Ecosystem Ecology and Global Change

Dr. Christian Giardina
Research Ecologist & Restoration Team Leader
Institute of Pacific Islands Forestry
USDA Forest Service
cgiardina@fs.fed.us

Education

B.S., Duke University, Zoology
M.S., Colorado State University, Forest Science
Ph.D., University of Denver, Biology

Research Interests

Dr. Giardina is a Research Ecologist and Team Leader with the Pacific Southwest Research Station of the USDA Forest Service in Hilo, Hawaii. His research focuses on experimental studies and large-scale gradient studies to understand how global change will impact tropical forests and their restoration. He has served as co-principal investigator or project director for research supported by the US Department of Energy, the US Forest Service, and the National Science Foundation. He has authored or co-authored 40 peer-reviewed journal articles and book chapters, and has taught courses in ecosystem ecology, forest ecology, agroforestry, and forest management.

Active Projects on the HETF

- National Science Foundation, Major Research Equipment and Facilities Construction (MREFC). 2010-2042. Pacific Domain National Ecological Observatory Network (NEON). I. Observational Core Wildland Site (Hawaii Experimental Tropical Forest); II. Observational – Gradient Sites (Hawaii Experimental Tropical Forest). Project leads: R. Ostertag, S. Cordell, C. Giardina, & T. Giambelluca.
- National Science Foundation, Experimental Program to Stimulate Competitive Research (EPSCoR) University of Hawaii Sub-Award. 2007 – 2009. Establishment of the Hawaii Permanent Forest Plot Network (HIPPNET). $287,560. Project leads R. Ostertag, S. Cordell, C. Giardina, & L. Sack.
- National Science Foundation, Ecosystems Science Cluster. 2008 – 2009. An experimental test of the impacts of rising temperature on carbon input, allocation, and loss in model forests. $135,000. Project leads: C. Litton & C. Giardina.

Selected Publications

Litton, C.M., and C. Giardina. 2008. Belowground carbon flux and partitioning: Global patterns and response to temperature. *Journal of Functional Ecology*, 22, 941-954.

Giardina, C., C. Litton, J. Thaxton, S. Cordell, L. Hadway, and D. Sandquist. 2007. Science driven restoration: A candle in a demon haunted world. *Restoration Ecology* 15: 171-176.

Giardina, C., M. Coleman, J. Hancock, et al. 2005. The effects of global change on belowground carbon allocation in forests. Chapter 7 *in* D. Binkley and O. Menyailo (Eds), the impacts of global climate change on plant – soil interactions. NATO Science Series, Kluwer Academic Press.

Norby, R., E. DeLucia, B. Gielen, C. Calfapietra, C. Giardina, et al. 2005. Forest response to elevated CO2 is conserved across a broad range of productivity. *Proceedings of the National Academy of Science* 102: 18052-18056.

Giardina, C., D. Binkley, M. Ryan and J. Fownes. 2004. Belowground carbon cycling in a humid tropical forest decreases with fertilization. *Oecologia* 139: 545-550.

Giardina, C., M. Ryan, D. Binkley and J. Fownes. 2003. Primary production and carbon allocation in relation to nutrient supply in an experimental tropical forest. *Global Change Biology* 9: 1438-1450.

Giardina, C., and M. Ryan. 2002. Total belowground carbon allocation in a fast growing *Eucalyptus* plantation estimated using a carbon balance approach. *Ecosystems* 5: 487-499.

Giardina, C., and M. Ryan. 2000. Evidence that decomposition rates of organic carbon in mineral soil do not vary with temperature. *Nature* 404: 858-861.