

Michiel van Breugel

Assistant professor, Yale-NUS College

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PERSONAL DATA

Date and place of birth: 25th of October 1971, Haarlem, The Netherlands

Nationality: Dutch

PROFESSIONAL APPOINTMENTS

Assistant Professor | 2014 – present

Environmental Studies, Yale-NUS College, Singapore

Department of Biological Sciences, National University of Singapore, Singapore

Postdoctoral Fellow | 2008 – 2013

Smithsonian Tropical research Institute, Panama

Lecturer | 2003 - 2007

Tropical Forestry, Hogeschool Larenstein, The Netherlands

ADDITIONAL APPOINTMENTS

Research Associate | 2010 – present

Smithsonian Tropical research Institute, Panama

Steering Committee | 2014 – present

Environmental Leadership and Training Initiative, Yale Forestry and Environmental Studies

ACADEMIC PREPARATION

Ph.D. | 2007

Wageningen University (WUR), Graduate School of Production Ecology & Resource Conservation, Wageningen, The Netherlands

- In collaboration with the Centre for Ecosystem Research (CIEco), Universidad Nacional Autónoma de México (UNAM), Morelia, Michoacán, Mexico
- Advisors: Prof. Dr. F. Bongers, WUR and Dr. M. Martinez Ramos, UNAM

M.Sc. Forest and Nature Management | 1997

Wageningen University, Department of Environmental sciences, Wageningen, The Netherlands

RESEARCH

Current | 2014 – present

- Secondary Forest Dynamics in a wet and a dry tropical landscape in Panama
- Functional composition and diversity of different vegetation types in Singapore
- Ecological restoration on degraded land in Eastern Kalimantan, Indonesia
- The role of nutrient limitation and symbiotic nitrogen fixation during lowland tropical rainforest succession (collaborator)
- The role of lianas in secondary forest succession – A liana removal experiment (collaborator)

Postdoc | 2008 - 2013

Smithsonian Tropical Research Institute (STRI) – ‘Agua Salud Project – understanding the role of forests in the provision of ecosystem services in the Panama Canal Watershed

- Leading the design, establishment and monitoring of long-term Secondary Forest Dynamics study in a moist and a dry tropical human-modified landscape (total of 177 permanent sample plots)
- Co-leading the design and establishment of a 60 ha mixed-species reforestation experiment as a platform for research on multiple scales, from tree interactions to ecosystem function and services
- Research on the ecology and restoration of new forests and their ecosystem functions in the context of both field experiments; including collaborative research with colleagues from a range of disciplines and institutions
- Ph.D. thesis committee member (Yale University), Co-supervision of M.Sc. student projects (Wageningen University 1, Utrecht University 3, Yale University 4, Eberhard University 1) and Undergraduate projects (Harvard University 1)

Ph.D. Research | 2000 – 2007

- Secondary Forest Dynamics in the Selva Lacandona region, southern Chiapas, Mexico
- Species diversity and dynamics in young secondary forests in rural landscape | Permanent sample plots vs. chronosequences | Neighbourhood competition and tree population dynamics | Biomass allocation patterns in relationship to species, species traits and local environment
- Supervision of five M.Sc. students (Wageningen University)

Research Fellow | 1999

Centre for Ecosystem Studies, Wageningen University

- Field studies on canopy dynamics and understory light in Mexico and French Guyana

Research assistant | 1998

Centre for Ecosystem Studies, UNAM, México

- Contribution to a study on comparative demography of five Moraceae species

M.Sc. Thesis work

- Field research on canopy structure, gap dynamics and light climate of tropical rain forest in

Cameroon (1995) | Evaluation of the forestry sector of Equatorial Guinea, in collaboration with local governmental and non-governmental stakeholders (1995) | Desktop study on the environmental and social impacts of a gold and copper mine in Indonesia for the Foundation Information & Documentation Papua People (1997)

TEACHING

Teaching

Yale-NUS College | **2014-present**

- Common Curriculum: Scientific Inquiry and Foundations of Science
- Environmental Studies: Ecology and Ecosystems, Restoration Ecology (both planned)

Environmental Leadership and Training Initiative | **2012-2014**

- Collaborating in setting up the Agua Salud Project site as an educational and training site for the Environmental Leadership and Training Initiative of Yale University and STRI. Supporting the design of courses for practitioners and policy-makers on the ecology, management and ecosystem functions of forests in human-modified landscapes
- Currently collaborating with ELTI in developing a permanent research, educational and training site in East Kalimantan, with a focus on forest and landscape restoration.

STRI Tropical Forest Ecology course | **2009-2012**

- Invited lectures (in English and Spanish) on reforestation, succession and forest ecosystem services and management

Hogeschool Larenstein, WUR | **2003-2007**

- Developing, coordination and teaching undergraduate courses on tropical forestry, nature management and conservation ecology, reforestation strategies, research methods, and forest ecology and management.
- Supervision of six undergraduate thesis projects

M.Sc. Forestry and Nature Management, WUR

- Guest lectures in 'Agroforestry' and 'Tropical Forest Ecology' courses | **2004-2005**
 - Teaching assistant 'Ecological Research Methods' | **2003**
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CONSULTANCY

Centre for Ecosystem Studies, Wageningen University, the Technological University of Chocó, Colombia (UTC) and NUFFIC | **2005 and 2007**

- Two 2-week missions consisting of intensive working group sessions in Quibdó Colombia, with UTC staff and students, to support the design of a new agroforestry curriculum at the UTC
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PUBLICATIONS

Craven, D., J.S. Hall, G.P. Berlyn, M.S. Ashton & M. van Breugel (2015) Changing gears during succession: shifting functional strategies in young tropical secondary forests. *Oecologia*, accepted for

publication.

- Barry, K.E., S. A. Schnitzer, M. van Breugel & J. S. Hall (2015) Rapid Liana Colonization and Community Development along a Secondary Forest Chronosequence. *Biotropica*, accepted for publication.
- Letcher, S.G., + 53 co-authors. (2015) Phylogenetic conservatism of successional habitat specialization in 14 Neotropical forests along a precipitation gradient. *Functional Ecology*, accepted for publication.
- van Breugel P., R. Kindt, J.-P.B. Lillesø, M. van Breugel (2015) Environmental Gap Analysis to Prioritize Conservation Efforts in Eastern Africa. *PLoS ONE* 10(4): e0121444.
- Falster D.S. et al (2015) BAAD: a Biomass And Allometry Database for woody plants. *Ecology* 96(5): 1445.
- Lohbeck, M., L. Poorter, M. Martínez-Ramos, J. Rodríguez-Velázquez, M. van Breugel, F. Bongers (2014) Changing drivers of species dominance during tropical forest succession. *Functional Ecology*, 28: 1052–1058
- Batterman, S.A., L.O. Hedin, M. van Breugel, J. Ransijn, D.J. Craven & J.S. Hall (2013) Key role of symbiotic dinitrogen fixation in tropical forest secondary succession. *Nature*, 502: 224–227
- Van Breugel, M., J.S. Hall, D.J. Craven, M. Bailon, A. Hernandez, M. Abbene, & P. van Breugel (2013) Succession of ephemeral secondary forests and their limited role for the conservation of floristic diversity in a human-modified tropical landscape. *PLoS ONE*, 8(12): e82433
- Zimmermann, B., A. Zimmermann, H.L. Scheckenbach, T.Schmid, J.S. Hall & M. van Breugel (2013) Changes in rainfall interception along a secondary forest succession gradient in lowland Panama. *Hydrology and Earth System Sciences*, 17: 4659-4670
- Asner, G.P., J. Mascaró, C. Anderson, D.E. Knapp, R.E. Martin, T. Kennedy-Bowdoin, M. van Breugel, S. Davies, J.S. Hall, H.C. Muller-Landau, C. Potvin, W. Sousa, J. Wright and E. Bermingham. (2013) High-fidelity national carbon mapping for resource management and REDD+. *Carbon Balance and Management* 2013, 8:7
- Lohbeck, M., L. Poorter, H. Paz, L. Pla, M. van Breugel, M. Martínez-Ramos & F. Bongers (2012) Functional diversity changes during tropical forest succession. *Perspectives in Plant Ecology, Evolution and Systematics*, 14 (2): 89-96
- Letcher, S., R. Chazdon, A. Andrade, F. Bongers, M. van Breugel, B. Finegan, S. Laurance, R. Mesquita, M. Martínez-Ramos & G. Williamson (2012). Phylogenetic community structure during succession: evidence from three Neotropical forest sites. *Perspectives in Plant Ecology, Evolution and Systematics*, 14(2): 79-87
- Van Breugel, M., P. van Breugel, P. Jansen, M. Martínez-Ramos & F. Bongers (2012). The relative importance of above- versus belowground competition for tree growth during early succession of a tropical moist forest. *Plant Ecology* 213 (1): 25-34
- Asner, G. P. , J. Mascaró, H.C. Muller-Landau, G. Vieilledent, R.Vaudry, M. Rasamoelina, J. Hall & M. van Breugel (2012). A Universal Airborne LiDAR Approach for Tropical Forest Carbon Mapping. *Oecologia* 168:1147–1160
- Van Breugel, M., J. Ransijn, D.J. Craven, F. Bongers & J.S. Hall (2011) Estimating carbon stock in secondary forests: Decisions and uncertainties associated with allometric biomass models. *Forest Ecology and Management* 262 (8): 1648-1657
- Van Breugel, M., J.S. Hall, D.J. Craven, T.G. Gregoire, A. Park, D.H. Dent, M.H. Wishnie, E. Mariscal, J. Deago, D. Ibarra, N. Cedeño & M.S. Ashton (2011) Early growth and survival of 49 tropical tree species across sites differing in soil fertility and rainfall in Panama. *Forest Ecology and Management* 261: 1580-1589

- Visser, M.D., E. Jongejans, M. van Breugel, P.A. Zuidema, Y.-Y. Chen, A. R. Kassim & H.de Kroon (2011) Strict mast fruiting for a tropical dipterocarp tree: A demographic cost-benefit analysis of delayed reproduction and seed predation. *Journal of Ecology* 99: 1033–1044
- Mascaro, J., G. P. Asner, H.C. Muller-Landau, M. van Breugel, J.S. Hall, & K. Dahlin (2011) Controls over aboveground forest carbon density on Barro Colorado Island, Panama. *Biogeosciences* 8: 1615-1629,
- Paul, Gillian S. F. Montagnini, G.P. Berlyn, D.J. Craven, M. van Breugel & J.S. Hall (2011) Comparisons of foliar herbivory and leaf defense traits among native tree species in a young plantation of Central Panama. *New Forests*, 3: 69-87
- Neumann-Cosel, L., B. Zimmermann, J.S. Hall, M.van Breugel & H. Elsenbeer (2011) Soil carbon dynamics under young tropical secondary forests on former pastures—A case study from Panama. *Forest Ecology and Management* 261: 1625-1633
- Hassler, S., B. Zimmermann, M.van Breugel, J.S. Hall & H. Elsenbeer (2011) Recovery of saturated hydraulic conductivity under secondary succession on former pasture in the humid tropics. *Forest Ecology and Management* 261: 1634-1642
- Hall, J.S., B.E. Love, E.J. Garen, J.L. Slusser, K. Saltonstall, S.Mathias, M. van Breugel, D.Ibarra, E.W. Bork, D. Spaner, M.H. Wishnie & M.S. Ashton (2011) Tree plantations on farms: Evaluating growth and potential for success. *Forest Ecology and Management* 261: 1675-1683
- Park, A.D., M. van Breugel, M.S. Ashton, M. Wishnie, E.Mariscal, J.Deago, D. Ibarra, N. Cedeño, & J.S. Hall (2010) Local and regional environmental variation influences the growth of tropical trees in selection trials in the Republic of Panama. *Forest Ecology and Management* 260: 12-21
- Brienen, R.J.W., E. Lebrija-Trejos, M. van Breugel, E.A. Pérez-García, F. Bongers, J.A. Meave & M. Martínez-Ramos (2008) The Potential of tree rings for the study of forest succession in southern Mexico. *Biotropica* 41: 186-195
- Chazdon, R.L., C.A. Harvey, O. Komar, D.M. Griffith, B.G. Ferguson, M. Martínez-Ramos, H. Morales, R. Nigh, L. Soto-Pinto, M. van Breugel & S.M. Philpott (2008) Beyond reserves: A research agenda for conserving biodiversity in human-modified tropical landscapes. *Biotropica* 41: 142-153
- Harvey, C.A., O. Komar, R. Chazdon, B.G. Ferguson, B. Finegan, D.M. Griffith, M. Martínez-Ramos, H. Morales, R. Nigh, L. Soto-Pinto, M. Van Breugel & M. Wishnie (2008) Integrating agricultural landscapes with biodiversity conservation in the Mesoamerican hotspot. *Conservation Biology* 22: 8-15
- López-Toledo, L., M. Martínez, M. van Breugel & F.J. Sterck (2008) Soil and light effects on the sapling performance of the shade-tolerant species *Brosimum alicastrum* (Moraceae) in a Mexican tropical rain forest. *Journal of Tropical Ecology* 24: 629–637
- Dekker, M., M. van Breugel & F. J. Sterck (2007) Effective height development of four co-occurring species in the gap-phase regeneration of Douglas fir monocultures under nature-oriented conversion. *Forest Ecology and Management* 238: 189-198, doi: 10.1016/j.foreco.2006.10.012
- Chazdon, R. L., S. Letcher, M. van Breugel, M. Martínez-Ramos, F. Bongers & B. Finegan (2007) Rates of change in tree communities of secondary Neotropical forests following major disturbances. *Philosophical Transactions of the Royal Society B* 362: 273-289
- Van Breugel, M., F. Bongers & M. Martínez-Ramos (2007) Species Dynamics during early secondary forest succession: recruitment, mortality and species turnover. *Biotropica* 39: 610-619
- Van Breugel, M., M. Martínez-Ramos & F. Bongers (2006) Community dynamics during early secondary succession in Mexican tropical rain forests. *Journal of Tropical Ecology* 22: 663-674

REVIEWS FOR JOURNALS

Functional Ecology, Oecologia, Biotropica, Forest Ecology and Management, Restoration Ecology, Journal of Tropical Ecology, Journal of Botany; Journal of Applied Ecology; Plant Ecology; American Naturalist, PLoS ONE

LANGUAGES

Dutch, English, Spanish