Edberto Moura Lima

Senior Researcher, BAW Research

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Education

Ph.D., Forest Engineering, *Universidade Federal de Santa Maria* - UFSM, RS, Brazil. 2018-2022

M.Sc., Forest Engineering, *Universidade Federal do Paraná* - UFPR, PR, Brazil. 2016-2018

B.S., in Forest Engineering, *Universidade de Brasília* - UnB, DF, Brazil. 2009-2016

Experience

Senior Researcher 2025-present
BAW Research, Pollnbergstraße 1, 3252 Petzenkirchen, Austria.

Postdoctoral fellow 2022-2024
Institute of Hydrology and Water Management (HyWa)
Department of Water, Atmosphere and Environment (WAU)
BOKU University, Vienna, Austria.

Freelance Online Tutor 2016-2022
Serviço Nacional de Aprendizagem Rural do Paraná (SENAR-PR), PR, Brazil.

Research Consultant 2021
Department of Geography
University of Lethbridge, Lethbridge, AB, Canada.

Research Intern 2016 - 2018
EMBRAPA FLORESTA, PR, Brazil

Intern 2015
Department of Engineering, Terracap, Brasília, Brazil.

Projects and research visits

VeSchN - Quantifying evapotranspiration of reed at Lake Neusiedl 2026-2028
BAW Research with Forschung Burgenland GmbH, Austria. Funded by the Austrian Federal Ministry (BMLUK) and the Land Burgenland. Quantifying how much the reed belt contributes to the lake's total evapotranspiration, and how reed vitality, reed management, and hydrological and meteorological conditions influence it. Contributing to the remote sensing component: satellite-based ET estimation (Sentinel-2, 2016-2026) and upscaling of field measurements to the whole reed belt. The results support decisions on reed management and regional water management.

SoilX - Climate-smart soil management against weather extremes (EJP SOIL) 2022-2024
BOKU University, Vienna, Austria. European Joint Programme EJP SOIL, EU Horizon 2020 (grant 862695).
Mitigating the impacts of drought and heavy precipitation on crop productivity through soil and crop management, combining long-term field experiments along a European gradient, an ensemble of agro-hydrological models and socio-economic interviews. Contributed to the agro-hydrological model ensemble simulations.

GIS Team Leader, Restaura PAMPA project 2020-2022
Universidade Federal de Santa Maria, RS, Brazil.
Land use and cover mapping with Google Earth Engine for conservation units; identification of areas for protection and restoration.

Visiting Researcher 2021
BOKU University, Vienna, Austria. Supervisor: Dr. Bano Mehdi-Schulz.
Integration of land-use dynamics into the SWAT model to assess water yield.

Visiting Researcher (ELAP scholarship) 2019-2020
University of Lethbridge, AB, Canada. Supervisor: Dr. Laura Chasmer.
LiDAR analysis of wetland vegetation change near oil sands disturbance.

Publications

Publication list also available in Google Scholar.

Journal articles

Lima, E. M., Mehdi-Schulz, B., & Reichert, J. M. Natural ecosystem loss in an Atlantic Forest agricultural basin: drivers of land-use change and future landscape trajectories. *Frontiers in Sustainable Food Systems, 10*, 1912707. doi: 10.3389/fsufs.2026.1912707, 2026. 2026

Meurer, K. H. E., Turek, M. E., Pullens, J. W. M., **Lima, E. M.**, Schreel, J. D. M., Holzkämper, A., & Mehdi-Schulz, B. Site-specific climate impacts outweigh no-till benefits for modelled winter wheat yields across a European gradient. *European Journal of Soil Science, 77*(3), e70363. doi: 10.1111/ejss.70363, 2026.

Turek, M. E., Pullens, J. W. M., Meurer, K. H. E., **Lima, E. M.**, Mehdi-Schulz, B., & Holzkämper, A. Pedotransfer functions versus model structure: what drives variance in agro-hydrological model results? *European Journal of Soil Science, 76*(2), e70088. doi: 10.1111/ejss.70088, 2025. 2025

Borja, D., Daněk, J., Assis, J. C., Gorosábel, A., Lundquist, C., Rosa, I., … **Lima, E. M.**, Borges, R. C. Rethinking scenario building for sustainable futures: mobilizing conscientização, social learning and knowledge co-production. *Ecosystems and People, 21*(1), 2507247. doi: 10.1080/26395916.2025.2507247, 2025.

Niemeyer, J., Resende, F. M., **Lima, E. M.**, & Vale, M. M. Risk and adaptation of socio-ecological systems to global change in the dry forests of Northeastern South America. *Frontiers in Ecology and Evolution, 13*, 1536445. doi: 10.3389/fevo.2025.1536445, 2025.

Mehdi-Schulz, B., Zoboli, O., Schürz, C., Strenge, E., **Lima, E. M.**, Parajka, J., Wang, C., Zessner, M., & Schönhart, M. The impacts of climate change on nitrogen losses to the environment in Austria: A dual model analysis across spatial and temporal scales to support policy decisions. *Science of The Total Environment, 918*, 170730. doi: 10.1016/j.scitotenv.2024.170730, 2024. 2024

Reichert, J. M., Morales, B., **Lima, E. M.**, de Bastos, F., Morales, C. A. S., & de Araújo, E. F. Soil morphological, physical and chemical properties affecting *Eucalyptus spp.* productivity on Entisols and Ultisols. *Soil and Tillage Research, 226*, 105563. doi: 10.1016/j.still.2022.105563, 2023. 2023

Reichert, J. M., Morales, C. A. S., **Lima, E. M.**, de Bastos, F., Sampietro, J. A., de Araújo, E. F., & Srinivasan, R. Best tillage practices for early-growth of clonal eucalyptus in soils with distinct granulometry, drainage and profile depth. *Soil and Tillage Research, 212*, 105038. doi: 10.1016/j.still.2021.105038, 2021. 2021

da Rosa, D. P., Reichert, J. M., **Lima, E. M.**, & da Rosa, V. T. Chiselling and wheeling on sandy loam long-term no-tillage soil: compressibility and load-bearing capacity. *Soil Research, 59*(5), 488-500. doi: 10.1071/SR20109, 2021.

Chasmer, L., **Lima, E. M.**, Mahoney, C., Hopkinson, C., Montgomery, J., & Cobbaert, D. Shrub changes with proximity to anthropogenic disturbance in boreal wetlands determined using bi-temporal airborne lidar in the Oil Sands Region, Alberta Canada. *Science of The Total Environment, 780*, 146638. doi: 10.1016/j.scitotenv.2021.146638, 2021.

Paz, T. D. C., Menegaes, J. F., Backes, F. A. A. L., Wegermann, K., Difante, A. C., & **Lima, E. M.** Importance of choosing vegetation for the urban road network: a literature review. *Research, Society and Development, 9*(12), e5791210847. doi: 10.33448/rsd-v9i12.10847, 2020. 2020

Resende, F. d. M., Denman, L. A. C., Selva, G. V., Campanhão, L. M. B., Nobre, R. L. G., Jimenez, Y. G., **Lima, E. M.**, Niemeyer, J. A conceptual model to assess the impact of anthropogenic drivers on water-related ecosystem services in the Brazilian Cerrado. *Biota Neotropica, 20*(suppl. 1), e20190899. doi: 10.1590/1676-0611-BN-2019-0899, 2020.

Lima, E. M., Curcio, G. R., Bonnet, A., Uhlmann, A., & Palma, V. H. Crescimento inicial de espécies arbóreas nativas em solos degradados e com presença de plintita no Bioma Cerrado, Brasília - DF, [Initial growth of native tree species in a degraded soil with presence of plinthite in Biome Cerrado, Brasília-DF]. *Nativa, 6*, 787-794. doi: 10.31413/nativa.v6i0.6210, 2018. 2018

de Oliveira, T., **Lima, E. M.**, Sanquetta, C., & dalla Corte, A. Simultaneous adjustment in the prediction of above-ground biomass in *Araucaria angustifolia* (Bertol.) Kuntze. *BIOFIX Scientific Journal, 3*(1), 137-144. doi: 10.5380/biofix.v3i1.58119, 2018.

Cerqueira, C., Môra, R., Lenzi, I., Drescher, R., **Lima, E. M.**, Lisboa, G. d. S., & França, L. d. J. Modeling height of *Pinus caribaea* var. *hondurensis* in different spacing. *BIOFIX Scientific Journal, 2*(2), 93-99. doi: 10.5380/biofix.v2i2.56012, 2017. 2017

Preprints

Ebling, A. A., Behling, A., **Lima, E. M.**, MacFarlane, D. W., & David, H. C. Sampling Amazonian forest with clusters to measure tree species diversity: dissociating the effect of cluster size and sample size. *Research Square*. doi: 10.21203/rs.3.rs-7328739/v1, 2025. 2025

Datasets

Turek, M. E., Holzkämper, A., Pullens, J. W. M., Meurer, K. H. E., **Lima, E. M.**, & Mehdi-Schulz, B. Supporting data to "Pedotransfer functions versus model structure: what drives uncertainty in agro-hydrological modelling?" [Dataset]. *Zenodo*. doi: 10.5281/zenodo.13947787, 2024. 2024

Summary Published in Proceedings of Conferences

Tadić, L., Janjić, J., & **Lima, E. M.** Assessing climate change impacts on low-flow extremes in a small catchment in Croatia using the SWAT model. *5th International Congress on Earth and Geological Sciences, Vienna, Austria*, 23-24 July 2026. doi: 10.51219/URForum.2026.Josip-Janjic 2026

Lima, E. M., Böning, K., and Mehdi-Schulz, B. Comparative analysis of two tillage systems and their implications for soil hydrology, carbon dynamics, and nitrogen cycling in a changing climate. *SWAT Conference, Lima, Peru*. 2024

Lima, E. M., Böning, K., Arnillas, C. A., and Mehdi-Schulz, B. APEX R tool: An Open-source R scripted workflow to prepare model inputs and execute APEX simulations in parallel. *SWAT Conference, Lima, Peru*.

Lima, E. M., Böning, K., Ding, F., Stumpp, C., Holzkämper, A., and Mehdi-Schulz, B. Assessing the impacts of future climate scenarios on soil management practices and their hydraulic properties. *EGU General Assembly, Vienna, Austria*.

Stecher, G., **Lima, E. M.**, Herrnegger, M., & Mehdi-Schulz, B. Challenges and potential approaches of applying SWAT in a data scarce and hydrological complex region in Uganda (East Africa). *SWAT Conference, Aarhus, Denmark*. 2023

Mehdi-Schulz, B., **Lima, E. M.**, Egger, C., & Gaube, V. Integrating farmer decisions in dynamic land use change modelling to simulate future nitrate losses to water bodies. *Ecological Models for Tomorrow's Solutions, Conference*.

Lima, E. M., Egger, C., Gaube, V., & Mehdi-Schulz, B. Integrating Farmer Decision-Making with Land Use Trajectories for Understanding Hydrological Responses: Case Study of the Enns Watershed. *SWAT Conference, Aarhus, Denmark*.

Mehdi-Schulz, B., **Lima, E. M.**, Egger, C., & Gaube, V. Linking an ABM to SWAT to determine the impacts of future changes to surface water quality. *SWAT Conference, Aarhus, Denmark*.

Lima, E. M., Reichert, J. M., Schürz, C., & Mehdi-Schulz, B. Simulating streamflow - Does historical land use matter? Comparing two approaches to simulating historic discharge based on dynamic land use and cover maps. *SWAT Conference, Prague*. 2022

Lima, E. M., Souza, E. E. B., Weiler, E. B., Reichert, J. M., Deus Junior, J. C. Influência de diferentes usos do solo no deflúvio de pequenas Bacias Hidrográficas [Influence of different soil uses on water discharge in Small Watersheds]. *XIII Reunião Sul Brasileira de Ciência do Solo, Porto Alegre*. 2020

Lima, E. M., Niemeyer, J., Batistao, A. C. Aumentado a precisão do modelo Water Yield do InVEST na estimativa de Serviços ecossistemas com base em atributos pedológicos regional [Increasing the accuracy of the Water Yield model (InVEST) to estimate hydrological ecosystem services based on regional pedological attributes]. *Conferencia Regional de la Ecosystem Services Partnership Latinoamérica y el Caribe, Cidade do México*.

Weiler, E. B., Reichert, J. M., Mantovanelli, B. C., Barbosa, J. S., Bastos, F., Souza, E. E. B., **Lima, E. M.** Correlação do setor florestal no desenvolvimento socioeconômico e humano do COREDE Celeiro, RS [Correlation between the Forestry sector and the human socioeconomic development of COREDE Celeiro, RS]. *34ª Jornada Acadêmica Integrada, Santa Maria*. 2019

Lima, E. M., Reichert, J. M., Minella, J. P. G., Rovedder, A. P. M., Souza, E. E. B., Barbosa, J. S., Weiler, E. B. Ocupação do solo, fragmentação da paisagem e a redução da cobertura florestal na bacia hidrográfica do Guaporé-RS [Land use, landscape fragmentation, and the reduction of forest cover in the Guaporé-RS watershed]. *34ª Jornada Acadêmica Integrada, Santa Maria*.

Souza, E. E. B., Reichert, J. M., **Lima, E. M.**, Weiler, E. B., Fernandes, G. D., Kemerich, P. D. C., Borba, W. F. Variação do nível da água subterrânea em bacias hidrográficas florestais e de campo na região da Campanha do RS [Changes on the groundwater level in watersheds under forest and grassland use in the region of Campanha do RS]. *34ª Jornada Acadêmica Integrada, Santa Maria*.

Barbosa, J. S., Reichert, J. M., Carducci, C. E., Kohn, L. S., Weiler, E. B., Bastos, F., **Lima, E. M.** Atributos físicos e químicos do solo e sua relação no crescimento da Araucaria angustifolia (BERTOL.) KUNTZE [Physical and chemical attributes of the soil and its relationship to the growth of Araucaria angustifolia (BERTOL.) KUNTZE]. *34ª Jornada Acadêmica Integrada, Santa Maria*.

Correa, U. O. S., Reichert, J. M., **Lima, E. M.**, Cavalli, J. P. Uso do software R em estudos pedológicos: compreendendo os atributos edáficos em uma coleção de perfis de solo [Using R software in pedological studies: understanding the soil attributes in a collection of soil profiles]. *34ª Jornada Acadêmica Integrada, Santa Maria*.

Lima, E. M., Curcio, G. R., Bonnet, A., Reichert, J. M., Palma, V. H. Simulação do fluxo de água em neossolo regolítico distrófico petroplíntico e obstáculos para restauração de áreas degradadas [Simulation of water flow in petroplinic dystrophic Regolitic Neossol and obstacles to the restoration of degraded areas]. *II Conferência Brasileira de Restauração Ecológica, Belo Horizonte, MG*. 2018

Lima, E. M., Rezende, A. V., Oliveira, L. S. B., Azevedo, G. B., Matos, N. M. Diversidade e riqueza em área de Cerrado sensu stricto após diferentes intensidades de exploração da vegetação [Diversity and richness in Cerrado sensu stricto areas under different logging intensities]. *VIII Simpósio Brasileiro de Pós-Graduação em Ciências Florestais, Recife*. 2014

Oliveira, L. S. B., Rezende, A. V., Azevedo, G. B., **Lima, E. M.**, Matos, N. M. Diversidade e dispersão das espécies lenhosas em áreas de cerrado sensu stricto, no período de 1996 a 2011, após supressão da vegetação em 1988 [Diversity and dispersion of woody species in areas of cerrado sensu stricto, from 1996 to 2011, after suppression of vegetation in 1988]. *VIII Simpósio Brasileiro de Pós-Graduação em Ciências Florestais, Recife*.

Other Publications

Holzkämper, A., ten Damme, L., D'Hose, T., Mehdi-Schulz, B., Pullens, J., Leonhard, H., Höckert, J., Lundström, C., & Meurer, K. *EJPSOIL-SoilX: Final Project Report*. Zenodo. doi: 10.5281/zenodo.14001119, 2024. (Contributor: **Lima, E. M.**) 2024

Milani, J. E. F., **Lima, E. M.** Restauração de Áreas Degradadas [Restoration of Degraded Areas]. *(Short course, university extension)*. 2017

Bonnet, A., Curcio, G. R., **Lima, E. M.**, Santos, D., Ogata, R. Poda experimental de *Schinus terebinthifolius* Raddi (pimenta-rosa) em área de Cerrado [Experimental pruning of *Schinus terebinthifolius* Raddi (pink pepper) in a Cerrado area]. *(Technical research note)*. 2016

Grants and Scholarships

International Scholarships

Doctoral Research Scholarship - CAPES/PRINT Program 2021
- **Host Institution:** Universität für Bodenkultur Wien (BOKU), Austria
- **Scholarship Program:** CAPES/PRINT - Institutional Internationalization Program (Edital nº 41/2017)

Emerging Leaders in the Americas Program (ELAP) Scholarship 2019
- **Host Institution:** University of Lethbridge, Canada
- **Scholarship Program:** Global Affairs Canada International Scholarships Program

Undergraduate Sandwich Scholarship - Science Without Borders (CAPES) 2013 - 2015
- **Scholarship Program:** Science Without Borders Program (Ciência Sem Fronteiras - CsF)
- **Host Institution:** Institute of Technology Sligo, Ireland

National Scholarships

CAPES Social Demand Program - Doctorate 2018 - 2022
- **Institution:** Universidade Federal de Santa Maria, Brazil
- **Program:** Forest Engineering (Doutorado)

CAPES Social Demand Program - Master's 2016 - 2018
- **Institution:** Universidade Federal do Paraná, Brazil
- **Program:** Forest Engineering (Mestrado)

Awards and honors

Award-Winning Conference Poster – XIII Reunião Sul Brasileira de Ciência do Solo, Sociedade Brasileira de Ciência do Solo (SBCS - Núcleo Regional Sul - NRS), 2020. 2020

6th Place, SENAI Olimpíada do Conhecimento 2008 – Field: Information Technology (National competition for WorldSkills), 2008. 2008

Conference activity

Presentations

Chasmer, L., Hopkinson, C., Mahoney, C., **Lima, E. M.**, Montgomery, J., Cobbaert, D. Assessing wetland ecosystem changes using remotely sensed data. *(Presentation/Other)*. 2019

Chasmer, L., **Lima, E. M.**, Mahoney, C., Hopkinson, C., Cobbaert, D. Comparing spatial distribution of vegetation structural change in wetlands proximal to disturbance: Oil sands region, Alberta, Canada. *(Presentation/Conference or Colloquium)*.

Lima, E. M., Rezende, A. V., Oliveira, L. S. B., Miranda, J. F. N. Dinâmica de uma População de Carvoeiro submetido a tratamentos Silviculturais, em áreas de Cerrado Sensu Stricto [Dynamics of a population of Carvoeiro in areas of cerrado sensu stricto under different silvicultural treatments]. *(Presentation/Congress)*. 2013

Miranda, J. F. N., Rezende, A. V., **Lima, E. M.**, Oliveira, L. S. B., Azevedo, G. B. Dinâmica de uma População de Pequizeiros na Estação Ecológica de Águas Emendadas, Planaltina - DF (2008–2011) [Dynamics of a population of pequizeiros in the Águas Emendadas ecological station, Planaltina - DF]. *(Presentation/Congress)*.

Lima, E. M., Rezende, A. V., Oliveira, L. S. B., Miranda, J. F. N., Sampaio, S. S. Dinâmica de um cerrado sensu stricto seis anos após intervenção por corte raso e diferentes intensidades de desbaste [Dynamics of Cerrado sensu stricto six years after intervention by clear-cut and different thinning intensities]. *(Presentation/Congress)*. 2012

Teaching

Short courses

Introduction to SWAT+ for beginners (8 h, 14-15 October 2026, instructor), *SNCT 2026 - National Science and Technology Week, IFBA Campus Vitória da Conquista*, BA, Brazil. 2026

Teaching Assistant

Soil Physics, *Departamento de Solos, Universidade Federal de Santa Maria*, RS, Brazil. 2019-2020

Dendrology in Southern Brazil, *Departamento de Ciências Florestais, Universidade Federal do Paraná*, PR, Brazil. 2017

Supervised Theses

Masters students

Böning, Kristin. *Impacts of "Conservation Agriculture" as a nature-based solution on hydrological processes and nitrate loss: Application of the APEX model in Flakkebjerg, DK*. Master's thesis, BOKU University, Vienna, Austria, 2024. http://permalink.obvsg.at/bok/AC17330816 2024

Professional service

Topic Editor, Frontiers Research Topic *Watershed/landscape scale ecosystem services and Land Use for Sustainable Agricultural Food Production* (with J. M. Reichert). Handling editor of Kang, Q., Chen, Z., & Huang, C., *Frontiers in Forests and Global Change*, 2026. — Ongoing

Peer reviewer, *Journal of South American Earth Sciences* (one manuscript). — 2023

Volunteering

Cartas com Ciência, Programmes of letter exchanges between scientists and students in Portuguese-speaking countries. — 2023

Software

Rainfall Erosivity Monitor (REM) (GitHub) — 2026
Lima, E. M. *Rainfall Erosivity Monitor (REM)*. Zenodo. doi: 10.5281/zenodo.24081100
Python/Streamlit web application computing the EI30 rainfall erosivity index from GeoSphere Austria weather station data, with storm detection, colour-coded erosion alerts and field survey recommendations.

QField erosion survey (DWA-M 921) (GitHub) — 2026
Lima, E. M., Liebhard, G., Brunner, T., & Strauss, P. *QField Manual: DWA-M-921 Erosion Survey*. Zenodo. doi: 10.5281/zenodo.18403752
Field guide and QGIS/QField project for standardised mapping of soil erosion by water following the DWA-M 921 guideline (German and English).

Skills

Modelling: SWAT, APEX, InVEST; water quantity and quality; nature-based solution scenarios
Data analysis: R, Python, SQL; time series analysis, regression, general linear models, multivariate analysis
GIS and remote sensing: Google Earth Engine, Sentinel-1/2, Landsat, MODIS, LiDAR; QGIS, ArcGIS; remote sensing of evapotranspiration
Tools: Git, Markdown, Quarto

Languages

Native: Portuguese
Proficient: English (C1)
Independent: Spanish (B2), German (B1)

Personal

Citizenship: Brazilian

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