

## **DARRELL A. HERBERT**

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### **EDUCATION**

Ph.D. Agronomy and Soil Science, University of Hawaii, Manoa, 1990 - 1995.

Major: Forest ecosystems.

Minor: Botany.

M.S. Botany, University of Hawaii, Manoa, 1982 - 1984. Marine ecology emphasis.

B.S. Biology, Seattle Pacific University, 1978 - 1982.

### **RESEARCH**

I focus on links between plant community composition and structure, biogeochemistry, and ecosystem functions with particular attention to feedbacks between these elements. An emphasis on how natural and cultural disturbances test stability and resilience or modify ecosystems has characterized my work, which considers climate change, invasive species, altered nutrient supply, and physical disturbances such as hurricanes and altered land-use.

### **PUBLICATIONS**

Herbert, DA and JW Fourqurean (*in review*). Phosphorus availability and salinity control productivity and demography of the seagrass *Thalassia testudinum* in Florida Bay. *Estuaries and Coasts*.

Herbert, DA and JW Fourqurean. 2008. Ecosystem structure and function still altered two decades after short-term fertilization of a seagrass meadow. *Ecosystems* 11:688-700.

Friday, JB and DA Herbert. 2006. *Metrosideros polymorpha* (ohia lehua). pp.465 to 490 in: Elevitch, CR, ed. *Traditional Trees of Pacific Islands: Their Culture, Environment, and Use*. Permanent Agriculture Resources, Holualoa, HI. URL: [www.traditionaltree.org](http://www.traditionaltree.org).

Herbert, D. A., E. B. Rastetter, L. Gough and G. R. Shaver 2004. Species diversity across nutrient gradients: an analysis of resource competition in model ecosystems. *Ecosystems* 7:296-310.

Herbert, D. A., M. Williams, and E. B. Rastetter 2003. A modeled analysis of N and P limitation on carbon accumulation in an Amazonian forest site after alternate land-use abandonment. *Biogeochemistry* 65:121-150.

Williams, M., Shimabokuro, Y., Herbert, D. A., Pardi Lacruz, S., Renno, C., Rastetter, E. B. 2002. Heterogeneity of soils and vegetation in eastern Amazonian rain forest: implications for scaling up biomass and production. *Ecosystems* 5:692-704.

Rastetter, E.B., P.M. Vitousek, C. Field, G.R. Shaver, D.A. Herbert, and G.I. Ågren, 2001. Resource optimization and symbiotic N fixation. *Ecosystems* 4:369-388.

Herbert, D. A. 2000. *Metrosideros polymorpha*. Contribution in: CAB International, 2000. *Forestry Compendium Global Module*. Wallingford, UK. CAB International

Herbert, D.A., E.B. Rastetter, G.R. Shaver, and G.I. Ågren. 1999. Effects of plant growth characteristics on biogeochemistry and community composition in a changing climate. *Ecosystems* 2:367-382

- Herbert, D.A. and J.H. Fownes. 1999. Forest productivity and efficiency of resource use across a chronosequence of tropical montane soils. *Ecosystems* 2:242-254.
- Herbert, D.A., J.H. Fownes and P.M. Vitousek. 1999. Hurricane damage to a Hawaiian forest: Nutrient supply rate affects resistance and resilience. *Ecology* 80(3):908-920.
- Rastetter, E.B., L. Gough, A.E. Hartley, D.A. Herbert, K.J. Nadelhoffer and M. Williams. 1999. A revised assessment of species redundancy and ecosystem reliability. *Conservation Biology* 13:440-443.
- Herbert, D.A. and J.H. Fownes. 1997. Effects of clumping in a broad-leaf canopy on estimates of leaf area index by the gap-fraction method. *Forest Ecology and Management*. 97:277-282.
- Vitousek, P.M., O.A. Chadwick, T.E. Crews, J.H. Fownes, D.M. Hendricks, D.A. Herbert. 1997. Soil and ecosystem development across the Hawaiian Islands. *GSA Today* 7:1-8.
- Yost, R., R. Caldwell, M. Constantinides, D. Herbert, and J. Fownes. 1997. The sustainability of agriculture and forestry production systems on soils with low pH. pp 29-38 In: *Plant-Soil Interactions at Low pH* (A. C. Moniz et al., eds.) Brazilian Soil Science Society. Brazil.
- Herbert, D.A. and J.H. Fownes. 1995. Phosphorus limitation of forest leaf area and net primary production on a highly weathered soil. *Biogeochemistry* 29:223-235.
- Crews, T.E., K. Kitayama, J.H. Fownes, R.H. Riley, D.A. Herbert, D. Mueller-Dombois, and P. Vitousek. 1995. Changes in soil phosphorus fractions and ecosystem dynamics across a long chronosequence in Hawaii. *Ecology* 76:1407-1424.
- Herbert, D.A. 1986. Growth dynamics of *Halophila hawaiiiana*. *Aquatic Botany* 23:351-360.
- Herbert, D.A. 1986. The staminate flowers of *Halophila hawaiiiana*: description and notes on its ecology. *Aquatic Botany* 25:97-102.

### **Manuscripts in Preparation**

- Herbert, D. A., and E. B. Rastetter. Plant-attribute diversity and stability of ecosystem function.

### **Web-based publications**

- Friday, J. B. and D. A. Herbert 2005. Species Profiles for Pacific Island Agroforestry. Ecological, Economic, and Cultural Renewal: *Metrosideros polymorpha*. USDA Sustainable Agriculture Research and Education project. The Traditional Tree Initiative hosted by Agroforestry.net <http://www.traditionaltree.org/>.