Helene C. Muller-Landau

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EDUCATION

Princeton University
Ph.D. 2001, Ecology and Evolutionary Biology.
M.A. 1997, Ecology and Evolutionary Biology.
Swarthmore College
B.A. 1995, Mathematics and Statistics, with a concentration in Environmental Studies. Phi Beta Kappa. Sigma Xi.

PROFESSIONAL EXPERIENCE

Senior Scientist / Research Ecologist, Smithsonian Tropical Research Institute, Panama. December 2022 – present.
Staff Scientist / Research Ecologist, Smithsonian Tropical Research Institute, Panama. 2008-2022.
Visiting Scholar, Department of Ecology and Evolutionary Biology, Princeton University. September 2015 – June 2016.
Assistant Professor, Department of Ecology, Evolution and Behavior, University of Minnesota, Twin Cities. July 2004 to January 2008.
Research Associate, Ecology and Evolutionary Biology, Princeton University. Jan – Jun 2004.
Post-doctoral Researcher, National Center for Ecological Analysis and Synthesis, University of California, Santa Barbara. 2002-2003.
Post-doctoral Researcher, Ecology and Evolutionary Biology, Princeton University. Fall 2001.

PRIZES AND AWARDS

Smithsonian Secretary's Research Prize, 2021, for the 2020 book chapter titled "What determines the abundance of lianas and vines?", by Muller-Landau, H. C. and S. W. Pacala. Pages 239-264 in *Unsolved Problems in Ecology*, edited by A. Dobson, D. Tilman, and R. D. Holt. Princeton University Press.
Brinkmann Prize for the best undergraduate paper in mathematics at Swarthmore College. 1995.

GRANTS AND FELLOWSHIPS

Smithsonian Institution. "Building the basis for automated species identification of tropical plants from spectral and laser scanning data." 2024-2025. $75,000. PI, with co-PIs S. Joseph Wright and S. Davies.

Smithsonian Institution. "Characterizing the climate sensitivity of tropical tree woody growth across a diversity of climates and species." 2024-2025. $75,000. Co-PI, with PI K. Anderson-Teixeira and co-PI S. Davies.

National Aeronautics and Space Administration. "Monitoring the phenology, distribution, and mortality of selected tropical trees from space" (22-CSDSA22_2-0088). 2023-2025. $472,992. Co-I, with PI A. Ferraz, and co-Is S. Beery and E. Gora.

Bezos Earth Fund. "GEO-TREES Global Forest Biomass Reference System." 2023-2028. $12M. Senior Personnel, with PI S. Davies.

National Science Foundation. "NSFDEB-NERC: Gigante: Quantifying and upscaling the causes and drivers of death for giant tropical trees" (DEB 2241507). 2023-2026. $1,438,401 total from NSF to Cary Institute with $65,452 subcontract to Smithsonian, and UK£244,862 from NERC to the University of Birmingham. Subcontract PI, with NSF PI E. Gora and NERC PI A. Esquivel-Muelbert.

National Science Foundation. "Collaborative Research: Lightning-caused disturbance and patterns of recovery in tropical forests." (DEB 2213245 to Cary Institute, DEB 2213246 to University of Louisville, and 2213247 to University of Alabama). 2022-2025. $1,539,152 total. Senior personnel, with lead PI E. Gora and collaborating PIs S. Yanoviak, and P Bitzer.

Leverhulme Trust. "Escaping the enemy: Spatial ecology of rainforest tree-insect interactions" (RPG-2021-042). 2022-2026. £418,844, co-PI, with PI S. Gripenberg, and co-PIs O. Lewis and S. J. Wright.

National Science Foundation. "AccelNet: International Tropical Forest Science Alliance (ITFSA): A global multi-network initiative for science and training." (OISE 2020424) January 1, 2021 – December 31, 2026. $1,999,818. Co-PI, with PI S. Davies and co-PIs S. Russo, G. Arellano, and L. Krizel.

United States – Israel Binational Science Foundation. "Interacting effects of moisture and biotic interactions on seedling recruitment in tropical forests: experimental tests of the consequences of climate variability." October 1, 2018 – September 30, 2023. $229,759. Co-PI, with PI E. Lebrija (University of Haifa) and co-PIs S. J. Wright (STRI) and K. McGuire (University of Oregon).

Smithsonian Institution Scholarly Studies. "How will the woody productivity of forests worldwide respond to climate change?" 2020-2021. $75,000. Co-PI, with PI K. Anderson-Teixeira and co-PI C. Piponiot.

Smithsonian Institution Scholarly Studies. "Analysis and development of the Smithsonian's global forest carbon database (ForC)." 2018-2019. $75,000. Co-PI, with PI K. Anderson-Teixeira.

National Science Foundation. "Collaborative Research: Lightning as an Agent of Tropical Tree Mortality." (DEB 1655346 and DEB 1655554) July 1, 2017 – June 30, 2020. $809,082. Senior Personnel, with PI S. Yanoviak and co-PIs P. Bitzer, K. Hunter, and S. Paton.

National Science Foundation. "Dimensions US-China: Integrating functional, phylogenetic and genetic components of diversity for an improved understanding of forest structure,

dynamics, and change." (DEB 1545761) Jan 1, 2016 – Dec 31, 2017. $296,240. Co-PI with PI S. Davies and co-PIs L. Comita, F. Jones, and N. Swenson.

Smithsonian Institution Competitive Grants Program for Science. "In forests globally, are large trees more sensitive to aridity?" 2015-2016. $100,000. Co-PI, with PI K. Anderson-Teixeira and co-PI S. McMahon.

Smithsonian Institution Competitive Grants Program for Science. "Measuring the seasonal rhythms of leafing, flowering, and fruiting in tropical landscapes using unmanned aerial vehicles and computer vision." 2014-2015. $100,000. PI, with co-PIs K. Anderson-Teixeira, S. Bohlman, R. Condit, S. Davies, M. Detto, J. Hall, P. Jansen, S. Schnitzer, E. Tanner, and S. J. Wright.

Smithsonian Institution Competitive Grants Program for Science. "Species-specific effects of interannual climate variation on seed production and seedling establishment of tropical trees: A proposal to quantify patterns, test hypotheses, and project effects of future climate scenarios." 2013-2014. $99,828. PI, with co-PI S. Joseph Wright.

National Science Foundation. "Collaborative Research: LTREB RENEWAL – Long-term studies of flowering, fruiting and seedling recruitment in Neotropical forests: global change, climate variability and mechanisms of species coexistence." (DEB 1122325 and 1122634) 2011-2016. $450,000. Co-PI, with co-PIs N. C. Garwood, M. R. Metz, S. J. Wright, J. K. Zimmerman, N. G. Swenson, J. Thompson, and M. Uriarte.

Netherlands Organisation for Scientific Research (NWO). "Quantifying the importance of niches to tree species coexistence in a tropical forest" 2011-2015. 203,500 Euro. Promotor, together with promoter H. de Kroon, and co-promotor E. Jongejans.

Smithsonian Endowment. "Quantifying the importance of seedling establishment niches to plant species coexistence in a tropical forest." 2011-2012. $23,620. PI, with co-PIs S. J. Wright, H. de Kroon, and E. Jongejans.

National Science Foundation. "Dimensions IRCN: Diversity and forest change: characterizing functional, phylogenetic and genetic contributions to diversity gradients and dynamics in tree communities." (DEB 1046113) 2011-2015. $631,640. Co-PI with PI S. Davies and co-PIs R. Condit, W. J. Kress, and N. G. Swenson.

National Science Foundation. "Temperature responses of leaf dark respiration and their implications for tropical forest carbon balance." (DEB 1051789) 2011-2014. $444,698. Co-PI, with PI K. Kitajima and co-PIs J. Lichstein, S. J. Wright, S. Bohlman, S. Gerber.

Smithsonian Institution Scholarly Studies. "Monitoring tropical forest change under a shifting climate: recensusing a network of tree inventory plots in Panama." 2010. $53,000. Co-PI with PI R. Condit.

McKnight Land-Grant Professorship at the University of Minnesota. "Mechanisms underlying tropical forest diversity." $60,000 and a paid full-year sabbatical (declined). 2007.

Packard Fellowship in Science and Engineering, awarded by the David and Lucile Packard Foundation. 2006. "Uniting ecological theory and empirical studies to investigate the maintenance of tropical diversity." $625,000. Sole PI.

National Science Foundation. 2006-2012. "LTER: Biodiversity, environmental change and ecosystem function at the prairie-forest border." (DEB0620652) $4,920,000. Senior investigator, collaborating with PIs D. Tilman, S. Hobbie, P. Reich, S. Polasky, and six other senior investigators.

National Science Foundation. 2006-2011. "Collaborative Research: LTREB - Long-term studies of flowering, fruiting and seedling recruitment in Neotropical forests: global change,

climate variability and mechanisms of species coexistence." (NSF DEB 614055, 614525, and 614659; $450,000 total) Collaborating with N. Garwood of Southern Illinois University, S. J. Wright of the Smithsonian Tropical Research Institute, and J. Zimmerman and J. Thompson of the University of Puerto Rico.

National Science Foundation. 2005-2008. "Collaborative Research: Seed dispersal by wind and plant recruitment in tropical forests – an interdisciplinary investigation across multiple scales." (NSF DEB 0453445, 0453665, 0453296 and REU supplement 0536893; $449,741 total) Collaborating with R. Nathan and S. J. Wright of the Smithsonian Tropical Research Institute, and R. Avissar of Duke University.

Center for Tropical Forest Science Research Grant. 2003-2004. "Seed Rain in Tropical Forests: Patterns, Causes, and Consequences for Forest Dynamics." $8,000.

National Center for Ecological Analysis and Synthesis Postdoctoral Fellowship. 2002-2003.

Organization for Tropical Studies Advanced Comparative Neotropical Ecology award. 2001.

Princeton Environmental Institute Research Initiative in Science and Engineering Graduate Fellowship. 1998.

Smithsonian Institution Pre-Doctoral Fellowship. 1997.

Smithsonian Tropical Research Institute Short-Term Fellowship. 1997.

National Science Foundation Graduate Fellowship. 1995.

PUBLICATIONS IN PRESS

Muller-Landau, H. C. and S. J. Wright, editors. In press. *The First 100 Years of Research on Barro Colorado Island: Plant and Ecosystem Science*. Washington, DC: Smithsonian Institution Scholarly Press.

Wright, S. J., and **H. C. Muller-Landau**. In press. A Century of Plant and Ecosystem Research at Barro Colorado. Chapter 1 in *The First 100 Years of Research on Barro Colorado Island: Plant and Ecosystem Science*, ed. H. C. Muller-Landau and S. J. Wright: Smithsonian Institution Scholarly Press.

Muller-Landau, H. C., and J.-C. Svenning. In press. An Introduction to Landscape-Level Variation Across the Barro Colorado Nature Monument. Chapter 2 in *The First 100 Years of Research on Barro Colorado: Plant and Ecosystem Science*, ed. H. C. Muller-Landau and S. J. Wright: Smithsonian Institution Scholarly Press.

Meakem, V., S. J. Wright, and **H. C. Muller-Landau**. In press. Variation in Forest Structure, Dynamics, and Composition Across 108 ha of Forest Plots on Barro Colorado Island. Chapter 8 in *The First 100 Years of Research on Barro Colorado: Plant and Ecosystem Science*, ed. H. C. Muller-Landau and S. J. Wright: Smithsonian Institution Scholarly Press.

Wright, S. J., O. Calderón, A. Hernández, and **H. C. Muller-Landau**. In press. Flower and Seed Production, Seedling Dynamics, and Tree Life Cycles. Chapter 10 in *The First 100 Years of Research on Barro Colorado Island: Plant and Ecosystem Science*, ed. H. C. Muller-Landau and S. J. Wright: Smithsonian Institution Scholarly Press.

Piponiot, C., R. Condit, S. P. Hubbell, R. Pérez, S. Aguilar, and **H. C. Muller-Landau**. In press. Woody Biomass Stocks and Fluxes in the Barro Colorado Island 50 ha Plot. Chapter 53

in *The First 100 Years of Research on Barro Colorado: Plant and Ecosystem Science*, ed. H. C. Muller-Landau and S. J. Wright: Smithsonian Institution Scholarly Press.

Muller-Landau, H. C., C. Piponiot, F. Mello, S. Aguilar, S. Lao, D. Mitre, and R. Condit. In press. Forest Biomass Carbon Stocks and Fluxes in a Broader Context: Insights and Opportunities Associated with the Central Panama Plot Network. Chapter 54 in *The First 100 Years of Research on Barro Colorado: Plant and Ecosystem Science*, ed. H. C. Muller-Landau and S. J. Wright: Smithsonian Institution Scholarly Press.

Muller-Landau, H. C., and S. J. Wright. In press. The Importance and Diversity of Dominant Plant Species of Barro Colorado Island, and the Value of Focal Species Accounts. Chapter 69 in *The First 100 Years of Research on Barro Colorado Island: Plant and Ecosystem Science*, ed. H. C. Muller-Landau and S. J. Wright: Smithsonian Institution Scholarly Press.

Williamson, C. G., and **H. C. Muller-Landau**. In press. *Socratea exorrhiza*, the Walking Palm. Chapter 76 in *The First 100 Years of Research on Barro Colorado Island: Plant and Ecosystem Science*, ed. H. C. Muller-Landau and S. J. Wright: Smithsonian Institution Scholarly Press.

Muller-Landau, H. C., and S. J. Wright. In press. Looking Forward to the Next 100 Years of Plant and Ecosystem Science at Barro Colorado. Chapter 98 in *The First 100 Years of Research on Barro Colorado Island: Plant and Ecosystem Science*, ed. H. C. Muller-Landau and S. J. Wright: Smithsonian Institution Scholarly Press.

PEER-REVIEWED SCHOLARLY PUBLICATIONS (134)

Lee, C. K. F., G. Song, **H. C. Muller-Landau,** S. Wu, S. J. Wright, K. C. Cushman, R. F. Araujo, S. Bohlman, Y. Zhao, Z. Lin, Z. Sun, P. C. Y. Cheng, M. K.-P. Ng, and J. Wu. 2023. Cost-effective and accurate monitoring of flowering across multiple tropical tree species over two years with a time series of high-resolution drone imagery and deep learning. *ISPRS Journal of Photogrammetry and Remote Sensing*, 201: 92-103. https://doi.org/https://doi.org/10.1016/j.isprsjprs.2023.05.022

Zuleta, D., **H. C. Muller-Landau**, A. Duque, N. Caro, D. Cardenas, N. Castaño, J. D. León-Peláez, and K. J. Feeley. 2022. Interspecific and intraspecific variation of tree branch, leaf and stomatal traits in relation to topography in an aseasonal Amazon forest. *Functional Ecology* 36:2955-2968. https://doi.org/ https://doi.org/10.1111/1365-2435.14199

Fang, Y., L. R. Leung, C. D. Koven, G. Bisht, M. Detto, Y. Cheng, N. McDowell, **H. Muller-Landau**, S. J. Wright, and J. Q. Chambers. 2022. Modeling the topographic influence on aboveground biomass using a coupled model of hillslope hydrology and ecosystem dynamics. *Geoscientific Model Development* 15: 7879-7901. https://doi.org/10.5194/gmd-15-7879-2022

Needham, J. F., G. Arellano, S. J. Davies, R. A. Fisher, V. Hammer, R. G. Knox, D. Mitre, **H. C. Muller-Landau,** D. Zuleta, and C. D. Koven. 2022. Tree crown damage and its effects on forest carbon cycling in a tropical forest. *Global Change Biology*, 28: 5560-5574. https://doi.org/https://doi.org/10.1111/gcb.16318

Cushman, K. C., M. Detto, M. García, and **H. C. Muller-Landau**. 2022. Soils and topography control natural disturbance rates and thereby forest structure in a lowland tropical landscape. *Ecology Letters* 25:1126-1138. https://doi.org/10.1111/ele.13978

Hanbury-Brown, A. R., T. L. Powell, **H. C. Muller-Landau**, S. J. Wright, and L. M. Kueppers. 2022. Simulating environmentally-sensitive tree recruitment in vegetation demographic models. *New Phytologist* 253:78-93. https://doi.org/10.1111/nph.18059

Piponiot, C., K. J. Anderson-Teixeira, S. J. Davies, D. Allen, N. A. Bourg, D. F. R. P. Burslem, D. Cárdenas, C.-H. Chang-Yang, G. Chuyong, S. Cordell, H. S. Dattaraja, Á. Duque, S. Ediriweera, C. Ewango, Z. Ezedin, J. Filip, C. P. Giardina, R. Howe, C.-F. Hsieh, S. P. Hubbell, F. M. Inman-Narahari, A. Itoh, D. Janík, D. Kenfack, K. Král, J. A. Lutz, J.-R. Makana, S. M. McMahon, W. McShea, X. Mi, M. Bt. Mohamad, V. Novotný, M. J. O'Brien, R. Ostertag, G. Parker, R. Pérez, H. Ren, G. Reynolds, M. D. Md Sabri, L. Sack, A. Shringi, S.-H. Su, R. Sukumar, I. F. Sun, H. S. Suresh, D. W. Thomas, J. Thompson, M. Uriarte, J. Vandermeer, Y. Wang, I. M. Ware, G. D. Weiblen, T. J. S. Whitfeld, A. Wolf, T. L. Yao, M. Yu, Z. Yuan, J. K. Zimmerman, D. Zuleta, and **H. C. Muller-Landau**. 2022. Distribution of biomass dynamics in relation to tree size in forests across the world. *New Phytologist*. 234:1664-1677. https://doi.org/10.1111/nph.17995

Zuleta, D., G. Arellano, **H. C. Muller-Landau,** S. M. McMahon, S. Aguilar, S. Bunyavejchewin, D. Cárdenas, C.-H. Chang-Yang, A. Duque, D. Mitre, M. Nasardin, R. Pérez, I. F. Sun, T. L. Yao, and S. J. Davies. 2022. Individual tree damage dominates mortality risk factors across six tropical forests. *New Phytologist* 233:705-721. https://doi.org/10.1111/nph.17832

Araujo, R. F., S. Grubinger, C. H. S. Celes, R. I. Negrón-Juárez, M. Garcia, J. P. Dandois, and **H. C. Muller-Landau**. 2021. Strong temporal variation in treefall and branchfall rates in a tropical forest is related to extreme rainfall: results from 5 years of monthly drone data for a 50-ha plot. *Biogeosciences* 18:6517-6531. https://doi.org/10.5194/bg-18-6517-2021

Meunier, F., M. D. Visser, A. Shiklomanov, M. C. Dietze, J. A. Guzmán Q, G. A. Sanchez-Azofeifa, H. P. T. De Deurwaerder, S. M. Krishna Moorthy, S. A. Schnitzer, D. C. Marvin, M. Longo, C. Liu, E. N. Broadbent, A. M. Almeyda Zambrano, **H. C. Muller-Landau**, M. Detto, and H. Verbeeck. 2022. Liana optical traits increase tropical forest albedo and reduce ecosystem productivity. *Global Change Biology* 28:227-244. https://doi.org/10.1111/gcb.15928

Cushman, K. C., S. Bunyavejchewin, D. Cardenas, R. Condit, S. J. Davies, A. Duque, S. P. Hubbell, S. Kiratiprayoon, S. K. Y. Lum, and **H. C. Muller-Landau**. 2021. Variation in trunk taper of buttressed trees within and among five lowland tropical forests. *Biotropica* 53:1442-1453. https://doi.org/10.1111/btp.12994

Banbury Morgan, R., V. Herrmann, N. Kunert, B. Bond-Lamberty, **H. C. Muller-Landau**, and K. J. Anderson-Teixeira. 2021. Global patterns of forest autotrophic carbon fluxes. *Global Change Biology* 27:2840-2855. https://doi.org/10.1111/gcb.15574

Anderson-Teixeira, K. J., V. Herrmann, R. Banbury Morgan, B. Bond-Lamberty, S. C. Cook-Patton, A. E. Ferson, **H. C. Muller-Landau**, and M. M. H. Wang. 2021. Carbon cycling in mature and regrowth forests globally. *Environmental Research Letters* 16:053009. https://doi.org/10.1088/1748-9326/abed01

Kunert, N., J. Zailaa, V. Herrmann, **H. C. Muller-Landau**, S. J. Wright, R. Pérez, S. M. McMahon, R. C. Condit, S. P. Hubbell, L. Sack, S. J. Davies, and K. J. Anderson-Teixeira. 2021. Leaf turgor loss point shapes local and regional distributions of evergreen but not deciduous tropical trees. *New Phytologist* 230:485-496 https://doi.org/10.1111/nph.17187

Muller-Landau, H. C., K. C. Cushman, E. E. Arroyo, I. Martinez Cano, K. J. Anderson-Teixeira, and B. Backiel. 2021. Patterns and mechanisms of spatial variation in tropical forest

productivity, woody residence time, and biomass. *New Phytologist* 229:3065-3087. https://doi.org/10.1111/nph.17084 (Commissioned Tansley review)

Davies, S. J., I. Abiem, K. Abu Salim, S. Aguilar, D. Allen, A. Alonso, K. Anderson-Teixeira, A. Andrade, G. Arellano, P. S. Ashton, P. J. Baker, M. E. Baker, J. L. Baltzer, Y. Basset, P. Bissiengou, S. Bohlman, N. A. Bourg, W. Y. Brockelman, S. Bunyavejchewin, D. F. R. P. Burslem, M. Cao, D. Cárdenas, L.-W. Chang, C.-H. Chang-Yang, K.-J. Chao, W.-C. Chao, H. Chapman, Y.-Y. Chen, R. A. Chisholm, C. Chu, G. Chuyong, K. Clay, L. S. Comita, R. Condit, S. Cordell, H. S. Dattaraja, A. A. de Oliveira, J. den Ouden, M. Detto, C. Dick, X. Du, Á. Duque, S. Ediriweera, E. C. Ellis, N. L. E. Obiang, S. Esufali, C. E. N. Ewango, E. S. Fernando, J. Filip, G. A. Fischer, R. Foster, T. Giambelluca, C. Giardina, G. S. Gilbert, E. Gonzalez-Akre, I. A. U. N. Gunatilleke, C. V. S. Gunatilleke, Z. Hao, B. C. H. Hau, F. He, H. Ni, R. W. Howe, S. P. Hubbell, A. Huth, F. Inman-Narahari, A. Itoh, D. Janík, P. A. Jansen, M. Jiang, D. J. Johnson, F. A. Jones, M. Kanzaki, D. Kenfack, S. Kiratiprayoon, K. Král, L. Krizel, S. Lao, A. J. Larson, Y. Li, X. Li, C. M. Litton, Y. Liu, S. Liu, S. K. Y. Lum, M. S. Luskin, J. A. Lutz, H. T. Luu, K. Ma, J.-R. Makana, Y. Malhi, A. Martin, C. McCarthy, S. M. McMahon, W. J. McShea, H. Memiaghe, X. Mi, D. Mitre, M. Mohamad, L. Monks, **H. C. Muller-Landau**, P. M. Musili, J. A. Myers, A. Nathalang, K. M. Ngo, N. Norden, V. Novotny, M. J. O'Brien, D. Orwig, R. Ostertag, K. Papathanassiou, G. G. Parker, R. Pérez, I. Perfecto, R. P. Phillips, N. Pongpattananurak, H. Pretzsch, H. Ren, G. Reynolds, L. J. Rodriguez, S. E. Russo, L. Sack, W. Sang, J. Shue, A. Singh, G.-Z. M. Song, R. Sukumar, I. F. Sun, H. S. Suresh, N. G. Swenson, S. Tan, S. C. Thomas, D. Thomas, J. Thompson, B. L. Turner, A. Uowolo, M. Uriarte, R. Valencia, J. Vandermeer, A. Vicentini, M. Visser, T. Vrska, X. Wang, X. Wang, G. D. Weiblen, T. J. S. Whitfeld, A. Wolf, S. J. Wright, H. Xu, T. L. Yao, S. L. Yap, W. Ye, M. Yu, M. Zhang, D. Zhu, L. Zhu, J. K. Zimmerman, and D. Zuleta. 2021. ForestGEO: Understanding forest diversity and dynamics through a global observatory network. *Biological Conservation* 253:108907. https://doi.org/10.1016/j.biocon.2020.108907

Araujo R. F., J. Q. Chambers, C. H. S. Celes, **H. C. Muller-Landau,** A. P. F. de Santos, F. Emmert, G. H. P. M. Ribeiro, B. Oliva Gimenez, A. J. N. Lima, M. A. A. Campos, and N. Higuchi. 2020. Integrating high resolution drone imagery and forest inventory to distinguish canopy and understory trees and quantify their contributions to forest structure and dynamics. *PLoS ONE* 15(12): e0243079. https://doi.org/10.1371/journal.pone.0243079

Gora, E. M., J. C. Burchfield, **H. C. Muller-Landau**, P. M. Bitzer, and S. P. Yanoviak. 2020. Pantropical geography of lightning-caused disturbance and its implications for tropical forests. *Global Change Biology* 26:5017-5026. https://doi.org/10.1111/gcb.15227

Martínez Cano I, E. Shevliakova, S. Malyshev, S. J. Wright, M. Detto, S. W. Pacala, and **H. C. Muller-Landau.** 2020. Allometric constraints and competition enable the simulation of size structure and carbon fluxes in a dynamic vegetation model of tropical forests (LM3PPA-TV). *Global Change Biology* 26:4478-4494. https://doi.org/10.1111/gcb.15188

Muller-Landau, H. C. and S. W. Pacala. 2020. What determines the abundance of lianas and vines? Pages 239-264 in *Unsolved Problems in Ecology*, edited by A. Dobson, D. Tilman, and R. D. Holt. Princeton University Press. https://doi.org/10.2307/j.ctvs9fh2n.23 https://www.researchgate.net/publication/341845219_What_Determines_the_Abundance_of_Lianas_and_Vines *Awarded the Smithsonian Secretary's Research Prize for 2020.*

Koven, C. D., R. G. Knox, R. A. Fisher, J. Q. Chambers, B. O. Christoffersen, S. J. Davies, M. Detto, M. C. Dietze, B. Faybishenko, J. Holm, M. Huang, M. Kovenock, L. M. Kueppers, G.

Lemieux, E. Massoud, N. G. McDowell, **H. C. Muller-Landau**, J. F. Needham, R. J. Norby, T. Powell, A. Rogers, S. P. Serbin, J. K. Shuman, A. L. S. Swann, C. Varadharajan, A. P. Walker, S. J. Wright, and C. Xu. 2020. Benchmarking and parameter sensitivity of physiological and vegetation dynamics using the Functionally Assembled Terrestrial Ecosystem Simulator (FATES) at Barro Colorado Island, Panama. *Biogeosciences* 17:3017-3044. https://doi.org/10.5194/bg-17-3017-2020

Gora, E. M., **H. C. Muller-Landau**, J. C. Burchfield, P. M. Blitzer, S. P. Hubbell, and S. P. Yanoviak. 2020. A mechanistically and empirically supported lightning risk model for forest trees. *Journal of Ecology* 108:1956-1966. https://doi.org/10.1111/1365-2745.13404

Rutishauser, E., S. J. Wright, R. Condit, S. P. Hubbell, S. J. Davies, and **H. C. Muller-Landau**. 2020. Testing for changes in biomass dynamics in large-scale forest datasets. *Global Change Biology* 26:1485-1498. https://doi.org/10.1111/gcb.14833

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Field Code Changed

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Eva Arroyo, STRI intern, June 2018 – June 2019.
Jeremy Starn, STRI intern, March 2019 – June 2019.
Sam Grubinger, STRI intern, November 2017 – June 2018.
Victoria (Tori) Meakem, STRI intern, October 2017 – April 2018.
Fabrizzio Protti, STRI intern, May 2016 – August 2017.
Areli Benito, STRI intern, August 2015 – June 2016.
Ryan Nolin, STRI intern, June-August 2015.
Marino Ramirez, STRI intern, October 2014 – May 2015.
Carrie Tribble, STRI intern, October 2014 – August 2015.
Emily Francis, STRI intern, January – August 2014.
KC Cushman, STRI intern, September 2012 – August 2014.
Jeff Matzke, University of Minnesota, fall 2007.
Milcah Scott, University of Minnesota, fall 2007.
Caroline Farrior, University of Pennsylvania, summer 2006.
Sonja Riddle-Ford, SEPGM program, University of Minnesota, summer 2006.
John Best, REU student from Clarkson University, spring 2006.
Josh Dumas, SEPGM program, University of Minnesota, summer 2005.
Sarah Kaplan, Princeton University, summer 1999.

SCIENTIFIC SERVICE

Senior editor, *Ecology Letters*, 2020-present.

Editorial board member: *Functional Ecology* 2016 – 2020. *Methods in Ecology and Evolution* 2012-2015; *Theoretical Ecology* 2007-2011; *Ecological Research* 2004-2007.

Biosphere 2 Science Advisory Board, 2020 – present.

International Tree Mortality Network, advisory board member, 2019 – present.

National Science Foundation BIO review panels: 2021, 2020, 2009, 2006.

Reviewer for the journals *Science*, *Nature, PNAS*, *Ecology Letters*, *American Naturalist, Ecology, Journal of Ecology, Oecologia, Oikos*, *Theoretical Population Biology*, *Biotropica*, *Plant Ecology*, *Molecular Ecology, Methods in Ecology and Evolution, Nature Communications, PLoS One*, *Plant Biology, Forest Ecology and Management, Journal of Environmental Monitoring, Ecosystems, Theoretical Ecology, Acta Oecologia, New Phytologist, Ecological Research, PLOS Biology*, *Proceedings of the Royal Society*, *Trends in Ecology and Evolution, Ecological Monographs, Journal of Theoretical Biology*, *Bulletin of Mathematical Biology*, *Functional Ecology, Journal of Applied*

Ecology, *Ecological Applications*, *Journal of Tropical Ecology*, *Plant Ecology*, *Journal of Vegetation Science*, *Canadian Journal of Forest Research*, *Ecoscience, Annales Botanici Fenici*, *Diversity and Distribution*, *Dispersal and Distributions*, as well as for Springer and Princeton University Press.

Reviewer for national and international funding agencies: the National Science Foundation (NSF, USA), DOE National Institute for Climatic Change Research (NICCR, USA), MacArthur Foundation, Netherlands Organisation for Scientific Research (NWO, the Netherlands), National Environmental Research Council (NERC, UK), Deutsche Forschungsgemeinschaft (DFG, Germany), Swiss National Science Foundation (Switzerland), Fund for Scientific Research (FNRS, France), Binational Science Foundation (BSF, Israel).

European Space Agency Climate Change Initiative Biomass Change Workshop, Co-chair of the session on "Change on the ground". October 19 – November 6, 2020.

Chairperson, NEON (National Ecological Observatory Network) Plant Productivity and Biomass Technical Working Group, 2012-2017.

Silvacarbon technical team member, 2012.

SMITHSONIAN SERVICE

Chair of the Scientific Organizing Committee for the Barro Colorado Island Centennial Symposium. 2023-2024.

Head of the Covid-19 task force for Barro Colorado Island, 2020.

Chair of the working group on revising the STRI Expectations of Conduct, 2020.

Co-chair of STRI's seminar program. 2020-2022.

Member of the STRI short-term fellowship proposal review committee. 2016 –2021.

Member of STRI's Scientific Council. 2013 – 2015

Chair of STRI's seminar program. 2011 – 2015.

Chair of the Center for Tropical Forest Science working group on carbon dynamics, and lead author of the resulting 25-year plan for carbon dynamics research on CTFS plots. 2006.

Gave talks for the Fundacion Smithsonian and STRI advisory board as requested. January 8, 2013: "Carbon budgets of tropical forests." September 18, 2013: "A high resolution carbon map of Panama."

Ad hoc reviewer of internal Smithsonian fellowship proposals, ongoing.

Review committee for STRI's Senior Latin American fellowships, February 2016.

INVITED SEMINARS

International Tree Mortality Network. December 6, 2022.
Cornell University. August 30, 2021.
NASA Jet Propulsion Laboratory. May 6, 2021.
University of Queensland. September 24, 2020.
Smithsonian Environmental Research Center. April 30, 2018.
Radboud University Nijmegen. November 15, 2016.
University of Florida. October 14, 2016.
Princeton University. April 21, 2016.
University of Miami, Gifford Arboretum speaker. April 7, 2016.
Fairchild Botanical Garden. February 22, 2015. Keynote speaker, Tropical Biology Symposium.
Oxford University. June 21, 2014.
Oak Ridge National Labs. January 31, 2013.
National Institute for Mathematical and Biological Synthesis. January 29, 2013.
University of Florida. December 11, 2012.
University of Arizona. November 26, 2012.
Princeton University. December 1, 2011.
University of Utah. September 22, 2010.
Laboratoire Evolution et Diversité Biologique, Centre National de la Recherche Scientifique, Toulouse, France. June 9, 2010.
Utrecht University, Utrecht, the Netherlands. May 25, 2010.
Wageningen University and Research Centre, Wageningen, the Netherlands. May 20, 2010.
Nijmegen University, Nijmegen, the Netherlands. May 19, 2010.
Gröningen University, Gröningen, the Netherlands. May 17, 2010.
University of Toronto, Toronto, Canada. April 10, 2010.
Forest Research Institute of Malaysia, Kuala Lumpur, Malaysia. May 26, 2008.
Kunming Institute of Botany, Chinese Academy of Sciences, Kunming., China April 29, 2008.
Institute of Botany, Chinese Academy of Sciences, Beijing, China. April 18,19, 2008.
Fushan Research Station, Fushan, Taiwan. April 12,13, 2008.
University of Georgia, Athens, Institute of Ecology. January 26, 2006.
Carleton College, Minnesota. October 31, 2005.
Kellogg Biological Station, Michigan State University. October 21, 2005.
University of Puerto Rico, Rio Piedras. June 1, 2005.
Ohio University. April 21, 2005.
University of Michigan, Ann Arbor. March 25, 2003.
University of Colorado, Boulder. March 6, 2003.
University of Minnesota. February 19, 2003.
University of Tennessee, Knoxville. January 27, 2003.

University of Ulm, Germany. December 18, 2001.

INVITED CONFERENCE PRESENTATIONS

Muller-Landau, H. C., E. E Arroyo, I. Martinez Cano, B. Backiel, and K. J. Anderson-Teixeira. Patterns and mechanisms of local, regional, and global variation in tropical forest woody productivity, turnover rates, and biomass carbon stocks. In the session "Tropical forests under Changing Environments." American Geophysical Union annual meeting. San Francisco, CA. December 10, 2019.

Muller-Landau, H. C. The Smithsonian ForestGEO Network. Keck Institute of Space Science. Workshop on Unlocking a New Era in Biodiversity Science: Linking Integrated Space Based and In-Situ Observations – Part II. Pasadena, California. March 19, 2019.

Muller-Landau, H. C. Tropical forests: representation in models, and the ForestGEO plots. Keck Institute of Space Science. Workshop on Unlocking a New Era in Biodiversity Science: Linking Integrated Space Based and In-Situ Observations – Part I. Pasadena, California. October 2, 2018.

Muller-Landau, H. C., S. A. Levin, S. W. Pacala, S. A. Schnitzer, M. D. Visser, and S. J. Wright. Interspecific trait variation in lianas (woody climbers) and its importance for understanding the abundance and impact of lianas. Organized oral session on "Integrating trait-based ecology across plants and microbes to predict ecosystem functioning." Ecological Society of America annual meeting. Portland, Oregon. August 7, 2017.

Muller-Landau, H. C. What determines the abundance and impact of lianas? *Invited keynote.* European Conference of Tropical Ecology and the Annual meeting of the Society for Tropical Ecology. Brussels, Belgium. February 10, 2017.

Muller-Landau, H. C. What determines the abundance and ecosystem impact of lianas and vines? Invited keynote. NGEE-Tropics annual meeting. Washington, DC. September 21, 2016.

Muller-Landau, H. C. Tree and forest allometries: Critical links between field and remote sensing data. Smithsonian-NASA workshop on Calibration and Validation of Upcoming NASA and ESA Satellite Missions on Forest Structure and Biomass. Washington, DC. June 2, 2016.

Muller-Landau, H. C., S. J. Wright, M. Detto, E. Lebrija-Trejos, R. Alfaro Sánchez, K. C. Cushman, C. Tribble, O. Calderón, P. Ramos, and P. Villareal. Interspecific variation in responses of tropical trees to interannual climate variation. Organized oral session on Functional, Phylogenetic and Genetic Dimensions of Forest Diversity and Change. Ecological Society of America annual meeting in Baltimore, Maryland. August, 2015.

Muller-Landau, H. C. Tropical forest carbon stocks and fluxes. Threats to tropical rainforests in an era of rapid environmental change – a global synthesis. London, UK. October 6, 2014.

Muller-Landau, H. C. Conceptual frameworks for understanding anthropogenic disruption of ecological communities. Tansley meeting: Bridging the gap between community ecology and conservation. Silwood Park, Imperial College of London. June 23, 2014.

Muller-Landau, H. C. A theoretical framework for effects of defaunation on plant communities. Workshop on Trophic downgrading and its biodiversity consequences in Neo- versus Afrotropical rainforests. La Selva Biological Station, Costa Rica. June 30, 2013.

Muller-Landau, H. C., M. Detto, and F. Adler. How seed dispersal distances and natural enemy interaction scales influence population spatial structure, population regulation, and diversity maintenance. Association for Tropical Biology and Conservation annual meeting. San Jose, Costa Rica. June 26, 2013.

Muller-Landau, H. C. and M. Detto. Investigating seed dispersal and natural enemy attack with wavelet variances and moment methods. Everything Disperses to Miami: The role of Movement and Dispersal in Ecology, Epidemiology and Environmental Sciences. Miami, FL. December 14, 2012.

Muller-Landau, H. C., M. Visser, M. Detto, E. Jongejans, R. Chisholm, H. de Kroon, and S. J. Wright. Quantifying contributions to diversity maintenance: using population biology to address community-level questions. European Population Biology annual meeting. Zurich, Switzerland. May 19, 2012.

Muller-Landau, H. C., M. Detto, and R. Chisholm. Random and systematic errors in estimates of aboveground biomass stocks and fluxes in tropical forests. Silvacarbon Uncertainty workshop. Washington, DC. October 26, 2011.

Muller-Landau, H. C., M. Detto, and S. J. Wright. Interannual variation in leaf, fruit and flower production in Panamanian tropical forests and the implications for understanding global change. Launching Meeting and Open Symposium of NSF-NSFC Joint Project (Dimensions IRCN: Diversity and Forest Change: Characterizing functional, phylogenetic and genetic contributions to diversity gradients and dynamics in tree communities). Beijing, China. July 28, 2011.

Muller-Landau, H. C. Tropical forest dynamics and carbon budgets in a changing world. Environmental Leadership and Training Initiative conference on REDD+: Technical, Socioeconomic and Political Dimensions. Panama City, Panama. April 7, 2011.

Muller-Landau, H. C., S. J. Wright, M. Detto, R. A. Chisholm, R. Condit, and S. P. Hubbell. Interannual variation in carbon stocks and fluxes in Panamanian tropical forests and their implications for understanding global change. British Ecological Society symposium on Forests and Global Change. Cambridge, England. March 30, 2011.

Muller-Landau, H. C., M. Visser, E. Jongejans, H. de Kroon, S. J. Wright, P. Zuidema, S. Tuljapurkar. Quantifying the importance of niches to tree species coexistence using tree plot data and a life cycle approach. Symposium on Forest Dynamics Research at SIGeo-CTFS. Panama City, Panama. February 22, 2011.

Muller-Landau, H. C., S. J. Wright, O. Calderon, A. Hernandez. The tolerance-fecundity tradeoff and the maintenance of seed size diversity: theory and tests in a tropical forest. Frugivores and Seed Dispersal: Mechanisms and Consequences of a Key Interaction for Biodiversity. Montpellier, France. June 15, 2010.

Muller-Landau, H. C. The tolerance-fecundity tradeoff and the maintenance of diversity in seed size. Plant Population Biology: Crossing Borders. Nijmegen, the Netherlands. May 14, 2010.

Muller-Landau, H. C. The tolerance-fecundity tradeoff and the maintenance of seed size diversity in variable and changing environments. 6th Annual Harvard Plant Biology Symposium: Trees and the Global Environment. Harvard University, Cambridge, MA, USA. April 30, 2010.

Muller-Landau, H. C. , R. Valencia, M. Firdaus, S. Kiratiprayoon, R. Sukumar, S. Tan, S. Noor, S. Bunyavejchewin, S. Hubbell, and M. Larjavaara. Forest plots, climate change, and the global carbon cycle: Linking forest carbon dynamics to their drivers via forest structure

and composition. Taking Stock: HSBC Climate Partnership Research Meeting. Smithsonian Tropical Research Institute, Panama. March 1, 2010.

Muller-Landau, H. C. , S. Bunyavejchewin, M. Firdaus, S.P. Hubbell, S. Kiratiprayoon, M. Larjavaara, S. Schnitzer, Nur Supardi M. N., S. Tan, R. Valencia. Large forest plots, climate change, and the global carbon cycle: Linking forest carbon dynamics to their drivers via forest structure and composition. Organized Oral Session on Ecological Insights from Long-Term Research Plots in Tropical and Temperate Forests. Ecological Society of America Annual Meeting. Albuquerque, New Mexico, USA. August 6, 2009.

Muller-Landau, H. C. What can metabolic ecology contribute to plant ecology? Gordon Research Conference on the Metabolic Basis of Ecology. Biddeford, Maine. July 10, 2008.

Muller-Landau, H. C., S. Joseph Wright, O. Calderón, and A. Hernández. Colonization-related tradeoffs and the maintenance of seed size diversity in tropical forests. Symposium on Regeneration ecology across the tropics: Cross-site comparisons of seed and seedling dynamics. Association for Tropical Biology and Conservation annual meeting. Paramaribo, Suriname. June 12, 2008.

Liza Comita, Maria Uriarte, **Helene Muller-Landau**, Jill Thompson, Jess Zimmerman, and Stephen Hubbell. Seeing the forest for the species: Cross-site comparisons of tropical forest dynamics using hierarchical Bayesian models. Association for Tropical Biology and Conservation annual meeting. Symposium on Regeneration ecology across the tropics: Cross-site comparisons of seed and seedling dynamics. Paramaribo, Suriname. June 12, 2008.

Andy Jones and **Helene Muller-Landau**. Measuring long distance seed dispersal in complex tropical forests: integrating and evaluating genetic and classical techniques. Symposium on Advances in dispersal ecology: Applying molecular approaches to understanding movement pathways at local and landscape scales. Association for Tropical Biology and Conservation annual meeting. Paramaribo, Suriname. June 9, 2008.

Muller-Landau, H. C. and F. R. Adler. Diversity-enhancing Janzen-Connell effects: What do our studies really tell us about their role in plant communities? Association for Tropical Biology and Conservation annual meeting. Symposium on Ecological Theory and Tropical Ecology. Morelia, Mexico. July 17, 2007.

Comita, L. S., **H. C. Muller-Landau**, R. Condit, S. J. Wright, and S. P. Hubbell. To what degree do stabilizing (frequency-dependent) forces at different life stages contribute to tree species coexistence in tropical forests? Association for Tropical Biology and Conservation annual meeting. Symposium on Ecological Theory and Tropical Ecology. Morelia, Mexico. July 17, 2007.

Vargas-Timchencko, M., **H. Muller-Landau**, and S. J. Wright. Are lianas better than trees at colonizing treefall gaps as seeds or seedlings? Association for Tropical Biology and Conservation annual meeting. Symposium on Ecology and Management of Climbing Plants. Morelia, Mexico. July 18, 2007.

Wright, S. J. and **H. C. Muller-Landau**. Land use change, climate change and the extinction of tropical forest species. Association for Tropical Biology and Conservation annual meeting. Symposium on Debating the Tropical Extinction Crisis. Morelia, Mexico. July 18, 2007.

Jansen, P. A., P. Van Eijk, S. J. Wright, and **H. Muller-Landau**. Hunting relieves recruitment limitation in a Neotropical palm. Association for Tropical Biology and Conservation annual meeting. Symposium on Seed Dispersal and Seed Predation in Neotropical Palms. Morelia, Mexico. July 19, 2007.

Muller-Landau, H. C. Integrating theory and data to predict long-term effects of hunting on plant species composition and diversity. Association for Tropical Biology and Conservation annual meeting. Symposium on Hunting and Implications for Plants. Überlandia, Brazil. July 28, 2005.

Muller-Landau, H. C. and S. Joseph Wright. Competition-colonization trade-offs and seed limitation in tropical forests. International Botanical Congress. Symposium on Integrating the Dispersal-assembly and Niche-assembly Paradigms in Plant Communtiy Ecology. Vienna, Austria. July 19, 2005.

Muller-Landau, H. C. and S. Joseph Wright. Seed dispersal and species distributions in tropical forests today and in the future. International Botanical Congress. Symposium on The impact of plant dispersal on biogeography: Current understanding and prospect. Vienna, Austria. July 19, 2005.

Muller-Landau, H. C. and F. R. Adler. How dispersal affects interactions with natural enemies and their contribution to diversity maintenance. Plenary speaker. International Symposium/Workshop on Frugivores and Seed Dispersal. Brisbane, Australia. July 11, 2005.

Muller-Landau, H. C. Relating functional traits, demography, and size distributions of tropical tree species and communities. Association for Tropical Biology and Conservation annual meeting. Symposium on Morphology and Life History Relationships Among Neotropical Forest Trees. Miami, Florida. July 15, 2004.

Muller-Landau, H. C. Interspecific and intersite variation in wood density of tropical trees. Association for Tropical Biology annual meeting, Symposium on Four Neotropical Forests. Panama City, Panama. August 2, 2002.

Muller-Landau, H. C., J. K. Zimmerman, S. J. Wright, and J. Giacalone. Intersite and interannual variation in seed production and seed dispersal. Association for Tropical Biology annual meeting, Symposium on Tropical Forest Dynamics. Panama City, Panama. August 2, 2002.

Muller-Landau, H. C., S. J. Wright, S. P. Hubbell, R. Condit, R. B. Foster. What life history trade-offs do tropical trees face, and how do they contribute to tree diversity? Association for Tropical Biology annual meeting, Symposium on Tropical Tree Diversity. Panama City, Panama. July 31, 2002.

Muller-Landau, H. C., S. A. Levin, J. E. Keymer, and S. W. Pacala. Theoretical explorations of the evolution of long-distance dispersal: the example of specialized pests. Ecological Society of American annual meeting. Symposium on Long-Distance Dispersal. Madison, Wisconsin. August 6, 2001.

Muller-Landau, H. C., S. J. Wright, O. Calderón, A. Hernández, S. P. Hubbell, R. Condit, and R. B. Foster. Recruitment limitation in a seasonally wet tropical forest on Barro Colorado Island, Panama. Plenary speaker. Symposium-workshop on Frugivores and Seed Dispersal. Rio Quente, Brazil. August, 2000.

CONTRIBUTED CONFERENCE PRESENTATIONS

Muller-Landau, H. C., V. Vasquez, K. C. Cushman, R. F. Araujo, L. Gomez, M. Mitchell, D. Zuleta, R. I. Negrón-Juárez, G. Arellano, M. Detto, M. Garcia, P. Ramos, and P. Villareal. Quantifying Landscape-Level Tropical Forest Dynamics at Fine Temporal, Spatial, and

Taxonomic Resolution using Repeat Drone Photogrammetry on Barro Colorado Island, Panama. American Geophysical Union annual meeting. San Francisco, CA, USA. December 11, 2023.

K.C. Cushman, Raquel F. Araujo, Mia Mitchell, Milton Garcia, Matteo Detto, Samuel Grubinger, Carlos H. S. Celes, Robinson I. Negrón-Juárez, Jonathan P. Dandois, and **Helene C. Muller-Landau** (presenting author). Quantifying spatial and temporal variation in canopy tree mortality and branchfalls on Barro Colorado Island, Panama, using drone photogrammetry. Association for Tropical Biology and Conservation annual meeting. Cartagena, Colombia. July 11, 2022.

Rutishauser, E., S. J. Wright, R. Condit, S. P. Hubbell, S. J. Davies, and **H. C. Muller-Landau** (presenting author). Testing for changes in biomass dynamics in large-scale forest datasets. Poster. Department of Energy Earth System Science PI meeting. Potomac, MD. May 1, 2019.

S. Yanoviak, E. Gora, J. Burchfield, P. Blitzer, **H. C. Muller-Landau**, M. Detto, S. Paton, and S. P. Hubbell. Lightning is a major cause of large tree mortality in a tropical forest: a case study of Barro Colorado Island, Panama. Lightning talk. Department of Energy Earth System Science PI meeting. Potomac, MD. April 30, 2019.

Muller-Landau, H. C., A. Arroyo, I. Martinez-Cano, and K. Anderson-Teixeira. Patterns and mechanisms of local, regional, and global variation in tropical forest biomass carbon stocks. Annual meeting of DOE NGEE-Tropics. Washington, DC. December 8, 2018.

Muller-Landau, H. C. and M. D. Visser. The roles of lianas and vines in structuring tree communities: a general framework and a case study in a tropical forest. Ecological Society of America annual meeting in New Orleans, Louisiana. August 9, 2018.

Muller-Landau, H. C. What determines the abundance and impact of lianas? Association for Tropical Biology and Conservation annual meeting in Merida, Mexico. July 13, 2017.

Muller-Landau, H. C., S. J. Wright, M. Detto, E. Lebrija-Trejos, R. Alfaro Sánchez, K. C. Cushman, C. Tribble, O. Calderón, P. Ramos, and P. Villareal. Interspecific variation in responses of tropical trees to interannual climate variation. Association for Tropical Biology and Conservation annual meeting in Honolulu, Hawaii. July, 2015.

Muller-Landau, H., B. L. Turner, K. C. Cushman, J. Mascaro, G. P. Asner, M. Larjavaara, P. Ramos, P. Villareal, R. Condit, and S. P. Hubbell. Reservas de carbono en la isla Barro Colorado. Congreso nacional de ciencia y tecnología de la Asociación Panameña para el Avance de la Ciencia. October 16, 2014.

Muller-Landau, H. C., M. Detto, and F. R. Adler. How the spatial scales of interactions with natural enemies influence both their contributions to diversity maintenance and our ability to measure these contributions – and implications for the interpretation of Janzen-Connell studies. Ecological Society of America meeting in Portland, Oregon. August 2012.

Muller-Landau, H. C., S. Joseph Wright, O. Calderón, and A. Hernández. Colonization-related tradeoffs and the maintenance of seed size diversity in tropical forests. Ecological Society of America Annual Meeting. Milwaukee, Wisconsin. August 5, 2008.

Muller-Landau, H. C., B. L. Turner, M. Larjavaara, D. King, S. X. Dong, S. Bunyavejchewin, N. Supardi, S. P. Hubbell. Smithsonian Global Forest Carbon Research Initiative: Quantifying and explaining variation in carbon pools and fluxes in tropical and temperate forests. Association for Tropical Biology and Conservation annual meeting. Paramaribo, Suriname. June 12, 2008. (poster)

Muller-Landau, H. C. Forest carbon budgets and global change. Center for Tropical Forest Science workshop: Investigating responses of tropical forest carbon budgets and functional composition to global change. Singapore. April 7-9, 2008.

Muller-Landau, H. C. A new Smithsonian initiative on carbon budgets and impacts of global change in tropical and temperate forests. International Science Symposium on Climate Change and Biodiversity. Panama City, Panama. February 26, 2008.

Muller-Landau, H. C. Forest carbon budgets and global change: An HSBC-funded research program at CTFS. HSBC Climate Partnership meeting. Oxford, UK. January 24, 2008.

Muller-Landau, H. C. Investigating carbon dynamics and global change at CTFS. Center for Tropical Forest Science Principal Investigator's Meeting. Santa Barbara, California. September 14, 2007.

Muller-Landau, H. C. What keeps everyone in the game? Investigating the maintenance of species diversity. Packard Fellows Meeting. Monterey, California. September 6, 2007.

Muller-Landau, H.C., R.S. Condit, K.E. Harms, J.W. Ahmad, P. Ashton, S.A. Bohlman, S. Buyavejchewin, G. Chuyong, L. Co, S. Davies, S. Esufali, R. Foster, C.V.S. Gunatilleke, I.A.U.N. Gunatilike, P. Hall, T. Hart, F. He, S. Hebbalalu, C. Hernandez, S.P. Hubbell, A. Itol, R. John, D. Kenfack, S. Kiratiprayoon, J. V. LaFrankie, D. Lagunzad, E. Losos, J-R. Makana, S. Noor, T. Ohkubo, N. Pongpattananurak, C. Samper, L.H. Seng, D. Shivaramaiah, R. Sukumar, I-F. Sun, S. Tan, S. Thomas, D. Thomas, J. Thompson, M. Uriarte, R. Valencia, M.I. Vallejo, G. Villa, C. Wills, T. Yamakura. Scaling of demographic rates and tree size distributions in tropical forests. Center for Tropical Forest Science annual meeting. Panama City, Panama. June 5, 2005.

Muller-Landau, H. C., S. W. Pacala, S. P. Hubbell, R. Condit, R. B. Foster. Characterizing species regeneration strategies with respect to light availability in a wet tropical forest. Ecological Society of American annual meeting. Portland, Oregon. August 4, 2004.

Muller-Landau, H. C., Yu Yun Chen, I Fang Sun, S. J. Wright, S. P. Hubbell, N. Supardi Noor. Seed dispersal in a lowland dipterocarp forest. Seminar on Ecological Research in Tropical Forests. Forest Research Institute of Malaysia, Kuala Lumpur, Malaysia. August 19, 2003.

Muller-Landau, H. C. and S. J. Wright. Seed mass and the tradeoff between seed arrival and seed survival in central Panama. Association for Tropical Biology and Conservation annual meeting. Aberdeen, Scotland. July 9, 2003.

Muller-Landau, H. and J. Zimmerman. Seed dispersal and production in Luquillo. Luquillo LTER meeting. University of Puerto Rico. San Juan, Puerto Rico. January 18, 2003.

Muller-Landau, H. C., R. Condit, S. J. Wright, S. P. Hubbell, R. B. Foster. Life history diversity of tropical tree species and its consequences for forest-wide patterns of growth, mortality and size distributions. Ecological Society of America annual meeting, Tucson, Arizona. August 8, 2002.

Muller-Landau, H. C., S. P. Hubbell, S. W. Pacala, S. J. Wright, R. Condit, R. B. Foster. Interspecific differences in life history strategies of trees in a Panamanian forest: empirical patterns, physiological causes, and implications for forest dynamics. Center for Tropical Forest Science meeting. Singapore. June, 2000.

Muller-Landau, H. C., S. J. Wright, O. Calderon, A. Hernandez. Recruitment limitation of tree species on Barro Colorado Island, Panama. Workshop on biodiversity and ecosystem function. Centre for Population Biology at Silwood Park, Imperial College of London, UK. May 25, 2000.

Muller-Landau, H. C., S. J. Wright, S. P. Hubbell, R. B. Foster, R. Condit. Interspecific variation in seed shadows and fecundity of trees in a Neotropical forest. Ecological Society of American annual meeting, Spokane, WA. August, 1999.

Muller-Landau, H. C., S. J. Wright, O. Calderón, R. Condit, S. P. Hubbell, R. B. Foster. Interspecific variation in seed shadows and fecundity of trees in a neotropical forest. Center for Tropical Forest Science first network meeting. Washington, DC. July 1998.

Muller-Landau, H. C., B. S. Wechsler, R. Peréz, W. E. Pugh, E. A. Carlisle, S. P. Hubbell, R. Condit, and R. B. Foster. Abundance, distribution, growth and mortality patterns of seedlings and small saplings in a neotropical forest. Association for Tropical Biology annual meeting. San Jose, Costa Rica. June 1997.

Muller-Landau, H. and R. L. Boyce. WINWAT meets MTCLIM: coupling an input-intensive winter water relations model with an output-sparse mountain climate model. Poster. Ecological Society of America annual meeting. Snowbird, UT. August 1995.

Muller-Landau, H. C., J. Weiner, and A. Jasentuliyana. Spatial pattern, competitive asymmetry and size variability in an individual-based plant population model. Southeastern Mathematical and Statistical Ecology Conference, Raleigh, NC. 1994.

OTHER SEMINARS

Interspecific variation in tree-liana interactions and the implications for forest dynamics. ForestGEO seminar. February 16, 2022.

Plant strategies and tropical forest dynamics: insights from integrating modeling, long-term and large-scale field datasets, and drone remote sensing. Smithsonian Tropical Research Institute. October 5, 2021.

Patterns and mechanisms of spatial variation in tropical forest productivity, woody residence time, and biomass. Smithsonian Tropical Research Institute. Panama City, Panama. December 18, 2020.

What determines the abundance and impact of lianas? Smithsonian Tropical Research Institute. Panama City, Panama. November 1, 2016.

Why don't lianas take over forests everywhere? Pacala lab group meeting. Princeton University. January 11, 2016.

Investigating tropical forest structure, dynamics, and phenology using camera-carrying unmanned aerial vehicles. Theoretical ecology lab tea. Princeton University. October 14, 2015.

UAV forest ecology at STRI. David Coomes lab group. Cambridge University. March 9, 2015.

Patterns and causes of interspecific variation in seed arrival and seedling recruitment in a tropical tree community. Center for Tropical Forest Science talks. Smithsonian Tropical Research Institute. April 15, 2014.

Tropical forest carbon stocks: patterns and correlates at local and landscape scales. Smithsonian Tropical Research Institute. October 22, 2013.

Detecting and projecting forest biomass change from plot data. Smithsonian Tropical Research Institute. January 3, 2012.

Forest carbon and climate at CTFS/SIGEO plots. CTFS-SIGEO analytical workshop. Changbai station. Changbai, China. July 23, 2011.

Interannual variation in carbon stocks and fluxes in Panamanian tropical forests and their implications for understanding global change. CTFS-Science Talk. Smithsonian Tropical Research Institute. April 5, 2011.

The tolerance-fecundity tradeoff and the maintenance of diversity in seed size in plant communities. Smithsonian Tropical Research Institute. May 10, 2010.

Colonization-related tradeoffs and the maintenance of diversity in plant communities. Smithsonian Tropical Research Institute. June 30, 2009.

Towards a better understanding of tropical forest carbon dynamics and their responses to global change. Dept of Ecology and Evolutionary Biology, Princeton University. April 1, 2008

Towards a better understanding of tropical forest carbon dynamics and their responses to global change. Friday noon seminar series, Dept of Ecology, Evolution and Behavior, University of Minnesota. November 9, 2007.

Predicting the long-term effects of hunting on plant species composition and diversity in tropical forests. Program in Conservation Biology, University of Minnesota. November 13, 2006.

Tree allometry, growth, mortality and size distributions: Theoretical predictions and empirical patterns in 14 tropical forests. Smithsonian Tropical Research Institute. May 16, 2006.

Can the theory of metabolic ecology explain tropical forest dynamics and structure? Friday noon seminar series, Dept of Ecology, Evolution and Behavior, University of Minnesota. November 18, 2005.

Spatial dynamics of plant species and their specialized natural enemies. Friday noon seminar series, Dept of Ecology, Evolution and Behavior, University of Minnesota. April 29, 2005.

Spatial dynamics of plant species and their specialized natural enemies. Saint Anthony Falls Laboratory, University of Minnesota. April 13, 2005.

Tree size distributions in tropical forests. Princeton University, Princeton, NJ. Carbon Mitigation Initiative meeting. April 12, 2004.

Sapling growth and light availability in tropical forests: analyzing general patterns and sources of variation. Princeton University, Princeton, NJ. Theoretical ecology lab tea. March 23, 2004.

Understanding tree size distributions in tropical forests. Princeton University, Princeton, NJ. Ecology and Evolutionary Biology postdoc forum. February 19, 2004.

Scaling of demographic rates and tree size distributions in tropical forests. National Center for Ecological Analysis and Synthesis. Tropical Tree Life History Strategies working group. Santa Barbara, CA. December 7, 2003.

Comparing tropical forests: tree size distributions, seed dispersal, and related life history traits. National Center for Ecological Analysis and Synthesis. Advisory Council meeting. Santa Barbara, CA. September 11, 2003.

Understanding size distributions in tropical forests. National Center for Ecological Analysis and Synthesis. Santa Barbara, CA. May 12, 2003.

Understanding size distributions in tropical forests. Smithsonian Tropical Research Institute, Panama City, Panama. April 15, 2003.

Community ecology of trees on BCI: How can ARTS help? Workshop on plant-animal interactions. Smithsonian Tropical Research Institute, Panama. April 13, 2003.

Seed dispersal in two tropical forests: empirical patterns, their origins, and their consequences for forest dynamics. University of Utah, Salt Lake City. December 6, 2002.

Tropical tree life history strategies and community structure. Laboratoire ECOFOG, French Guiana. Ecologie Comparative en Foret Tropicale (Comparative Ecology in Tropical Forests). October 3, 2002.
Growth, mortality and the size distributions of tropical trees. Center for Tropical Forest Science workshop. Gamboa, Panama. July 25, 2002.
Seed production and dispersal in a tropical forest: empirical patterns, their origins, and their consequences for forest dynamics. National Center for Ecological Analysis and Synthesis. Santa Barbara, CA. February 7, 2002.
Interspecific and intersite variation in tree life history strategies: empirical patterns, their origins, and their consequences for forest dynamics. Cocha Cashu Biological Station, Peru. October 19, 2001.
Seed dispersal in a tropical forest: empirical patterns, their origins, and their consequences for forest dynamics. Princeton University, Princeton, NJ. Final public oral thesis defense. September 4, 2001.
Interspecific differences in life history strategies of trees in a Panamanian forest: empirical patterns, physiological causes, and implications for forest dynamics. Cambridge University, Cambridge, UK. May 22, 2000.
Recruitment limitation of tree species on Barro Colorado Island. Princeton University, Princeton, NJ. Theoretical ecology lab tea. May 12, 2000.
Interspecific variation in strategies of trees in a Panamanian tropical forest. Princeton University, Princeton, NJ. Ecology and Evolutionary Biology annual retreat. Fall 1999.
Interspecific variation in seed dispersal in a tropical forest. Theoretical Ecology lab tea. March 1999.
Interspecific variation in seed shadows and fecundity of trees in a neotropical forest. Smithsonian Tropical Research Institute. Bambi seminar. Smithsonian Tropical Research Institute. Barro Colorado Island, Panama. February 1999.
Disentangling the effects of dispersal patterns, density-dependent mortality, and habitat preferences. Princeton University, Princeton, NJ. Ecology and Evolutionary Biology annual retreat. Fall 1998.
Interspecific differences in seed dispersal curves of trees on Barro Colorado Island. Bambi seminar. Smithsonian Tropical Research Institute. Barro Colorado Island, Panama. May 1998.
Interspecific differences in mortality of tropical tree species on Barro Colorado Island. Princeton University, Princeton, NJ. Ecology and Evolutionary Biology annual retreat. Fall 1997.
Interspecific differences in sapling growth as a function of light availability: A comparative study of tropical trees using fisheye photos. Princeton University, Princeton, NJ. Ecology and Evolutionary Biology annual retreat. Fall 1996.

OUTREACH AND PUBLIC SERVICE

Gave a talk on “Cuantificación de la variación espacial y temporal en la mortalidad y caída de ramas de los árboles del dosel en la isla de Barro Colorado, Panamá, mediante fotogrametría con drones” for the STRI Gigante field course for Panamanian undergraduates. November 13, 2023.

Panama REDD+ (Reduced Emissions from Deforestation and Degradation) roundtable, MRV (Monitoring Reporting Verification) subgroup, a joint initiative of ANAM (Autoridad Nacional del Ambiente) and UN-REDD. 2012-present.

Contributed a 35-minute talk on "Investigaciones del dosel del bosque utilizando drones" for Autoridad Aeronáutica Civil de Panama to celebrate the commemoration of el Día Meteorológico Mundial 2015. March 24, 2015.

Contributed a 20-minute talk on "Reservorios y flujos de carbono en bosques tropicales" for the STRI-INDICASAT science symposium, Panama City, Panama. May 22, 2014.

Contributed a 1-hour talk on "Spatial variation in forest biomass and consequences for remote sensing" for the regional workshop on forest monitoring GEO GFOI: methods for biomass estimation and forest-cover mapping in the tropics. Bogotá, Colombia December 3, 2013.

Gave a talk for the Barro Colorado Island tour guides on "Aerial imagery for ecology research." October 29, 2013.

Gave a 15-minute talk in Spanish for the XXVIII Olimpiada Iberoamericana de Matematica on the subject of the usefulness of mathematics for data analysis and modeling in ecology and environmental science. September 26, 2012

Gave talk for a training workshop for Panamanian middle school teachers on "Las Dinámicas de los Bosques Tropicales y sus Reservorios de Carbono en un Mundo Cambiante" on February 17, 2012. Punta Culebra Exhibition Center, Panama City, Panama.

Gave public talk at the University of Panama geography symposium, on "Variación del Clima en la Isla de Barro Colorado y sus Effectos en el Bosque" on October 18, 2011. Panama City, Panama.

Gave public talk for the Smithsonian Tropical Research Institute Series "Conversaciones en el Smithsonian" on "Variación del Clima en la Isla de Barro Colorado y sus Effectos en el Bosque" on September 28, 2011. Panama City, Panama.

Gave public talk on **"**Forest carbon budgets and global change" at HSBC headquarters, London. March 31, 2011. Talk for HSBC employees including "Climate Champions".

Gave talk on "Tropical forest dynamics and carbon budgets in a changing world". Environmental Leadership and Training Initiative conference on REDD+: Technical, Socioeconomic and Political Dimensions. Panama City, Panama. April 7, 2011.

Gave public talk at Smithsonian Tropical Research Institute (Charla del Mes) on "Presupuestos de carbono en bosques tropicales y el cambio climático global" on May 6, 2009. The talk led to a long article in the Sunday edition of the major local newspaper, La Prensa, which appeared on May 16.

Gave talk for Barro Colorado Island tour guides on “Presupuestos de carbono en bosques tropicales y el cambio climático global” on April 29, 2009.

Outreach to Minnesota students through the Bell Museum of Natural History at the University of Minnesota as part of the 2003-04 JASON curriculum on “Rainforests at the Crossroads.”

LANGUAGES

English – native tongue, fluent
Spanish - functional
German - conversational
French - reading