

Curriculum Vitae: DAVID B. CLARK

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Education:

1978 - Ph.D., Zoology (minor in Botany), University of Wisconsin, Madison, WI

1970 - B.A. (with Honors), Biology, University of North Carolina, Chapel Hill, NC

Professional Experience:

1994 - present. Research Professor, Department of Biology, University of Missouri-St. Louis..

2009 – 2011. Research Professor, Department of Environmental Sciences, University of Virginia.

1980 - Feb. 1994. Co-Director, La Selva Biological Station, Organization for Tropical Studies, Costa Rica.

1978 - 1979. Co-Director, Point Reyes Bird Observatory, Stinson Beach, California.

1976 - 1978. Graduate student and teaching assistant, Department of Zoology, University of Wisconsin, Madison.

1972 - 1976. Smithsonian-Peace Corps Environmental Program, Galapagos Islands National Park, Ecuador.

1970 - 1972. NSF Graduate Fellow, Department of Zoology, University of Wisconsin, Madison.

1970, summer. Woodrow Wilson Fellow, Rocky Mountain Biological Laboratory, Gothic, Colorado.

Current Research Interests:

Climatic controls of carbon flux and storage in old-growth tropical rain forest. Ecological and physiological processes affecting growth and survival of lowland rain forest trees. landscape ecology of tropical lowland rain forest, including long-term monitoring of focal taxa and evaluation of edaphic heterogeneity and tree species diversity and distribution. Application of remote-sensing and GIS techniques to landscape-scale study of tropical forest ecology.

Recent Teaching Activities:

In the last 32 years I have assisted as visiting or principal faculty in more than 100 field ecology courses in Costa Rica, Puerto Rico, Peru, Mexico, and Brazil. Of these courses, many were composed primarily of Latin American graduate students and were taught in Spanish or Portuguese. Course activities have included guiding orientation walks, introductory and research lectures, designing and supervising group research projects, and advising individual students. I regularly teach as visiting faculty in the English, Portuguese and Spanish-language OTS advanced ecology courses in Costa Rica, Brazil and Peru. I also lecture to general university and public audiences.

Publications (<http://www.umsl.edu/~biology/faculty/davidclark.html> for links to pdfs):

Thomas, R.Q., J.R. Kellner, **D.B. Clark** and D.R. Peart. 2012. Low mortality in tall tropical trees. **Ecology** *accepted pending revision*.

- Clark, D.B.** and J.R. Kellner. 2012. Tropical forest biomass estimation and the fallacy of misplaced concreteness. **Journal of Vegetation Science** doi: 10.1111/j.1654-1103.2012.01471.x
- Tang, H., R. Dubayah, A. Swatantran, M. Hofton, S. Sheldon, **D.B. Clark** and B. Blair. 2012. Retrieval of vertical LAI profiles over tropical rain forests using waveform lidar at La Selva, Costa Rica. **Remote Sensing of Environment** 124:242–250.
- Clark, D.B.** and D. A. Clark. 2012. Annual tree growth, mortality, physical condition, and microsite in an old-growth tropical rain forest, 1983–2010. **Ecology** 93:213 <http://dx.doi.org/10.1890/11-1341.1> and **Ecological Archives** E093-019-D1.
- Hurtado, J. and **D.B. Clark**. 2011. Local technicians in long-term research projects: evaluation of 25 years experience in an active tropical research station. **Revista de Biología Tropical** 59:1455-1462. http://www.ots.ac.cr/tropiweb/attachments/volumes/vol59-4/01_Hurtado_Tropical_research_station.pdf
- Chazdon, R.L., A. Chao, R.K. Colwell, S-Y. Lin, N. Norden, S.G. Letcher, **D.B. Clark**, B. Finegan, and J.P. Arroyo. 2011. A novel statistical method for classifying habitat generalists and specialists. **Ecology** 92:1332–1343
- Saatchi, S., Marlier, M., Chazdon, R., Clark, D.B. and A. Russell. 2011. Impact of spatial variability of forest structure on radar estimation of aboveground biomass in tropical forests. **Remote Sensing of Environment** 115:2836-2849. doi:10.1016/j.rse.2010.07.015.
- Clark, M.L, Roberts, D.A., **Clark, D.B.** and J.J. Ewel. 2011. Estimation of tropical rain forest aboveground biomass with small-footprint lidar and hyperspectral sensors. **Remote Sensing of Environment** 115:2931–2942. doi:10.1016/j.rse.2010.08.029
- Clark, D.A. and **D.B. Clark**. 2010. Assessing tropical forests' climatic sensitivities with longterm data. *Biotropica* DOI: 10.1111/j.1744-7429.2010.00654.x
- Cavaleri, M.A., S.F. Oberbauer, **D.B. Clark**, D.A. Clark, and M.G. Ryan. 2010. Height is more important than light in determining leaf morphology in a tropical forest. **Ecology** 91:1730-1739.
- Dubayah, R.O., Sheldon, S.L., **Clark, D.B.**, Hofton, M.A., Blair, J.B., Hurtt, G.C. and R.L. Chazdon. 2010. Estimation of tropical forest height and biomass dynamics using lidar remote sensing at La Selva, Costa Rica. **Journal of Geophysical Research – Biogeosciences** doi:10.1029/2009JG000933.
- DeWalt, S. J., S. A. Schnitzer, J. Chave, F. Bongers, R. J. Burnham, Z. Q. Cai, G. Chuyong, **D. B. Clark**, C. E. N. Ewango, J. J. Gerwing, E. Gortaire, T. Hart, G. Ibarra-Manríquez, K. Ickes, D. Kenfack, M. J. Macía, J.-R. Makana, J. Mascaro, M. Martínez-Ramos, S. Moses, H. C. Muller-Landau, M. P. E. Parren, N. Parthasarathy, D. R. Pérez-Salicrup, F. E. Putz, H. Romero-Saltos, and D. Thomas. 2010. Annual rainfall and seasonality predict pan-tropical patterns of liana density and basal area. **Biotropica** 42:309-317.
- Clark, D.B.**, D.A. Clark and S.F. Oberbauer. 2010. Annual wood production in a tropical rain forest in NE Costa Rica linked to climatic variation but not to increasing CO₂. **Global Change Biology** 16:747-759. doi: 10.1111/j.1365-2486.2009.02004.x.
- Kellner, J.R., **D.B. Clark** and M.A. Hofton. 2009. Canopy height and ground elevation in a mixed land use lowland Neotropical rain forest landscape. **Ecology** 90:3274 and **Ecological Archives** E090-233 <http://www.esapubs.org/archive/ecol/E090/233/default.htm>
- Kellner, J.R., **D.B. Clark** and S.P. Hubbell. 2009. Pervasive canopy dynamics produce short-term stability in a tropical rain forest landscape. **Ecology Letters** 12:155-164.
- Frolking, S., M.W. Palace, **D.B. Clark**, J.Q. Chambers, H.H. Shugart and G.C. Hurtt. 2009. Forest disturbance and recovery - a general review in the context of space- borne remote sensing of impacts on aboveground biomass and canopy structure. **Journal of Geophysical Research – Biogeosciences** 114, G00E02, doi:10.1029/2008JG000911.
- Clark, D.B.**, P.C. Olivas, S.F. Oberbauer, D.A. Clark and M.G. Ryan. 2008. First direct landscape-scale measurement of tropical rain forest Leaf Area Index, a key driver of global

- primary productivity. **Ecology Letters** **11**:163-172. *Selected paper, Faculty of 1000 Biology.*
- O'Brien, J.J., S.F. Oberbauer, **D. B. Clark** and D. A. Clark. 2008. Phenology and stem growth seasonality in a Costa Rican wet tropical forest. **Biotropica** **40**:151-159.
- Boyle, W.A., C.N. Ganong, **D.B. Clark** and M. Hast. 2008. Density, distribution, and attributes of tree cavities in an old-growth tropical forest. **Biotropica** **40**:241-245.
- Jones, M. M., P. Olivas Rojas, H. Tuomisto and **D.B. Clark**. 2007. Environmental and neighbourhood effects on tree fern distributions in a neotropical lowland rain forest. **Journal of Vegetation Science** **18**:13-24.
- Clark, D.B.** and D.A. Clark. 2006. Annual tree growth, mortality, physical condition and microsite in an old-growth lowland tropical rain forest, 1983-2000. **Ecology** **87**:2132 and **Ecological Archives** **E087-132** (<http://www.esapubs.org/archive/ecol/E087/132/default.htm>).
- Jones, M.M., H. Tuomisto, **D.B. Clark** and P. Olivas Rojas. 2006. Effects of mesoscale environmental heterogeneity and dispersal limitation on floristic variation in rain forest ferns. **Journal of Ecology** **94**:181-195.
- Clark, M.L., D.A. Roberts and **D. B. Clark**. 2005. Hyperspectral discrimination of tropical rain forest tree species at leaf to crown scales. **Remote Sensing of Environment** **96**:375-398.
- Clark, D.B.**, C. Soto Castro, L.D. Alfaro Alvarado and J.M. Read. 2004. Quantifying mortality of tropical rain forest trees using high-spatial-resolution satellite data. **Ecology Letters** **7**:52-59.
- Clark, D.B.**, J.M. Read, M. Clark, A. Murillo Cruz, M. Fallas Dotti, D.A. Clark. 2004. Application of 1-m and 4-m resolution satellite data to studies of tree demography, stand structure and land-use classification in tropical rain forest landscapes. **Ecological Applications** **14**:61-74.
- Clark, M.L., **D.B. Clark** and D.A. Roberts. 2004. Small-footprint lidar estimation of sub-canopy elevation and tree height in a tropical rain forest landscape. **Remote Sensing of Environment** **91**:68-89.
- O'Brien, J.J., S.F. Oberbauer and **D.B. Clark**. 2004. Whole tree xylem sap flow responses to multiple environmental variables in a wet tropical forest. **Plant, Cell and Environment** **27**:551-567.
- King, D.A. and **D.B. Clark**. 2004. Inferring growth rates from leaf display in tropical forest saplings. **Journal of Tropical Forest Ecology** **20**:351-354.
- Clark, D.A., S.C. Piper, C.D. Keeling, and **D.B. Clark**. 2003. Tropical rain forest tree growth and atmospheric carbon dynamics linked to interannual temperature variation during 1984-2000. **Proceedings of the National Academy of Science (USA)** **100**:5852-5857.
- Loescher, H.G., S.F. Oberbauer, H.L. Gholz and **D.B. Clark**. 2003. Environmental controls on net ecosystem-level carbon exchange and productivity in a Central American tropical wet forest. **Global Change Biology** **9**:396-412.
- Drake, J.B., R.G. Knox, R.O. Dubayah, **D.B. Clark**, and R. Condit. 2003. Above-ground biomass estimation in closed-canopy Neotropical forests using lidar remote sensing: factors affecting the generality of relationships. **Global Ecology and Biogeography** **12**:147-159.
- Read, J.M., **D.B. Clark**, E. Venticinque, M. Moreira. 2003. Application of 1-m and 4-m resolution satellite data to research and management in tropical forests. **Journal of Applied Ecology** **40**: 592-600.
- Drake, J.B., R.O. Dubayah, R.G. Knox, **D.B. Clark**, J.B. Blair. 2002. Sensitivity of large-footprint lidar to canopy structure and biomass in a neotropical rainforest. **Remote Sensing of Environment** **81**: 378– 392.
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- Drake, J.B., R.O. Dubayah, **D.B. Clark**, R.G. Knox, J.B. Blair, M.A. Hofton, R.L. Chazdon, J.F. Weishampel, and S.D. Prince. 2002. Estimation of tropical forest structural characteristics using large-footprint lidar. **Remote Sensing of Environment** 79:305-319.
- Clark, D.B.** 2002. Los factores edáficos y la distribución de las plantas. Pp. 193-221 in M. Guariguata and G. Kattan, eds., *Ecología y Conservación de Bosques Neotropicales*, Libro Universitario Regional, Cartago, Costa Rica.
- Clark, D.A. and **D.B. Clark**. 2001. Getting to the canopy: tree height growth in a neotropical rain forest. **Ecology** 82:1460-1472.
- Clark, D.B.** and D.A. Clark. 2000. Landscape-scale variation in forest structure and biomass in a tropical rain forest. **Forest Ecology and Management** 137:185-198.
- Clark, D.B.** and D.A. Clark. 2000. Tree growth, mortality, physical condition, and microsite in old-growth lowland tropical rain forest. **Ecology** 81:294 and **Ecological Archives**: <http://www.esapubs.org/archive/ecol/E081/003/default.htm>
- Weishampel, J.F., J.B. Blair, R.G. Knox, R. Dubayah, and **D.B. Clark**. 2000. Volumetric lidar return patterns from an old-growth tropical rainforest canopy. **International Journal of Remote Sensing** 21:409-415. (Selected as Best Letter Published in 2000 by the Remote Sensing Society)
- Palmer, M.W., **D. B. Clark**, and D.A. Clark. 2000. Is the number of tree species in small tropical forest plots nonrandom? **Community Ecology** 1:95-101.
- Weishampel, J. F., J. B. Blair, R. Dubayah, **D. B. Clark**, and R. G. Knox. 2000. Canopy topography of an old-growth tropical rainforest landscape. **Selbyana** 21: 79-87.
- Englund, S.R., J.J. O'Brien and **D.B. Clark**. 2000. Evaluation of digital and film hemispherical photography and spherical densiometry for measuring forest light environments. **Canadian Journal of Forest Research** 30:1999-2005.
- Oberbauer, S.F., H.W. Loescher, and **D.B. Clark**. 2000. Effects of climate factors on daytime carbon exchange from an old growth forest in Costa Rica. **Selbyana** 21:66-73.
- Clark, D.B.**, M. Palmer and D.A. Clark. 1999. Edaphic factors and the landscape-scale distributions of tropical rain forest trees. **Ecology** 80:2662-2675.
- Clark, D.A., and **D.B. Clark**. 1999. Assessing the growth of tropical rain forest trees: issues for forest modeling and management. **Ecological Applications** 9:981-997.
- Sterck, F.J., **D.B. Clark**, D.A. Clark, and F. Bongers. 1999. Light fluctuations, crown traits, and response delays for tree saplings in a Costa Rican lowland rain forest. **Journal of Tropical Ecology** 15:83-95.
- Clark, D.B.**, D.A. Clark and J.M. Read. 1998. Edaphic variation and the mesoscale distribution of tree species in a neotropical rain forest. **Journal of Ecology** 86:101-112.
- Dubayah, R., Blair, J. B., Bufton, J. L., **Clark, D. B.**, JaJa, J., Knox, R. G., Luthcke, S. B., Prince, S., and Weishampel, J. F. 1997. The Vegetation Canopy Lidar mission. Pages 100-112. *Land Satellite Information in the Next Decade II: Sources and Applications*. American Society for Photogrammetry and Remote Sensing, Bethesda, MD.
- Clark, D.B.** 1996. Abolishing virginity. **Journal of Tropical Ecology** 12:735-739.
- Keller, M., D.A. Clark, **D.B. Clark**, A.M. Weitz and E. Veldkamp. 1996. If a tree falls in the forest... **Science** 273:201.
- Clark, D.B.**, D.A. Clark, P.M. Rich, S. Weiss and S.F. Oberbauer. 1996. Landscape-scale evaluation of understory light and canopy structure: methods and application to a neotropical lowland rain forest. **Canadian Journal of Forest Research** 26:747-757.
- Clark, D.B.** and D.A. Clark. 1996. Abundance, growth and mortality of very large trees in neotropical lowland rain forest. **Forest Ecology and Management** 80:235-244.
- Clark, D.A., **D.B. Clark**, R.Sandoval, and M.V. Castro. 1995. Edaphic and human effects on landscape-scale distributions of tropical rain forest palms. **Ecology** 76:2581-25594.
- Poorter, L., S.F. Oberbauer, and **D.B. Clark**. 1995. Leaf optical properties along a vertical gradient in tropical rain forest canopy in Costa Rica. **American Journal of Botany** 82:1257-1263.

- Paaby, P. and **D.B. Clark**. 1995. Conservation and local naturalist guide training programs in Costa Rica. Pp. 261-275 In S.K. Jacobson (ed.), *Conserving Wildlife: International Education and Communication Approaches*. Columbia University Press, New York.
- Clark, D.A. and **D.B. Clark**. 1994. Climate-induced variation in canopy tree growth in a Costa Rican tropical rain forest. **Journal of Ecology** 82:865-872.
- Rhoades, C.C., R.L. Sanford, Jr. and **D.B. Clark**. 1994. Gender dependent influences on soil phosphorus by the dioecious lowland tropical tree *Simarouba amara*. **Biotropica** 26:362-368.
- Clark, D.B.** 1994. Management of a multiple function reserve: the La Selva Biological Station. Pages 388-395 In G. Meffe and R. Carroll (eds.), *Principles of Conservation Biology*. Sinauer Associates, Sunderland, MA.
- Clark, D.B.**, D.A. Clark, and P.M. Rich. 1993. Comparative analysis of microhabitat utilization by saplings of nine tree species in neotropical rain forest. **Biotropica** 25:397-407.
- Oberbauer, S.F., **D.B. Clark**, D.A. Clark, P.M. Rich and G. Vega. 1993. Light environment, gas exchange, and annual growth of saplings of three species of rain forest trees in Costa Rica. **Journal of Tropical Ecology** 9:511-523.
- Rich, P.M., **D.B. Clark**, D.A. Clark, and S.F. Oberbauer. 1993. Long-term study of solar radiation regimes in a tropical wet forest using quantum sensors and hemispherical photography. **Agricultural and Forest Meteorology** 65:107-127.
- Clark, D.A. and **D.B. Clark**. 1992. Life history diversity of canopy and emergent trees in a neotropical rain forest. **Ecological Monographs** 62:315-344.
- Clark, D.B.**, D.A. Clark, and M.H. Grayum. 1992. Leaf demography of a neotropical rain forest cycad, *Zamia skinneri* (Zamiaceae). **American Journal of Botany** 79:28-33.
- Clark, D.B.** 1992. A simple procedure for increasing the accuracy of published ecological data. **Bulletin of the Ecological Society of America** 73:44-45.
- Clark, D.B.** and D.A. Clark. 1991. The impact of physical damage on canopy tree regeneration in tropical rain forest. **Journal of Ecology** 79:447-457.
- Paaby, P., **D.B. Clark** and H. Gonzalez. 1991. Training rural residents as naturalist guides: evaluation of a pilot project in Costa Rica. **Conservation Biology** 5:542-546.
- Clark, D.B.**, and D.A. Clark. 1991. Herbivores, herbivory, and plant phenology: patterns and consequences in a tropical rain forest cycad. Pages 209-225 in P.W. Price, T.M. Lewinsohn, G. Wilson Fernandes, and W. Benson (eds.). *Plant-Animal Interactions: Evolutionary Ecology in Tropical and Temperate Regions*. John Wiley and Sons.
- Clark, D.B.** 1990. The role of disturbance in the regeneration of neotropical moist forests. Pages 291-315 in K. Bawa and M. Hadley (eds.). *Reproductive Ecology of Tropical Rain Forest Plants*. Parthenon Publishing, Park Ridge, New Jersey, USA.
- Clark, D.B.** and D.A. Clark. 1990. Distribution and effects on tree growth of lianas and hemiepiphytes in a Costa Rican tropical wet forest. **Journal of Tropical Ecology** 6:321-331.
- Clark, D.B.** 1990. La Selva Biological Station: a blueprint for stimulating tropical research. Pages 9-27 in A. Gentry (ed.). *Four Neotropical Forests*. Yale University Press.
- Clark, D.B.** and D.A. Clark. 1989. The role of physical damage in the seedling mortality regime of a neotropical rain forest. **Oikos** 55:225-230.
- Marquis, R.J. and **D.B. Clark**. 1989. Habitat and fertilization effects on leaf herbivory in *Hampea appendiculata* (Malvaceae): implications for tropical firewood systems. **Agriculture, Ecosystem, and Environment** 5:165-174.
- Oberbauer, S.F., D.A. Clark, **D.B. Clark**, and M. Quesada. 1989. Comparative analysis of photosynthetic light environments within the crowns of juvenile rain forest trees. **Tree Physiology** 5:13-23.
- Clark, D.B.** and D.A. Clark. 1988. Leaf production and the cost of reproduction in the tropical rain forest cycad, *Zamia skinneri*. **Journal of Ecology** 76:1153-1163.

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- Clark, D.B.**, and D.A. Clark. 1987. Population ecology and microhabitat distribution of *Dipteryx panamensis*, a neotropical rain forest emergent tree. **Biotropica** 19:236-244.
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- Clark, D.A., and **D.B. Clark**. 1987. Temporal and environmental patterns of reproduction in *Zamia skinneri*, a tropical rain forest cycad. **Journal of Ecology** 75:135-149.
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- Clark, D.A., and **D.B. Clark**. 1984. Spacing dynamics of a tropical rain forest tree: evaluation of the Janzen-Connell model. **American Naturalist** 124:769-788.
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Other Publications

- Clark, D.B.** 2010. Increasing the Accessibility and Lowering the Environmental Impact of the ESA Annual Meeting. **Bulletin of the Ecological Society of America** 91:281.
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