

MIGUEL ESTEBAN LEAL

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EDUCATION

Ph.D., The African rain forest during the Last Glacial Maximum, an archipelago of forests in a sea of grass, 2004, Department of Plant Sciences, Biosystematics Group, University of Wageningen

M.Sc., Tropical Ecology, 1994, University of Amsterdam

B.Sc., Biology, 1990, University of Utrecht

PROFESSIONAL EXPERIENCE

July 2004 – present

Assistant Curator and Head of the Central African Program, Department of Africa and Madagascar, Missouri Botanical Garden (MBG), St Louis, USA

- In-country representative for MBG in Gabon: responsibilities include managing local field staff, MBG staff, financial accounting, coordinating and executing field missions
- Primary investigator on USAID Central African Regional Program for the Environment (CARPE) and National Geographic Society grants to MBG for activities in West Central Africa: responsibilities include conducting fieldwork, data analysis, interpretation and reporting, producing technical reports (as listed below)
- Resident botanist: responsibilities include developing and executing biodiversity assessments in West Central Africa (focused in Equatorial Guinea and Gabon, i.e., Mont de Cristal, Massif de Chaillu, Bateke Plateau, Ivindo, Mondah and Iguela forests). Collecting, identifying plant specimens and treating taxonomical groups for the flora of Gabon & Equatorial Guinea, including describing new species and compiling species checklists including IUCN red list criteria
- Scientific advisor in Gabon on carbon credit related issues including expertise on measuring and calculating carbon stock and developing strategies to reduce loss of carbon stock due to socio-economic development
- Primary liaison with Libreville Herbarium and its other main partner the National Herbarium of the Netherlands Wageningen-Branch: supervising master and PhD students, developing exchange opportunities for Gabonese scientists for pursuing graduate education programs; developing a science program for the Herbarium; and securing financing for completion of the Flora of Gabon
- Regular contributor to scientific newsletters related to taxonomy (as listed below)

Key Achievements:

- Developed a climate adaptation model to locate climatically stable forests in West & Central Africa, identify conservation priorities and develop strategies to be used by conservation NGOs (i.e., Wildlife Conservation Society, Conservation International and WWF)
- Forest specialist and key participant at a workshop of the African Caribbean Pacific CIFOR Initiative on Forest and Climate Change in Africa, Makokou, Gabon, May 2008
- Advisor to GEF (Gabon) on identifying biodiversity sanctuaries as specialist on high biodiversity forests
- Participant at a world heritage workshop for Central Africa in Brazzaville (Congo), March 2008, as regional specialist on plant biodiversity.
- Contributed to the naming of Lope National Park as a World Heritage site, February 2007
- Assisted Herbaria of Equatorial Guinea, the Central African Republic and Saõ Tomé and Príncipe to be listed on the index Herbariorum
- Raised over USD 310,000 (2006-2010) in funding support (USAD - CARPE, National Geographic Society, Davidson, MOABI)

August 1997 –December 2004

Doctoral candidate, Department of Plant Taxonomy, University of Wageningen, the Netherlands.

Leal, M.E. 2004 The African rain forest during the last glacial maximum, an archipelago of forest in a sea of grass. PhD thesis, Wageningen University.

- Opened a new field of discipline bridging historical biogeography and ecology
- Conducted 7 years of research in Gabon (primarily Lopé National Park), reconstructing last Ice Age (Pleistocene) landscapes by analyzing present-day distribution ecology of slow dispersing tree species (Caesalpinioideae)
- Developed a model of forest dynamics related to climate change (both global cooling and warming) which was later applied in GIS to locate climatically stable forests within the present-day larger forest.
- Research has broader application for conservation NGOs in setting forest conservation priorities and designing REDD projects for carbon credits by identifying forests able to survive climate change

January 1995 –July 1997

Honorary staff member, Department of Plant Taxonomy, University of Wageningen, the Netherlands.

- Identified plant species, reviewed plant species, reclassified plant groups (literature research), and revised outdated taxonomical classification for the University's Herbarium collection

PUBLICATIONS

Peer-reviewed Papers (average citation: 3.12):

1. Leal, M.E. 2007 Novitates Rio Munis 1. A new endemic *Scaphopetalum* (Malvaceae) from the Mount Mitra, Equatorial Guinea. *Blumea*: 52, 278-280.
2. Parmentier Ingrid, Senterre B., Malhi Y., Whittaker R.J., A.T.D.N. (collective author), Alonso A., Balinga M.P.B., Bakayoko A., Bongers F., Chatelain C., Comiskey J., Cortay R., Djuikouo Kamdem M.N., Doucet J.L., Eilu G., Eyraud J., Gauier L., Geldenhuys C., Hawthorne W.D., Issembe Y.A., Kouamé N.F., Kouka L., Leal M.E., Lejoly J., Lewis S.L., Muller T., Newbery D., Nusbaumer L., Parren M., Peh K.S.-H., Phillips O.L., Poorter L., Sheil D., Sonké B., Sosef M.S.M., Sunderland T., Stropp J., ter Steege H., Swaine M., Tchouto P., Timberlake J., van Valkenburg J., Wöll H. 2007. The odd man out? Might climate explain the lower tree alpha-diversity of the African rain forests relative to the Amazonian rain forests? *Journal of Ecology*: 95, 1058-1071.
3. Leal, M.E. 2005 Novitates Gabonenses 61. A new rare endemic *Calvoa* (Melastomataceae) from the Mbé National Park, Gabon. *Blumea*: 50, 473-475.
4. Leal, M.E. 2002 Microrefugia, small-scale rain forest fragments. *Systematics and Geography of Plants* 71: 1073-1077.
5. Sosef, M. & Leal, M.E. 2002. A new Begonia species from the Lope Reserve (Gabon). In: J.J.E.F. de Wilde (Ed.) Studies in Begoniaceae VII. *Wageningen Agricultural Papers* 2001.2: 267-271.
6. Kappelle, M. & Leal, M.E. 1996. Leaf morphology of a montane cloud forest along a successional gradient in Costa Rica. *Biotropica* 28 (3): 331-344.
7. Leal, M.E. & Kappelle, M. 1994. Leaf anatomy of secondary montane *Quercus*-forest in Costa Rica. *Revista Biologia Tropical* 42 (3): 437-478.

Accepted:

- Leal, M.E. (accepted) Novitates Gabonenses 65. A new endemic *Amphiblemma* (Melastomataceae) from the Mvé Lakené Plateau, Gabon. *Blumea*:
- Dauby, G., Leal, M.E. & Stévant, T. (submitted). Vascular plant checklist of the Pongara National Park, Gabon. *Geography and systematics of plants*:
- Leal, M.E. (submitted) . The past protecting the future, locating climatically stable forest in Gabon. *Kew Bulletin International Presentations*:
- Leal, M.E. 2008. *The past protecting the future, locating climatically stable forest in Gabon*. 2nd World Scientific Congress, Challenges in botanical research and climate change, Delft, the Netherlands. 29 June - 4 July.
- Leal, M.E. 2007. *The past protecting the future, locating climatically stable forest*. 18th AETFAT congress, Yaoundé, Cameroon. 26 February- 2 March.

Posters:

- Dauby, G., Stévant, Parmentier, I., Leal, M.E., Hardy, O. 2007 *Diversity patterns in North-Western Gabon and implications for conservation*. YOUNG BOTANISTS' DAY Centre Régional de Phytosociologie / Conservatoire botanique national de Bailleul, France, 23 November.
- Parmentier Ingrid, Senterre B., Malhi Y., Whittaker R.J., A.T.D.N. (collective author), Alonso A., Balinga M.P.B., Bakayoko A., Bongers F., Chatelain C., Comiskey J., Cortay R., Djuikouo Kamdem M.N., Doucet J.L., Eilu G., Eyraud J., Gauier L., Geldenhuys C., Hawthorne W.D., Issembe Y.A., Kouamé N.F., Kouka L., Leal, M.E., Lejoly J., Lewis S.L., Muller T., Newbery D., Nusbaumer L., Parren M., Peh K.S.-H., Phillips O.L., Poorter L., Sheil D., Sonké B., Sosef M.S.M., Sunderland T., Stropp J., ter Steege H., Swaine M., Tchouto P., Timberlake J., van Valkenburg J., Wöll H. 2006 *Patterns and drivers of the tree α -diversity of African rain forests: is diversity controlled by climate?* British Ecological Society Annual Meeting, University of Oxford, UK. 5-7 September

Internal report for the Central African Program for the Environment:

(available on the CARPE website):

- Stevant, T. & M.E. Leal 2008, the biodiversity of Bouvala
- Leal, M.E. 2008. The biodiversity of the Nfanam
- Leal, M.E. 2008. The biodiversity of the Belinga Mountains
- Leal, M.E. 2007. The biodiversity of Balendi Hills
- Leal, M.E. 2007. The biodiversity of Mvé Lakené
- Leal, M.E. & T. Stevant 2007. The biodiversity of Nkol Madouaka
- Leal, M.E. 2007. The biodiversity of Bai Djobo
- Leal, M.E. 2006. The biodiversity of West Waka.
- Leal, M.E. 2005. The biodiversity of NE Waka.
- Leal, M.E. 2005. The biodiversity of Mont Mitra.
- Leal, M.E. 2005. The uniqueness of the Mont Mbilan Plateau.
- Leal, M.E. 2005. The biodiversity of Mont Mbilan.

Newsletter (monthly):

- New(s) from the Field. Leal, M.E. editor

Popular papers and interviews:

- Leal, M.E. 2008. Locating climatically stable forests in West and Central Africa, EDIT newsletter x: x.
- Leal, M.E. 2008. eTaxonomy in the heart of Africa, EDIT newsletter 8: 15.
- Appearance on national television of Gabon, November 2007.
- Leal, M.E. 2007 "Ancient blooms" in Gabon Magazine, Summer issue.
- "Istijden in Gabon", December 2004.
- "Geographica", National Geographic (Dutch version) June 2003.
- Interview on scientific program Noorderlicht, Dutch Radio 2003.

LANGUAGES

- Dutch (native), Spanish (fluent), English (fluent), French (fluent), German, Portuguese, Latin

GENERAL

- Extensive travel and field work in Colombia, Congo-Brazzaville, Costa Rica, Equatorial Guinea, Gabon, Mozambique, Saõ Tomé.
- Staff member of the Biosystematics Group, Wageningen University.
- Reviewer for the National Geographic Society