Dr. Christine I. B. Wallis

Curriculum Vitae

EDUCATION

2018 **PhD** in Geography, Philipps-Universität Marburg, Marburg, Germany
Title: Modeling tropical montane biodiversity – the potential of multispectral remote sensing

2013 **M.S.c.** in Physical Geography of Human Environmental Systems, Humboldt-Universität zu Berlin, Berlin, Germany
Thesis: Mining urban data: Exploring neighborhood characteristics and health-related patterns in Berlin, Germany

2011 **B.S.c.** in Physical Geography, Philipps-Universität Marburg, Marburg, Germany
Thesis: Retrospective land cover classification of northern South America using AVHRR data – a classification tree approach

POSITIONS

2025 **Interim/Guest professor,** Geoinformation in Environmental Planning, Technische Universität Berlin, Germany

2023-2025 **Postdoctoral researcher,** Geoinformation in Environmental Planning (Prof. B. Kleinschmit), Technische Universität Berlin, Germany
Project: Evaluation of recent remote sensing-based sensors and methods for the quality analysis of NATURA 2000 grassland habitat types (SensGrün)

2023 **Guest research stay** at the laboratory for vegetation, Institute of Geography and Geoecology (Prof. S. Schmidtlein), Karlsruhe Institute of Technology (KIT), Germany

2020-2023 **Postdoctoral researcher**, Laboratory for ecology (Prof. M. Vellend), Université de Sherbrooke, Sherbrooke, Canada
Project: Spectral diversity as an integrator and predictor of community-level taxonomic and functional plant diversity (Canadian Airborne Biodiversity Observatory, CABO)

2020 **Scientific researcher in Geography,** laboratory for climatology and remote sensing (Prof. J. Bendix), Philipps-Universität Marburg, Marburg, Germany
Project: Modeling multi-taxa diversity and functions from spatial predictors

2020 **Guest research stay** at the Helmholtz-Centre for Environmental Research (UFZ), Lake research, Magdeburg, Germany

2018-2019 **Postdoctoral scholarship**, laboratory for climatology and remote sensing (Prof. J. Bendix), Philipps-Universität Marburg, Marburg, Germany
Funding: MArburg University Research Academy (MARA), Developing a proposal for a research project and applying for third-party funding: Spatiotemporal patterns of functional leaf traits under climate change in the tropical Andes

2014-2018 **Scientific researcher**, laboratory for climatology and remote sensing (Prof. J. Bendix), Philipps-Universität Marburg, Marburg, Germany
Project: Remote sensing as a surrogate for biodiversity and functional processes along land-use and elevation gradients

PUBLICATIONS

Articles

Zárate, E., **Wallis, C.I.B.**, Santillán, V., Brandl, R., Farwig, N., Bendix, J., 2026. Remotely-sensed vegetation and habitat structure can serve as suitable surrogates to predict the distribution of a micro-endemic bird species. ERDKUNDE 80, 137–157. https://doi.org/10.3112/erdkunde.2026.02.04

Horn, K.H., Silvestro, D., **Wallis, C.I.B.**, Leitão, P.J., Daldaban, E., Herkt, K.M.B., Kleinschmit, B., Rudolph, A., 2026. A data-driven framework for forest conservation prioritisation: From citizen science data to protected area designation. Ecological Informatics 96, 103794. https://doi.org/10.1016/j.ecoinf.2026.103794

Holtgrave, A.-K., Förster, M., **Wallis, C.I.B.**, Raya-Sereno, M.D., Burchard-Levine, V., Morel, J., Rossi, M., Rocchini, D., Schwieder, M., Hostert, P., Faßnacht, F., Kleinschmit, B., 2026. Review of remote Sensing indices for monitoring environmental grassland indicators in Europe. Ecological Indicators 185, 114732. https://doi.org/10.1016/j.ecolind.2026.114732

Mosig, C., […], **Wallis, C.I.B.**, […], Kattenborn, T., 2026. deadtrees.earth — An open-access and interactive database for centimeter-scale aerial imagery to uncover global tree mortality dynamics. Remote Sensing of Environment 332, 115027. https://doi.org/10.1016/j.rse.2025.115027

Wallis, C.I.B., Holtgrave, A.-K., Prati, D., Förster, M., Kleinschmit, B., 2025. Modeling grassland parameters with hyperspectral satellite data: Comparison of sensors, acquisition times and spectral transformations. International Journal of Applied Earth Observation and Geoinformation 144, 104857. https://doi.org/10.1016/j.jag.2025.104857

Wallis, C.I.B., Crofts, A.L., Jackisch, R., Kothari, S., Tougas, G., Arroyo-Mora, J.P., Hacker, P., Coops, N., Kalacska, M., Laliberté, E., Vellend, M., 2025. Methodological considerations for studying spectral-plant diversity relationships. Remote Sensing of Environment 328, 114907. https://doi.org/10.1016/j.rse.2025.114907

Tougas, G., **Wallis, C.I.B.**, Laliberté, E., Vellend, M., 2025. Hyperspectral imaging has a limited ability to remotely sense the onset of beech bark disease. Remote Sens Ecol Conserv rse2.70013. https://doi.org/10.1002/rse2.70013

Wallis, C.I.B., Kothari, S., Jantzen, J.R., Crofts, A.L., St-Jean, S., Inamdar, D., Arroyo-Mora, J.P., Kalacska, M., Bruneau, A., Coops, N.C., Laliberté, E., Vellend, M., 2024. Exploring the spectral variation hypothesis for α- and β-diversity: a comparison of open vegetation and forests. Environ. Res. Lett. 19, 064005. https://doi.org/10.1088/1748-9326/ad44b1

Crofts, A., **Wallis, C.I.B.**, St-Jean, S., Demers-Thibeault, S., Inamdar, D., Arroyo, P., Kalacska, M., Laliberté, E., Vellend, M., 2024. Linking aerial hyperspectral data to canopy tree biodiversity: An examination of the spectral variation hypothesis. https://doi.org/10.1002/ecm.1605

Miraglio, T., Coops, N.C., **Wallis, C.I.B.**, Crofts, A.L., Kalacska, M., Vellend, M., Serbin, S.P., Arroyo-Mora, J.P., Laliberté, E., 2023. Mapping canopy traits over Québec using airborne and spaceborne imaging spectroscopy. Sci Rep 13, 17179. https://doi.org/10.1038/s41598-023-44384-0

Wallis, C.I.B., Crofts, A. L., Inamdar, D., Arroyo, P., Kalacska, M., Laliberté, E., Vellend, M., 2023: Remotely sensed Carbon content: the role of tree composition and tree diversity. Remote Sensing of Environment, Volume 284, 113333. https://doi.org/10.1016/j.rse.2022.113333

Wallis, C.I.B., Tiede, Y.C., Beck, E., Böhning-Gaese, K., Brandl, R., Donoso, D.A., Espinosa, C.I., Fries, A., Homeier, J., Inclan, D., Leuschner, C., Maraun, M., Mikolajewski, K., Neuschulz, E.L., Scheu, S., Schleuning, M., Suárez, J.P., Tinoco, B.A., Farwig, N., Bendix, J., 2021. Biodiversity and ecosystem functions depend on environmental conditions and resources rather than the geodiversity of a tropical biodiversity hotspot. Scientific Reports 11, 24530. https://doi.org/10.1038/s41598-021-03488-1

Wallis, C.I.B., Homeier, J., Peña, J., Brandl, R., Farwig, N., Bendix, J., 2019: Modeling tropical montane forest biomass, productivity and canopy traits with multispectral remote sensing data, Remote Sensing of Environment, Volume 225, 77-92. https://doi.org/10.1016/j.rse.2019.02.021

Wallis, **C.I.B.**, Brehm, G., Donoso, D.A., Fiedler, K., Homeier, J., Paulsch, D., Süssenbach, D., Tiede, Y., Brandl, R., Farwig, N., Bendix, J., 2017. Remote sensing improves prediction of tropical montane species diversity, but performance differs among taxa. Ecological Indicators 83, 538–549. https://doi.org/10.1016/j.ecolind.2017.01.022

Tiede, Y., Schlautmann, J., Donoso, D.A., **Wallis**, **C.I.B.**, Bendix, J., Brandl, R., Farwig, N., 2017. Ants as indicators of environmental change and ecosystem processes. Ecological Indicators 83, 527–537. https://doi.org/10.1016/j.ecolind.2017.01.029

Wallis, C.I.B., Paulsch, D., Zeilinger, J., Silva, B., Curatola Fernández, G.F., Brandl, R., Farwig, N., Bendix, J., 2016. Contrasting performance of Lidar and optical texture models in predicting avian diversity in a tropical mountain forest. Remote Sensing of Environment 174, 223–232. https://doi.org/10.1016/j.rse.2015.12.019

Book chapters

Tiede, Y., **Wallis, C. I. B.**, Bendix, J., Brandl, R. et Farwig, N. (2017): Chapter 2.3: Ants and Artificial Caterpillars as Indicators of Environmental Change and Ecosystem Processes. In: Beck, E., Knoke, T., Farwig, N., Breuer, L., Siddons, D., Bendix, J. (eds.): Landscape Restoration, Sustainable Use and Cross-scale Monitoring of Biodiversity and Ecosystem Functions. NCI Loja, pp. 81-91. doi: http://dx.doi.org/10.5678/lcrs/pak823-825.cit.1696

Wallis, C.I.B., Fiedler, K., Brandl, R., Farwig, N., Bendix, J. (2017): Chapter 2.2: A spatially explicit indicator for species diversity derived from remote sensing in the mountain rainforest of southern Ecuador. In: Beck, E., Knoke, T., Farwig, N., Breuer, L., Siddons, D., Bendix, J. (eds.): Landscape Restoration, Sustainable Use and Cross-scale Monitoring of Biodiversity and Ecosystem Functions. NCI Loja, pp. 67-80. doi: http://dx.doi.org/10.5678/lcrs/pak823-825.cit.1696

Tiede, Y., **Wallis, C.I.B.,** Bendix, J., Brandl, R., Farwig, N. (2016): Benefits of Remote Sensing Data for Biodiversity Monitoring Birds, Ants and their Role as Predators. In: Bogner, F. X.,

Bendix, J., Beck, E. (eds.): Biodiversity Hotspot – Tropical Mountain Rainforest. NCI Loja, pp. 104-108. doi: http://dx.doi.org/10.5678/lcrs/pak823-825.cit.1513