

## Danilo M. Neves

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### A. Professional Preparation

- 2013 D.Phil (PhD), Plant Ecology, Federal University of Minas Gerais, Department of Botany, Brazil. Includes a 12-month study period at the Royal Botanic Garden Edinburgh, UK (2012).
- 2009 MSc. Botany, Federal University of Mato Grosso do Sul, Center of Biological and Health Sciences, Brazil.
- 2006 B.A. Degree in Biology, Federal University of Mato Grosso do Sul, Pantanal Campus, Brazil.

### B. Professional Employment

- Since 2017 Postdoctoral research associate, Ecology and Evolutionary Biology, University of Arizona, USA. Mentors: Brian Enquist and Andrew Kerkhoff (Kenyon College)
- 2016 Early Career Research Fellow, Identification and Naming - Americas, Royal Botanic Gardens Kew, UK. Mentor: Bente Klitgaard
- 2014-2015 Postdoctoral research associate, Biodiversity and Evolution, Royal Botanic Garden Edinburgh, UK. Mentors: R. Toby Pennington and Kyle G. Dexter (University of Edinburgh).

### C. Grants and Fellowships

- 2017 CNPq-Brazil Universal Grant; **R\$130,000 BRL**; co-PI with PI Luciano Paganucci (Feira de Santana State University, Brazil). Topic: *Evolution of the Caatinga flora, northeastern South America – using legumes to investigate diversification patterns and processes in seasonally dry formations.*
- 2017 NSF/DEB-USA 36-month postdoctoral fellowship (ongoing); **\$141,000 USD**. Topic: *Macroecology of land plant biodiversity – niche evolution and ecological limits.* University of Arizona.
- 2017 CNPq-Brazil Travel Award; **R\$15,000 BRL** for a 2-month research period at the Goeldi Museum, Pará state, Brazil; Topic: *Niche evolution in Amazonian trees.*
- 2016 RBG Kew-UK Pilot Study Fund; **£5,000 GBP**; PI with co-PI Bente Klitgaard (Royal Botanic Gardens Kew). Topic: *Phenological evolution in the making of Neotropical biodiversity hotspots.*
- 2016 RBG Kew-UK Early Career Research Fellowship; **£34,000 GBP/year**. Topic: *Tropical Important Plant Areas in Bolivia.* Royal Botanic Gardens, Kew.

- 2016 Newton Fund-UK Travel Award; **£1,500 GBP** to attend a research workshop in Brasília, Brazil. Topic: *Climate and Landscape Change in the Pantanal: assessing environmental vulnerabilities and future water security in Brazil's wetland wilderness*. Workshop organized by Bronwen Whitney (Northumbria University, UK).
- 2016 FAPEMIG-Brazil Research Grant; **R\$52,500 BRL**; co-PI with PI Patricia Moreira (Federal University of Ouro Preto, Brazil). Topic: *Phylogeography and genetic diversity of Anadenanthera colubrina (Vell.) Brenan (Leguminosae - Mimosoideae) – a paradigmatic dry forest species*. The funds were granted but the entire call was cancelled due to budget cuts.
- 2014-2015 NERC-UK 36-month postdoctoral fellowship; **£92,184 GBP**. Topic: *Niche evolution of South American trees and its consequences*. Royal Botanic Garden Edinburgh and University of Leeds.
- 2012-2015 Mohamed Bin Zayed Species Conservation Grant; **\$5,000 USD**; PI with co-PI Kyle Dexter (University of Edinburgh, UK) and Ary Oliveira-Filho (Federal University of Minas Gerais, Brazil). Topic: *Spatial conservation planning for South American forgotten forests*.
- 2011-2012 CAPES Sandwich scholarship (Brazilian Academic Exchange Service); **£15,000 GBP** for a 12-month study period at the Royal Botanic Garden Edinburgh.
- 2010-2013 EMBRAPA-Brazil Research Grant; **R\$8,000 BRL**; PI with co-PI Suzana Salis (EMBRAPA Pantanal, Brazil). Topic: *Diversity and distribution of savannas and seasonally dry tropical forests in central-western Brazil* (PhD project).
- 2010-2013 CNPq-Brazil Research Grant; **R\$14,100 BRL**; PI with co-PI Ary Oliveira-Filho (Federal University of Minas Gerais). Topic: *Temporal turnover in seasonally dry tropical forests of central-western Brazil* (PhD project).
- 2009-2013 CAPES-Brazil 36-month scholarship (PhD); **R\$79,200 BRL**. Topic: *Environmental controls of floristic composition and phylogenetic turnover in seasonally dry tropical forests across eastern South America*.
- 2007-2009 FUNDECT/CAPES-Brazil 24-month scholarship (MSc); **R\$28,800 BRL**. Topic: *Post-fire phenology in rocky highland savannas of central-western Brazil*.

#### D. Publications (Refereed)

Bueno, M.L.; Pennington, R.T.; Dexter, K.G.; Pontara, V. Neves, D.M.; Ratter, J.A. & Oliveira-Filho, A.T. (2018) The environmental triangle of the Cerrado Domain: Ecological factors driving shifts in tree species composition between forests and savannas. *Journal of Ecology*. DOI: 10.1111/1365-2745.12969

- Damasceno-Junior, G.A.; Pott, A.; Neves, D.M.; Sciamarelli, A. & Fina, B.G. Flora lenhosa de florestas estacionais do estado de Mato Grosso do Sul: estado da arte. *Iheringia – Série Botânica* **73**, 65-79.
- Neves D.M.; Dexter K.G.; Pennington R.T.; Bueno M.L.; Miranda P.L.S. & Oliveira-Filho, A.T. (2018) Lack of floristic identity in campos rupestres – a hyperdiverse mosaic of rocky montane savannas in South America. *Flora* **238**, 24-31.
- LPWG – Legume Phylogeny Working Group (2017) A new subfamily classification of the Leguminosae based on a taxonomically comprehensive phylogeny. *Taxon* **66**, 44-77.
- Neves D.M.; Dexter K.G.; Pennington R.T.; Valente A.M.; Bueno M.L.; Eisenlohr P.V.; Fontes M.A.L.; Miranda P.L.S.; Moreira S.N.; Rezende V.L.; Saiter F.Z. & Oliveira-Filho A.T. (2017) Dissecting a biodiversity hotspot: The importance of environmentally marginal habitats in the Atlantic Forest Domain of South America. *Diversity and Distributions* **23**, 898-909.
- Bueno, M.L.; Pennington, R.T.; Dexter, K.G.; Kamino, L.H.Y.; Pontara, V. Neves, D.M.; Ratter, J.A. & Oliveira-Filho, A.T. (2016) Effects of quaternary climatic fluctuations on the distribution of neotropical savanna tree species. *Ecography* **40**, 403–414.
- DRYFLOR (2016) Plant diversity patterns in neotropical dry forests and their conservation implications. *Science* **353**, 1383-7.
- Power, M.J.; Whitney, B.S.; Mayle, F.E., Neves, D.M.; de Boer, E. & MacLean, K. (2016) Fire, climate and vegetation linkages in the Bolivian Chiquitano Seasonally Dry Tropical Forest. *Philosophical Transactions of the Royal Society B* **371**, 20150165.
- Carlos-Júnior, L.A.; Neves, D.M.; Barbosa, N.P.U.; Moulton, T.P. & Creed, J.C. (2015) Occurrence of an invasive coral in the southwest Atlantic and comparison with a congener suggest potential niche expansion. *Ecology and Evolution*, **5**, 2162-2171.
- Lehn, C.R.; Assis, E.L.M. & Neves, D.M. (2015) *Elaphoglossum discolor* (Kuhn) C.Ch. (Dryopteridaceae, Polypodiales, Monilophyta): first record for the state of Mato Grosso do Sul, Brazil. *Check List* **11**, 1715.
- Neves D.M.; Dexter K.G.; Pennington R.T.; Bueno M.L. & Oliveira-Filho, A.T. (2015) Environmental and historical controls of floristic composition across the South American Dry Diagonal. *Journal of Biogeography* **42**, 1566-1576.
- Oliveira-Filho, A.T.; Budke, J.C.; Jarenkow, J.A.; Eisenlohr, P.V. & Neves, D.M. (2015) Delving into the variations in tree species composition and richness across South American subtropical Atlantic and Pampean forests. *Journal of Plant Ecology*, **8**, 242-260.
- Bueno, M.L.; Neves, D.M.; Oliveira-Filho, A.T.; Lehn, C.R. & Ratter, J.A. (2013) A study in an area of transition between seasonally dry tropical forest and mesotrophic *cerradão* in Mato Grosso do Sul, southwestern Brazil. *Edinburgh Journal of Botany* **70**, 469-486.
- Bueno, M.L.; Neves, D.M.; Souza, A.F.; Rocha-Júnior, E.O.; Damasceno-Junior, G.A.; Pontara, V.; Laura, V.A. & Ratter, J.A. (2013) Influence of edaphic factors on

the floristic composition of an area of *cerradão* in the Brazilian central-west. *Acta Botanica Brasílica* **27**, 445-455.

Neves, D.M. & Damasceno-Junior, G.A. (2011) Post-fire phenology in a campo sujo vegetation in the Urucum plateau, Mato Grosso do Sul, Brazil. *Brazilian Journal of Biology*, **71**, 881-888.

### **E. Manuscripts (in press or review)**

Dexter, K.G.; Pennington, R.T.; Oliveira-Filho, A.T.; Bueno, M.L.; Miranda, P.L.S. & Neves, D.M. Inserting tropical dry forests into the discussion on biome transitions in the tropics. *Frontiers in Ecology and Evolution* (**in press**).

Miranda, P.L.S.; Neves, D.M.; Oliveira-Filho, A.T.; Pennington, R.T.; Baker, T.R. & Dexter, K.G. Using tree species inventories to map biomes and assess their climatic overlaps in lowland tropical South America. *Global Ecology and Biogeography* (**in press**).

Araújo, F.C.; Neves, D.M. & Santos R.M. Riverine forests house the greatest evolutionary diversity in tropical dry biomes. *Oecologia* (**in review**).

Carlos-Júnior, L.A.; Spencer, M.; Neves, D.M.; Moulton, T.P.; Pires, D.O.; Castro, C.; Ventura, C.R.R.; Ferreira, C.E.L.; Serejo, C.S.; Pszczol, S.O.; Casares, F.; Mantelatto, M.C. & Creed, J.C. Rarity and beta diversity assessment as tools for guiding conservation strategies in marine tropical subtidal communities. *Diversity and Distributions* (**in review**).

Echeverría-Londoño, S; Enquist, B.J.; Neves, D.M.; Violle, C.; Boyle, B.; Kraft, N.J.B.; Maitner, B.S.; McGill, B.; Morueta-Holme, N.; Peet, R.K.; Sandel, B.; Smith, S.A.; Svenning, J.-C.; Wiser, S.K. & Kerkhoff, A.J. Plant functional diversity and the biogeography of biomes in North and South America. *Frontiers in Ecology and Evolution* (**in review**).

Falcão-da-Silva, M.; Neves, D.M.; Oliveira-Filho, A.T.; Gurgel, E.S.C.; Bueno, M.L. & Secco R.S. Diversity patterns of *Inga* Mill. (Leguminosae) across Amazonian habitats. *Acta Oecologica* (**in review**).

Magalhães, I.L.F.; Neves, D.M.; Santos, F.R.; Vidigal, T.H.D.A.; Brescovit, A.D. & Santos, A.J. Phylogeny of Neotropical *Sicarius* sand spiders suggests frequent transitions from deserts to dry forests despite antique, broad-scale niche conservatism. *Journal of Biogeography* (**in review**).

Neves, D.M.; Dexter, K.G.; Baker, T.R.; Souza, F.C., Oliveira-Filho A.T.; [other 10+ co-authors] & Pennington, R.T. The Environmental Crossroads Hypothesis of lineage diversity. *Nature Ecology and Evolution* (**in review**).

### **F. Oral Presentations in Conferences and Workshops**

Neves, D.M.; Dexter, K.G.; Pennington, R.T.; Oliveira-Filho, A.T.; Baker, T.R. & Souza, F.C. *Drought-stress structures evolutionary diversity in tropical tree communities*. Ecological Society of America meeting. Portland, USA, 2017.

Neves, D.M.; Dexter, K.G.; Pennington, R.T.; Oliveira-Filho, A.T.; Baker, T.R. & Souza, F.C. *Drought-stress structures evolutionary diversity in tropical tree communities*. International Biogeography Society meeting. Tucson, USA, 2017.

- Oliveira-Filho, A.T.; Neves, D.M.; Dexter, K.G.; Pennington, R.T.; Valente, A.M.; Bueno, M.L.; Eisenlohr, P.V.; Fontes, M.A.L.; Miranda, P.L.S.; Moreira, S.N.; Rezende, V.L. & Saiter, F.Z. *Dissecting a biodiversity hotspot: the importance of environmentally marginal habitats in the Atlantic Domain of South America*. International Biogeography Society meeting. Tucson, USA, 2017.
- Souza, F.C.; Dexter, K.G.; Phillips, O.L.; Pennington, R.T.; Neves, D.M. & Baker, T.R. *Evolutionarily diverse communities provide greater ecosystem function*. Association for Tropical Biology and Conservation meeting. Mérida, Mexico, 2017.
- Neves, D.M.; Dexter, K.G.; Pennington, R.T.; Klitgaard, B. & Oliveira-Filho, A.T. *Environmental harshness determines macroscale patterns of floristic turnover across South American woody plant communities*. Association for Tropical Biology and Conservation meeting. Montpellier, France, 2016.
- Pennington, R.T.; Dexter, K.G.; Neves, D.M.; Baker, T.; Oliveira-Filho, A.T.; Queiroz, L.P.; Hugues, C.; Koenen, E.; Bruneau, A.; Cardoso, D.; Wojciechowski, M. & Lima, H.C. *Patterns of niche evolution across the legume phylogeny and their relevance for understanding the historical assembly of neotropical biomes*. Association for Tropical Biology and Conservation meeting. Montpellier, France, 2016.
- Dexter, K.G.; Neves, D.M.; Baker, T.R.; Souza, F.C.; Pennington, R.T. & Oliveira-Filho, A.T. *The relative evolutionary rarity of drought adaptation revealed by community phylogenetic analyses across lowland tropical South America*. Association for Tropical Biology and Conservation meeting. Montpellier, France, 2016.
- Miranda, P.L.S.; Neves, D.M.; Pennington, R.T.; Oliveira-Filho, A.T. & Dexter, K.G. *Determining which are the main biomes of lowland tropical South America and how they differ by using a massive dataset of tree species community surveys*. Association for Tropical Biology and Conservation meeting. Montpellier, France, 2016.
- Neves, D.M. *The importance of macroecology for conservation biology*. Brazilian Conference for Conservation Biology. Belo Horizonte, Minas Gerais state, Brazil, 2016.
- Neves, D.M. *Combining plant community surveys and plot data to assess diversity patterns in dry forests*. Workshop 'South American dry forests: biodiversity and ecosystem services'. Campos dos Goytacazes, Rio de Janeiro state, Brazil.
- Dexter, K.G.; Oliveira-Filho, A.T.; Ferreira, L.; Neves, D.M. & Pennington, R.T. *Patterns of dominance in tree communities vary across the major biomes of lowland tropical South America*. European Conference of Tropical Ecology. Gottingen, Germany, 2016.
- Neves, D.M. & Oliveira-Filho, A.T. *Priority areas for conservation of South American dry forests*. Symposium 'Beyond the Amazon: conservation and diversity of dry biomes'. Belo Horizonte, Minas Gerais state, Brazil, 2015.
- Neves, D.M.; Dexter, K.G. & Oliveira-Filho, A.T. *Priority areas for conservation of South American dry forests*. Bolivian Botanical Congress. Bolivia, Sucre, 2015.

Dexter, K.G.; Neves, D.M.; Baker, T.R.; Pennington, R.T. & Oliveira-Filho, A.T. *Community phylogenetic analyses across lowland tropical South America show just how few lineages can occupy seasonally dry environments compared to rain forests*. British Ecological Society meeting. Edinburgh, UK, 2015.

Neves, D.M.; Dexter, K.G.; Pennington, R.T. & Oliveira-Filho, A.T. *Continental patterns in tree composition across South America*. Oral presentation in the British Ecological Society meeting. Lille, France, 2014.

Neves, D.M. & Oliveira-Filho, A.T. *Biogeography and conservation of Leguminosae of the South American Dry Diagonal*. Brazilian Botanical Congress. Belo Horizonte, Brazil, 2014.

### **G. Invited Oral Presentations**

Neves, D.M.; Dexter, K.G.; Pennington, R.T. & Oliveira-Filho, A.T. *Drought-stress shapes macroscale patterns of evolutionary diversity in tropical forests*. Department of Ecology and Evolutionary Biology, University of Arizona, 2017.

Neves, D.M.; Dexter, K.G.; Pennington, R.T. & Oliveira-Filho, A.T. *Mapping diversity: from communities to phylogenies*. Royal Botanic Gardens Kew, 2016.

Neves, D.M.; Dexter, K.G.; Oliveira-Filho, A.T. *Gradients of floristic turnover across South American forests*. Department of Geosciences, University of Edinburgh, 2015.

Neves, D.M.; Dexter, K.G.; Pennington, R.T. & Oliveira-Filho, A.T. *Species turnover across space and its correlations: revisiting the Pleistocenic Arc Hypothesis*. Department of Ecology and Evolution, Rio de Janeiro State University, 2014.

Neves, D.M.; Dexter, K.G.; Pennington, R.T. & Oliveira-Filho, A.T. *Environmental controls of floristic composition in dry forests*. Rio de Janeiro Botanic Garden, 2014.

Neves, D.M. & Oliveira-Filho, A.T. *Environmental and historical controls of floristic composition across the South American dry diagonal*. Royal Botanic Garden Edinburgh, 2012.

Neves, D.M. & Oliveira-Filho, A.T. *Floristic patterns of Neotropical seasonally dry tropical forests*. Royal Botanic Garden Edinburgh, 2012.

Neves, D.M. *Beta diversity and environmental controls in dry forests: forward selection of variables and variance partitioning*. University of Brasilia, Brazil, 2012.

Neves, D.M. *Introduction to plant geography*. FASF University, Minas Gerais state, Brazil, 2012.

### **H. Teaching Experience**

2016                    Lecturer: *Community phylogenetics*; Department of Forestry, Federal University of Lavras, Brazil.

2016                    Lecturer: *Introduction to species distribution modelling*; Department of Ecology and Natural Resources, State University of Norte Fluminense, Brazil.

2012 Instructor: *Neotropical vegetation field course (savanna and seasonally dry tropical forests)*. Belize, Central America. Organized by Royal Botanic Garden Edinburgh, UK.

2011 Lecturer: *Methods in plant ecology: floristics and structure of savannas and tropical forests*. FASF University, Minas Gerais state, Brazil.

## I. Mentoring Experience

Since 2015 Mônica Falcão. Ph.D. co-supervisor (Plant Ecology). Topic: *Patterns of legume diversity across the Amazon: niche evolution or in situ diversification?* Museu Paraense Emilio Goeldi, Brazil. Main supervisor: Ricardo Secco.

2016-2018 Luíz Esser. M.Sc. co-supervisor (Plant Ecology). Topic: *Effects of climate change on the distribution of tree species in the Atlantic Forest biodiversity hotspot*. Federal University of Rio Grande do Sul, Brazil. Main supervisor: João Jarenkow.

2015 Sergio Ibáñez. M.Sc. supervisor (Plant Ecology). Topic: *Climate and phylogenetic structure across tropical South American lowland forests*. Royal Botanic Garden Edinburgh, UK.

2014 Maria Luiza Moura. B.Sc. honors thesis research, co-supervisor (Ecology). Topic: *Reproductive phenology of plant species dispersed by Nasua Nasua (Procyonidae, Mammalia) in southeastern Brazil*. Federal University of Minas Gerais, Brazil. Main supervisor: Flávio Rodrigues.

2012 Jonathan Duarte. Grad school supervisor (specialization course in Plant Ecology). Topic: *Community structure of parkland savannas in southeastern Brazil*. FASF University, Minas Gerais state, Brazil.

2012 Tácio Calácio. Grad school supervisor (specialization course in Plant Ecology). Topic: *Floristic inventory of parkland savannas in southeastern Brazil*. FASF University, Minas Gerais state, Brazil.

## J. Symposium Organized

Pennington, R.T.; Bueno, M.L.; Neves, D.M. Symposium 'Beyond the Amazon: conservation and diversity of dry biomes'. Belo Horizonte, Minas Gerais state, Brazil, 2015.

## K. Media

Interview: Neves, D.M. & Simon, M.F. Global meat demand plows up Brazil's 'underground forest'. Daily Climate, 2014.

(<http://www.climatecentral.org/news/industrial-farming-brazil-cerrado-18332>)

## **L. Professional Service**

Contributing author: Cavender-Bares, J. & Arroyo, M.T.K. (2018) *Chapter 3: Status and trends of biodiversity and ecosystem functions underpinning nature's benefit to people*. Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services – Sixth Regional Assessment for the Americas.

Manuscript reviewer for scientific journals: Global Ecology and Biogeography, Journal of Biogeography, Biodiversity and Conservation, Oecologia, Journal of Vegetation Science, Botanical Journal of the Linnean Society, Plant Ecology and Diversity, Flora (Germany), Plant Ecology, Edinburgh Journal of Botany, Biota Neotropica, Acta Botanica Brasilica, Acta Amazonica, South African Journal of Botany, Anais da Academia Brasileira de Ciências (Brazil), Rodriguésia (Brasil), Hoehnea (Brazil), Lundiana (Brazil) and International Journal of Biodiversity and Conservation.

Manuscript reviewer for one book: Plant community structure in Brazil: methods and study cases. University of Viçosa Press (Eisenlohr *et al.* 2015, eds).