

# Laura Marqués

University of Bern

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## Work Experience

**Margarita Salas fellow, 2022 - *Present***

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.

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## 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.

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## 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)

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## 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.

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## 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 CO<sub>2</sub> 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 CO<sub>2</sub>? 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 CO<sub>2</sub> 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.

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**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 Alcala.

**Short-Term Scientific Mission, 2017**

Funding institution: University of Alcala. 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.

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## 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.

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## 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.

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## **Technical skills**

**Programming:** R (tidyverse, ggplot2, Shiny)

**Data Management:** R Markdown, Quarto, GitHub

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

**Soft Skills:** Communication, collaboration, problem-solving

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## **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.

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