

Curriculum Vitae

Dr. Vincent DEBLAUWE

Date of birth

2 December 1980

Nationality

Belgian

Languages

French (native)

English (fluent)

Scientific affiliation

Center for Tropical
Research, Institute of the
Environment and
Sustainability, University of
California, Los Angeles, Los
Angeles, CA 90095, USA

International Institute of
Tropical Agriculture,
Yaounde, Cameroon

Contact

Phone:

+237 656 80 11 51

vdeblauw@ulb.ac.be

Website

vdeblauwe.wordpress.com

www.researchgate.net/pro

file/Vincent_Deblauwe

MAIN FIELD OF EXPERTISE

Vincent DEBLAUWE is an ecologist interested in the processes underlying spatial and temporal patterns in vegetation at multiple scales. He has more than ten years of experience in scientific research, teaching and training of young scientists in Europe and developing countries.

He has developed knowledge and experience in the field of general ecology, physiology, pollination ecology, biogeography, spectral analysis, remote sensing, spatial statistics and ecological modeling. He has extensive field experience in tropical systems from arid desert to hyper-humid rain forests. His technical knowledge also extends to field inventories, taxonomic studies and herbarium collections.

SCIENTIFIC SKILLS

- Good writing skills in English and French
- Data analysis and artwork: MATLAB (advanced) and R
- GIS and remote sensing data: ArcGIS (advanced), QGIS, ENVI
- Some key analytical skills:
 - Efficient handling and analysis of large datasets
 - Wavelet and Fourier spectral analysis
 - Remote sensing data: pre-processing, pattern recognition
 - Geostatistics and point processes analysis
 - Ecological niche modeling using various algorithms (viz. Maxent, GLM, GAM, hierarchical Bayesian models, PPM)
 - Null model development to account for autocorrelation in spatially explicit data
- Object oriented programming language: basic knowledge of JAVA
- Field experience in humid and dry tropics, including species inventories/identification, tree measurements, geo-localization using Differential Global Positioning System (DGPS) and tree climbing

RESEARCH EXPERIENCE

Jan 2017- current: Researcher, UCLA, Los Angeles, USA; Visiting Scientist, IITA, Yaounde, Cameroon

Supervisor : Dr. Thomas B. Smith (UCLA), Rachid Hanna (IITA)

Grant: Taylor Guitar

Project: Sustainable ebony project

Mar 2013- Mar 2015: Post-doctoral fellowship, UMR DIADE, IRD, Montpellier, France

Supervisor : Dr. Thomas L. P. Couvreur (IRD)

Grant: IRD, France

Project: To improve plant species distribution models in the rainforests of Central Africa

Results: We devised a null model with which to compare model accuracy metrics. We further provided a new high resolution global dataset of satellite-based predictors and showed its potential to improve modeled species-climate associations and transferability to novel geographical regions based on rainforest species distributions across three continents.

Publications: [17-20]

Sep 2012- Feb 2013: Post-doctoral fellowship, Université Montpellier 2, Institut des Sciences de l'Evolution, CNRS, Montpellier, France

Supervisor : Dr. Sonia Kéfi (ISEM, UM2)

Grant: CASCADE project, EU

Project: Characterization of patterned vegetation in arid ecosystems

Results: We tested our hypothesis regarding the effect of prevailing winds on vegetation patterns using a cellular automaton model and compared its predictions with actual pattern characteristics averaged through time and space using Fourier cross-spectral analysis.

Publications: in prep.

Aug 2010- Jul 2012: Post-doctoral fellowship, UMR AMAP, IRD, Montpellier, France

Supervisor : Dr. Pierre Couteron (IRD), Dr. Raphael Pélissier (IRD)

Grant: Pl@ntNet project, France

Project: To asses existing approaches and develop an innovative solution to test the association between spatially autocorrelated variables

Results: We proposed a new randomization method using dual-tree complex wavelet transform to improve the control over type I error rate.

Publications: [5,6,14, 16]

PUBLICATIONS

Peer Reviewed Articles

[23] Sossef et. al. In press. Unravelling the floristic diversity of tropical Africa. *BMC Biology*.

[22] Dauby G., Stévant T., Droissart V., **Deblauwe V.**, Simo-Droissart M. & Couvreur T.L.P. *Submitted*. ConR: an R package for fast multi-species preliminary assessment of conservation status and estimating sizes of species' geographical range. *Methods in Ecology and Evolution*.

- [21] Goulamoussène Y., Bedeau C, Descroix L., **Deblauwe V.**, Linguet L. & Hérault B. 2016. Weak Environmental Controls of Tropical Forest Canopy Height in the Guiana Shield. *Remote sensing* **8(9)**: 747. IF :3.036
- [20] Dauby G., Zaiss R., Blach-Overgaard A., Catarino L., Damen T., **Deblauwe V.**, Dessein S., Dransfield J., Droissart V., Duarte M.C., Engledow H., Fadeur G., Figueira R., Gereau R., Hardy O. J., Harris D., de Heij J., Janssens S., Klomberg Y. Ley A. C., Mackinder B. A., Meerts P. van de Poel J. L., Sonké B., Sosef M., Stévant T., Stoffelen P., Svenning J.-C., Sepulchre P., van der burgt X., Wieringa J. J. & Couvreur T. L. P. 2016. RAINBIO: a mega-database of tropical African vascular plants distributions. *PhytoKeys* **74**: 1-18. IF: 0.999
- [19] Faye A., **Deblauwe V.**, Mariac, C., Richard D., Bonaventure S., Vigouroux Y. & Couvreur T.L.P. 2016. Phylogeography of the genus *Podococcus* (Palmae/Arecaceae) in Central African rain forests: Climate stability predicts unique genetic diversity. *Molecular Phylogenetics and Evolution* **105**: 126-138. IF:3.792
- [18] Dubuisson J.-Y.*, Hennequin S., Droissart V. & **Deblauwe V.*** 2016. *Hymenophyllum senterreanum* Dubuisson & Deblauwe, sp. nov. (Hymenophyllaceae) and its relatives in western Central Africa. *Phytotaxa* **257(3)**: 287–294. IF:1.087
- * Both authors contributed equally to this work.
- [17] **Deblauwe V.**, Droissart V., Bose R., Sonké B., Blach-Overgaard A., Svenning J-C, Wieringa J. J., Ramesh B. R., Stévant T. & Couvreur T.L.P. 2016. Remotely sensed temperature and precipitation data improve species distribution modeling in the tropics. *Global Ecology and Biogeography* **25(4)**: 443-454. IF:5.84
- [16] Allie, E., Pelissier, R., Engel, J., Petronelli, P., Freycon, V., **Deblauwe, V.**, Soucemarianadin, L., Weigel, J. & Baraloto, C. 2015. Pervasive Local-Scale Tree-Soil Habitat Association in a Tropical Forest Community. *Plos One* **10(11)**: 0141488. IF:3.057
- [15] Diouf A., Barbier N., Couteron P., Lykke A. M., **Deblauwe V.**, Mahamane A., Saadou M. & Bogaert J. 2012. Relationships between fire history, edaphic factors and woody vegetation structure and composition in a semi-arid savanna landscape (Niger, West Africa). *Applied Vegetation Science*. **15(4)**: 488-500. IF:1.151
- [14] **Deblauwe V.**, Kennel P. & Couteron P. 2012. Testing association between spatially autocorrelated variables: a new approach using surrogate lattice data. *PloS One* **7(11)**: e48766. IF :3.730
- [13] **Deblauwe V.**, Couteron P., Bogaert J. & Barbier N. 2012. Determinants and dynamics of banded vegetation pattern migration in arid climates. *Ecological Monographs* **82(1)** : 3–21. IF :8.085
- [12] **Deblauwe V.**, Couteron P., Lejeune O., Bogaert J. & Barbier N. 2011. Environmental modulation of self-organized periodic vegetation patterns in Sudan. *Ecography* **34(6)**: 990–1001. IF :4.188
- [11] **Deblauwe V.**, Barbier N., Couteron P., Lejeune O. & Bogaert J. 2008. The global biogeography of semi-arid periodic vegetation patterns. *Global Ecology and Biogeography* **17(6)**: 715–723. IF:5.304
- [10] Barbier, N., Couteron, P., Lefever, R., **Deblauwe, V.** & Lejeune, O. 2008. Spatial decoupling of facilitation and competition at the origin of gapped vegetation patterns. *Ecology* **89(6)**: 1521–1531. IF:4.874

[9] Cawoy V., **Deblauwe V.**, Halbrech B., Ledent J.-F., Kinet J.-M. & Jacquemart A.-L. 2006. Morph differences and honeybee morph preference in the distylous species *Fagopyrum esculentum* Moench. *International Journal of Plant Sciences* **167(4)**: 853–861. IF:1.622

[8] Barbier N., Couteron P., Lejoly J., **Deblauwe V.**, & Lejeune O. 2006. Self-organized vegetation patterning as a fingerprint of climate and human impact on semi-arid ecosystems. *Journal of Ecology* **94(3)**: 537–547. IF: 4.239

Books and Book Chapters:

[7] Couteron, P., N. Barbier, **V. Deblauwe**, R. Péliissier, et P. Ploton, Texture Analysis of Very High Spatial Resolution Optical Images as a Way to Monitor Vegetation and Forest Biomass in the Tropics, in Multi-Scale Forest Biomass Assessment and Monitoring in the Hindu Kush Himalayan Region: A Geospatial Perspective, M.S.R. Murthy, S. Wesselman, and H. Gilani, Editors. 2015, International Centre for Integrated Mountain Development (ICIMOD): Kathmandu. p. 157-164.

[6] Barbier N., Couteron P. & **Deblauwe V.** 2014. Case study of self-organised vegetation patterning in dryland regions of Central Africa. *Patterns of land degradation in drylands: understanding self-organised ecogeomorphic system* (eds E.N. Mueller, J. Wainwright & A.J. Parsons), pp. 347-356. Springer, Dordrecht Heidelberg New York London.

[5] Barbier, N., Bellot, J., Couteron, P., Wiegand, T., Grimm, V., **Deblauwe, V.**, Biro, P. & Mueller, E.N. 2014. Assessment of patterns in ecogeomorphic systems. *Patterns of land degradation in drylands: understanding self-organised ecogeomorphic system* (eds E.N. Mueller, J. Wainwright & A.J. Parsons), pp. 247-264. Springer, Dordrecht Heidelberg New York London.

[4] **Deblauwe V.** 2010. Modulation des structures de végétation auto-organisées en milieu aride. Thèse de Doctorat en Sciences, Université Libre de Bruxelles, Brussels.

[3] K.J. Koffi, **V. Deblauwe**, S. Sibomana, D.F.R. Neuba, D. Champluvier, C. De Cannière, N. Barbier, D. Traoré, B. Habonimana, E. Robbrecht, J. Lejoly & J. Bogaert. Spatial pattern analysis as a focus of landscape ecology to support evaluation of human impact on landscapes and diversity. In: S.-K. Hong, N. Nakagoshi, B. Fu and Y. Morimoto (eds.), *Landscape Ecological Applications in Man-Influenced Areas: Linking Man and Nature Systems*. Springer, 2007.

Communications and articles on popular science:

[2] Droissart V., **Deblauwe V.**, Senterre B. & Stévant T. 2007. New records and Potential distribution modelling of *Diceratostele Gabonensis* (Orchidaceae) in: Abstract of the Young Botanists Day 2006. *Belgian Journal of Botany* **140(2)**: 255.

[1] Lefever R., Barbier N., Couteron P., **Deblauwe V.**, Lejeune O. 2004. Les paysages tigrés et tachetés. *Dossier pour la science* **44** : 68–71.

STUDENT SUPERVISION

- **2015-2016.** PhD., Texier Nicolas, Institut de Recherche pour le Développement (IRD), France
Project: Flowering patterns of tropical plants: a case study with the Central African Orchids
- **2013-2015.** PhD., Faye Adama, Institut de Recherche pour le Développement (IRD), France
Project: Species Distribution Modeling and phylogeography of the palm genus *Podococcus* in Central Africa

- 2008. M. Sc., Angoyi Hah'E Liomba Stany, Université Libre de Bruxelles, Belgium
Project: Analyse multi-temporelle de la structure spatiale des végétations auto-organisées en Afrique de l'Ouest en utilisant les données de télédétection
- 2008. M. Sc., van Winsen, Frankwin, Utrecht Universiteit, Netherlands
Project: Vegetation patterns in (semi)arid ecosystems, a remote sensing and fieldwork approach

COMMUNICATIONS/WORKSHOPS

As invited speaker

- 2016. January. Winter School Patterns of vegetation in water controlled ecosystems, University of Padova, Venice, Italy.
- 2012. November. **Deblauwe V.** and Barbier N. Pattern Dynamics in Self-Organized Semi-Arid Vegetations: Field and Remote-Sensing Evidences. Session Desertification as Catastrophic Regime Shift: Empirical and Mathematical Aspects. The 4th International Conference on Drylands, Deserts and Desertification, Ben-Gurion University of the Negev, Israel.
- 2012. April. **Deblauwe V.**, Couteron P., and Barbier N. Large scale pattern modulation and local processes in self-organised semi-arid vegetations. European Geosciences Union (EGU) General Assembly 2012, Session Soil degradation and theoretical aspects of desertification in arid and semi-arid environments. Degradation versus self-organization, Vienna International Center, Austria.
- 2012. October. Barbier N., **Deblauwe V.**, Couteron P. Self-organized, landscape-scale vegetation patterns are 'sentinels' at the verge of deserts: lessons from 50 years of large scale monitoring. 4th International Eco-summit, Ecological sustainability, Restoring the planet's ecosystem services. Symp 11 - Protecting and restoring severely degraded terrestrial ecosystems. Columbus, Ohio, USA.

Other

- 2014. Bidault, E., Walters G., Dauby G., Boupouya A., Lachenaue O., Sosef M., Wieringa J., Breteler F., **Deblauwe V.**, Ngagnia Ndjabounda E.C., Ikabanga D. U., Stevart T. Documenting areas of endemism in Gabon: preliminary results of a 5-year project. XXth AETFAT Congress. Stellenboch, South Africa.
- 2014. Droissart, V., Sonke, B., **Deblauwe, V.**, Simo-Droissart, M., Kamdem, G., Guiakam, C., Kamdem, N., Stévant, T. Endemism patterns of Orchidaceae in Atlantic Central Africa. XXth AETFAT Congress. Stellenboch, South Africa.
- 2014. Faye A., Vigouroux Y., Sonke B., Mariac C., **Deblauwe V.**, Sepulchre P., Couvreur T. Paleoclimatic modeling and full chloroplast genomes: preliminary results into the phylogeography of the African rain forest palm genus *Podococcus*. XXth AETFAT Congress. Stellenboch, South Africa.
- 2010. Barbier N., **Deblauwe V.**, Couteron P., ESF Exploratory Workshop on Self-Organised Ecogeomorphic Systems : Confronting Models With Data For Land Degradation In Drylands, University of Potsdam, Germany.
- 2008. **Deblauwe V.**, Barbier N. Bogaert J. British Ecological Society Annual meeting, Imperial College, London, UK. Semi-arid patterned vegetation: getting new insights from remote sensing spatial analysis.

Travel and conference grant from FNRS, Belgium.

- 2007. Couteron P., Barbier N., **Deblauwe V.**, British Ecological Society Annual meeting, University of Glasgow, UK. Detection and characterisation of periodic vegetation patterns from remotely-sensed data: Towards a worldwide perspective.
- 2005. Water-Vegetation Interactions and Biodiversity in Changing Environments, Alpine Summer School Course XIII, Valsavarenche, Italy.
Travel and accommodation grant from FNRS, Belgium.
- 2004. **Deblauwe V.**, Printemps des Sciences, Université Libre de Bruxelles, Brussels, Belgium.

HIGHER EDUCATION

Université Libre de Bruxelles (ULB), Faculty of Sciences, Brussels, Belgium

2004-2010. Ph.D., Research unit of landscape ecology and plant production systems

Supervisor : Pr. Jan Bogaert (ULB), Dr. Nicolas Barbier (ULB)

Grant: Fonds pour la Formation à la Recherche dans l'Industrie et dans l'Agriculture (FRIA), Belgium, and David et Alice van Buuren Foundation, Belgium

Project: Self-organized vegetation pattern modulation in arid areas

Results: I showed the critical effect of water availability and slope gradient for the formation and modulation of spatial vegetation patterns at multiple scales. Important discrepancies with self-organization theory were highlighted and interpreted.

Publications: [1, 3, 4, 7, 8, 10-13, 15]

2003-2004. MSc.Res in life sciences, Diplôme d'Études Approfondies en Sciences de la Vie

Supervisor : Pr. Jan Bogaert (ULB)

Project: Using spectral analysis to study species turnover within periodic vegetation patterns along an aridity gradient in Niger.

Université Catholique de Louvain (UCL), faculty of Sciences, Louvain-la-Neuve, Belgium

1999-2003. BSc.-MSc. degree in biology, *magna cum laude*, Licence en sciences biologiques orientation organismes et populations: "*Contribution à l'étude de la pollinisation chez Fagopyrum esculentum Moench*".

Supervisor : Pr. Anne-Laure Jacquemart (UCL), Pr. Jean-Marie Kinet (UCL)

Project: To analyze physiological and ecological factors affecting seed production in buckwheat (*Fagopyrum esculentum*), a heterostylous species

Results: For the heterostylous species, *Fagopyrum esculentum*, I showed experimentally that thrum flowers received more attention from honeybees and produced more nectar than pin flowers. The preference for one morph, was not related to difference in the number of pollen tubes growing in the style, which was equivalent in both morphs.

Publications: [9]

REFERENCES

Dr. Pierre Couteron
UMR AMAP

Dr. Nicolas Barbier
UMR AMAP

Dr. Thomas L. P. Couvreur
UMR DIADE

Montpellier, France
ENS, Yaoundé, Cameroon
pierre.couteron@ird.fr
+237 651 18 92 78

Montpellier, France
ENS, Yaoundé, Cameroon
nicolas.barbier@ird.fr
+ 237 691 94 06 51

Montpellier, France
thomas.couvreur@ird.fr
+33 695 88 00 90