Lovanomenjanahary MARLINE, PhD

Farlow Herbarium | Harvard University Herbaria
Department of Organismic and Evolutionary Biology
HARVARD UNIVERSITY

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Education

UNIVERSITY OF CAPE TOWN. Cape Town, South Africa — 2012-2018

PhD in Botany, Department of Biological Sciences
Thesis: Diversity and biogeography of Madagascan bryophytes with an analysis of taxic and functional diversity along an elevational gradient in Marojejy National Park Madagascar http://hdl.handle.net/11427/29263

UNIVERSITY OF ANTANANARIVO. Antananarivo, Madagascar — 2008-2009

MSc in Botany, Department of Plant biology and Ecology
Thesis: Inventaire biologique et typologie de la forêt communautaire de Marovato, Midongy du Sud, Madagascar
http://biblio.univ-antananarivo.mg/pdfs/marlineLovanomenjanahary_SN_M2_09.pdf

UNIVERSITY OF ANTANANARIVO. Antananarivo, Madagascar — 2004-2007

BSc (Maîtrise de Recherche), Department of Plant biology and Ecology

Research experience

Research associate — Jan 2025-present
Farlow Herbarium, Harvard University Herbaria
Department of Organismic and Evolutionary Biology, HARVARD UNIVERSITY, USA
Faculty advisor: Prof. Jeannine Cavender-Bares

Research leader in Bryology — Jan-Dec 2024
Kew Madagascar, ROYAL BOTANIC GARDENS KEW | ASSOCIATION VAHATRA, Antananarivo, Madagascar

Postdoctoral Research associate — Aug 2020-Jan 2024
ROYAL BOTANIC GARDENS KEW | ASSOCIATION VAHATRA
Antananarivo, Madagascar
Advisors: Prof. Alexandre Antonelli (Antonelli Lab), Prof. Steve Goodman

Lecturer - Life history theory in Principles of Ecology and Evolution — 2020
Department of Biological Sciences, UNIVERSITY OF CAPE TOWN, South Africa

Postdoctoral Research fellow — Dec 2018-Jan 2020
Department of Biological Sciences, UNIVERSITY OF CAPE TOWN, South Africa
Faculty advisor: Prof. Terry Hedderson

Research Assistant - Identification of bryophytes collected in Uganda — Jul-Sept 2018
Nees Institute for Biodiversity of Plants, UNIVERSITY OF BONN, Germany
Principal investigator: Prof. Dietmar Quandt

Research Assistant - Allometric model for tree stem volume and biomass — Feb 2018
Forestwood project, UNIVERSITY OF PRETORIA. Pretoria, South Africa
Principal investigator: Dr. Coert Geldenhuys

Research Assistant - Creation of the taxonomic index and data bases for the Bryophytes of Madagascar — Feb-Jul 2011
UMR-PVBMT, UNIVERSITY OF RÉUNION ISLAND, France
Principal investigators: Dr. Claudine Ah-Peng, Prof. Dominique Strasberg

Publications

Peer-Reviewed Journal Articles

Marline L, Ah-Peng C, Flores O, Hedderson TAJ. 2025. Morphological variation in liverworts traits influence community assemblage along an elevational gradient in northern Madagascar. Plant Ecology and Evolution 158(2): 181-194 https://doi.org/10.5091/plecevo.139573

Marline L, Ranaivoson NAH, Smith R, Ah-Peng C, Hedderson TAJ, Wilding N, Antonelli A. 2025. Advancing bryophyte research and conservation in Madagascar. Annal of Botany 136(1): 1-14. https://doi.org/10.1093/aob/mcaf035

Andriamamonjy MH, Rakotomavo Z, Geizer L, **Marline L**. 2025. Temporal and spatial variation of PM2.5 in Antananarivo, the capital city of Madagascar. Aerosol and Air Quality Research 25, 50. https://doi.org/10.1007/s44408-025-00039-5

Randrianarimanana R, Rakotondrainibe F, Boucheron-Dubuisson E, **Marline L**, Rakotoarinivo M, Reeb C. 2024. Diversity and distribution of ferns and clubmosses in the eastern canyons of Isalo National Park, Madagascar. Plant Ecology and Evolution 157(1): 3-19. https://doi.org/10.5091/plecevo.101827

Marline L, Randrianarimanana R, Patel E. 2023. Elevational variation of temperature and relative humidity on Marojejy National Park, Madagascar. Malagasy Nature 17: 32-40. http://www.vahatra.mg/volume17/mn17_chapter02.pdf

Randrianarimanana R, Wilding N, Pócs T, Ah-Peng C, Andriamiarisoa RL, Hedderson TAJ, **Marline L**. 2023. A checklist of the mosses and liverworts of the Parc National de Marojejy, northeastern Madagascar. Malagasy Nature 17: 88-101. http://www.vahatra.mg/volume17/mn17_chapter05.pdf

Antonelli A, Farooq H, Colli-Silva M, Araújo JPM, Freitas AVL, Gardner EM, Grace O, Gu S, **Marline L**, Nesbitt M, Niskanen T., Onana J.M., Pérez-Escobar OA, Taylor C, Knapp S. 2023. People-inspired names remain valuable. Nature Ecology and Evolution 2397-334X. https://doi.org/10.1038/s41559-023-02108-7

Ralimanana H, Perrigo AL, Smith RJ, Borrell JS, Faurby S, Rajaonah MJ, Randriamboavonjy T, Vorontsova MS, Robert SC, Cooke RCS, Phelps LN, Sayol F, […] **Marline L**, […], Antonelli A. 2022. Madagascar's extraordinary biodiversity: Threats and opportunities. Science 378 (6623). https://doi.org/10.1126/science.adf1466

Antonelli A, Smith RJ, Perrigo AL, Crottini A, Hackel J, Testo W, Farooq H, Torres Jiménez M, […] **Marline L**, […], Ralimanana H. 2022. Madagascar's extraordinary biodiversity: Evolution, distribution, and use. Science 378 (6623). https://doi.org/10.1126/science.abf0869

Reeb C, Sass-Gyarmati A, Kervran L, Price M, **Marline L**, Brinda JC. 2021. An update on the MadBryo project, a collaborative project on Malagasy bryophytes. Acta Biologica Plantarum Agriensis 9 (1): 48. https://doi.org/10.21406/abpa.2021.9.1.48

Marline L, Hedderson TAJ, Ah-Peng C. 2020. Diversity partitioning and community structure of epiphytic bryophytes along an elevational gradient in Marojejy National Park, Madagascar. Bryophyte Diversity and Evolution 42 (1): 32-48. https://doi.org/10.11646/bde.42.1.3

Marline L, Ah-Peng C, Hedderson TAJ. 2020. Bryophyte diversity and range distributions along an elevational gradient in Marojejy, Madagascar. Biotropica 00: 1-12. http://doi.org/10.1111/btp.12781

Reeb C, **Marline L**, Rabeau L, Andriamanantena A, Andriamiarisoa R, Ranarijaona HT, Pócs T. 2018. A survey of Marchantiales from Madagascar. Acta Biologica Plantarum Agriensis 6: 3-72. http://doi.org/10.21406/abpa.2018.6.3

Ah-Peng C, Flores O, Wilding N, Bardat J, **Marline L**, Hedderson TAJ, Strasberg D. 2014. Functional diversity of subalpine bryophyte communities in an oceanic island (La Réunion). Arctic, Antarctic, and Alpine Research 46(4):841-851. http://doi.org/10.1657/1938-4246-46.4.841

Marline L, Rajeriarison C, Razafy FL, Roger E. 2014. Transfert de gestion de la forêt de Marovato, Midongy du Sud: Zonage et inventaire floristique. Tohiravina 3: 316-325. http://www.fsp-parrur.irenala.edu.mg/Data-FSP-PARRUR/Tohiravina/Capitalisation%20Valorisation%20Communication/Livrets%20&%20CD/Tohiravina%203.pdf

Marline L, Andriamiarison LR, Bardat J, Chuah-Petiot M, Hedderson TAJ, Strasberg D, Wilding N, Ah-Peng C. 2012. Check list of the bryophytes of Madagascar. Cryptogamie Bryologie 33 (3): 199-255. http://doi.org/10.7872/cryb.v33.iss3.2012.199

Book chapters

Marline L, Ah-Peng C, Hedderson TAJ. 2022. Bryophytes: diversity, endemism, and phytogeography. In The New Natural History of Madagascar, S.M. Goodman, Ed. Princeton University Press, Princeton. pp. 510-520. https://doi.org/10.2307/j.ctv2ks6tbb.62

Marline L, Ah-Peng C, Hedderson TAJ. 2022. Checklist of the bryophytes of Madagascar. In The New Natural History of Madagascar, S.M. Goodman, Ed. Princeton University Press, Princeton. pp. 521-537. https://doi.org/10.2307/j.ctv2ks6tbb.63

Late-stage manuscripts

Razafindramboa A, Ngolaharintsoa LH, Ranirison P, **Marline L.** 2026. Bryophytes as bioindicators of urbanization and pollution: community composition along a rural-to-urban gradient in Antananarivo, Madagascar. Biotropica. (in review)

Marline L, Andriamamonjy MH, Geizer L, Westervelt DM. 2025 Investigating air pollution pattern in Antananarivo, Madagascar: A comprehensive analysis of meteorological influences. (In prep)

Academic awards and fellowships

Harvard University Herbaria Research Fellowship – (**$200,000**)
Department of Organismic and Evolutionary Biology, Harvard University, USA (2025-2027)

Royal Botanic Gardens Kew & Antonelli lab. Postdoctoral fellowship – (**$21,456**)
Kew Madagascar Conservation Centre, Antananarivo, Madagascar (2020-2023)

DAAD ClimapAfrica Program, Climate change research program for future leaders in the field of climate research and protection. Postdoctoral fellowship – (**$31,300**)
Association Vahatra, Antananarivo, Madagascar (2020-2022)

Schlumberger Foundation, Faculty for the Future Program. Postdoctoral Fellowship for women – (**$28,500**)
University of Cape Town, Cape Town South Africa (2019)

Green talent Award 2014: International Forum for High Potentials in Sustainable Development, German Federal Ministry of Education and Research. (https://www.greentalents.de/awardees_awardees2014_lova-marline.php)

Organization for Women in Science for the Developing World (OWSD). Postgraduate Training Fellowships for Women in science – (**$83,800**)
University of Cape Town, Cape Town South Africa (2012-2016)

Bourse du Gouvernement Français (BGF)
2011 – Research stays at the University of La Réunion, France – (**$4,500**)
2010 – Research stays at the University of La Réunion, France – (**$4,500**)

Research and travel grants

As principal investigator

International Association of Bryologist - Conservation and Endangered Species Grant – (**$1,000**)
A pilot initiative for red listing and risk assessment of bryophytes from Madagascar. (2025)

Jennifer Ward Oppenheimer Research Grant (JWO) – (**$150,000**)
Bioindicators of biodiversity, air quality and climate change: leveraging non-charismatic groups, bryophytes, and lichens, in the tropical Afro-Malagasy Region. (2024-2026)

Regional Environment Officers (REO) small grants program - US Department of State – (**$15,450**)
Community Scientist Mapping of Airborne Fine Particulate and Metals in Antananarivo, Madagascar using Mosses and Low-Cost Sensors. (2022-2023)

National Geographic Society - Biodiversity Exploration and Discovery – (**$47,255**)
Discovering bryophytes in the high mountains of Madagascar: diversity, distribution pattern and responses to climate change. (2021-2022)

NGO Lemur Love – (**$1,800**)

Impacts of covid-19 on Malagasy in STEM. (2020-2021)

International Foundation for Science (IFS) – Individual Research Grant – (**$9,700**)
Diversity and biogeography of bryophytes with an analysis of species and functional diversity along vegetation gradient in Madagascar. (2018-2020)

International Foundation for Science (IFS) - Individual Research Grant – (**$9,881**)
Diversity and distribution of bryophytes in Madagascar under a changing environment. (2012-2013)

As co-applicant

JRS Biodiversity Foundation – (**$249,966**)
Mobilizing and making data available for identification, taxonomy, socioeconomic importance, and conservation assessment of Bryophytes in Benin. (2023-2025)
Dassou HG (PI), Salako KV & Marline L

Royal Botanic Gardens Kew, Pilot Study Fund – (**£5,000**)
B-SPORE, Blooming of the Science and Preservation of Spore bearing plants. (2022)
Ballesteros D (PI) & Marline L

Travel grants

International Association of Plant Taxonomist (IAPT) – IAPT early career investigator symposium (**$1,090**)
Travel grant. (Jul 2024)

Selected presentations

Razafindramboa A, Ngolaharintsoa LH, Ranirison P, **Marline L.** 2025. Factors influencing species diversity and community assembly along a rural-urban gradient in Madagascar's capital city. 14th Oppenheimer Research Conference, Johannesburg, South Africa. Oct 15-17, 2025. [Oral presentation]

Ngolaharintsoa LH, Randrianarimanana R, Andrianjatovo O, **Marline L**. 2025. Mosses and liverworts of Tsaratanana massif, the highest peak of Madagascar. 14th Oppenheimer Research Conference, Johannesburg, South Africa. Oct 15-17, 2025. [Poster presentation]

Marline L, Ah-Peng C, Flores O, Hedderson TAJ. 2025. Morphological variation in liverworts traits influence community assemblage along an elevational gradient in northern Madagascar. Botany 2025 - Botany without Barriers, California, USA. Jul 26-30, 2025. [Oral presentation]

Marline L. The disjunct distribution of bryophytes in the Neotropics and Africa: a collections-based synthesis. Botany 2025 - Botany without Barriers, California, USA. Jul 26-30, 2025. [Poster presentation]

Marline L. Mosses, Mountains and Monitoring: Bioindicators of biodiversity, air quality and climate change: leveraging non-charismatic groups, bryophytes and lichens, in the tropical Afro-Malagasy Region. 13th Oppenheimer Research Conference, Johannesburg, South Africa. Oct 8-11, 2024. [Oral presentation]

Marline L, Randrianarimanana R, Smith R., Antonelli A. Bryophytes of the high mountains of Madagascar: a comparative analysis of diversity and distribution patterns.10th International Botanical Congress (XX IBC), Madrid, Spain. Jul 21-27, 2024. [Oral presentation]

Marline L, Andriamamonjy, MH, Rakotomavo Z, Geizer L. Westervelt D.M. Combining satellite, BAM and purple air monitoring to understand air quality status and trends in Antananarivo, Madagascar. Air Sensors International Conference 2024, Riverside, California USA. Apr 30-May 3, 2024. [Oral presentation]

Marline L, Akita LG, Anyanwu IN, Dimobe K, Gonçalves FM, Guuroh RT. Addressing climate change in Africa: challenges and the way forward focus on biodiversity and ecosystem functioning. Virtual DAAD climapAfrica conference. Oct 2020. https://doi.org/10.13140/RG.2.2.13033.72809 [Poster]

Marline L, Ah-Peng C, Flores O, Hedderson T. A trait-based approach to assess functional responses of epiphytic liverworts to environmental gradients. 3rd Island Biology, University of La Réunion, Saint Denis, La Reunion. Jul 8-13, 2019. [Oral presentation]

Marline L, Hedderson T, Ah-Peng C. Bryophyte diversity and range distributions along an elevational gradient in Marojejy, Madagascar. 56th Annual meeting for Tropical Biology and Conservation, Antananarivo, Madagascar. Jul 30-Aug 3, 2019. [Poster]

Flores O, Poncet R, Wilding N, **Marline L**, Strasberg D, Ah-Peng C. Species co-occurrence networks offer new perspectives for analysis of ecological communities. Case study of bryophytes diversity along a tropical elevation gradient. VIII Southern Connection Congress, Punta Arenas, Chile. Jan 18-23, 2016. http://dx.doi.org/10.13140/RG.2.2.23583.36006. [Poster]

Gabriel R, Bardat J, Flores O, Gonzalez-Mancebo J, Hedderson T, Strasberg D, Aranda SC, Coelho M, Henriques DSG, Hernandez-Hernandez R, **Marline L**, Wilding N, Ah-Peng C. Elevation gradients in islands: Variation in bryophyte community structure at different spatial scales. 7th Biennial Conference of The International Biogeography Society, Bayreuth, Germany. Jan 8-12, 2015. [Poster]

Marline L, Ah-Peng C, Hedderson T. Determining the factors affecting the diversity and distribution of bryophytes in Madagascar under a changing environment. Botanists of the Twenty-first Century: Roles, Challenges and Opportunities, UNESCO Headquarters, Paris, France. Sep 22-24, 2014. [Poster]

Marline L, Ah-Peng C, Hedderson T. Pattern of diversity and distribution of liverwort along an elevational gradient. 19th AETFAT Congress, Music Conservatoire, Stellenbosch, South Africa. Jan 13-17, 2014. [Oral presentation]

Marline L, Ah-Peng C, Bardat J, Hedderson T, Reeb C, Strasberg D. Diversité, distribution et conservation des bryophytes de Madagascar. Colloque FRB-AIRD-CNRS: La Biodiversité des Iles de l'Océan Indien. Paris, France. Dec 11-15, 2011. [Poster]

Marline L, Bardat J, Chuah-Petiot M, Descamps-Julien B, Goodman S, Hedderson T, Strasberg D, Ah-Peng C. 2010. Bryophytes of Madagascar. 19th AETFAT Congress. Antananarivo Madagascar. Apr 26-30, 2010. [Poster]

Teaching and mentoring experience

Teaching

Instructor - MSc Field Study Skills in a Biodiversity Hotspot (Madagascar) – Plant and Fungal Taxonomy, Diversity and Conservation (BIO799P). Royal Botanic Gardens Kew, Queen Mary University of London and Kew Madagascar
Responsibilities: Teaching tropical bryology (Bryophytes collection, specimens curation and species identification) and leading students' group for bryophytes collection — 2023-2024

Guest lecturer - MSc Biodiversity Loss – Challenges and Solutions (BIO774P). Royal Botanic Gardens Kew and Queen Mary University of London — 2021

Lecturer - 2nd year courses (BIO2014F): Life history theory in Principles of Ecology and Evolution. Department of Biological Sciences, University of Cape Town, South Africa
Responsibilities: Developing and teaching new class materials and grading all assignments — 2020

Instructor - Workshop in tropical bryology. University of La Réunion, France
Responsibilities: Mentoring participants for species collections, teaching and developing class materials for the Lejeuneceae family identification — Jan-Mar 2020

Demonstrator - 3rd year courses: Applied biology. Department of Biological Sciences, University of Cape Town, South Africa — 2016

Guest lecturer: Use of bryophytes to understand ecosystem functioning. Biological Sciences Department, University of Cape Town, South Africa — 2015

Demonstrator - 2nd year courses: Plant biology and systematic. Botany department, University of Antananarivo, Madagascar — 2008

Supervisory roles

As main supervisor

PhD student

Olivia Andrianjatovo (University of Antananarivo, Madagascar) — 2025-
Dissertation: Biogeography and morphological evolution in Sphagnum L. with a taxonomic revision of the genus in Madagascar

MSc student

Antonio Razafindramboa (University of Antananarivo, Madagascar) 2025-2026
Dissertation: Bryophytes as bioindicators of urbanization and pollution: community composition along a rural-to-urban gradient in Antananarivo, Madagascar

Mentorship

Cambridge Rindge and Latin School students (Harvard University–CRLS Science Internship Program, Spring 2026): Mentorship of high school juniors and seniors in laboratory research projects and end-of-semester presentations — Spring 2026

Lolie Ngolaharintsoa (Association Vahatra): Mentorship in tropical bryology, bryophyte ecology and and preparation for PhD studies (pre-doctoral fellow) — 2026 - present

Lolie Ngolaharintsoa and **Olivia Andrianjatovo** (Association Vahatra and Kew Madagascar): Training in bryophyte species identification and specimen collections, scientific writing and research proposal development — 2024 -2025

Mbolanjara Hélène Andriamamonjy (University of Antananarivo): Mentorship in air quality monitoring and preparation of scientific publications — 2023-2024

Rivoharifara Randrianarimanana (Association Vahatra and Kew Madagascar): Training in bryophyte species identification and scientific writing — 2021-2023

Santino Andry and **Ravelomanantsoa Fifi Ny Anjara** (University of Antananarivo): Mentorship in identifying funding opportunities and scientific writing (Ikala stem mentorship, Madagascar) — 2018-2019

Media coverage and outreach

Royal Botanic Gardens Kew – Meet Lova - a Malagasy Bryologist by Natasha Ward. July 22nd, 2025. https://www.kew.org/read-and-watch/meet-a-Malagasy-bryologist

BBC World Service – Focus on Africa Podcast. Audrey Brown. October 18th, 2023. https://www.bbc.co.uk/programmes/p0gm7mq7

Daily maverick – Plant 'canaries' offer new early-warning system for Africa's environmental crises. Tony Carie. October 6th, 2023. https://www.dailymaverick.co.za/article/2023-10-06-plant-canaries-offer-new-early-warning-system-for-africas-environmental-crises/

Career development courses

Media training. Lefevre Media Ltd (www.lefevremedia.co.uk). Royal Botanic Gardens Kew, UK — Oct 2022

Ecophysiology of plant growth (photosynthetic activities and responses to temperature and increasing atmospheric CO_2). CIRAD, University of La Réunion, France — Jan 2020

Tropical Biology association (TBA), Training course: using R for analysis of conservation science data. University of Cambridge, UK — Mar 2018

Internship - Phylogeny and taxonomic revision of moss genus *Breutelia*. Nees institute for Biodiversity of Plants, University of Bonn, Germany — Sept-Oct 2017

Tropical Biology association (TBA), Training course: communication and publishing skills for African conservation scientists. University of Cambridge, UK — Mar 2017

Molecular and evolutionary biology: DNA extraction/PCR, phylogenetic construction and phylogeographic analyses. Nees Institute, University of Bonn, Germany — Nov 2015-Jan 2016

R course on Phylogenetics and Spatial Ecology. University of Cape Town, SA — Jun 2011

Initiation and training on tropical bryology. University of La Réunion, France — Aug-Oct 2010

Tropical Biology Association (TBA), Field course in Kirindy forest, Madagascar — 2010

Professional services

Scientific collaborations

BRYOBEN: Mobilizing and making data available for identification, taxonomy, socioeconomic importance, and conservation assessment of Bryophytes in Benin. Co-investigator (2022-2025)

BSPORE: Evolution and mechanisms of desiccation tolerance and longevity in plant propagules (Royal Botanic Gardens Kew). Co-investigator (2021-2022)

MADBRYO: A collaborative project on the bryophytes of Madagascar. https://www.madbryo.org. Steering committee member (2018-Present)

MOVECLIM: MOntane VEgetation as listening posts for CLIMate change (La Réunion, Guadeloupe, Azores, La Palma and Tahiti). http://moveclim.blogspot.com. Team member, PhD student (2012-2016)

BRYOLAT: Altitudinal and latitudinal gradients of bryophyte communities in the Western Indian Ocean (Mascarenes, Madagascar, Comoros, and Kenya). Team member, in charge of bryophytes collected in Madagascar (2007-2010)

Completed peer reviews

Acta Innovations Journal (1); Biodiversity Data Journal (1); Bryophyte diversity and evolution (1); Cryptogamie bryologie (2); Ecology and evolution (3); Journal of bryology (2); Nature (1); New Phytologist-Tansley review (1).

Event organization

International Humboldt day: Highlighting research on Madagascar. International Society of Biogeography. Sept 16th, 2020

Thesis examination

MSc Thesis - Nelson Selaelo Maloba (Tshwane University of Technology, South Africa). Taxonomic Revision of Liverwort Family Lepidoziaceae. (2025). **External Examiner**

Other appointments

- Grants committee, Society of Herbarium Curator (2026-Present)
- Grants and Awards Committee, Association for Tropical Biology and Conservation (2023-2025)
- Bryophytes expert, IUCN Species Survival Commission Bryophyte Specialist Group (2021-Present)
- Bryophytes expert, IUCN Species Survival Commission Madagascar Plant Specialist Group (2020-Present)
- Chairperson, Working group Climate Africa, biodiversity, ecosystem, and forests (2020-2022)
- Southern-African countries representative, Association for Tropical Biology and Conservation (2019-2022)
- Membership committee: Association IkalaStem, Madagascar. (2018-2020)

Membership of professional bodies

- Society of Herbarium Curator (SHC)
- American Bryological and Lichenological Society (ABLS)
- International Association for Plant Taxonomy (IAPT)
- International Association of Bryologists (IAB)
- Association for Tropical Biology and Conservation (ATBC) / ATBC-Africa chapter
- Organization of Women in Science for the Developing World (OWSD)

Personal details

Malagasy citizenship

Languages: Malagasy, English, French (fluent); Botanical Latin (basic level)