

## Dr Cecilia Chavana-Bryant

Forest canopy structure and function specialist

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Dr Cecilia Chavana-Bryant is a current member of staff at the UCL geography department funded by the NERC National Centre for Earth Observation (NCEO). She is a scientist trained as a forest ecologist at the University of Oxford (PhD) and Plymouth University (BSc Hons, MSc) and has over 15 years of field experience: working and climbing trees in tropical and temperate forest canopies, managing international teams, leading and collaborating in scientific publications and training students. Dr Chavana-Bryant combines years of experience and expertise in forest ecology, vegetation physiochemical and spectral analysis and terrestrial lidar scanning (TLS) techniques to provide a unique multidisciplinary approach to her research. Her expertise in forest structure and function has been built by long-term in-situ studies conducted in forests across the globe. Her current research involves the collection of TLS data to support the validation/calibration of new biomass space missions such as the ESA Biomass 2024 mission and using TLS data to better understand the environmental and competitive constraints that determine tree form and function and their impacts on forest structure, biomass and dynamics.

### RESEARCH EXPERIENCE

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2022 – present	Postdoctoral Research Fellow in Tropical Forest Biomass, Ecophysiology & Remote Sensing   Department of Geography   University College London & NERC National Centre for Earth Observation
2020 – 2021	Research Associate   Environmental Change Institute, University of Oxford, UK
2017 - 2019	Postdoctoral Scholar   Earth and Environmental Sciences, Lawrence Berkeley National Laboratory, USA
2017	Research Associate   Environmental Change Institute, University of Oxford, UK
2009 - 2016	DPhil Research   School of Geography & the Environment, University of Oxford, UK
2013 - 2014	Visiting Researcher   Department of Earth System Science, Stanford University, USA
2013	Visiting Researcher   Department of Ecology and Evolutionary Biology, University of Arizona, USA
2008	Researcher - IBISCA Auvergne, France
2007	Field assistant – IBISCA Queensland, Australia

### TEACHING AND SUPERVISION

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2022 - 2025	PhD co-supervisor – Irene Xochitl Urrutia Schroeder   Centre for the Arts in Society, Universiteit Leiden
2022 - 2023	Forest conservation project leader – BSc Virtual Tenerife Field trip   School of Geography and the Environment, University of Oxford, UK.
2020	Thesis mentor – BSc (Hons) Nursing: Adult Health Specialisation - Kelly Nichols   School of Nursing & Midwifery, University of Plymouth, UK.
2019	Science Undergraduate Laboratory Internship (SULI) Mentor – Elmera Azadpour   Lawrence Berkeley National Lab (LBL) / UC Berkeley, USA.
2017	MSc dissertation advisor & tree climbing instructor – Kieran Walker   University of Oxford and Imperial College London, UK.
2009 - 2017	Trained undergraduates (Cambridge University), PhD students (Arizona and Oxford Universities) and Postdoctoral researchers (Oxford University) in the use of spectroradiometers and field spectroscopy methodologies.
2007 - 2017	Trained field teams to collect and process vegetation, wood, tree, plot and spectral data, and/or climb trees in Australia, France, Brazil, Peru, French Guiana and UK.
2006	BSc dissertation co-supervisor – Jeremy Weiss   University of Plymouth, UK.

## EDUCATION AND SPECIAL TRAINING

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2017	Advanced Training Residential Course in Field Spectroscopy, Fluorescence and Thermal Measurements and Process Modelling for Earth Observation and Environmental Science   Natural Environment Research Council (NERC), UK
2009 - 2016	DPhil Geography and the Environment   University of Oxford, UK
2010	Field Training in Universal Techniques for Canopy Movement   Angelim, Nouragues Ecological Research Station, French Guiana
2009	Introduction to Field Spectroscopy   NERC Field Spectroscopy Facility, University of Edinburgh, UK
2006	Basic Canopy Access Proficiency Programme (BCAP)   Global Canopy Programme, Oxford, UK
2005 - 2006	MSc Botanical Conservation with Distinction   Plymouth University, UK
2001 - 2004	BSc Hons in Ecology – 2.1 (Upper Division)   Plymouth University, UK
2009	Fieldwork Planning and Supervision   Emergency First Aid for Fieldworkers   University of Oxford, UK
1997 - 1998	Certificate for Overseas Teachers of English (COTE)   University of Cambridge, UK

## SHOLARSHIPS, GRANTS AND AWARDS

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2016	£1,500 - Presenter travel award for EGU. CEH, UK
2013	US\$1,000 - Presenter travel award. AGU, USA
2009 - 2012	£218,000 - Fieldwork spectroscopy equipment and support grant. NERC Field Spectroscopy Facility, Edinburgh, UK
2009 - 2011	£32,000 - Various fieldwork and equipment awards from UK institutions
2010	€12,000 - Nouragues Ecological Research Station Travel Grant. CNRS, French Guiana, France
2008	Doctoral scholarship + £28,000 fieldwork budget. NERC (TROBIT project: NE/D005469/1). University of Oxford, UK
2008	£2,000 - Invited researcher grant. IBISCA, Auvergne, France
2006	MSc dissertation commendation
2006	£600 - Priority Site Research Grant. English Nature, UK

## PUBLICATIONS

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Holland, R., Castro, G., **Chavana-Bryant, C.**, Levy, R., Moat, J., Robson, T., Wilkinson, T., Wilkes, W., Yang, W., Disney, M. (2024) Giant redwoods (*Sequoiadendron giganteum*) in the UK: carbon storage potential and growth rates. *Royal Society Open Science* – just accepted

Wilkes, P., Disney, M., Armston, J., Bartholomeus, H., Bentley, L., Brede, B., Burt, A., Calders, K., **Chavana-Bryant, C.**, Clewley, D., Duncanson, L., Forbes, B., Krisanski, S., Malhi, Y., Moffat, D., Origo, N., Shenkin, A., Yang, W. (2023) [TLS2trees: A scalable tree segmentation pipeline for TLS data](#). *Methods in Ecology and Evolution*

Gerard, F. F., Weedon, G. P., George, C. T., Hayman, G. and **Chavana-Bryant, C.** (2020) [Leaf phenology amplitude derived from MODIS NDVI and EVI: Synchrony of leaf phenology for Meso- and South America](#). *Geoscience Data Journal*

**Chavana-Bryant, C.**, Malhi, Y., Anastasiou, A., Enquist, B. J., Cosio, E. G. and Gerard, F. F. (2019) [Leaf age effects on the spectral predictability of leaf traits in Amazonian canopy trees](#). *Science of the Total Environment*

Albert, L., Restrepo-Coupe, N., Smith, M., Wu, J., **Chavana-Bryant, C.**, Prohaska, N., Taylor, T., Martins, G., Ciais, P., Mao, J., Arain, A., Li, W., Shi, X., Ricciuto, D., Huxman, T., McMahon, S. and Saleska, S. (2019) [Cryptic phenology in plants: case studies, implications and recommendations](#). *Global Change Biology*

Doughty, C.E., Santos-Andrade, P.E., Blonder, B., Shenkin, A., **Chavana-Bryant, C.**, Diaz, S., Salinas, N., Enquist, E., Martin, R., Asner, G.P. and Malhi, Y. (2017) [Can leaf spectroscopy predict](#)

[leaf and forest traits along a Peruvian tropical forest elevation gradient?](#) *Journal of Geophysical Research: Biogeosciences*

Wu, J., **Chavana-Bryant, C. (shared first author)**, Prohaska, N., Serbin, S. P., Guan, K., Albert, L. P., Yang, X., van Leeuwen, W. J. D., Garnello, A. J., Martins, G., Malhi, Y., Gerard, F., Oliveira, R. C. and Saleska, S. R. (2017) [Convergence in relationships between leaf traits, spectra and age across diverse canopy environments and two contrasting tropical forests.](#) *New Phytologist*

**Chavana-Bryant, C.**, Malhi, Y., Wu, J., Asner, G.P., Anastasiou, A., Enquist, B.J., Cosio Caravasi, E. G., Doughty, C. E., Saleska, S. R., Martin, R. E. and Gerard, F. F. (2017) [Leaf aging of Amazonian canopy trees as revealed by spectral and physiochemical measurements.](#) *New Phytologist*

Ribeiro, S.P., Da Silva, M.B.Jr., Tagliati, M.C. & **Chavana-Bryant, C.** (2012) [Vegetation traits and herbivory distribution in an Australian subtropical forest.](#) *Memoirs of the Queensland Museum. Nature*

#### **In preparation:**

**Chavana-Bryant, C., et al.** ForestScan: a unique multiscale dataset of tropical forest structure across 3 continents including terrestrial, UAV and airborne LiDAR and in-situ forest census data

**Chavana-Bryant, C., et al.** Introducing GNSS protocols for TLS field sampling in tropical forests

**Chavana-Bryant, C.**, Gerard, F. F., Enquist, B.J., Patrick Bentley, L., Salinas Revilla, N., Cosio Caravasi, E. G., Anastasiou, A., Martin, R. E., Asner, G.P., Keenan, T. and Malhi, Y. Assessing the role of leaf age as a fundamental driver of leaf trait variation – to be resubmitted soon.

**Chavana-Bryant, C.**, Malhi, Y., Anastasiou, A., Cosio, E. G., George, C. T. and Gerard, F. F. Remotely sensed seasonal canopy dynamics in the tropics: a riddle of many scales