

THOMAS DEOLA

PhD Researcher in Functional and Community Ecology

University of Bayreuth, Germany

Faculty of Biology, Chemistry and Earth Sciences

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Location: Tachauer Strasse 34, 92676, Eschenbach i.d.Opf., Germany

CURRENT POSITION

PhD Researcher (65% position).

University of Bayreuth, Germany

Faculty of Biology, Chemistry and Earth Sciences

08/2023–08/2026

DOCTORAL TRAINING

PhD candidate - BayNAT School in Ecology and Environmental Research (PEER)

University of Bayreuth, Germany

Thesis submitted (defense pending)

08/2023 ~ present

RESEARCH OBJECTIVES

My research focuses on functional and community ecology, with emphasis on plant functional traits, species interactions, and the environmental drivers shaping biodiversity patterns and ecosystem responses to global change. I use trait-based, experimental, and comparative approaches to study community assembly and plant adaptation in stressful environments, particularly cliffs and mountain ecosystems.

I work in interdisciplinary and transdisciplinary contexts, integrating ecological theory with complementary fields to address complex ecological questions across spatial and temporal scales.

My long-term objective is to establish an independent research program at the interface of functional, community, and global change ecology. I aim to bridge fundamental ecological understanding with applied solutions through innovative applications, including nature-based green infrastructure such as green wall concepts and agroforestry systems in environmentally harsh and traditionally unproductive landscapes.

EDUCATION AND TRAINING

- MSc in Environmental Management of Mountain Areas, Free University of Bozen (ITA) and Leopold-Franzens-Universität Innsbruck (AT), 10/2021 ~ 07/2023 (110L/110)
Thesis: Effects of nature conservation on scrub vegetation in two biogeographically contrasting protected areas. Awarded best thesis of Stelvio National Park, forming the basis for a publication *in Biological Conservation*.
- MSc in in Energy Engineering, Free University of Bozen and University of Trento (ITA), 10/2012 ~ 11/2015 (107/110)
- BSc in in Environmental engineering, University of Trento (ITA), 09/2007 ~ 10/2011 (100/110)

PUBLICATIONS

FIRST/LAST AUTHOR PAPERS

- Bricca A., **Deola T.**, Zerbe S., Bagella S., Riviuccio G., Wellstein C., Bonari G., (2024). Higher levels of protection do not consistently improve habitat quality: insights from Mediterranean and Alpine shrublands. *Biological conservation*, 293, 110571. <https://doi.org/10.1016/j.biocon.2024.110571>
- Sass O., Bauer U., Jentsch A., **Deola T.**, How does biotic weathering work? Influence of alpine plants on rock temperature and rock moisture. Accepted *BioGeosciences*.

CO-AUTHORED PAPERS

- Worthy S. J., Luong J. C., Wainwright B. E., Barcu A. C., Elwood E. C., Gujral A. K., ... **Deola, T.**, ... Phillips R. P., Funk J. L., (2026), Growth form and lifespan mediate the role of traits in short-term drought response: A global study of herbaceous species, *Nature Ecology and Evolution*, 10, 512–522
- Angiolini C., Ardenghi N., Bonari G., ..., **Deola T.**, ..., (2025), Contributi per una flora vascolare di Toscana. XVII (1159–1235), *Atti della Società Toscana di Scienze Naturali*, Memorie, Serie B.
- Bektaş, B., Chisholm, C., Egelkraut, D., Lynn, J., Block, S., **Deola, T.**, ... & Alexander, J. (2024). Colonization and extinction lags drive non-linear responses to warming in mountain plant communities across the Northern Hemisphere. *Ecography*, e07378.
- Abdalla, K., Schierling, L., Sun, Y., Schuchardt, M. A., Jentsch, A., **Deola, T.**, ... & Meyer, N. (2024). Temperature sensitivity of soil respiration declines with climate warming in subalpine and alpine grassland soils. *Biogeochemistry*, 1-15.
- De Giuli M., Winkler M., **Deola T.**, Henschel J., Sass O., Wolff P., Jentsch A. (2024). Arrested succession on fire affected slopes in krummholz zone and subalpine forest of the northern limestone Alps. *Diversity*, 16(7), 366.

UNDER REVIEW/IN PREPARATION

- **Deola T.**, Paulus S., Angiolini C., Bonari G., Bricca A., Candini F., de Simone L., Juan Lorite, Zangari G., Steinbauer M., Jentsch A., The context dependence of community assembly on inland cliffs. Under review *Functional ecology*
- **Deola T.**, Angiolini C., Bonari G., Bricca A., de Simone L., Lecher M., Juan Lorite, Paulus S., Jentsch A., Vascular plant communities of inland cliff faces: a review. Under review *Ecosphere*
- **Deola T.**, Arzt N., Conradi T., von Heßberg A., Schuchardt M. A., Wolff P., Jentsch A., Sensitivity of mountain plant communities to warming, drought and potential novel competitors revealed by a reciprocal translocation experiment in the European Alps. Under review *Journal of Vegetation Science*
- **Deola T.**, Gruber M.U., Bricca A., Ricci L., Beyond functional types: vegetative desiccation tolerance aligns with the leaf economics and size spectra in Polypodiales. Submitted *Plant Biology*
- Fehler T., **Deola T.**, Thomas D., *Polypodium vulgare* on the rocks: the role of mosses in fern shaping habitats. In prep.
- Bondaruk VF, von Heßberg A, **Deola T.**, ..., Jentsch A., Intermediate management intensity in temperate grasslands boosts biomass and slightly enhances forage quality but strongly diminishes biodiversity. Under review *Grass and Forage Science*
- Zhang P., ... **Deola T.**, ..., Seabloom E.W., Dominance without identity: abundance ranks predict ecosystem stability and biodiversity. Submitted *Nature*

- Harris T, Bonari G., **Deola T.**, ... Klimešová T., Rhizome or rootstock? Can we mine regional Floras for trait data on perennating organs? Submitted *Perspectives in Plant Ecology, Evolution and Systematics*
- Fanfarillo E., Bacaro G., ... **Deola T.**, Maccherini S., Wetlands lead, but all ecosystems matter: quantifying conservation priorities for plant communities in agricultural landscapes. Submitted *Biological Conservation*
- Cheaib A., ... **Deola T.**, ..., Smith N.G. Environmental context shapes how plant traits translate into population growth. In prep.

RESEARCH EXPERIENCE

- Field-based vegetation sampling across broad biogeographic and elevational gradients (alpine to Mediterranean and Macaronesian systems), including inland cliffs, grasslands, shrublands, and forest ecosystems (2022-ongoing)
- Coordination and hands-on contribution to long-term ecological experiments within global research networks (e.g. **Event**, **NutNet**, **DragNet**), including biomass harvesting, sorting, and weighing procedures (2024-2026)
- **Coordination of field data collection at the Frankenjura site** within the **MIREN Rock** network (Mountain Invasion Research Network), contributing to standardized cliff ecosystem sampling across international study sites (2025-2026)
- Exchange semester in Life Sciences, University of Siena (2025)
- **International TransPlant Network Workshop** (Grenoble, 2024) – collaborative workshop on global plant–soil transplant experiments and synthesis of long-term datasets
- Scientific School in Quantitative Ecology, University of Bayreuth / international partners (2024) – advanced training in ecological data analysis and quantitative methods
- Alpine Plant Ecology course, ALPFOR Research Station (Switzerland, 2024) – field-based training; poster presentation on heat resistance of alpine plants
- Early Career Researcher seminar on Arctic/alpine plant trait ecology, Nordic Ecological Society (OIKOS, 2024)
- Workshop on vegetation data analysis with R, Italian Botanical Society (2022)

TEACHING & SUPERVISION

TEACHING EXPERIENCE

- Experimental Ecology course, University of Bayreuth (2026) – lectures in experimental design; supervision and coordination of student experimental activities; support in scientific reporting
- Lectures in Disturbance Ecology and Vegetation Science courses, University of Bayreuth (2023–2026) – topics including anthropogenic disturbance of mining sites and cliffs, abiotic disturbances in mountain systems, and plant functional traits and databases
- Seminar: Natural Risks and Hazards, University of Bayreuth (2025)
- Teaching assistant, Alpine Ecology field course, Obergurgl (Austria, 2023)

THESIS SUPERVISION

- MSc supervision (Geoeology), University of Bayreuth (2025): Urte Maria Bauer – Influences of plants on rock moisture in (sub)alpine rock slopes in the Northern Calcareous Alps – interdisciplinary project on plant–rock interactions; resulted in a **publication** in *Biogeosciences*.

- MSc supervision (Geoecology), University of Bayreuth (2026): Toni Fehler – *Polypodium vulgare* on the rocks: the role of mosses in fern habitat formation – interdisciplinary project initiated and developed within a collaborative framework; manuscript in preparation for publication

STUDENT RESEARCH MENTORING

- Supervision of a student research project within a course module, including development of research questions, data analysis, and substantial revision of student work leading to a **submitted manuscript (student as first co-author)**

CONFERENCES

TALKS

- Are inland cliffs extreme plant habitats? **Deola T.**, Angiolini C., Bauer U., Bonari G., Bricca A., Candini F., ... Jentsch A., BayCEER Workshop, Bayreuth, Germany, October 9 2025
- Inland cliffs call for plant conservation efforts and new research in vegetation ecology, **Deola T.**, Angiolini C., Bonari G., Bricca A., Candini F., de Simone L., M., Lecher M., Lorite J., Paulus S., Steinbauer M., Thomas D., Zangari G., Jentsch A., **International Mountain Conference**, Innsbruck, Austria, September 14 – 18 2025
- Inland cliffs call for plant and vegetation insights, **Deola T.**, Audorff V. Angiolini C., Bonari G., Bricca A., de Simone L., Lecher M., Juan Lorite, Paulus S., Steinbauer M., Wolff P., Jentsch A., Annual Meeting of German High Mountain Researchers 2025, Waischenfeld, Germany, May 16 – 18 2025
- Novel competitors to high elevation plant communities revealed by an upslope translocation experiment across the European Alps, **Deola**, Arzt, von Hessberg, Wolff & Jentsch, Annual meeting of German High Mountain Researchers 2024, 07-09 June 2024, Hindelang, Germany
- SUSALPS & TRANSALPS, two multy-year transplant experiments, **Deola**, von Hessberg, Niu, Giestowt, Wilfahrt, Berauer, Schuchardt, Arzt, Ruethers, Bradler, Terry, Wolff, Wanke & Jentsch, **International TransPlant Workshop**, 21-23 May 2024, Grenoble, France
- Conservation priorities across ecosystems prone to climate warming, weather extremes and disturbances, **Deola**, von Hessberg & Jentsch, 52nd Annual Meeting of The Ecological Society of Germany, Austria and Switzerland, 12-16 September 2023, Leipzig, Germany.

POSTERS

- **Deola T.**, Bricca A., Riveccio G., Zerbe S., Wellstein C., Bagella S, Bonari G., (2023). Effects of nature conservation on scrub vegetation in two biogeographically contrasting protected areas. Acts of the 2° Conference of Young Botanists (Cybo 2023). Notiziario della Società Botanica Italiana 7(1), 30. 2023, ISSN 2532-8034. 4th best poster of the conference.

SERVICE TO SCIENCE

- Peer review activity for international scientific journals, including *Oikos* (2024; OIK-10723), *Biodiversity and Conservation* (2023), and *Natural Resources Conservation and Research* (2024; 11556)
- Contribution to research funding applications, including Transnational Access Call (2024) within the EU-funded POLARIN infrastructure project

SKILLS

- Advanced statistical analyses and ecological data modelling in R

- GIS and spatial ecological analyses (ArcGIS)
- Field-based research: vegetation sampling, community surveys, and ecological data collection
- Coordination of long-term ecological field activities and experimental campaigns
- Trait-based approaches to plant functional ecology and biodiversity assessment
- Scientific writing, peer review, and publication in international journals
- MSc student supervision and research mentoring (independent and co-supervision), including development of thesis projects and publication-oriented research outputs

LANGUAGES

Italian (native), English (fluent), German (basic, currently improving) , French (basic)