

Laura Marqués

University of Bern

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Work Experience

Postdoctoral Researcher, 2022 - 2025

University of Bern, Geocomputation and Earth Observation Group. Switzerland.

Postdoctoral Researcher, 2020 - 2022

ETH Zürich, Computational Ecosystem Science Group. Switzerland.

Research Fellow, 2015 - 2019

University of Alcalá. Department of Life Sciences. Spain.

Education

PhD in Forest Ecology, 2015 - 2019

University of Alcalá. Department of Life Sciences. Spain.

MSc in Natural Sciences, 2012 - 2013

University of Zaragoza, Spain.

Minor in Ecology, 2011 - 2012

Vrije University of Amsterdam, The Netherlands.

BSc in Environmental Sciences, 2006 - 2011

University of Alcalá. Department of Life Sciences. Spain.

Technical skills

Programming: R (tidyverse, ggplot2, Shiny).

Data Management: R Markdown, Quarto, GitHub.

Project Management: Implementation and evaluation, communication and reporting.

Modeling & Statistics: Linear Mixed Effects Models, Process-based models

Soft Skills: Communication, collaboration, problem-solving.

Publications

Marqués, L, Weng, E, Bugmann, H, Forrester, DI, Rohner, B, Hobi, ML, et al. (2023). Tree growth enhancement drives a persistent biomass gain in unmanaged temperate forests. *AGU Advances*, 4, e2022AV000859. DOI: [10.1029/2022AV000859](https://doi.org/10.1029/2022AV000859)

Marqués L, Hufkens K, Bigler C, Crowther TW, Zohner CM, Stocker BD (2023) Acclimation of phenology relieves leaf longevity constraints in deciduous forests. *Nat Ecol Evol* 7, 198–204. DOI: [10.1038/s41559-022-01946-1](https://doi.org/10.1038/s41559-022-01946-1)

Madrigal-González J, Calatayud J, Ballesteros-Cánovas JA et al. (2023) Global patterns of tree density are contingent upon local determinants in the world's natural forests. *Commun Biol* 6, 47. DOI: [10.1038/s42003-023-04419-8](https://doi.org/10.1038/s42003-023-04419-8)

Cruz-Alonso V, Martínez-Baroja L, **Marqués L**, Rodríguez-Uña A, Rohrer Z, Monteagudo N and Velado-Alonso E (2023) Gender bias in ecosystem restoration: from science to practice. *Restor Ecol*, 31: e13815. DOI: [10.1111/rec.13815](https://doi.org/10.1111/rec.13815)

Marqués L, Ogle K, Peltier DMP, Camarero JJ (2022) Altered climate memory characterizes tree growth during forest dieback. *Agricultural and Forest Meteorology*. *Agricultural and Forest Meteorology*, 314, 108787. DOI: [10.1016/j.agrformet.2021.108787](https://doi.org/10.1016/j.agrformet.2021.108787)

Marqués L, Peltier D, Camarero JJ, Zavala MA, Madrigal-González J, Sangüesa-Barreda G, Ogle K (2022) Disentangling the legacies of climate and management on tree growth in mixed forests. *Ecosystems* 25, 215–135. DOI: [10.1007/s10021-021-00650-8](https://doi.org/10.1007/s10021-021-00650-8)

Marqués L, Camarero JJ, Zavala MA, Stoffel M, Ballesteros-Cánovas J, Sancho-García C, Madrigal-González J (2021) Evaluating tree-to-tree competition during stand development in a relict Scots pine forest: how much does climate matter?. *Trees* 35, 1207–1219. DOI: [10.1007/s00468-021-02109-8](https://doi.org/10.1007/s00468-021-02109-8)

Marqués L, Madrigal-González J, Zavala MA, Camarero JJ, and Hartig F (2018) Last-century forest productivity in a managed dry-edge Scots pine population: the two sides of climate warming. *Ecological Applications* 28:95–105. DOI: [10.1002/eap.1631](https://doi.org/10.1002/eap.1631)

Fernández-Manjarrés JF, Ruiz-Benito P, Zavala MA, Camarero JJ, Pulido F, Proença V, Navarro L, Sansilvestri R, Granda E, **Marqués L**, Temunović M, Bertelsmeier C, Drobinski P, Roturier S, Benito-Garzón M, de Cortazar-Atauri IG, Simon L, Dupas S, Levrel H, Sautier

M (2018) Forest adaptation to climate change along steep ecological gradients: The case of the Mediterranean-temperate transition in South-Western Europe. Sustainability 10:1– 18. DOI: [10.3390/su10093065](https://doi.org/10.3390/su10093065)

Marqués L, Camarero JJ, Gazol A, and Zavala MA (2016). Drought impacts on tree growth of two pine species along an altitudinal gradient and their use as early-warning signals of potential shifts in tree species distributions. Forest Ecology and Management 381:157–167. DOI: [10.1016/j.foreco.2016.09.021](https://doi.org/10.1016/j.foreco.2016.09.021)

Varela S, Andivia E, Bravo R, Briega A, Calatayud J, Cicuendez López-Ocaña V, Cruz-Alonso V, Espigares T, Fernández-Pérez L, Gómez Sal A, Martínez de la Baroja L, Madrigal J, **Marqués L**, Marvá Ruiz M, Molina R, Pataro L, Pérez Camacho L, Rebollo de la Torre S, Rey Benayas JM, Rodríguez MA, Ruiz-Benito P, Santos AMC, Talabante C, Toca A, Velado E, Villar Salvador P, Zavala MA. (2016) Estudio, gestión, conservación y restauración de ecosistemas ante el cambio global: 1º Jornadas FORECO en la Universidad de Alcalá. Ecosistemas 25(1): 115. DOI: [10.7818/ECOS.2016.25-1.19](https://doi.org/10.7818/ECOS.2016.25-1.19)

Teaching

Land in the Earth System II, 2023

University of Bern. Master program. 25h.

Lecture on the fundamental processes governing terrestrial biosphere functioning.

Applied Geodata Science Proseminar, 2023

University of Bern. Bsc in Geography. 25h.

Lecture on data management and analyses for applied geodata science projects.

Communicating data visually, 2022

Lucerne University of Applied Sciences and Arts (HSLU). BSc Data Design and Art. 10h.

Lecture on data management on forestry for undergraduates.

Global Change Biology, 2021

ETH Zürich. Master program. 50h.

Lecture on scientific research on biodiversity for master students.

Ecology and human well-being, 2016

University of Alcalá. BSc Biology. 46h.

Teaching assistant in statistics for biology undergraduates.

Applied fieldwork techniques, 2016

University of Alcalá. BSc Environmental Sciences. 32h.

Teaching assistant in field techniques for biology undergraduates.

Ecology, 2016

University of Alcalá. BSc Environmental Sciences. 20h.

Teaching assistant in statistics for biology undergraduates.

Conferences

INTECOL, 2022

Tree growth enhancements drive a densening of unmanaged temperate forests.
Frontiers in Ecology: Science and Society. Geneva, Switzerland.

BIFOR, 2022

Higher carbon assimilation translates into enhanced biomass stocks.
Birmingham, UK.

EGU General Assembly, 2022

Long-term trends towards delayed autumn senescence prevail over short-term effects by high early-season CO₂ assimilation.
Differential climate memory drives tree growth in ongoing forest dieback.
Vienna, Austria. Hybrid edition.

European Conference on Ecological Restoration, 2021

Gender bias in Ecosystem Restoration: from Science to Practice.
Society for Ecological Restoration (SER). Online edition.

FORECOMON, 2021

Are forests thickening due to rising CO₂? Insights from Swiss forests and mechanistic modeling.
ICP-Forests. Birmensdorf, Switzerland.

EGU General Assembly, 2021

Does forest growth acceleration lead to denser stands? Insights from Swiss forests and mechanistic modeling.
Vienna, Austria. Hybrid edition.

EGU General Assembly, 2020

Live fast-die young: Scaling CO₂ fertilization effects from leaf to ecosystem levels.
Vienna, Austria. Online edition.

IV Reunión del grupo de trabajo de Ecología, Ecofisiología y Suelos Forestales, 2019

*Competition dynamics under recurrent droughts in dry-edge populations of *Pinus sylvestris*.*
Alcalá de Henares, Spain.

ESA Annual Meeting, 2018

Inferring time-scales of influence of climate on tree growth.
New Orleans, Louisiana, USA.

REMEDINAL, 2016

Restoration and Conservation of Madrid Ecosystems.
Universidad Autónoma de Madrid, Spain.

TRACE, 2025

Tree-Rings in Archaeology, Climatology & Ecology.
Universidad Pablo Olavide, Sevilla, Spain.

Awards & Funding

Margarita Salas postdoctoral fellowship for young researchers, 2022 – 2024

Funding institution: European Union. University of Bern and University of Valladolid.

Pre-doctoral fellowship. F.P.I. Formación de Personal Investigador, 2015 – 2019

Department of Life Sciences. University of Alcalá.

Short-Term Scientific Mission, 2017

Funding institution: University of Alcalá. Host institution: Northern Arizona University.

Short-Term Scientific Mission, 2016

Funding institution: COST Action FP1304. Host institution: University of Freiburg.

Erasmus scholarship, 2011

Funding institution: European Union.

Research projects

Swiss National Science Foundation, 2019 – 2024

Next-generation modeling of the biosphere – Including new data streams and optimality approaches (MIND). PI: Prof. Benjamin Stocker.

Spanish National Research Council, 2019 – 2021

Identifying and disentangling key components of forest vulnerability and resilience in response to drought: the role of ecological memory and legacy effects in Iberian forests (FORMAL). PI: Prof. JJ Camarero and Prof. MA Zavala.

Spanish National Research Council, 2016 – 2019

Vulnerabilidad y adaptación de los bosques Ibéricos a la sequía: una aproximación multi-escala basada en la dendroecología, inventarios forestales y modelización (FUNDIVER). PI: Prof. JJ Camarero and Prof. MA Zavala.

Courses & Training

Career planning for Climate Scientists, 2022

Graduate School Climate Sciences, University of Bern.

Scientific Programming in Python, 2020

University of Zürich.

Swiss Learning path on the use of the C3S Climate Data Store, 2020

C3S User Learning Services and Wageningen University.

Course of Applied Bayesian Modeling, 2017

Northern Arizona University, Flagstaff, Arizona.

Using R for ecological analysis, 2017

Centre for Ecological Research and Forestry Applications (CREAF), Barcelona, Spain.

Course of Bayesian statistics and models, 2016

University of Freiburg, Germany.

Species distribution models with R, 2015

Universidad de Alcalá, Madrid, Spain.

Climate change impacts on forest ecosystems, 2015

Swiss Federal Institute for Forest, Snow and Landscape Research (WSL), Switzerland.

Career day for scientists and engineers in the early stage, 2015

Autónoma University of Madrid, Spain.

Global Climate Change: Environmental and Human Impacts, 2015

Universidad de Alcalá, Madrid, Spain.

Bayesian calibration, forecasting, and multi-model predictions of process-based vegetation models, 2015

COST Action FP1304 PROFOUND. Grenoble, France.

Volunteer & Outreach

Scientific reviewer, 2019 - present

Journal reviewer for Annals of Forest Science, Journal of Ecology, Forest Ecology and Management, Agricultural and Forest Meteorology, Journal for Nature Conservation, Journal of Sustainable Forestry, and Geoscientific Model Development (GMD).

Women in Science, 2019

Public engagement to raise the visibility of women in science. Madrid, Spain.

Experimenta con Supercientíficas, 2018

Workshops for primary school. Madrid, Spain.

Science in the park, 2017

Volunteer to inspire the general public with the joy of scientific discovery. Arizona, USA.
