser, T.C. and M.K. Firestone. Linking microbial community ecology and forest soil processes: opening the microbial black box. Oral presentation. Soil Science Society of America Annual Meeting, Salt Lake City. October 31- November 4, 1999.
- Waldrop, M.W., T.C. Balser and M.K. Firestone. Microbial enzyme activities in tropical soil. Oral presentation. Soil Science Society of America Annual Meeting, Salt Lake City, UT. October 31- November 4, 1999.
- Balser, T.C. and M.K. Firestone. Composition and temperature response of microbial communities from tropical, temperate and taiga soils. Poster presentation. Ecological Society of America Ann. Meeting. Spokane, WA. August, 1999.
- Balser, T.C., R.A. Amundson, and M.K. Firestone. Linking Microbial Community Characteristics and Soil Function. Oral presentation. Ecological Society of America Annual Meeting. Spokane, WA. August, 1999.
- Balser, T.C., R.A. Amundson, and M.K. Firestone. Soil microbial community-specific response to a change in environment. Oral presentation. Soil Science Society of America Annual Meeting, Baltimore, MD. October, 1998.
- Balser, T.C. and M.K. Firestone. Sources of variability in BiOLOG assays of soil microbial communities: spatial and analytical. Poster presentation. Conference on substrate-utilization profiles in microbial ecology. Innsbruck Austria. October, 1996.
- Balser, T.C., R.A. Amundson, and M.K. Firestone. Spatial heterogeneity and cross-system comparison of microbial community parameters along an elevation gradient. Poster presentation. Ecological Society of America Annual Meeting, Providence, RI. August, 1996.
- Balser, T.C. and M.K. Firestone. Functional diversity of microbial communities along an elevation transect. Poster presentation. Soil Ecology Society Annual Meeting, Fort Collins, CO. June, 1995.
- Balser, T.C., T.L. Dudley, and M.K. Firestone. Soil N dynamics of a Sierra Nevada subalpine meadow. Poster presentation. Soil Science Society of America Annual Meeting, Seattle, WA. October, 1994.

---

## **PUBLICATIONS**

### **Textbooks authored or contributed**

Friedland, A.J., D. Courard-Hauri, and T. Balsler, 200x. Environmental Science: Concepts and Implications, 1e. Introductory Environmental Science textbook for Advanced Placement High School courses.

### **Invited Book Chapters**

Balsler, T.C., et al. (tbd), 2009. Chapter 2, The Microbiology of Natural Soils. In Soil Microbiology and Sustainable Crop Production, G.R. Dixon and E. Tilston, Eds. Springer Science + Business Media B.V., Dordrecht, The Netherlands.

Balsler, T.C., et al. (tbd), 2009. Chapter 10, Will Climate Change Alter Soil Microbial Constitution? In Soil Microbiology and Sustainable Crop Production, G.R. Dixon and E. Tilston, Eds. Springer Science + Business Media B.V., Dordrecht, The Netherlands.

Balsler, T.C. 2005. Microbial Role in Humification, p. 195-207, In D. Hillel, et al., eds. Encyclopedia of Soils in the Environment, Vol. 2. Elsevier, Oxford UK.

Balsler, T. C., A. Kinzig and M. K. Firestone. 2002. Linking soil microbial communities and ecosystem functioning. Chapter 12 in A. Kinzig, S. Pacala and D. Tilman, eds. The Functional Consequences of Biodiversity: Empirical Progress and Theoretical Extensions. Princeton University Press, Princeton.

### **Manuscripts in review**

32. Vatovec, C. and T. Balsler, 200x. In review. Podcasts as Tools in Introductory Environmental Studies. Submitted to Journal of Microbiology and Biology Education, Sept. 28 2008.

31. Ushio, M. Kanehiro Kitayama and Teri C. Balsler, 200x. In review. Tree species effects on soil enzyme activity through effects on soil physicochemical properties, substrate quality, and microbial community in a tropical montane forest on Mt. Kinabalu, Borneo, Malaysia. Submitted to Plant and Soil, September 2008.

30. Rubert IV, Kennedy F., Chao Liang, Teri C. Balsler, Joel A. Pedersen, 200x. In review. A macroscale method to obtain purified insoluble peptidoglycan from *Bacillus subtilis*. J. Radiology and \_\_\_\_ xx-xxx Submitted July XX 2008. In revision for resubmission to same journal August 2008.

29. Jokela, W.E., J.H. Grabber, D.L. Karlen, T.C. Balsler, and D.E. Palmquist, 200x. Cover Crop and Manure Effects on Soil Quality Indicators in a Corn Silage System. Agronomy Journal, Submitted June 2 2008.

28. Balsler, T, D. Wixon. 200x. In review. Microbial community composition and temperature response across a latitudinal gradient of tropical, temperate, and taiga soils. Global Change Biology. Submitted Nov 3 2008.

### **Published journal articles**

27. Moritz, L, Liang Chao, Rota Wagai, Kanehiro Kitayama, Teri C. Balser. 200x. In press. Vertical distribution and accumulation of microbial residues in two tropical forest soils formed from contrasting parent material. *Biogeochemistry*, xx-xxx.
26. Ushio, M., R. Wagai, T.C. Balser, K. Kitayama. 200x. In press. Variations in soil microbial community composition of a tropical montane forest ecosystem: does tree species matter? *Soil Biology and Biochemistry*.
25. Liang, C., H.W. Read, T.C. Balser. 200x. In press. Reliability of bacterial muramic acid as a biomarker influenced by methodological artefacts from streptomycin. *Microbial Ecology*, xx-xxx.
24. Liang, C., T.C. Balser. 2008. Preferential sequestration of microbial amino sugars in subsoils of six soil profiles in Wisconsin, USA. *Geoderma* 148, 113-119.
23. Liang, C., R. Fujinuma, T.C. Balser, 2008. Comparing PLFA and amino sugars for microbial analysis in an upper Michigan old growth forest. *Soil Biology and Biochemistry* 40, 2063-2065.
22. Metzger, K.M., E.A.H. Smithwick, D.B. Tinker, W.H. Romme, T.C. Balser, and M.G. Turner. 2008. Influence of coarse wood and pine saplings on nitrogen mineralization and microbial communities in young post-fire *Pinus contortata*. *Forest Ecology and Management* 256, 59-67.
21. Murphy, M., T. Balser, N. Buchmann, V. Hanh, C. Potvin. 2008. In press. Linking tree biodiversity to belowground process in a young tropical plantation: impacts on soil CO<sub>2</sub> flux. *Forest Ecology and Management*, Volume 255, 2577-2588.
20. Kao-Kniffin, J., T. Balser. 2007. Soil Fertility and the impact of exotic invasion on microbial communities in Hawaiian forests. *Microbial Ecology*, Online first: DOI 10.1007/s00248-007-9323-1
19. Lucas, R., B. Casper, J. Jackson, T. Balser. 2007. Nitrogen addition alters microbial community structure but not extracellular enzyme activity in New Jersey pinelands *Soil Biology and Biochemistry* 39, 2508-2519.
18. Schimel, J., T.C. Balser, M. Wallenstein, 2007. Stress Effects on Microbial Communities and the Implications for Ecosystem Function, *Ecology* 88, 1386-1394.
17. Liang, C., X. Zhang, and T.C. Balser, 2007. Net microbial amino sugars accumulation process in soil as influenced by different plant material inputs. *Biology and Fertility of Soils* 44, 1-7.
16. Kao-Kniffin, J.T., and Balser, T.C., 2007. Elevated CO<sub>2</sub> differentially alters belowground plant and soil microbial community structure in reed canary grass-invaded experimental wetlands. *Soil Biology & Biochemistry* 39, 517-525.
15. Liang, C., X. Zhang, K.F. Rubert IV, T.C. Balser. 2007. Effect of plant materials on microbial transformation of amino sugars in three soil microcosms. *Biology and Fertility of Soil* 43, 631-639.
14. Liang, C., R. Fujinuma, L. Wei, T.C. Balser. 2007. Tree species-specific effects on soil microbial residues in an upper Michigan old growth forest system. *Forestry* 80, 65-72.

13. Balser, T.C., K. McMahon, D. Bart, D. Bronson, D. Coyle, N. Craig, M. Flores, K. Forshay, S. Jones, A. Kent, A. Shade. 2006. Bridging the gap between micro- and macroscale perspectives on ecosystem response to disturbance. *Plant and Soil* 289, 59-70.
12. Mentzer, J.L., R. Goodman, T.C. Balser. 2006. Linking soil process and microbial ecology in freshwater wetland ecosystems. *Plant and Soil* 289, 17-34.
11. Mentzer, J.L., R. Goodman, T.C. Balser. 2006. Microbial seasonal response to hydrologic and fertilization treatments in a simulated wet prairie *Plant and Soil* 284, 85-100.
10. Fraterrigo, J.M., T.C. Balser, M.G. Turner. 2006. Microbial community variation and its relationship with nitrogen mineralization in historically altered forests, *Ecology* 87(3), 570-579.
9. Smithwick, Erica A. H., Monica G. Turner, Terry Chapin, Michelle Mack, Teri C. Balser. 2005 Spatial heterogeneity in ecosystem processes after severe fire in a black spruce (*P.mariana*) forest, Alaska (USA). *Biogeochemistry* 76, 513-537.
8. Bartelt-Ryser, J., J. Joshi, B. Schmid, H. Brandl, T. Balser, 2005. Soil feedbacks of plant diversity on soil microbial communities and subsequent plant growth. *Perspectives in Plant Ecology, Evolution and Systematics* 7, 27-49.
7. Smithwick, Erica A. H., Monica G. Turner, Kris L. Metzger, Teri C. Balser. 2005 Variation in NH<sub>4</sub><sup>+</sup> mineralization and microbial communities with stand age in lodgepole pine (*Pinus contorta*) forests, Yellowstone National Park (USA) *Soil Biology and Biochemistry* 37, 1546-1559.
6. Balser, T.C. and M.K. Firestone, 2005. Linking microbial community composition and soil processes in two California ecosystems. *Biogeochemistry* 73, 395-415.
5. Balser, T.C., K. Treseder, and M. Ekenler. 2005. Using lipid analysis to estimate AM and saprotrophic fungal abundances along a soil chronosequence. *Soil Biology and Biochemistry* 37, 601-604.
4. Balser, T.C., J.W. Kirchner, and M.K. Firestone, 2002. Analytical and methodological variability in microbial community level physiological profiles *Soil Science Society of America Journal* 66, 519-523.
3. Balser, T. C. 2002. The impact of long-term nitrogen addition on microbial community composition in three Hawaiian forest soils. In *Optimizing Nitrogen Management in Food and Energy Production and Environmental Protection*. Swets and Zeitlinger B.V., Lisse.J. Galloway, E. Cowling, J. W. Erisman, J. Wisniewski, and C. Jordan (ed.), p. 500-504.
2. Balser, T.C., 2001. The Impact of Long-Term Nitrogen Addition on Microbial Community Composition in Three Hawaiian Forest Soils. *TheScientificWorld* 1(S2), 500-504.
1. Waldrop, M.W., T.C. Balser and M.K. Firestone, 2000. Linkages between microbial community composition and enzyme activities in soil. *Soil Biology and Biochemistry* 32, 1837-1846.

### **Manuscripts in preparation or revision**

- Kao-Kniffin, J., D. Freyre, T.C. Balser. 200x. In revision. The link between elevated CO<sub>2</sub> and increased methane emissions: Does plant or microbial composition matter?

- Kao-Knifin, J., T.C. Balser. 200x. In revision. Potential impacts of reed canary grass invasion on N and C cycling bacteria. *Restoration Ecology*.
- Gutnecht, JLM, HAL Henry, TC Balser. 200x. In revision. Annual variations in soil extra-cellular enzyme activity in response to simulated climate change, nitrogen deposition, elevated CO<sub>2</sub>, and burn disturbance. *Soil Biology and Biochemistry*.
- Balser, T.C. 200x. A conceptual model of belowground microbial response to multiple global changes. Invited Minireview for *FEMS Microbiology Ecology*, Winter, 2008.
- Craig, N.M., P. Nowak, T.C. Balser, 200x. Awareness of and attitudes toward environmental benefits of Rain Gardens: a social survey of homeowners in Dane County, WI. Intended for *Urban Ecosystems*, Summer 2008.
- Craig, N.M., TC Balser, 200x. Urban lawns to remnant prairies: the role of Rain Gardens as microbial refuges across Dane County, WI. Intended for *Urban Ecosystems*, Summer 2008.
- Gutnecht, JLM, C. Field, TC Balser, 200x. Microbial community response to long-term climate manipulation: 8 years at the Jasper Ridge Global Change study. Intended for *Global Change Biology*, Winter 2008.
- Moritz, L.K., R. Wagai, K. Kitayama, T.C. Balser. 200x. Soil microbial communities and soil 'architecture' with depths on two contrasting parent materials in the Borneo old world tropics. Intended for *Soil Science Society of America Journal*, Winter 2008.

### **Technical reports**

1. Balser, T., Firestone, M.K., and D.J. Herman. 1997. Defining Soil Quality in Terms of Microbial Community Structure. Annual report to the Kearney Foundation.
2. Balser, T.C., Firestone, M.K., and D.J. Herman. 1998. Defining Soil Quality in Terms of Microbial Community Structure. Final report to the Kearney Foundation.
3. Waldrop, M.P., T.C. Balser and M.K. Firestone. 1999. Linking microbial community composition and function in a tropical soil. Annual report to the Kearney Foundation

### **Non-technical articles**

3. Balser, T. 2007. Academy's Middle Child: Professional development needs of graduate students in the agricultural sciences. *Crop, Soils, Agronomy News* V52, N09, pp. 26-28.
2. Balser, T. 2007. The Changing Nature of Leadership. *Crop, Soils, Agronomy News* V52, N11, pp. 36-38.
1. Balser, T. 2007. Leveraging Diversity, Managing Change. *Crop, Soils, Agronomy News* V53, N01, pp. 30-32.

### **Commentaries and Reviews (not refereed)**

- Balser, T.C. 2000. Review of: Wolfe, *Ecology Underground*. *EOS Newsletter* 2001.
-