

ANTHONY R. AMBROSE, PH.D.

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CURRICULUM VITAE

EDUCATION

- 2009 Ph.D. Integrative Biology, University of California, Berkeley, CA
Dissertation: *"Effects of climate and water stress on physiological performance in California redwoods"*
- 2004 M.S. Forestry, Humboldt State University, Arcata, CA
Thesis: *"Influence of arboreal soil mats on redwood canopy microclimates"*
- 1992 B.S. Natural Resources Planning & Interpretation, Humboldt State University, Arcata, CA

EMPLOYMENT

Sep 2009 – Present **Post-Doctoral Research Fellow**

Department of Integrative Biology, University of California, Berkeley, CA

- Co-Principal Investigator for research program (*Redwoods and Climate Change Initiative*) studying impacts of climate change on coast redwood and giant sequoia trees
- Conduct field and greenhouse research examining effects of climate and drought on growth and physiology of coast redwood and giant sequoia trees
- Monitor forest microclimates in coast redwood and giant sequoia study sites
- Train and supervise two full-time staff research assistants and multiple volunteers
- Collaborate with other scientists on plant ecological research in diverse ecosystems

Sep 2004 – Dec 2008 **Graduate Student Instructor**

Department of Integrative Biology, University of California, Berkeley, CA

- Instructed laboratory and discussion sections of General Biology (BIO 1B) course covering topics in ecology, evolution, and plant and fungal biology

Jun 1995 – Aug 2003 **Forest Advocate**

Environmental Protection Information Center, Garberville, CA

Northcoast Environmental Center, Arcata, CA

Citizens for Better Forestry, Hayfork, CA

- Monitored land management activities on the Six Rivers, Mendocino, Shasta-Trinity, and Klamath National Forests and Arcata Bureau of Land Management
- Reviewed and provided comments on environmental documents prepared for land management activities pursuant to federal laws and regulations
- Challenged illegal federal land management activities through administrative appeals and litigation in federal court
- Prepared public outreach and education materials advocating for the protection and conservation of federal lands throughout California and the Pacific Northwest
- Worked with a coalition of environmental groups monitoring the Northwest Forest Plan

Feb 1995 – Jan 1999 **Forestry and GIS Technician**

Department of Environmental Services, City of Arcata, Arcata, CA

- Assisted with management of two city-owned community forests, including development of a long-term Non-Industrial Timber Management Plan (NTMP)
- Worked on development of city-wide Geographic Information System (GIS), including data production, analysis, and map generation
- Provided technical support for management of city environmental services

Aug 1992 – Feb 1994 **Environmental Specialist**

United States Peace Corps, Kingdom of Tonga, South Pacific

- Developed and implemented environmental programs addressing sustainable development, agroforestry, and habitat and species conservation
- Worked with youth groups to obtain support for community development projects
- Conducted public outreach and environmental education activities, including workshops

Jun 1986 – Sep 1989 **Forest Firefighter**

Chico Strike Team, Chico, CA

- Served as squad leader on seasonal 21-person hand crew fighting fires on National Forests throughout California and Colorado

PUBLICATIONS

- Ambrose, A.R.**, W.B. Baxter, C.W. Wong, C.W. Williams, R.S. Naesborg and T.E. Dawson. 2015. Contrasting drought response strategies in California redwoods. *Tree Physiology* 35: 453-469.
- Sillett, S.C., R. Van Pelt, A.L. Carroll, R.D. Kramer, **A.R. Ambrose** and D. Trask. 2015. How do tree structure and old age affect growth potential of California redwoods? *Ecological Monographs* 85: 181-212.
- Carbone, M.S., A.P. Williams, **A.R. Ambrose**, C.M. Boot, E.S. Bradley, T.E. Dawson, S.M. Schaeffer, J.P. Schimel and C.J. Still. 2013. Cloud shading and fog drip influence the metabolism of a coastal pine ecosystem. *Global Change Biology* 19: 484-497.
- Carbone, M.S., C.J. Still, **A.R. Ambrose**, T.E. Dawson, A.P. Williams, C.M. Boot, S.M. Schaeffer and J.P. Schimel. 2011. Seasonal and episodic moisture controls on plant and microbial contributions to soil respiration. *Oecologia* 167: 265-27.
- Ambrose A.R.**, S.C. Sillett, G.W. Koch, R. Van Pelt, M.E. Antoine and T.E. Dawson. 2010. Effects of height on treetop transpiration and stomatal conductance in coast redwood (*Sequoia sempervirens*). *Tree Physiology* 30: 1260-1272.
- Ambrose A.R.**, S.C. Sillett and T.E. Dawson. 2009. Effects of tree height on branch hydraulics, leaf structure and gas exchange in California redwoods. *Plant, Cell and Environment* 32: 743-757.
- Sillett S.C., R. Van Pelt, G.W. Koch, **A.R. Ambrose**, A.S. Carroll and B.M. Mifsud. 2010. Increasing wood production through old age in tall trees. *Forest Ecology and Management* 259: 976-994.

Dawson T.E., S.B. Burgess, K.P Tu, R. Oliviera, L.B. Santiago, J.B. Fisher, K.S. Simonin and **A.R. Ambrose**. 2007. Nighttime transpiration in woody plants from contrasting ecosystems. *Tree Physiology* 27: 561-575.

MANUSCRIPTS IN PREPARATION

Ambrose A.R., S.C. Sillett, T.E. Dawson, G.W. Koch, R. Van Pelt, C.W. Williams, M.E. Antoine, W.B. Baxter and R. Naesborg. Hydraulic constraints on optimal resource utilization in giant sequoia trees.

Ambrose A.R., K.P. Tu, S. Mambelli and T.E. Dawson. Effects of humidity and water status on leaf gas exchange and stable carbon and oxygen isotopes in California redwoods.

Ambrose A.R., W.B. Baxter, C.W. Wong, A.L. Carroll and T.E. Dawson. Environmental effects on stable carbon and oxygen isotopes in leaves and tree rings of coast redwood and giant sequoia trees.

SELECTED PRESENTATIONS

2015 *Drought in California's redwoods – recent insights and prospects for the future*, East Bay Science Café, Berkeley, CA (invited)

2014 *Life in the redwood canopy*, Garden Club of America Annual Meeting, Monterey, CA (invited)

2014 *Redwoods and Climate Change Initiative: An integrated research, monitoring, and education program*, Henry Cowell Redwoods State Park, Felton, CA (invited)

2014 *Variation in foliage morphology and physiology in coast redwood and giant sequoia trees*, 99th Annual Conference of the Ecological Society of America, Sacramento, CA

2013 *Redwood seedling responses to drought*, Past, Present and future of redwoods: A Redwood Ecology and Climate Symposium, Berkeley, CA (invited)

2012 *Within-crown and whole-tree water use dynamics in giant sequoia (*Sequoiadendron giganteum*) trees*, 97th Annual Conference of the Ecological Society of America, Portland, OR

2011 *Water use dynamics in giant sequoia trees*, 8th International workshop on sap flow, Volterra, Italy

2009 *Life in the canopy of California's old-growth redwood forests*, Audubon Society Regional Meeting, Ukiah, CA (invited)

2008 *Sapflow dynamics in the world's tallest tree species: linking structure and function*, 7th International workshop on sap flow, Sevilla, Spain

2007 *Functional coordination of branch hydraulic properties and leaf gas exchange in California redwoods*, Ecological Society of America Annual Meeting, San Jose, CA

2001 *Water-holding capacity of canopy soil mats and effects on microclimates in an old-growth redwood forest*, Northwest Scientific Association Annual Meeting, Arcata, CA

GRANTS AND AWARDS

Save-the-Redwoods League Research Initiative Grant, 2009-2014 (\$1,450,000)

UC Berkeley Department of Integrative Biology Fellowship, 2006-2007 (\$2,000)

Global Forest Science Research Grant, 2004-2007 (\$10,000)

Save-the-Redwoods League Research Grant, 2004-2005 (\$35,000)

Save-the-Redwoods League Research Grant, 1999-2000 (\$63,000)

McIntyre-Stennis Forest Research Award, 1999-2000 (\$10,000)

UC Berkeley Outstanding Graduate Student Instructor Award, 2005-2006

Boy Scouts of America Eagle Scout Award, 1983

PROFESSIONAL SERVICE

Peer manuscript reviewer for *Ecology*, *New Phytologist*, *Plant, Cell and Environment*, *Global Change Biology*, *Tree Physiology*, *Oecologia*, *Biogeosciences*, and *Plant and Soil*

Chair of Scientific Advisory Panel, *Sempervirens Fund*, Los Altos, CA

AFFILIATIONS

Ecological Society of America, California Native Plant Society