



Dan  
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Professor of Forest Ecology

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### PROFESSIONAL INTERESTS

Forest ecology, with an emphasis on productivity, biogeochemistry, and ecosystem dynamics. Current areas of research focus on long-term changes in ecosystems including restoration ecology, productivity, and nutrient cycling. Major current projects include projects on ecological restoration of low-elevation forests in Colorado; the production ecology of tropical forest plantations; and the translation and application of the best-available science to on-the-ground forest stewardship.

### DEGREES

*Doctores honoris causa*, Swedish University of Agricultural Sciences, 2008

PhD, Forest Ecology with minors in Soil Science and Botany, Oregon State University, 1982. (College of Forestry Distinguished Alumni Award 2006)

MSc, Forest Ecology, University of British Columbia, 1980.

BSF, Forest Management, graduated Magna Cum Laude in 5 semesters, Northern Arizona Univ., 1976 (School of Forestry Distinguished Alumni Award 1994).

### EXPERIENCE

Director, Colorado Forest Restoration Institute, Colorado State University. 2004-2008. CFRI was established by Congress in 2004 to improve forest health and reduce the risks of severe wildfire, by providing the best available information in useful forms that will improve on-the-ground forest restoration efforts (a collaboration with similar institutes in Arizona and New Mexico).

Director, Graduate Degree Program in Ecology, Colorado State University, 1994-2006. Responsible for interdisciplinary, inter-departmental program in ecology. The program confers MS and PhD degrees in ecology, through broad-based graduate programs that harness the strengths of faculty in 17 departments (about 110 faculty and 120 graduate students). *Distinguished Ecologist Award*, 2007

Financial Officer, Hamakua Hardwoods, Inc. An S-Corp tree farm in Hawaii. 2001-present.

Professor, (formerly Assoc. Prof.) of Forest Ecology, Dept. of Forest, Rangeland, and Watershed Stewardship, Colorado State University; 1987-present. Research and outreach on forest dynamics, including ecology of forest production and ecological restoration; teaching undergraduate and graduate courses in forest ecology, sustainability of natural resources, ecosystem ecology, forest ecophysiology, pollution effects on forests, and global change.

Assistant Professor of Forest Ecology and Soils, School of Forestry and Environmental Studies, Duke University; 1982-1987. Taught graduate level courses in Forest Ecosystems, Forest Soils, Forest Soil Fertility, Forest Nutrition Management, Ecologic Effects of Acid Deposition, and a variety of seminars; research on forest nutrition management projects, and on the effects of natural ecosystem processes on acid generation and consumption.

Forest Nutritionist, MacMillan Bloedel Ltd., Nanaimo, B.C., 1979-1981. Employed concurrent with Ph.D. program at OSU to help develop a forest nutrition research program; my emphasis was on nitrogen-fixing plants in conifer plantations.



## TEACHING

Colorado State: Ecology, Field Ecology (Sophomore); Forest Ecology, Silviculture (Junior); Principles of Ecosystem Management, Sustainability of Natural Resources (Senior); Community/Ecosystem Ecology, Advanced Forest Ecology, Foundations of Ecology, Ecophysiology of Trees, and Pollution Effects on Forest Ecosystems (Graduate). *Awarded "Cermak Outstanding Advisor Award" 1993 and 2005, Distinguished Ecologist 2007.*

Duke University: Forest Ecosystems, Forest Soils, Forest Soil Fertility, Forest Nutrition Management, Ecologic Impacts of Acid Deposition, Ecology of S. Appalachian Forests (all Graduate). *Awarded "Professor of the Year" 1986 and 1987.*

## JOURNAL EDITING

Co-Editor for *Forest Ecology and Management* (2007-present)

Board of Editors for *Forest Ecology and Management* (2003-2006)

Board of Editors for *Frontiers in Ecology* (2002-2004)

Board of Editors for *Ecosystems* (1998-2000)

Board of Editors for *Écoscience* (1999-2002)

Board of Editors for *Trees: Structure and Function* (1988-2001)

Board of Editors for *Ecology and Ecological Monographs* (1995-1998)

Book Review Editor for *Forest Ecology and Management* (1992-1997)

## REPRESENTATIVE GRANTS

Colorado Forest Restoration Institute. US Congress and USDA Forest Service \$850,000, 2005-2008.

Livestock and wildlife browsing influence on the age-structure of aspen on the Uncompahgre Plateau, \$125,000, UP Project, National Forest Foundation, 2010

Tree impacts on soils. NATO Science Conference, Krasnoyarsk, Siberia. \$37,000, 2004.

Ecosystem studies Noatak National Preserve, Alaska. National Park Service/USGS, \$510,000 1991-2004.

Global change impacts in the Colorado Rockies Biogeographical Area: Phase II. (Stohlgren, Baker, Veblen, Binkley, Pielke and Baron) USGS/BRD \$1,300,000, 1999-2004.

Longevity of tree-species effects on soil fertility and sustainability of second-rotation tropical tree plantations (Senock, Binkley, Matthews, Powers, and Busse). National Science Foundation \$700,000, 1999-2001.

## SELECTED BOOKS

Binkley, D., and O. Menyailo (eds). 2005. *Tree Species Effects on Soils: Implications for Global Change*. NATO Science Series, Springer, Dordrecht.

Shepperd, W.D., D. Binkley, D. Bartos, T.J. Stohlgren, and L.G. Eskew (eds). 2001. *Sustaining Aspen in Western Landscapes*. USDA Forest Service General Technical Report RMRS-P-18. 460 pp.

Fisher, R.F., and D. Binkley. 2000. *Ecology and Management of Forest Soils*. Wiley, New York. 489 p.

**SELECTED RECENT JOURNAL PAPERS** (>135 total, Web of Science citations: ~6000 total, 3500 for senior-author works, H factor 45)

Binkley, D., J.L. Stape, W.L. Bauerle, and M.G. Ryan. 2010. Explaining growth of individual trees: Light interception and efficiency of light use by Eucalyptus at four sites in Brazil. *Forest Ecology and Management*, in press.



- Boyden, S., D. Binkley, and J.L. Stape. 2008. Competition among Eucalyptus trees depends on genetic variation and resource supply. *Ecology* 89:2860-2867.
- Binkley, D. 2008. Age distribution of aspen in Rocky Mountain National Park, USA. *Forest Ecology and Management* 255:797-802.
- Ryan, M.G., D. Binkley, and J.L. Stape. 2008. Why don't our stands grow even faster? Control of production and carbon cycling in eucalypt plantations. *Southern Forests* 70:8-18.
- Stape, J.L., D. Binkley, and M.G. Ryan. 2008. Production and carbon allocation in a clonal Eucalyptus plantation with water and nutrient manipulations. *Forest Ecology and Management* 255:920-930.
- Rhoades, C., D. Binkley, H. Oskarsson, and R. Stottlemeyer. 2008. Soil nitrogen accretion along a floodplain terrace chronosequence in Northwest Alaska: Influence of the nitrogen-fixing shrub *Shepherdia canadensis*. *Écoscience* 15:223-230.
- Binkley, D., D.M. Kashian, S. Boyden, M.W. Kaye, J.B. Bradford, M.A. Arthur, P.J. Fornwalt, and M.G. Ryan. 2006. Patterns of Growth Dominance in Forests of the Rocky Mountains, USA. *Forest Ecology and Management* 236:193-201.
- Binkley, D., M. Moore, W. Romme, and P. Brown. 2006. Was Aldo Leopold right about the Kaibab deer herd? *Ecosystems* 9: 227-241.
- Binkley, D., J.L. Stape, E.N Takahashi, and M.G. Ryan. 2006. Tree-girdling to separate root and heterotrophic respiration in two Eucalyptus stands in Brazil. *Oecologia* 148:447-454.
- Högberg, P., H.B. Fan, M. Quist, D. Binkley, and C.O. Tamm. 2006. Tree growth and soil acidification in response to 30 years of experimental nitrogen loading on boreal forest. *Global Change Biology* 12:489-499.
- Stape, J.L., D. Binkley, W.S. Jacob, and E.N. Takahashi. 2006. A twin-plot approach to determine nutrient limitation and potential productivity in Eucalyptus plantations at landscape scales in Brazil. *Forest Ecology and Management* 223:358-362.
- Boyden, S., D. Binkley, and R. Senock. 2005. Competition and facilitation between Eucalyptus and nitrogen-fixing *Falcataria* in relation to soil fertility. *Ecology* 86:992-1001.
- Binkley, D. 2004. A hypothesis about the interaction of tree dominance and stand production through stand development. *Forest Ecology and Management* 190:265-271.
- Binkley, D., G.G. Ice, J. Kaye, and C.A. Williams. 2004. Patterns of variation in nitrogen and phosphorus concentrations in forest streams of the United States. *Journal of the American Water Association* 2004:1277-1291.
- Binkley, D., J. Kaye, M. Barry, and M.G. Ryan. 2004. First rotation changes in soil carbon and nitrogen in a Eucalyptus plantation in Hawaii. *Soil Science Society of America Journal* 68: 1713-1719.
- Ryan, M.G., D. Binkley, J. Fownes, C. Giardina, and R. Senock. 2004. An experimental test of the causes of age-related decline in forest growth. *Ecological Monographs* 74:393-414.
- Binkley, D. 2003. Seven decades of stand development in mixed and pure stands of conifers and nitrogen-fixing red alder. *Canadian Journal of Forest Research* 33: 2274-2279.

## SELECTED RECENT PRESENTATIONS

### 2009

- "Understanding the role resource use efficiency in determining the growth of trees and forests", Keynote presentation, 13th World Forestry Congress, Buenos Aires, Argentina.
- "Challenges in detecting changes in the carbon content of forests: how variations in time and space influence precision of our estimates" Keynote presentation, Asian Conference on Ecological Processes for Carbon Cycling: Temporal and Spatial Variations, Jinju, South Korea.



### 2008

“Insights on scaling forest production from trees to stands”, invited presentation Swedish University of Agricultural Sciences, in Uppsala and in Umeå.

“Changes in efficiency of light use with stand structure and stand development, at the level of trees and stands” (Binkley, Stape, Ryan), IUFRO Workshop on Productivity in Tropical Plantations workshop, Porto Seguro, Brazil:

“The value of being wrong (at least sometimes during a long career)” invited seminar at Forest Science Graduate Student Science Symposium, Oregon State University, Corvallis.

“Future Forests of the Rocky Mountains: Interactions of climate, development, and policies” invited presentation at the workshop on Global Change and Sustainable Development in Mountain Regions, Innsbruck, Austria.

### 2007

“Speed limits on tree growth: environmental, genetic, and silvicultural controls on forest productivity” Invited seminar, Michigan State University.

“Brazil Eucalyptus Potential Productivity (BEPP) Project” (Stape, Binkley, Ryan, et al.), IUFRO Congress on 'Eucalypts and diversity: balancing productivity and sustainability', Durban, South Africa.

“Patterns of Growth Dominance in Forests: What do we gain by quantifying dominance?”, 6th North American Forest Ecology Workshop, Vancouver, BC.

### 2006

“Experimental Assessment of Changes in Soil Organic Matter Pools in Mountain Forest” Contributed 2 days of instruction for week-long course in in Obergurgl, Austria (funded by European Science Foundation), with 25 students from 15 countries from western Europe to middle Asia.

“Changes in Soil Carbon under Fast-growing Tropical Plantations”, invited seminar presented at Swedish University of Agricultural Sciences, in Uppsala and in Umeå, Sweden.

