
William L. Bauerle

Professor
Department of Horticulture & Landscape Architecture (HLA)
Colorado State University
Fort Collins, CO 80523-1173

Phone: +970 491 4088
Fax: +970 491 7745
bauerle@colostate.edu
<http://hortla.agsci.colostate.edu/faculty/bauerle/>

Professional Preparation

Colorado State University	Landscape Horticulture	B.S. 1995
University of Washington	Ecophysiology	M.S. 1997
Cornell University	Plant Stress Physiology / Environmental Information Science	Ph.D. 2001

Appointments

2012-Present Professor – Department of HLA, Colorado State University
2007-2012 Associate Professor, Department of HLA, Colorado State University
2007-Present Graduate Faculty, Graduate Degree Program in Ecology, Colorado State University
2007 Associate Professor with tenure, Department of Horticulture, Clemson University
2004-2010 Joint Appointment, Dept. of Forestry and Natural Resources, Clemson University
2004-2010 Graduate Faculty, Division of Environmental Science & Policy, Duke University
2001-2007 Assistant Professor, Department of Horticulture, Clemson University

Five Recent Directly Related Products

- [1] Bauerle, W.L., A.B. Daniels, and D.M. Barnard. Carbon and water flux responses to physiology by environment interactions: A sensitivity analysis of variation in climate on photosynthetic and stomatal parameters. *Climate Dynamics*, DOI 10.1007/s00382-013-1894-6. 2013.
- [2] Bauerle, W.L., R. Oren, D.A. Way, S.S. Qian, P.C. Stoy, P.E. Thornton, J.D. Bowden, F.M. Hoffman, and R.F. Reynolds. Photoperiodic regulation of the seasonal pattern of photosynthetic capacity and the implications for carbon cycling. *Proceedings of the National Academy of Sciences of the United States of America*, 109:8612-8617. 2012.
- [3] Bauerle, W.L. and J.D. Bowden. Separating foliar physiology from morphology reveals the relative roles of vertically structured transpiration factors within red maple crowns and limitations of larger scale models. *Journal of Experimental Botany*, 62:4295-4307. 2011.
- [4] Reynolds, R.F., W.L. Bauerle, and Y. Wang. Simulating carbon dioxide exchange rates of deciduous tree species: evidence for a general pattern in biochemical changes and water stress response. *Annals of Botany*, 104:775-784. 2009.
- [5] Bauerle, W.L., J.D. Bowden, G.G. Wang, and M.A. Shahba. Exploring the importance of within-canopy spatial temperature variation on transpiration predictions. *Journal of Experimental Botany*, 60:3665-3676. 2009.

Five Other Related Products

- [1] Klos, R.J., G.G. Wang, W.L. Bauerle, and J.R. Rieck. Drought impact on forest growth and mortality in the southeast USA: an analysis using Forest Health and Monitoring data. *Ecological Applications*, 19:699-708. 2009.
- [2] Shahba, M.A. and W.L. Bauerle. Growth temperature modulates the spatial variability of leaf morphology and chemical elements within crowns of climatically divergent *Acer rubrum* genotypes. *Tree Physiology*, 29:869-877. 2009.
- [3] Bowden, J.D. and W. L. Bauerle. Measuring and modeling the variation in species-specific transpiration in temperate deciduous hardwoods. *Tree Physiology*, 28:1675-1683. 2008.
- [4] Bauerle, W.L., J.D. Bowden, and G.G. Wang. The influence of temperature on within-canopy acclimation and variation in leaf photosynthesis and respiration: Spatial acclimation to

microclimate gradients among thermally divergent *Acer rubrum* L. genotypes. *Journal of Experimental Botany*, 58:3285-3298. 2007.

- [5] Wang, G.G., S. Chhin, and W.L. Bauerle. The effect of natural atmospheric CO₂ fertilization suggested by open-grown white spruce in a dry environment. *Global Change Biology*, 12:601-610. 2006.

Synergistic Activities (selected examples)

- Pedagogical: Delivered >170 scientific talks since June 1, 2001 and published > 50 (non-peer reviewed outreach) publications (e.g. conference proceedings, trade journal articles, and web sites). Teach senior/graduate class 'Environmental Plant Stress Physiology' (~50 students enroll).
- Research tools: Invented a real time non-intrusive laser-diode-based system for measuring sap flow by the heat-pulse method and a fiber-optic-based system for integrating radiation in plant canopies.
- Service: Tree Physiology Editorial Review Board, Academic Editor for journal PLoS ONE.
- Awards: 2009 Educational aids blue ribbon award from the American Society of Agricultural and Biological Engineers and American Society of Horticulture Science extension materials award for best website – waternut.org, 2012 CSU Agriculture College - water research team award.
- Intergovernmental Panel on Climate Change (IPCC) projections - corrected erroneous assumptions that had been included in the Community Land Model (CLM) used by the Community Climate System Model (CCSM) working groups at Oak Ridge National Laboratory and the National Center for Atmospheric Research. Specifically, I improved predictions of both the extent and timing of seasonal atmospheric CO₂ and H₂O fluctuations at all latitudes, providing a physiologically-based correction that improves model performance at the global level. I communicated my findings to the CCSM group, and my results were used to change the models and projections.

Collaborators, Co-Authors, and Co-Editors (last 48 months)

Joe Albano - USDA-ARS, Dave Barnard – Colorado State U. (CSU), Taryn Bauerle - Cornell U. (CU), Ted Bilderback – NC State U., Dan Binkley - (CSU), Gordon Bonan (NCAR), Joe Bowden - CSU, Pat Burns (CSU), Otavio Campoe (Brazil), Maria Centinari – CU, Alex Daniels – CSU, Steve Fassnacht (CSU), Rosie Fischer (NCAR), Chelcy Ford - USDA Forest Service, Martin Gspaltl (Austria), Thomas Hinckley – U. of Washington, Forrest Hoffman – Oak Ridge National Lab, George Kantor - Carnegie-Mellon U., John Lea-Cox – U. of Maryland, G. Le Maire – France, Michael Lefsky - CSU, Stephanie Kampf - CSU, John McKay - CSU, Jack Mullen - CSU, Y-P. Nouvello - France, Iuliana Oprea – CSU, Ram Oren - Duke U., Song Qian – Duke U., Rob Reynolds – Clemson U. (CU2), James Rieck - CU2, David Ross- U. of Maryland, Mike Ryan - USDA Forest Service, Mohamed Shahba - CSU, Dave Smart – U. of California, Juis Stape - North Carolina State U., Hubert Sterba (Austria), Paul Stoy – Montana State U., Peter Thornton - Oak Ridge National Lab, Tom Trout – USDA-ARS, Amy Trowbridge – Montana State U., Geoff Wang - CU2, Ying Wang - CU2, Danielle Way – Duke U., Marc van Iersel – U. of Georgia, Jim Vose - USDA Forest Service, Zong-Liang Yang – U. of Austin, Tom Yeager – U. of Florida, Cindy Zhao – Virginia Tech.

Graduate Advisors and Postdoctoral Sponsors

Thomas Hinckley - University of Washington and Thomas Whitlow - Cornell University.

Thesis/Dissertation Advisor and Postgraduate-Scholar Sponsor

Past as PI (Clemson University): Joe Bowden (M.S.), William Inman, Rob Reynolds, Carla Thomas, Ying Wang, & Dave Weston. Past as committee member (Clemson University): Christian Baldwin, William Sarvis, Eric Wiseman & Antonio Weibel. Past as committee member (Colorado State University): Toby Gass, John Murgell, & Kendra Nash. Current as PI (Colorado State University): Dave Barnard, Joe Bowden, Teri Howlett, Ryan Klos, Grace Lloyd, & Gretchen Reuning. Current as committee member (Colorado State University): Shinichi Asao, Steve Becker, Cameron Douglass, Rich Fletcher, Dave Hoover, John Lovell, Ryan Schmidt, Jason Smith, Alison Stoven-O'Conner, & Wyatt Williams. Advise(d) 12 graduate students and 1 postdoctoral scholar as PI.