Laura Guillardín (She/her)

Postdoc

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SKILLS

Genomic analysis, Bioinformatics, R and Bash languages, Statistics, Population genetics, DNA and RNA analysis, Communication skills, Forest management, Laboratory management, Student supervision, GIS

EXPERIENCE

Postdoctoral Fellow in Forestry - *TEAGASC, Ireland*

DECEMBER 2023- PRESENT

- Adaptforest: Adaptation, mitigation and protection strategies to increase resilience of Irish forests to impacts of climate change

PhD Student in Forest Genetics - *University of Oxford, UK*

SEPTEMBER 2019 - APRIL 2024

- Developed SNP genotyping assays for Douglas fir and Norway spruce in two different genotyping platforms.
- Optimised DNA isolation method to obtain reliable DNA in two conifer species.
- Collected samples from over 1000 individuals from two different conifer trees, isolated the DNA and genotyped with 96 SNPs to assess the genetic diversity.

Research assistant - *University of Oxford - The Conifer Breeding Co-operative, UK*

MARCH 2022 - PRESENT

- Injecting diversity and quality assurance into alternative conifers. Develop user-friendly DNA finger-printing for traceability of Forest Reproductive Materials and verification of pedigree in commercial forest species.

Associate - *Outsmart Insight, London, UK*

SEPTEMBER 2021 - PRESENT

- Searching for experts to review scientific research proposals to evaluate their commercial potential in different fields such as assessing

stress resistance from agronomic crops while maximising yield and coral reef conservation techniques.

- Exploring innovative research state-of-the-art projects that will become the future technologies.

Junior Cloud Data Architect - *myCloudDoor, Spain*

SEPTEMBER 2018 - SEPTEMBER 2019

- Designed and developed systems and frameworks that integrate Big Data, Machine Learning and Advanced Analytics that provide a solution to a wide range of business challenges.
- Used analytical programs such as SQL Server, Visual Studio and PowerBI, as well as different Cloud Platforms such as Microsoft Azure, Amazon Web Services (AWS) and Google Cloud Platform (GCP).

Forest Genetics Research Intern - *Universidad Politécnica de Madrid, Spain*

NOVEMBER 2017 - MAY 2018

- Developed a bioinformatic pipeline to genetically analyse progenies of half siblings of holm oaks, cork oaks and hybrid individuals.
- Managed over 1000 seedlings and saplings in the greenhouse and measured phenotypic traits.

Forest Genetics Research Intern - *NEIKER-Tecnalia, Spain*

SEPTEMBER 2016 - DECEMBER 2016

- Genetic and phenotype analysis of European white oaks populations in the pre-pyrenean area. Structure and Landscape genomics approaches.
- Collected samples and extracted DNA of 120 individuals and genotyped them with 100 EST-SSR microsatellites.

TEACHING EXPERIENCE

- Supervised and managed assistants in the field and in the laboratory for extended internship periods.
- Teaching experience acting as a demonstrator in laboratory, computing and fieldwork practicals as well as giving tutorials to Oxford Biology (MBiol) undergraduate students on different topics, such as population genetics, habitat responses to Climate Change and species interactions, among others.
- Collaborated in the organisation and teaching of the Biology skills course developed at Wytham, UK by Professor John MacKay where we looked at tree identification and developed a forest inventory.

EDUCATION

Professional Diploma, Researcher Development - *University College Dublin, Ireland*
MAY 2024 - PRESENT

Doctor of Philosophy - *University of Oxford, UK*
SEPTEMBER 2019 - APRIL 2024

MSc in Biotechnology Agroforestry - *Universidad Politécnica de Madrid, Spain*
SEPTEMBER 2017 - JULY 2018

BSc in Forestry Engineering - *Universidad Politécnica de Madrid, Spain*
SEPTEMBER 2011 - JULY 2017

PUBLICATIONS

- **Guillardín, L.**, Glover, E., MacKay, J. J. [PREPRINT] Low effective population size but high heterozygosity revealed by SNP analyses in adult and juvenile Thuja plicata in UK Woodlands. bioRxiv 2024.03.18.585477; doi: https://doi.org/10.1101/2024.03.18.585477

- **Guillardín, L.**, MacKay, J. J. (2023) Comparing DNA isolation methods for forest trees: quality, plastic footprint, and time-efficiency. *Plant Methods, 19*(111) https://doi.org/10.1186/s13007-023-01086-y

- López de Heredia, U., Mora-Márquez, F., Goicoechea, P. G., **Guillardín-Calvo, L**., Simeone, M. C., & Soto, A. (2020). ddRAD Sequencing-Based Identification of Genomic Boundaries and Permeability in Quercus ilex and Q. suber Hybrids. *Frontiers in Plant Science*, *11*(1330). https://doi.org/10.3389/FPLS.2020.564414/BIBTEX

- **Guillardín-Calvo, L.**, Mora-Márquez, F., Soto, Á., & López de Heredia, U. (2019). RADdesigner: a workflow to select the optimal sequencing methodology in genotyping experiments on woody plant species. *Tree Genetics and Genomes*, *15*(4). https://doi.org/10.1007/s11295-019-1372-3

- Goicoechea, P. G., **Guillardín, L.**, Fernández-Ibarrodo, L., Valbuena-Carabaña, M., González-Martínez, S. C., Alía, R., & Kremer, A. (n.d.). Adaptive Introgression Promotes Fast Adaptation In Oaks Marginal Populations. *BioRxiv Preprint* . https://doi.org/10.1101/731919

SCIENTIFIC TALKS AND OUTREACH

Forest Genetics 2023: Discovery & Innovation in Changing Climates

Talk: Continuous cover forestry and genetic diversity: a case study of England's Douglas fir and Western redcedar plantations.

Poster: Comparing DNA isolation methods for forest trees: Quality, Plastic footprint and time-efficiency.

Vernon, BC, Canada (July 10-13, 2023)

British Ecological Society Annual Meeting 2022 Poster: Assessing the genetic diversity of Southern England Douglas fir planted stands and how it is transferred to the offspring.

Edinburgh, Scotland (December 18-21, 2022)

IX International Symposium SRUK/CERU Presentation: From forest inventory to genotyping: How to increase forest diversity while timbering?

Oxford, England (July 1-3, 2022)

The B4EST International Conference. Presentation: Genetics behind the Continuous Cover Forestry (CCF), Do UK plantations hold enough genetic diversity to face environmental changes?

Lisbon, Portugal (June 20-23, 2022)

Plant Genomes Online 2022. Presentation: Genotyping strategies for large genome conifers - How genetically diverse are UK evergreen woodlands?

Online (April 27-28, 2022)

TREESCAPES 2021. Poster: Genetics behind the Continuous Cover Forestry (CCF), Do UK plantations hold enough genetic diversity to face environmental changes?

Online (June 20-23, 2021)

2021 Forest Genetics Student & PostDoc Symposium. Poster: GENETIC effects of applying Continuous Cover Forestry in non-native conifer UK populations.

Online (May 19-20, 2021)

LIFEGENMON final conference. Presentation: GENETIC effects of applying Continuous Cover Forestry in non-native conifer UK populations.

Online (September 21-25, 2020)

OUTREACH

Why is better understanding of tree genetics relevant to Continuous Cover Forestry? Guillardin, L., MacKay, J & Kerr, G. Continuous Cover Forestry Group Newsletter, 2023.

Oxford Sparks Live: Seeing the forest and the trees. Oxford Sparks is a podcast that connects researchers and takes the listener on the journey of discovery to hear about the latest, cutting-edge science to spark your curiosity. Video: Live Q&A with forest scientists. Online (August 04, 2020)

Inspiring Girls International, Girls International is an organisation dedicated to raising girls' goals around the world by connecting them with female role models. Video: Laura Guillardin: Estudiante de doctorado en Botánica/ PhD student in Plant Sciences. Online (April 24, 2020)

LEADERSHIP ROLES AND VOLUNTEER EXPERIENCE

Helper at British Ecological Society annual meeting 2021, BES: Ecology Across Borders, Liverpool (12 - 15 December 2021)

Assisted with attendees' conference registration. Helped run the conference by advising participants about the session locations and times. Supported speakers and workshop organisers when needed.

Executive committee member (Treasurer), Oxford University Basketball Club (06/2020 - 06/2021)

General financial oversight. Oversee and present budgets, accounts and financial statements to the committee. As part of the executive committee, I also participated in the coaches' hiring process, including interviews and conditions negotiation.

Pirineos de todos y para todos (07/2015 - 07/2015)

Improvement of infrastructure and environment in a refurbished village of the Pyrenees region. We focused on clear and thinning forest areas surrounding the village.

PROFESSIONAL TRAINING

Emergency First Aid for Fieldworkers (10/2021)

Provide first aid skills in contexts with limited paramedic support including remote and challenging environments.

Data Engineering on Google Cloud Platform Specialization (11/2018)

https://www.coursera.org/account/accomplishments/specialization/GFF3L7TFWPGR

Gentree-Evoltree Summer School Course: "From genotypes to phenotypes: assessing forest tree diversity in the wild". Kaunas, Lithuania (06/2018)

LANGUAGES

English ♦ ♦ ♦ ♦ ♦

Spanish (Native) ♦ ♦ ♦ ♦ ♦

INTERESTS

Climbing, Botany, Basketball, Environment conservation, Mountain bike, EDI.