PAULO NEGRI BERNARDINO

Plant Ecologist

CONTACT INFORMATION

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SUMMARY

Paulo Bernardino obtained his BSc degree in Biological Sciences at University of Campinas (UNICAMP) in 2013, his MSc degree in Ecology also at UNICAMP in 2016, and his PhD under a double-degree contract at KU Leuven (Belgium) and Wageningen University (the Netherlands) in 2021. In July 2024 finished a two and a half years postdoc at KU Leuven, where he used field and remote sensing data to determine vegetation water content critical thresholds that lead to stability loss in savanna and grassland ecosystems. Currently works as a postdoctoral researcher at Cary Institute of Ecosystem Studies, understanding gas exchange dynamics in seasonally waterlogged grasslands.

PhD research focused on better understanding abrupt changes in dryland ecosystem functioning, using remote sensing data and advanced time series analyses. MSc research focused on the role of fire and resource availability in savanna-forest transition dynamics. Has experience in ecology, remote sensing, geospatial analysis, field work, and R programming. Has interest in ecosystem ecology, alternative stable states, tipping points, early warning signals, remote sensing, functional ecology, and fire ecology.

WORK EXPERIENCE

Postdoctoral researcher   Aug 2024 - present
Cary Institute of Ecosystem Studies
• Conducts research in environmental sciences.
• Uses advanced R programming skills for spatial analysis.
• Uses remote sensing and field data.

Collaborating researcher   Jan 2022 - present
University of Campinas (UNICAMP)
- Teaches classes on remote sensing for ecology and restoration
- Supervise MSc and PhD students

KU Leuven   Oct 2021 - Jul 2024
Postdoctoral researcher

KU Leuven and Wageningen University & Research   Apr 2017 - Oct 2021
PhD Candidate

University of Campinas (UNICAMP)   Mar 2012 - Nov 2013
Supervised interniship
Internship at the Plant Functional Ecology Laboratory, Biology Institute, UNICAMP, Campinas (Brazil)

Polar Distribuidora de Produtos para Sorvetes LTDA, Piracicaba (Brazil) Jan 2006 - Dec 2006
Finance and sales associate professional

EDUCATION

Doctor of Bioscience Engineering and Doctor of Science (double degree) Apr 2017 - Oct 2021
KU Leuven / Wageningen University

MSc in Ecology Jan 2014 - Oct 2016
University of Campinas (UNICAMP)

BSc in Biological Sciences Jan 2010 - Dec 2013
University of Campinas (UNICAMP)

LANGUAGES

• Portuguese (native)
• English (fluent)
• Spanish (intermediate)
• Dutch (basic)
• Japanese (basic)

PUBLICATIONS

Bernardino, P. N., W. De Keersmaecker, R. Fensholt, J. Verbesselt, B. Somers, & S. Horion (2020). Global-scale characterization of turning points in arid and semi-arid ecosystem functioning. Global Ecology and Biogeography 29 (7), 1230–1245.

Bernardino, P. N., M. Brandt, W. De Keersmaecker, S. Horion, R. Fensholt, I. Storms, et al. (2020). Uncovering dryland woody dynamics using optical, microwave, and field data—Prolonged above-average rainfall paradoxically contributes to woody plant die-off in the western Sahel. Remote Sensing 12 (14), 2332.

Bernardino, P. N., V. L. Dantas, M. Hirota, J. G. Pausas, R. S. Oliveira (2022). Savanna–forest coexistence across a fire gradient. Ecosystems 25 (2), 279-290.

Bernardino, P. N., R. S. Oliveira, K. Van Meerbeek, M. Hirota, M. N. Furtado, et al. (2024). Estimating vegetation water content from Sentinel-1 C-band SAR data over savanna and grassland ecosystems. Environmental Research Letters 19 (3), 1-12.

Van Passel, J., **P. N. Bernardino**, S. Lhermitte, B. F. Rius, M. Hirota, T. Conradi, et al. (2024). Critical slowing down of the Amazon forest after increased drought occurrence. Proceedings of the National Academy of Sciences 121 (22), e2316924121.

Van Passel, J., W. De Keersmaecker, **P. N. Bernardino**, X. Jing, N. Umlauf, K. Van Meerbeek, & B. Somers. (2022). Climatic legacy effects on the drought response of the Amazon rainforest. Global Change Biology, 28 (19), 5808-5819.

Vermeulen, L. M., B. Verbist, K. Van Meerbeek, J. Slingsby, **P. N. Bernardino**, et al. (2024). Wetness severity increases abrupt shifts in ecosystem functioning in arid savannas. Global Change Biology 30 (3), e17235.

Maes, S. L., M. P. Perring, R. Cohen, F. K. Akinnifesi, A. BarguésTobella , J-F Bastin, M. Bauters, **P. N. Bernardino**, et

al. (2024). Explore before you restore: Incorporating complex systems thinking in ecosystem restoration. Journal of Applied Ecology 61 (5), 922-939.

Souverijns, N., M. Buchhorn, S. Horion, R. Fensholt, H. Verbeeck, J. Verbesselt, M. Herold, N.-E. Tsendbazar, **P. N. Bernardino**, et al. (2020). Thirty Years of Land Cover and Fraction Cover Changes over the Sudano-Sahel Using Landsat Time Series. Remote Sensing 12 (22), 3817.

Verbruggen, W., G. Schurgers, S. Horion, J. Ardö, **P. N. Bernardino**, B. Cappelaere, J. Demarty, R. Fensholt, et al. (2021). Contrasting responses of woody and herbaceous vegetation to altered rainfall characteristics in the Sahel. Biogeosciences 18 (1), 77–93.

Troya, F., **P. N. Bernardino**, & B. Somers. (2022). Inter-Annual Climate Variability Impact on Oil Palm Mapping. Remote Sensing, 14 (13), 3104.

Fremout, T., J. Cobián-De Vinatea, E. Thomas, W. Huaman-Zambrano, M. Salazar-Villegas, D. Limache-de la Fuente, **P. N. Bernardino**, et al. (2022). Site-specific scaling of remote sensing-based estimates of woody cover and aboveground biomass for mapping long-term tropical dry forest degradation status. Remote Sensing of Environment, 276, 113040.

Masiliunas, D., J. Verbesselt, A. Zeileis, M. Appel, R. Hyndman, M. Jung, M. Mîrt, **P. N. Bernardino**, D. Kong. (2021). bfast: Breaks for Additive Season and Trend. R package.

CONFERENCES

"Predictability of abrupt shifts in dryland ecosystem functioning in the Sudano-Sahel region". Oral presentation at the International Geoscience and Remote Sensing Symposium (IGARSS) 2023 . Pasadena, USA.

"Uncovering dryland woody dynamics using optical, microwave, and field data". Poster presentation at AGU Fall Meeting 2020. San Francisco, USA (online).

"Global-scale characterization of turning points in arid and semi-arid ecosystems functioning". Poster and short oral presentation at EGU General Assembly 2020. Vienna, Austria (online).

"Characterizing turning points in ecosystem functioning in global drylands". Oral presentation at the BEODAY 2018 2.0. Barvaux-en-Condroz, Belgium.

"Implications of clonal integration on water use of Hydrocotyle bonariensis subjected to contrasting water conditions in a coastal dune of Ubatuba, São Paulo, Brazil". Poster presentation at the XVIII International Botanical Congress 2011. Melbourne, Australia.