

# Maximilian Daniel LARTER

Address: 1350 20<sup>th</sup> Street, Apt. D15, Boulder, CO 80302, USA

Tel: +1 720 401 3287

Email: [maximilian.larter@gmail.com](mailto:maximilian.larter@gmail.com)

Born August 5<sup>th</sup>, 1987 at Derby (UK)



## EDUCATION

- 2016**      **PhD in evolutionary, functional and community ecology - University of Bordeaux**  
Thesis title: Evolution of cavitation resistance in conifers (ministerial grant)  
Supervisors: Sylvain Delzon and Jean-Christophe Domec  
Synopsis: This thesis expands our understanding of the evolution of vascular plants regarding severe drought. We show that embolism resistance varies 9-fold across over 250 conifer species, thanks to changes in bordered-pit anatomy. Combining this unprecedented database with a calibrated phylogeny, we link embolism resistance evolution to increased diversification rate. Furthermore, we describe the remarkable evolution of *Callitris* xylem during the aridification of Australia over the last 30 million years. [link](#)
- 2011**      **Master's degree - University of Bordeaux**  
Terrestrial Ecosystem Functioning and Modelling
- 2008**      **Bachelor's Degree - University of Orléans**  
Organismal Biology

## PUBLICATIONS

- 2018**      Larter M, Dunbar-Wallis A, Berardi A, and D. Smith S. (2018). Convergent evolution at the pathway level: predictable regulatory changes during flower color evolution. *Molecular Biology and Evolution* (Accepted).
- 2017**      Larter M, Pfautsch S, Domec J.-C, Trueba S, Nagalingum N, Delzon S. (2017). Aridity drove the evolution of extreme embolism resistance and the radiation of conifer genus *Callitris*. *New Phytologist* 215 (1), 97-112. [link](#)
- Sáenz-Romero C, Larter M, González-Muñoz N, Wehenkel C, Blanco-Garcia A, Castellanos-Acuña D, Burlett R, Delzon S. (2017). Mexican conifers differ in their capacity to face climate change. *Journal of Plant Hydraulics*, 4, e003. [link](#)

- 2016** Castagneyrol B, Jactel H, Brockerhoff E, Perrette N, Larter M, Delzon S, Piou D. (2016). Host range expansion is density dependent. *Oecologia*, 1-10. [link](#)
- 2015** Larter M, Brodribb TJ, Pfautsch S, Burlett R, Cochard H, Delzon S (2015). Extreme aridity pushes trees to their physical limits. *Plant Physiology*, 168. [link](#)
- 2014** Besnard G, Dupuy J, Larter M, Cuneo P, Cooke D, Chikhi L (2014). History of the invasive African olive tree in Australia and Hawaii: Evidence for sequential bottlenecks and hybridization with the Mediterranean olive. *Evolutionary Applications*, 7. [link](#)
- Bouche PS, Larter M, Domec J-C, Burlett R, Gasson P, Jansen S, Delzon S (2014). A broad survey of hydraulic and mechanical safety in the xylem of conifers. *Journal of Experimental Botany*. [link](#)

## CONFERENCES, PRESENTATIONS

- 2017** Evolution Meeting in Portland (OR) – June **Oral talk**  
« Linking changes in gene expression to the macroevolution of flower color in Iochrominae (Solanaceae) »
- 2015** Xylem International Meeting, Bordeaux, France. September 7<sup>th</sup>-9<sup>th</sup> 2015 – **Oral talk**  
« The evolution of cavitation resistance in conifers and the case of world-record *Callitris* »
- LabEx Day (LabEx COTE), Bordeaux, October 15<sup>th</sup> 2015 – **Oral talk**  
« Evolution of drought tolerance in Conifers - *Callitris* in Australia »
- 2014** HIE Seminar Series (University of Western Sydney), Richmond NSW (Australia), May 21st 2014 – **Oral talk**  
« The evolution of cavitation resistance in Conifers »
- 2012** Journées de la Société Française de Systématique, Paris, October 8<sup>th</sup>-10<sup>th</sup> 2012- **Poster**  
« Global variation and evolution of drought tolerance in Conifers »

## SCIENCE OUTREACH

- 2016** « Three Minute Thesis » final - University of Bordeaux [link](#)
- 2013** Larter M. (2013). Le Pinetum de Bedgebury : « la plus belle collection de conifères du monde ». *Jardins de France*, 623. [link](#)
- Larter M, Bouche P (2013). Les conifères, une famille à évolution complexe. *Jardins de France*, 623. [link](#)

## RESEARCH EXPERIENCE

- 2012** Intern - 6 months - University of Bordeaux (Sylvain Delzon)  
« Evolutionary patterns of cavitation resistance in conifers ».
- 2011** Intern - 6 months - University of Bordeaux (Sylvain Delzon)  
« Convergent evolution of drought tolerance in conifers »
- 2010** Intern (2 months) - Imperial College London (Guillaume Besnard)  
« Population genetics of the olive (*Olea europaea*) complex »

## TEACHING EXPERIENCE

- 2013** 2nd year Masters Lab day - « Cavitron » work group

## OTHER WORK EXPERIENCE

- 2009** Temporary employee (ABI TT) – warehouseman then production line operator (Jock factory in Bordeaux, food packaging)

## GRANTS & FUNDING

- 2014** External mobility grant from the COTE Cluster of Excellence – University of Bordeaux (3000€)  
Research Exchange Program (Inbound) – Hawkesbury Institute for the Environment -Western Sydney University (AU\$3350)

## RELATED SKILLS

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|---------------------------------|--|
| Plant physiology                | Hydraulic conductance (Cavitron)<br>Wood anatomy – microscopy (optical and SEM)<br>Anthocyanin extractions and separation (HPLC) |
| Molecular biology               | DNA extraction, PCR  |
| Phylogenetics                   | RAxML, BEAST, MrBayes  |
| Data analysis and visualisation | SAS, R, Inkscape   |
| Comparative methods             | Using R (packages ape, phytools, geiger, diversitree), BAMM  |
| Geographic Information System   | qGIS   |
| Languages                       | Native speaker in English and French   |

