

ANDREW JAMES HELMSTETTER

Date of Birth: 03/03/1989

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Objectives

I wish to pursue a career in scientific research in the field of evolutionary biology, specifically using phylogenetic, population genetic and genomic approaches to understand the origins of diversity and improve conservation of rare and endangered tropical plant species.

Education & Academic Qualifications

2011-2015 Doctor of Philosophy, Department of Life Sciences, Silwood Park, Imperial College London, UK

Title: The evolution of diversity and life history traits in annual killifish (*Austrolebias*) and other Cyprinodontiformes

Supervisors: Prof. Vincent Savolainen, Dr. Tom Van Dooren, Prof. Armand Leroi

2007-2011 Masters of Biological Sciences - Upper Second-Class Honours, Department of Animal & Plant Sciences, University of Sheffield, UK

2000-2007 King Edward VI Grammar School, Chelmsford, Essex, UK

Employment

2020-Present Postdoctoral researcher at the CESAB (Centre for the Synthesis and Analysis of Biodiversity) Montpellier, part of the FRB (Foundation for Research on Biodiversity). From reproductive strategies to species diversity: how evolution of breeding systems and associated traits shapes plant species diversity.

2018-2020 Postdoctoral researcher at L'Institut de recherche pour le développement (IRD) Montpellier, UMR DIADE. Comparative phylogeography and evolutionary dynamics of central African rain forest trees.

2016-2018 Postdoctoral researcher at Royal Botanic Gardens, Kew. Development of Primary Genomic Resources for Securing Sustainable Hazelnut Production in Turkey. Estimating extinction risk using genomic data in Madagascan plants.

2015-2016 Research Intern at Royal Botanic Gardens, Kew. Parallel adaptation to heavy metal pollution in *Silene uniflora*.

2011-2015 Demonstrator at Imperial College London. Topics include; statistics in R, phylogenetic inference, genome assembly, linkage mapping, gene expression, dissection, cycle sequencing and paper discussions.

2011 Laboratory Support Worker for the University of Sheffield Dyslexia and Disabilities Support Service.

Grants, Awards & Memberships

2020 Awarded grant with CNRS researcher T. Van Dooren (Sorbonne Univ.) on the evolutionary development of annual fishes (EvoDevoKillies; CLIMAT AmSud 2020)

2014 Awarded Best Presentation Prize at the 16th Young Systematists' Forum at the Natural History Museum, London

2011 NERC-funded PhD Studentship 3.5 years

2010 Awarded Research Bursary of £1,330 by the Sheffield Undergraduate Research Education scheme. Designed and carried out a project entitled "*Sexual Conflict and Immunity*." Supervisor - Prof. Michael T. Siva-Jothy.

2010 Given research bursary in order to conduct fieldwork on *Chorthippus parallelus* in the Peak District. Supervisor - Prof. Roger Butlin.

Member European Society for Evolutionary Biology

Reviews editor Frontiers in Plant Science: Plant Systematics and Evolution

Reviewer New Phytologist, Annals of Botany, Evolution, BMC Evolutionary Biology, Peer community in Evolutionary Biology, Plant Systematics and Evolution, Frontiers in Plant Science, Forests, Bot. J. Linn. Soc.

Presentations

- 2021** The evolutionary history of tropical rainforests. Departmental Seminar, German Centre for Integrative Biodiversity Research (iDiv)
- 2019** Dating the dynamics of central African rain forests. Departmental Seminar, Florida Institute of Technology.
- 2019** Dating the dynamics of central African rain forests. 23rd Evolutionary Biology Meeting, Marseilles.
- 2019** Evolutionary dynamics of central African rain forest palms. European Network of Palm Scientists 2019, Paris.
- 2018** Comparative phylogeography and evolutionary dynamics of central African rain forest trees. Evolution 2018, Montpellier.
- 2017** Development of Primary Genomic Resources for Securing Sustainable Hazelnut Production in Turkey. New Phytologist Next Generation Scientists 2017 & Plant Health: Challenges and Solutions, Antalya, Turkey.
- 2016** Investigating the Role of Human Colonisation on Population Decline in Madagascar's Highland Flora. UK Plant Evolution 2016, Cambridge.
- 2015** Co-occurrence, growth and morphology in *Austrolebias* - There's always a bigger fish. Departmental Seminar, Université Pierre et Marie Curie, Paris
- 2014** *Reproductive Strategy Evolution Stimulates Diversification in an Order of Fish*, 16th Young Systematists Forum, Natural History Museum, London. *** **Won best conference presentation prize**
- 2013** *Phylogeography and morphology of the South American Annual Killifish Genus, Austrolebias*. Congress of the European Society of Evolutionary Biology, Lisbon.

Outreach

- 2016** Kew Science Festival. Species identification, DNA extraction and real-time DNA sequencing.
- 2011** Published an account of a collection expedition to Uruguay in the bi-monthly journal of the British Killifish Association, *Killi-news*.
- 2011** Invited to write an article for the Society of Biology on adaptive radiations in cichlids, featured on their website.

Courses & Workshops

- 2019** Advanced computer cluster use, IRD Montpellier
- 2018** Phylsynth meeting <https://phylsynth.github.io/>
- 2018** Phylogenomics Software Symposium. University of Montpellier.
- 2017** Plant Health: Challenges and Solutions Antalya, Turkey.
- 2012** RAD-seq methodologies for ecological and evolutionary studies. Lund, Sweden.
- 2012** Generalised Linear Modelling. Silwood Park, Imperial College London.
- 2011-2014** Imperial College London Postgraduate Training Courses

Personal Interests and Qualifications

- Languages:** English (native), French (fluent; niveau C1).
- 2016-2018** Member of Kew Gardens Choir
- 2011-2014** Member of Silwood Park Choir
- 2009-2011** Secretary and Member of the Sheffield University Shodokan Aikido Sports Club
- 2008-2011** Member of the Sheffield University Singers Society
- Qualified PADI Open Water Scuba Diver
- Sporting interests include Golf, Squash and Fishing
- Experience playing the Banjo, Trumpet, Piano, Oboe, Side Drum, Guitar and voice, including small local venues.

Selected Publications

ORCID iD: <https://orcid.org/0000-0003-3761-4981>

Helmstetter, A. J., Béthune, K., Kamdem, N. G., Sonké, B., & Couvreur, T. L. (2020). Individualistic evolutionary responses of Central African rain forest plants to Pleistocene climatic fluctuations. *In press*, Proceedings of the National Academy of Sciences of the United States of America. <https://doi.org/10.1073/pnas.2001018117>

Helmstetter, A. J., Amoussou, B., Bethune, K., Kamdem, N., Kakai, R., Sonke, B., & Couvreur, T. L. P. (2020). Phylogenomic data reveal how climate shapes patterns of diversity in an African rain forest tree species. *Molecular Ecology*, 29(18), 3560-3573. <https://doi.org/10.1111/mec.15572> **Recommended by PCI Evolutionary Biology:** <https://doi.org/10.24072/pci.evolbiol.100094>

Helmstetter, A. J., Oztolan-Erol, N., Lucas, S., & Buggs, R. (2020). Genetic diversity and domestication of hazelnut (*Corylus avellana*) in Turkey. *Plants, People, Planet*, 2(4), 326-339 <https://doi.org/10.1002/ppp3.10078>

Helmstetter, A. J., Cable, S., Rakotonasolo, F., Rabarijaona, R., Rakotoarinivo, M., Eiserhardt, W., Baker, W., & Papadopoulos, A. (2020). The Demographic History of Micro-endemics: Have Rare Species Always Been Rare. *BioRxiv*. <https://doi.org/10.1101/2020.03.10.985853>

Couvreur, T. L. P.*, **Helmstetter, A. J.***, Koenen, E., Bethune, K., Brandao, R., Little, S., Sauquet, H., & Erkens, R. (2019). Phylogenomics of the major tropical plant family Annonaceae using targeted enrichment of nuclear genes. *Frontiers in plant science*, 9, 1941. <https://doi.org/10.3389/fpls.2018.01941> * **joint first author**

Helmstetter, A. J., Papadopoulos, A., Igea, J., Van Dooren, T., Leroi, A., & Savolainen, V. (2016). Viviparity stimulates diversification in an order of fish. *Nature communications*, 7, 11271. <https://doi.org/10.1038/ncomms11271>