Romain LEHNEBACH

Ph.D. Biology & Ecology

Plants Biology and Ecology,
Wood and Forest Sciences

29 years (18/12/1988)
Born in Sète (34), France.

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Academic Background and Achievements

2016 until today
- *Postdoc researches*
- *Publications writing*
- *Tutoring/Expertise*

Montpellier, France
Kourou, French Guiana

2012 to 2015
Ph.D. University of Montpellier
Ecology Evolution Genetic Resources and Paleobiology
Kourou, French Guiana

2010 to 2012
M.Sc. University of Montpellier (with high honours)
Biodiversity-Ecology – Tropical Plant Biodiversity
Field works in the Xishuangbanna Tropical Botanical Garden, Yunan, China.

2007 to 2010
L.Sc. University of Montpellier (with honours)
Organisms Biology
Student life in Montpellier, France.

2006
Scientist Baccalaureate in Life and Earth sciences
Sète, France.

Field of Expertise

Wood and Plants sciences
- Functions and ontogenetical variations of physical, mechanical and anatomical wood properties
- Secondary growth of forest and plantation trees
- Growth trajectories and tree allometry
- Technological properties of wood : natural durability, dimensional stability, stiffness

Diversity, biology and ecology of temperate and tropical plants
- Anatomy and morphology of trees and lianas
- Plant architecture, development, structures and functions
- Tropical forest ecology
- Botany

Data analysis, Statistics and Modeling
- Linear and non-linear modeling
- Linear Mixed-Effects modeling
- Usual statistical tests
- Multivariate analysis
- Phylogenetic comparative analysis: Phylogenetic signal and independent Contrasts, Ancestral state reconstruction

Research Activities

POSTDOCTORAL RESEARCHES :

- 2017-2018 (12 months) – Labex NUMEV – Université Montpellier, UMR LMGC, UMR EcoFoG, France.
MechaBark: Diversity of Bark contribution to mechanical function of trees.
Bark and wood antomy; Bark and wood mechanics; green house experiments; phylogenetic analysis.

- 2016 (3 months) – Research Ing., INRA, UMR AMAP, Montpellier, France.
DiagArchi Project: Architectural Diagnosis of trees and forest dieback in France.
Correlation between development - architectural diagnosis - classical assessment methods of trees dieback; Correlation between morphological criterions – diebacks - architectural diagnosis; Application to Douglas fir, White fir, Sessile oak, Pubescent oak and Pedunculate oak.

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TECHNICAL SKILLS

- Programing (**R,** Python)
- Wood properties
- Botany
- Infographics
- Histology
- Image processing

TEACHING & EXPERTIZE

2017 **University Tutoring (Master degree level)**
Statistics & Multivariate Analysis – University of Montpellier

2016 **Expert Wood Sciences and Technology –** Workshop, Royal Museum for Central Africa, Tervuren, Belgium.

2014 **Trainee supervision (Bachelor level) –** University of French Guiana.

2013 **Supervision of Engineering School students** – AgroParisTech, Tropical Rain Forest.

LANGUAGES

- French
- English
- Spanish

COLLOQUIA/SYMPOSIA

2016 **53rd Annual meeting of the Association for Tropical Biology and Conservation (ATBC)** - Montpellier, France.

2015 **International closing symposium of the XYLAREDD project** – Tervuren, Belgium.

2014 **Botany Congress, Structure and development section** – Boise, Idaho, USA.

2013 **Les 2èmes Journées scientifiques du GDR 3544 : « Sciences du bois » -** Champs sur Marne, France.

RESEARCH ACTIVITIES (CONTINUED)

DOCTORAL RESEARCHES – CIRAD

-2013 to 2015 - UMR AMAP & UMR EcoFoG, Kourou, French Guiana.

Ontogenetic variability of wood profile of Legumes representatives in French Guiana

Heartwood formation, Technological properties and Development of Angélique de Guyane; Ontogenetical variations of wood density and mechanical properties, relationships with successional status.

GRADUATE RESEARCHES

-2012 (1 month) – CIRAD, UMR AMAP, Montpellier, France.

Study of cambial activation of Alepo Pine

Development of a histological protocol for microcores sections by vibratome.

-2012 (5 months) – IRD, UMR AMAP, Montpellier, France.

Evolution and morpho-anatomical diversity of tropical lianas

Sampling in Xishuangbanna Tropical Botanical Garden (XTBG), China (2 months); Construction of the Guy Caballé collection phylogenetic tree; Phylogenetic comparative analysis.

-2011 (3 months) – CIRAD, Pl@ntNet, UMR AMAP, Montpellier, France.

Anatomy of tropical lianas

Digitalisation of the Guy Caballé collection; Typology establishment of macro-anatomical structures; Construction of a polytomic identification key based on macro-anatomical criteria; Diversity analysis of types and structures.

PUBLICATIONS

Lehnebach, Beyer, Letort, Heuret (In press). **The Pipe-Model Theory half a century on: A review.** Special Issue on Functional-Structural Plant Growth Modelling, *Annals of Botany***.**

Clement, De Cristo-Araujo, Coppens d'Eeckenbrugge, Maciel dos Reis, **Lehnebach,** Picanço-Rodrigues (2017). **Origin and dispersal of domesticated Peach palm.** *Frontiers in Ecology and Evolution* 10.3389/fevo.2017.00148

Lehnebach, Morel, Bossu, Le Moguédec, Amusant, Beauchêne, Nicolini (2017). **Heartwood/sapwood profile and the tradeoff between trunk and crown increment in a natural forest the case study of a tropical tree: *Dicorynia guianensis* Amsh. Fabaceae**. *Trees - Structure and Function 31(1) :199-214.*

Lehnebach, Va, Morel, Bossu, et *al.* (Submitted). **Wood specific gravity variations of Guyanese Legumes species along the shade tolerance continuum: heartwood effects on radial pattern and gradients.** *Annals of Botany.*

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Administrative Responsibility

2015 **Co-organizer of the visit of the Minister of Finance, Industry and Digital, Emmanuel Macron at the Wood Sciences Laboratory of French Guiana** – Kourou, French Guiana**.**

2012 **Co-organizer of the university thematic school 'Invasive Tropical Plants'** - Montpellier, France.

Examinations, Peer-reviewing & Sociétés savantes

- **Examinator** of Master degree reports

- **Peer-reviewing** :
  - *Biodiversitas*
  - *Polish Botanical Journal*

- **Member of the Wood Sciences french network (**CNRS - GDR 3544)
- **Member of 'Plant Biophysic and biomechanic (PhyP)' research group (**CNRS - GDR 2007)

Interests

- Woodworking
- Horticulture
- Computing
- Old-moped mechanics
- Discovering of the cultural and natural heritage of the tropics (Mexico, Brazil, Guiana, Suriname, China, Sri-Lanka)

Publications (Continued)

Morel, **Lehnebach**, Gignac, Ruelle, Nicolini, Beauchêne (Accepted). **Longitudinal and radial variation in wood specific gravity during the development of *Parkia velutina* Benoist., an emergent tree of Neotropical rainforests.** *Bois et Forêts des Tropiques.*

Lehnebach, Heinz, Bonnet, Isnard (In preparation). **Cambial variants and macro-anatomical features: toward an interactive key to assist tropical liana identification.**

Bossu, **Lehnebach**, Morel, Nicolini, Heuret (In preparation) ***Cordia alliodora* (Boraginaceae) as a candidate for tree plantation in French Guiana: a retrospective analysis of tree growth in natural stands.** *Annals of Forest Sciences.*

Bossu, Corn, Regazzi, **Lehnebach**, Beauchêne, Clair (In preparation). **Interlocked grain and density variability in *Bagassa guianensis*: changes with ontogeny and mechanical consequences for tree.** *Trees – Structure and function.*

Oral Communications

Lehnebach, Morel, Bossu, Beauchêne, Nicolini, et *al*. **Xtrawood: refining estimation of tree above ground biomass using wood specific gravity variations and tree structure.** *53rd Annual meeting of the Association for Tropical Biology and Conservation, June 2016, Montpellier, France*.

Lehnebach, Morel, Amusant, Griffon, Barczi, Beauchêne, Nicolini. **Wood specific gravity variations within tree trunk the case study of Legumes representatives in French Guiana.** *International closing symposium of the XYLAREDD project, May 2015, Tervuren, Belgium.*

Lehnebach, Beauchêne, Amusant, Nicolini. **Tree crown mortality relevance in predicting sapwood amount and radial growth rate in a tropical forest tree of French guiana *Dicorynia guianensis* Amsh. Fabaceae** *Botany Congress 2014, Structure and development section, July 2014, IDAHO, USA.*

Miscellaenous Communications

2015 Presentation of **the scientific and economic issue of the timber industry in French Guiana** to Mr. E. Macron, Minister of Finance, Industry and Digital – Wood sciences Laboratory of French Guiana, Kourou.

2015 Presentation of the Wood sciences laboratory activities to Mr. Alain Fuchs, **Chief Executive Officer of the National Center for Scientific Research (CNRS).**