GEANDERSON AMBRÓSIO

Brazilian | Barcelona, Spain | geambrosio2@gmail.com
LinkedIn · ORCID · Google Scholar

PROFILE SUMMARY

PhD in applied economics with six years of experience in spatially explicit land use and biodiversity modelling (IMAGE-Land, MAgPIE). My work focuses on global and regional sustainability pathways, as well as the impact of land-use change on biodiversity, ecosystem services, and climate mitigation. At CREAF, I lead the automation of the BioAgora scenario database with large language models, validated against expert judgements. I enjoy working in interdisciplinary teams and with stakeholders. My unique contribution lies in the complementary experience I have gained in economics, land use, and biodiversity, which provides me with a distinct understanding of policy, people, and their interactions with the environment.

RESEARCH EXPERIENCE

Postdoctoral Researcher (2026-present) | CREAF
BioAgora project, Task 1.4 (scenarios), Barcelona, Spain

- Lead the automation of the BioAgora scenario database with large language models.
- Designed and lead a research pipeline that finds and lawfully acquires scientific papers, converts them into structured text, and screens them against written criteria with a language model called from code; every model answer is backed by a verbatim quote that code checks against the source.
- Validated the screening against the judgements of an IPBES assessment's experts: about 90% agreement on 388 criterion answers (97 papers).
- Run a consistency check of the master scenario database (about 1,400 scenario records from the literature) against the full texts of its sources, before its delivery to IPBES.

Postdoc (2021-2025) | Utrecht University (UU) (& Guest researcher | PBL)
Copernicus Institute of Sustainable Development, Netherlands

- Led IMAGE-Land contributions to the SHAPE and PICASSO projects, improving model capabilities to assess land-use change, food-waste reduction, and biodiversity impacts.
- Co-Created Sustainable Development Pathways (SDPs), including multiple workshops with global stakeholders.
- Led the development of the SDG tool and the PICASSO SDG Dashboard, an online platform to disseminate model outputs from an SDG perspective.
- Led the implementation of biodiversity metrics: the IMAGE-Land Mean Species Abundance (MSA), driven by climate change, land use, and nitrogen; and the Biodiversity Intactness Index (BII), driven by land use.
- Co-promotor of S.G. Kulkarni's PhD thesis, *Equity in Integrated Assessment Modelling: Advancing Just Climate and Sustainable Development Pathways* (defended 28 August 2026; promotor D.P. van Vuuren).

Postdoc (2019-2021) | Federal University of Viçosa (UFV)
Research Group on Atmosphere-Biosphere Interaction, Brazil

- Conducted two policy-oriented reviews linking biodiversity attributes (structure, composition, function) to ecosystem services to policy leverage.
- Compiled and harmonized datasets and systematic evidence to support land-use and conservation policy at regional and global scales (by the Climate and Land Use Alliance).
- Co-supervised a bachelor's thesis on public rural credit in Brazil.

Guest Researcher (2017-2019) | Potsdam Institute for Climate Impact Research (PIK)
Land Use Group, Germany

- Contributed to MAgPIE 4.0 and led MAgPIE-Brazil, implementing deforestation policy scenarios and Nationally Determined Contribution (NDC).
- Strengthened the model's capacity to translate national mitigation commitments into quantitative, globally consistent projections.

EDUCATION

PhD in Applied Economics (2015-2019) | Federal University of Viçosa
Department of Rural Economics, Brazil
Thesis: Brazilian Future Land-Use Dynamics and Impacts of Deforestation Policies ↗

MSc in Applied Economics (2013-2015) | Federal University of Viçosa
Department of Rural Economics, Brazil
Thesis: Analysis of the Relationship between Microregional Human Development and Brazilian Greenhouse Gas Emissions

BSc in Economics (2008-2013) | Federal University of São João del-Rei
Department of Economics, Brazil
Monograph: Avoided Costs by the Adoption of a Sustainable Technology for Thermal Energy Generation in the Timber Industry: A Case Study by Eucatex S.A.

SELECTED SCIENTIFIC PUBLICATIONS (Full list ↗)

Van Vuuren, D.; et al. (including Ambrósio, G.) (2025) Exploring pathways for world development within planetary boundaries. Nature. ↗

Ambrósio, G.; et al. (2024) Global sustainability scenarios lead to regionally different outcomes for terrestrial biodiversity. Environmental Research Letters. ↗

Aschi, F.; et al. (including Ambrósio, G.) (2026) Can we bend the curve: Trends in global biodiversity scenarios. Science Advances. ↗

Weindl, I.; Soergel, B.; Ambrósio, G.; et al. (2024) Food and land system transformations under different societal perspectives on sustainable development. Environmental Research Letters. ↗

Van Vuuren, D. P.; et al. (including Ambrósio, G.) (2026) A more complete IMAGE: enhancing the climate change impact representation in integrated assessment models. Environmental Research Letters. ↗

Borma, L. S.; et al. (including Ambrósio, G.) (2022) Beyond carbon: the contribution of South America tropical humid and sub-humid forests to ecosystem services. Reviews of Geophysics. ↗

Van Der Hoff, R.; et al. (including Ambrósio, G.) (2022) Policy-oriented ecosystem services research on tropical forests in South America: A systematic literature review. Ecosystem Services. ↗

Orbons, K.; van Vuuren, D.; Ambrósio, G.; et al. (2024) A review of existing model-based scenarios achieving SDGs: progress and challenges. Global Sustainability. ↗

Kulkarni, S.; Hof, A. F.; Ambrósio, G.; Daioglou, V.; van Vuuren, D. (2025) Towards improved representation of distributional impacts of climate change and mitigation policies in model scenarios. Environmental Research Communications. ↗

Ambrósio, G.; et al. (2021) Human development, greenhouse gas emissions and sub-national mitigation burdens: a Brazilian perspective. Discover Sustainability. ↗

Pradhan, P.; et al. (including Ambrósio, G.) (2024) Three foci at the science-policy interface for systemic Sustainable Development Goal acceleration. Nature Communications. ↗

Soergel, B.; et al. (including Ambrósio, G.) (2024) Multiple pathways towards sustainable development goals and climate targets. Environmental Research Letters. ↗

Kulkarni, S.; et al. (including Ambrósio, G.) (2022) Investment needs to achieve SDGs: An overview. PLOS Sustainability and Transformation. ↗

Dietrich, J.P.; et al. (including Ambrósio, G.) (2019) MAgPIE 4: a modular open-source framework for modeling global land systems. Geoscientific Model Development. ↗

Ambrósio, G.; et al. (in preparation) A verifiable literature-to-database pipeline with large language models.

PROGRAMMING CODE PUBLICATIONS

Ambrósio, G and Kaandorp, C. (2024) PICASSO SDG Dashboard: Website ↗
Online visualization platform for the outreach of IMAGE model scenario results

Ambrósio, G. and Schuch, F. (2024) SDG tool: programming code ↗
Preprocessing SDG indicators as input for the PICASSO SDG Dashboard (Python)

Ambrósio, G. and Schuch, F. (2024) IMAGE-Land MSA tool: programming code ↗
Calculates the MSA and decomposes the effect of different land-use strategies (Python)

Ambrósio, G. (2025) Decision Support of Sust. LU Adoption: programming code ↗
Prototype ABM simulating socio-economic adoption dynamics of sust. land-use (Python)

Dietrich, J. P.; et al. (including Ambrósio, G.) (2018) MAgPIE 4.0: programming code ↗ and Model Documentation ↗

COMPUTER SKILLS

Computational modelling & land use analysis: Running, extending and documenting land use models (IMAGE-Land, MAgPIE) to analyse scenarios for land use, biodiversity and climate policy.

Spatial analysis & GIS: Working with gridded land use, biodiversity, and emissions data in Python; preparing model outputs for maps and indicators; basic QGIS for spatial analysis and visualisation.

Programming & Data: Advanced Python for data analysis, visualization, and indicator development (pandas, numpy, xarray, matplotlib), including object-oriented tools such as the SDG Dashboard and the MSA implementation.

AI methods: LLM pipelines for literature screening and information extraction (Python, Claude); evaluation against expert-labelled data; agentic software development (Claude Code).

Reproducible research and open science: Open-source development, model documentation, and reproducible workflows using Git, Jupyter, and Conda/venv.

CORE SKILLS

Analytical & Technical: Quantitative research on land use, biodiversity, and SDG pathways; peer-reviewed publications; development of Python-based dashboards and indicators; experience with spatially explicit modelling.

Collaboration & Co-creation: Semi-structured interviews; stakeholder mapping; co-creation workshops bridging science and policy in non-technical storylines.

Science-Policy Interface: Advising governmental bodies and international stakeholders; translating research findings into decision-oriented insights.

Leadership & Supervision: Certified in SCRUM fundamentals training for software development; supervision of PhD research and BSc thesis; coordination of modelling tool, dashboard, and experience organizing collaborative work within an outside academia.

Languages: Portuguese (native), English (fluent), Spanish (intermediate).

ENTREPRENEURIAL & COMMUNITY ENGAGEMENT

Ambrosio Insights SL | AI automation for small businesses (2026-present)

- Sells AI systems that automate a small business's routine work; its first products run in production with real customers.
- Accounting automation for property managers: replayed over a whole year of a client's records, it reproduces 98.6% of the cost entries to the cent.
- Built by directing a team of AI agents, with the discipline of a research pipeline: requirements written first, every variable defined before it is used, every check tested.

Rent a Tent Festivals | circular festival startup (2022-present)

- Founded a sustainable rental service that tackled camping gear throwaway culture in festivals, preventing over 1 ton of single-use waste and proving low-material models commercially viable through steady growth.

Dreamers of Tomorrow | non-profit community (2018-2025)

- Led a global community of 1,000+ Brazilians at international events, building trust-based networks that supported the scaling of Rent a Tent.

REFERENCES

Available on request.